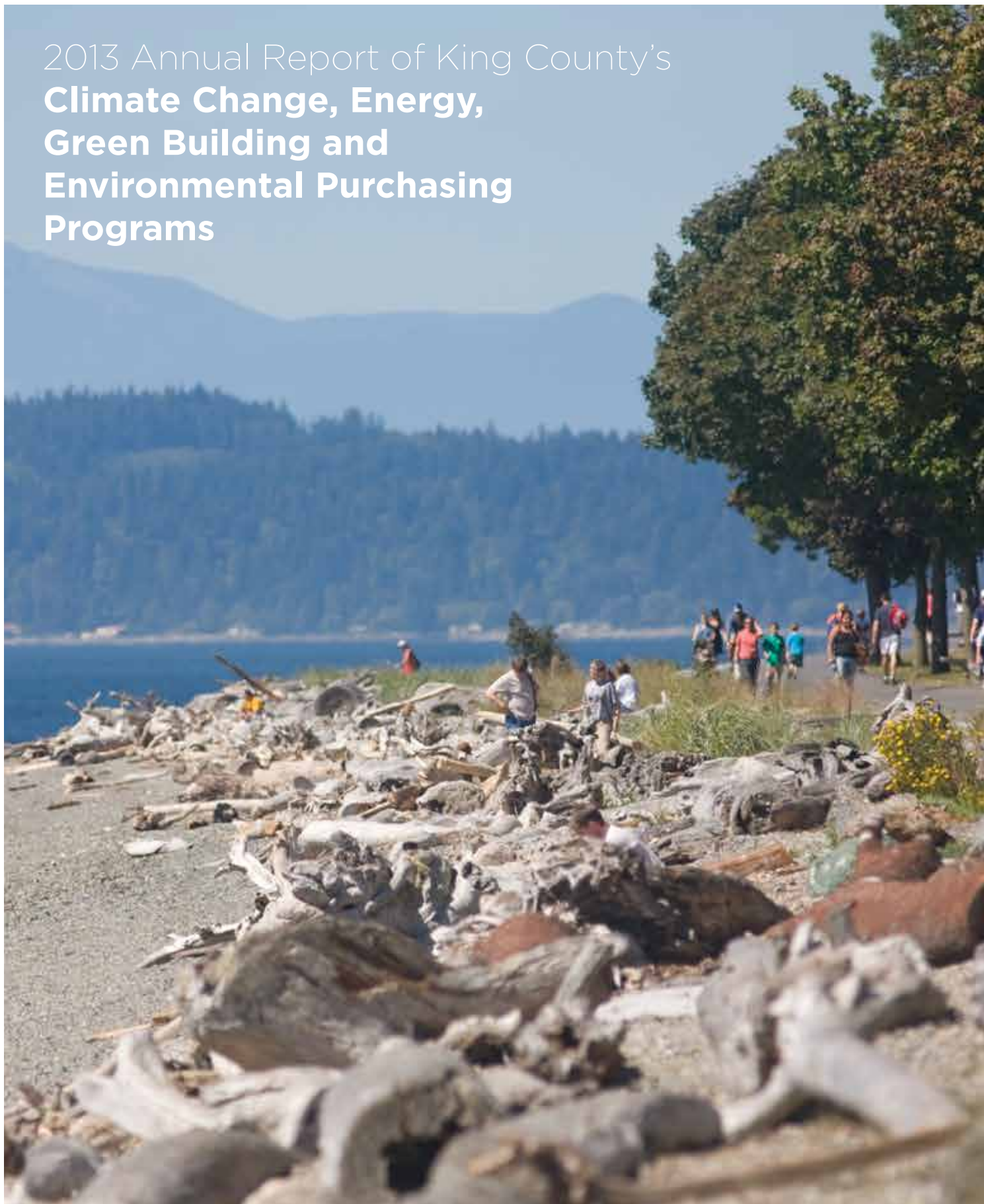


2013 Annual Report of King County's Climate Change, Energy, Green Building and Environmental Purchasing Programs



2013 Annual Report of King County's **Climate Change, Energy, Green Building and Environmental Purchasing Programs**

June 2014

Table of Contents

Introduction.....	1
Goal Area 1: Transportation and Land Use.....	5
Goal Area 2: Energy and Green Building.....	17
Goal Area 3: Forests and Agriculture.....	27
Goal Area 4: Consumption and Materials Management.....	35
Goal Area 5: Preparing for Climate Change Impacts.....	47
Appendix.....	53

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INTRODUCTION

King County places a high priority on reducing the environmental footprint of County operations and supporting efforts in the broader community to improve environmental sustainability. The County is also committed to monitoring environmental outcomes relative to its goals and targets, being transparent about results, and using this information to inform course corrections.

King County code (KCC 18.50.010) requires annual reporting on the County's climate change, energy, green building and environmental purchasing programs. This report is intended to satisfy this reporting requirement and provide performance information relative to related goals and targets as well as challenges, opportunities and recommendations.

The County's overarching climate goal is to partner with its residents, businesses, local governments and other partners to reduce countywide greenhouse gas (GHG) emissions by at least 80 percent below 2007 levels by 2050. In 2012, the King County Executive and King County Council collaborated to develop and adopt a Strategic Climate Action Plan (SCAP). The SCAP synthesizes and focuses King County's most critical goals, objectives, and strategies to reduce GHG emissions and prepare for the impacts of climate change. An updated plan is now being developed and will be transmitted to the King County Council by June 2015. This update will also formally combine and integrate the King County Energy Plan and the SCAP.

The SCAP reflects King County's longstanding commitments to environmental sustainability and economic prosperity. It builds upon diverse climate change and sustainability related commitment and is organized around five goal areas: transportation and land use, energy and green building, forests and agriculture, consumption and materials management, and preparing for climate change impacts.

Beginning with the 2012 report, progress has been reported using the framework of the five major goal areas for the SCAP, and summarizing information related to both County operations and service to the broader community. Using this framework helps organize reporting on these diverse but related topics.

2013 PERFORMANCE SNAPSHOT – HOW ARE WE DOING?

Overarching GHG Emissions Reduction Targets¹: King County's latest assessment of GHG emissions documented a per capita decline in core GHG emissions for the average King County resident, driven primarily by declines in per-person vehicle travel and building energy use. However, total overall GHG emissions in King County continued to increase. While progress is being made after years of continued growth in emissions, the region is currently not on track to meet its long-term GHG reduction targets. As it relates to climate pollution from King County government operations, total annual greenhouse gas (GHG) emissions related to energy (fossil fuels and electricity) decreased approximately 5.5 percent between 2007 and 2013.

During this period, the County's facility related GHG emissions have fallen by roughly 18 percent. Total GHG emissions from County vehicles have remained flat during this period. While significant progress has been made to make the County's fleets more efficient, increased transit service offset the reduction in total GHG emissions from County vehicles. It is important to note that increased transit service plays a significant role in reducing community-scale GHG emissions. GHG reduction benefits from increased transit are estimated to be approximately 4 times the direct GHG footprint of Metro Transit's operations. By decreasing congestion, reducing car trips, and allowing more efficient land use.

Transportation and Land Use: In 2013, King County Metro Transit had more than 122 million annual boardings on transit and vanpools, and ridership on all public transportation services in King County hit an all-time record high of 148.2 million boardings. Transit vehicle energy use per passenger capacity has improved by approximately 7 percent since 2007.

Energy and Green Building: The recent success of King County's energy and green building efforts continued in 2013. Currently, the equivalent of 54.9 percent of King County government's total energy requirements are being met by the generation or consumption of renewable energy, exceeding the County's 50 percent renewable energy target. King County also achieved an 8.5 percent normalized energy use reduction for facilities between 2007 and 2013. In 2013, 98 percent of King County Capital Projects either pursued Leadership in Energy and Environmental Design (LEED) certification or utilized a Sustainable Infrastructure Scorecard that guides assessment of energy and resource efficient alternatives. At the community level, the County advanced work on regional green building codes in partnership with cities and the building community. In December 2013, King County approved a significant update to its green building ordinance, that raises the bar for performance for all county infrastructure and buildings and integrated new green building commitments for affordable housing.

Forests and Agriculture: In 2013, King County made continued progress in adding to conservation acreage through the Open Space and Forest Land current use taxation programs, agricultural land preservation, conservation easements, and forest planning and stewardship. Highlights included the purchase of the 200 acre Tall Chief property in the Snoqualmie Valley, which will bring high quality agricultural soils back into production and prevent conversion to development; implementation of Forest Stewardship Plans on King County parks, including at the Danville-Georgetown Forest; and restoration of the Maury Island Marine Park, including

planting more than 100,000 native trees and shrubs. In August 2013, King County voters approved the 2014-2019 King County Parks, Trails, and Open Space Replacement Levy by 70 percent, which will help support implementation of the Strategic Climate Action Plan forestry and trail-related commitments.

Consumption and Materials Management: King County residents and businesses continued to recycle or compost more than half of all waste, a significant achievement. It's estimated that this recycling reduced GHG emissions by more than 1.3 million metric tons of carbon dioxide equivalent, or the same as removing more than 200,000 passenger vehicles from the road. King County supported these achievements through diverse solid waste and recycling-related policies, planning and infrastructure investments, including through its Recycle More: It's Easy To Do campaign and the Food: Too Good to Waste outreach programs. King County also made significant progress at reducing operational resource related impacts. For example, King County reduced copy paper usage by 21 percent between 2010 and 2013, achieving savings of approximately \$209,860 over that period.

Preparing for Climate Change Impacts: The County has developed programs and projects to help reduce the impacts of floods, support farm and forest owner action to address climate change impacts, and begin to prepare the region for the effects of climate change on stormwater, public health, and emergency response. However, much work remains to tackle the significant impacts of climate change in King County. 2013 highlights included completion of the largest in-river flood protection project since establishment of the King County Flood District in 2007, factoring climate change into emergency management planning for the first time, and the Wastewater Treatment Division's making significant progress in evaluating and reducing sea level rise impacts to wastewater-related infrastructure.

These are just some of the highlights provided in this report. The "Strategic Climate Action Plan – 2013 Progress Report" snapshot on the next page provides a visual overview of progress toward the five goal areas of the SCAP, followed by a more detailed assessment for each goal area.

King County is required by Council Ordinance 17270 to conduct a comprehensive update of the SCAP by June 30, 2015. Ordinance requirements for the update include work to further identify community level actions the County can take to reduce climate pollution and prepare for the impacts of climate change, and direction to formally combine and integrate the King County Energy Plan into the SCAP.

Looking forward to 2014 and 2015, the County is increasing collaborative work with cities to establish a shared, countywide target and measurement framework for reducing greenhouse gas emissions, and engaging cities through the King County-Cities Climate Collaboration to commit to specific actions to reduce community-scale greenhouse gas emissions. The County is working hard to both "walk the talk" to become more sustainable in its operations as well as to partner with businesses, cities, utilities, and the public to help achieve the deep reductions in community-level greenhouse gas emissions that need to be made.

¹ For additional details about progress toward King County's greenhouse gas emissions targets, please see King County's Greenhouse Gas Emissions Inventories (community level) at <http://www.kingcounty.gov/environment/climate/climate-change-resources/emissions-inventories.aspx> and the KingStat Climate Protection webpage (government operations) at <http://your.kingcounty.gov/dnpr/measures/performance/en-climate-protection.aspx>.

STRATEGIC CLIMATE ACTION PLAN 2013 PROGRESS REPORT

This progress report is a summary of the goals of King County’s 2012 Strategic Climate Action Plan. While it provides a general indication of progress, see each chapter of the 2013 Sustainability Report for performance details, accomplishments, and related challenges and opportunities.

Goal Area	County Services	County Operations
Overarching Climate Change Targets	King County shall partner with its residents, businesses, local governments and other partners to reduce countywide greenhouse gas emissions by at least 80 percent below 2007 levels by 2050.	King County shall reduce total greenhouse gas emissions from government operations, compared to a 2007 baseline, by at least 15 percent by 2015, 25 percent by 2020, and 50 percent by 2030.
Transportation and Land Use	King County will reduce the need for driving and provide and encourage the use of sustainable transportation choices such as public transit, alternative technology vehicles, ridesharing, walking and bicycling.	King County will increase the efficiency of its vehicle fleets and minimize their greenhouse gas emissions.
Energy and Green Building	King County will help reduce energy use by its residents, business and other partners and will support development of increasing amounts of local renewable energy.	King County will reduce energy used in government operations.
Forests and Agriculture	King County will support healthy, productive farms and privately owned forests that maximize biological carbon storage, promote public health, and are resilient to changing climate conditions.	King County will acquire, manage and restore its parks and other natural lands in ways that maximize biological carbon storage and are resilient to changing climate conditions.
Consumption and Materials Management	King County will encourage and support behaviors, purchasing, and waste management strategies that account for and minimize the life-cycle impacts of consumption and materials.	King County will minimize operational resource use, maximize reuse and recycling, and choose products and services that have low environmental impacts.
Preparing for Climate Change Impacts	King County will work with local cities and other partners to prepare for the effects of climate change on the environment, human health and the economy.	King County will plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.

KEY

Meeting or approaching goal

Opportunity to improve

Significant work necessary

GOAL AREA 1

TRANSPORTATION AND LAND USE

BACKGROUND

Transportation accounts for nearly half of all GHG emissions produced in King County. Managing growth and providing transportation options in our region can increase the use of public transportation, reduce GHG emissions from single occupancy vehicle usage and traffic congestion, and create more walkable, transit-supportive urban communities. In 2010, the Puget Sound Regional Council (PSRC) set regional transportation and environmental goals in the Transportation 2040 Plan. To meet the goals of the Transportation 2040 Plan, public transportation must serve the travel needs of approximately twice as many people in 2040 as in 2010. To serve that many additional people, the region needs to provide a wide range of transportation options including bus, vanpool, carpool, carshare, bikeshare, bicycling and walking.

King County government influences transportation-related GHG emissions by providing public transit, commuter vans and ridesharing services and supporting walking and bicycling alternatives – choices that eliminate or shorten private vehicle trips, mitigate traffic congestion, and support efficient land use. Metro Transit is the region's largest transit system with 122.2 million boardings on more than 215 bus routes and commuter vans.

The County also has an extensive Regional Trails System with over 175 miles of trails which provide recreational and transportation options. King County's growth management and land-use regulations encourage efficient land-use patterns which provide opportunities for walking and bicycling. King County also operates an extensive vehicle fleet that supports government operations. The County is continually working to reduce GHG emissions and is phasing in more fuel efficient and alternative fueled vehicles. King County's Strategic Plan and SCAP set the direction for our actions on climate change. These plans include strategies to focus transportation resources to support density and growth and to enhance bicycle and pedestrian infrastructure as alternative transportation options, and to better connect regional trails to the bus, train and ferry networks in the region. Progress toward these strategies will also serve the County's SCAP, transportation and land use goals.

Progress was made in several areas during 2013 toward the long-term goals of the SCAP and County Strategic Plan. Metro Transit ridership has recovered to pre-recession levels with over 122.2 million boardings on transit and commuter vans. Overall ridership in the county, including Sound Transit Express operated by Metro Transit, Community Transit Express, Link, Sounder, King County Commuter Van Program, Accessible Services, and passenger-only ferries, set a record with over 148.2 million rides on all public transportation services. Ridership growth is attributed to a combination of growing

employment and service improvements, including RapidRide. Metro Transit has also become more efficient through efforts such as service restructuring and increased use of ORCA cards. Other programs and actions such as the addition of vans and electric cars to the Commuter Van Program and bike facility investments will all support a continued reduction in the drive-alone rate. Meanwhile, significant advancements in fuel efficiency and new technologies are beginning to reduce net fuel consumption for King County buses, fleets, and commuters.

COUNTY SERVICES

Climate Action Plan Goal S.1

King County will reduce the need for driving and provide and encourage the use of sustainable transportation choices such as public transit, alternative technology vehicles, ridesharing, walking and bicycling.

PERFORMANCE MEASURE 1

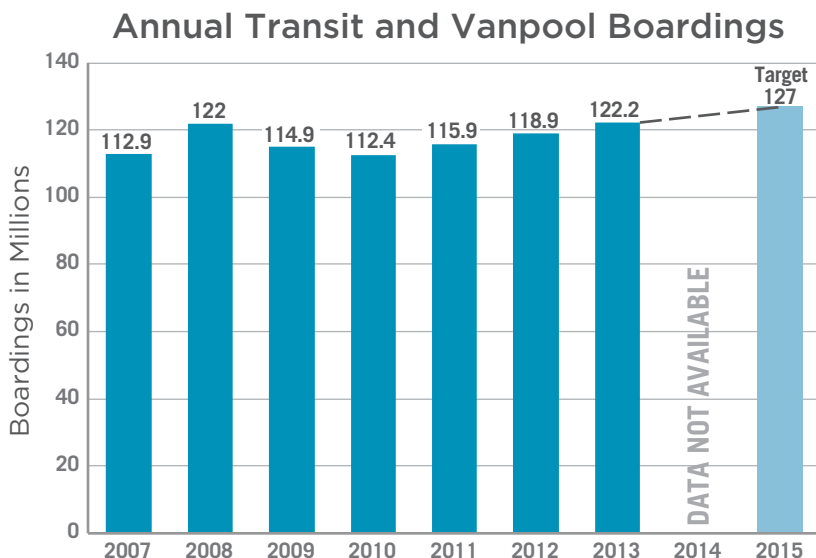
Annual passenger boardings on Metro Transit services

Metro Transit measures its success in meeting the goals of PSRC's Transportation 2040 plan and King County's climate and sustainability goals by the following target, which identifies three milestones to track growth in annual boardings between 2010 and 2040.

Target 1

Consistent with the PSRC's Transportation 2040 regional transportation plan's projection that boardings on transit services in the region will double by 2040, King County Metro Transit will strive to achieve the following targets:

- 127 million passenger boardings by 2015
- 142 million passenger boardings by 2020
- 225 million passenger boardings by 2040



2013 Status

Passenger boarding targets were revised to include commuter van boardings. Ridership on all public transportation services in King County is on the rise. Metro Transit's 2013 transit and commuter van ridership, which accounted for more than 80 percent of all boardings in King County, was up 2.8 percent to 122.2 million. If the current ridership trends continue, it appears that Metro Transit is on track to meet the 2015 goal for annual passenger boardings.

Ridership on all transit services in King County, including Sound Transit Express operated by Metro Transit, Community Transit Express, Link, Sounder, King County Commuter Van Program, Accessible Services and passenger-only ferries, set a record at 148.2 million boardings – a 3.4 percent increase over 2012.

PERFORMANCE MEASURE 2

Percentage of commuters in King County using different transportation modes including driving alone, transit, biking, and walking, as measured by the Washington State Commute Trip Reduction Survey

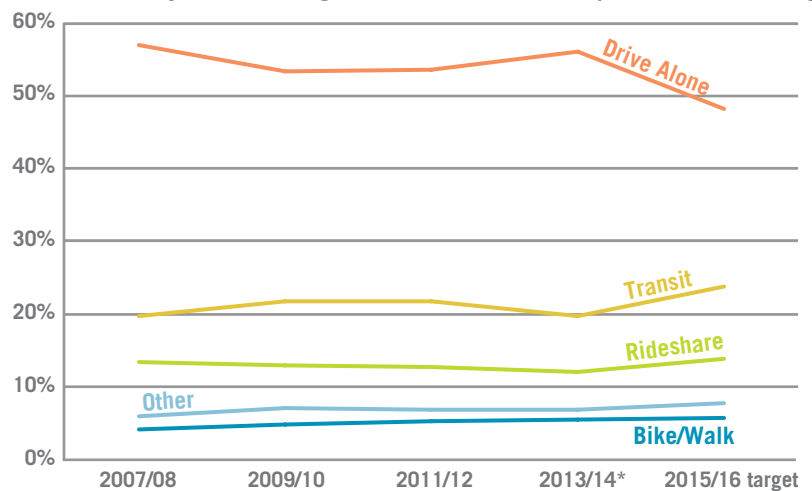
Target 2

Achieve a reduction in the drive-alone rate of 10 percent below 2011 levels by 2015; the Washington State Commute Trip Reduction Board will define additional targets for 2020.

2013 Status

After making significant progress toward this target in 2011, King County worksites dipped slightly during the 2013/14 survey cycle. With the exception of bike/walk, all non-drive-alone mode shares were either down slightly or remained flat. Between 2007 and 2013, there was a 2 percent reduction in the drive-alone rate. The transit mode share increased for a period but has returned to 2007 levels, accounting for 20 percent of all commute trips. Currently, survey data is available for only 75 percent of worksites with the remainder to survey by the end of 2014. Two of the region’s largest employers, Microsoft and the University of Washington, have yet to submit survey data and should have a positive impact on the drive-alone rate and transit usage totals when their survey data is included in this analysis.

Reduction in Drive Alone Commuting 2007-2015
(as measured by the Washington State Commute Trip Reduction survey)



* 2013/14 data based on approximately 75% of CTR worksites reporting. Final results expected Q1 2015.

2013 KEY ACCOMPLISHMENTS

Bus Ridership in Regional Growth Centers

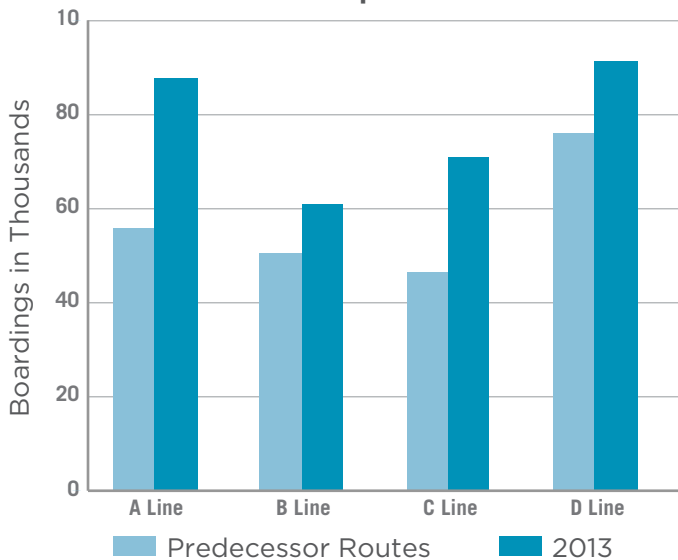
Metro Transit bus service focuses on urban centers and exemplifies how transit and efficient land use are mutually reinforcing. In spring 2013, Metro Transit provided 10,545 bus trips each weekday to, from, through, or between regional growth centers or manufacturing/industrial centers, as designated in the region's growth plan. This made up 97 percent of Metro Transit's daily directly operated, non-custom, scheduled trips. Virtually all of Metro Transit's bus trips serve one of these centers.

RapidRide

During 2013, ridership growth on RapidRide continued to outpace the overall transit system. Compared to 2012, the four in-service RapidRide lines experienced a combined growth of 13.8 percent, while the system-wide growth was 2.8 percent. When comparing

RapidRide ridership to predecessor routes that served the same corridor, there was a combined growth of 36 percent, with individual lines ranging from 20 – 58 percent growth. Reliability, measured by the ability to deliver the promised headway times between coaches, has been high, with all lines meeting their 80 percent goal. The B Line – between Bellevue and Redmond – consistently exceeds 85 percent headway adherence. Ridership growth is attributed to RapidRide's high service frequency, increased reliability, and enhanced passenger amenities at stations and on the buses. The final two RapidRide lines will go into service in 2014 – the E Line between Shoreline and downtown Seattle in February and the F Line between Burien and Renton in June.

Average Weekday Ridership on RapidRide



Commuter Van Program

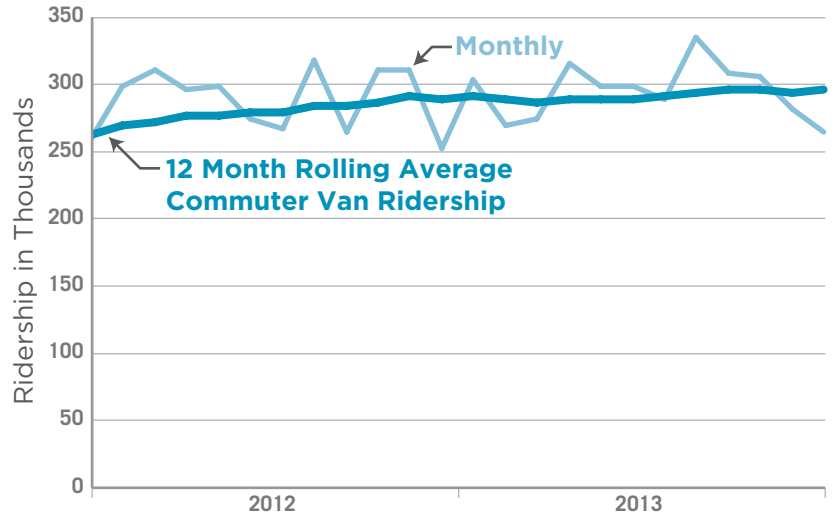
Metro Transit's Commuter Van Program is the nation's largest publicly owned and operated rideshare commuter van program. In 2013, the program provided more than 3.5 million passenger trips, reduced approximately 21,000 metric tons of GHG emissions and eliminated over 53 million vehicle miles traveled from Puget Sound roads — significant traffic and GHG emission reduction achievements. Between 2012 and 2013, passenger trips increased 3 percent, and the number of vans in service grew to 1,365 which now exceeds the number of buses in service during peak hours.

Five new all-electric Nissan Leafs were added to the metropool fleet in late 2013, for a total of 25 vehicles. This specialized fleet saved more than 10,000 gallons of gas per year over traditional gas-powered commuter vans and eliminated 232 metric tons of tailpipe emissions.

Commute Trip Reduction

The Commute Trip Reduction (CTR) program continues to be a key element of the region’s transportation strategy. Metro Transit and local partners have strong outreach efforts and partnerships with major institutions, cities, employers, and other organizations to encourage alternatives to driving alone to work. Employer transit benefit programs have become ever more important to moving employees throughout the region. Employer programs now account for 65 percent of ORCA fare revenue. Through these efforts, employees at the more than 500 CTR-affected worksites (regulated by the state’s CTR law) remove nearly 15,000 cars from the area’s roads each week.

Monthly Commuter Vans Ridership 2012-13



CTR and Regional Growth Centers

Commute Trip Reduction worksites located within the 17 Regional Growth Centers in King County continue to outperform sites located outside the Regional Growth Centers. Worksites inside Regional Growth Centers in King County continued to progress and see reductions in both their drive-alone rate and vehicle miles traveled per employee. However, sites outside the Regional Growth Centers reversed their trend of reducing drive-alone trips and now have drive-alone rates higher than the 2007 baseline. Transit ridership at the CTR sites in the Regional Growth Centers is significantly higher than at sites outside the Regional Growth Centers. One third of all commute trips to sites in Regional Growth Centers are made using transit compared to only 5.5 percent outside the Regional Growth Centers.

Performance of Commute Trip Reduction Worksites in 2013-14

		In Regional Growth Centers (RGCs)	Not in RGCs
All King County Worksites	Drive alone rate	39.6%	72.6%
	% change 2007-2013	-12.2%	+9.4%
City of Bellevue	Drive alone rate	49.4%	71.3%
	% change 2007-2013	-12.8%	+7.1%
City of Seattle	Drive alone rate	29.2%	56.2%
	% change 2007-2013	-5.8%	+13.8%

Goal: **10% reduction** in Drive-Alone Rate

In Motion

Metro Transit partners with local communities to encourage residents to use healthier travel options like the bus, carpooling, bicycling and walking through the In Motion program. In 2013, the In Motion team took on two projects to improve program effectiveness: a complete evaluation of the program and development of a unique approach to working with multifamily residences. Key recommendations from the program evaluation included updating the program brand and use of technology to be more contemporary, deepening engagement with Limited English Population (LEP) communities, expanding the role of champions/community advocates, and implementing a legacy survey component to track long term change in travel behavior.

In partnership with the Seattle Department of Transportation, a multifamily project will test varied levels of property manager involvement at six buildings in the South Lake Union and Bitter Lake neighborhoods. These projects will be implemented in spring 2014. Three neighborhood-level In Motion projects are also planned for 2014: one along the E Line and two more in the Burien/Tukwila and Renton neighborhoods. These projects will apply several of the recommendations from the program review and will feature online interactive maps, more effective engagement with LEP households, and a branding refresh of program materials and the website. The In Motion program will also serve as the centerpiece of Metro Transit's I-405 "Moving Communities to Action" trip reduction campaign in 2014, in partnership with local jurisdictions along the corridor.

COUNTY OPERATIONS

Climate Action Plan Goal O.1

King County will increase the efficiency of its vehicle fleets and minimize their GHG emissions.

PERFORMANCE MEASURE 1

Energy use by County vehicles

Target 1

In its vehicle operations, King County shall reduce normalized net energy use, compared to a 2007 baseline, by at least 10 percent by 2015.

2013 Status

Net vehicle fleet energy consumption decreased by 3.3 percent between 2007 and 2013. Significant reductions in fuel use were achieved in a number of areas. Most notable are the reductions in fuel use for the County's passenger vehicle and light truck fleets. Total fuel use by the County's general fleet declined 12 percent between 2007 and 2013 due to the continued replacement of older cars and trucks with more fuel efficient hybrids and other alternative fueled and advanced technology vehicles; rightsizing vehicles and engines; reducing the overall size of the fleet; retention and reassignment of some of the most fuel efficient vehicles; and expansion of the Daily Rental (Motor Pool) Dispatch system. Metro Transit's fleet fuel use increased 4 percent from 2007 to 2013 as transit service hours increased. However, when normalizing fuel use for increased ridership, Metro Transit saw a 3 percent reduction in total fuel use from 2007 to 2013. Fuel consumption by the Solid Waste Fleet continues to decline as a result of the ability to optimize semi-trailer hauling weights from the transfer stations to the landfill.

2013 KEY ACCOMPLISHMENTS

Hybrid Fleet Expansion

Metro Transit took delivery of 43 60-foot articulated hybrid buses in 2013. By the end of 2013, approximately 52 percent of Metro Transit's bus fleet was composed of diesel-electric hybrid buses. The new diesel-electric hybrid buses are approximately 30 percent more energy and GHG efficient than the diesel buses that were replaced.

In addition to the purchase of hybrid buses, Metro Transit is also purchasing hybrid support vehicles. In 2013, Metro Transit purchased four hybrid vehicles and since 2007, Metro Transit has purchased a total of 59 hybrid vehicles; this is 18 percent of all support vehicle purchases.

Carrying More People More Efficiently

The average fuel efficiency (miles per gallon) of Metro Transit's bus fleet has remained relatively steady in recent years. This is mainly because even though older diesel buses have been replaced by newer, more fuel-efficient diesel-electric hybrids, 40-foot, high-floor coaches have been replaced by 60-foot low-floor articulated coaches that consume more fuel on a per-vehicle basis, offsetting the hybrids' efficiency gains.

Fortunately, the 60-foot buses carry about one third more passengers than the 40-foot coaches and greatly increase the overall ridership capacity necessary to achieve Metro Transit's ridership growth targets. When evaluated in terms of passenger capacity rather than vehicle miles, fleet fuel efficiency improved by approximately 7 percent since 2007.

Consistent Fleet Standards

King County Fleet Managers continue to work together in developing and implementing uniform standards for light-duty vehicles in order to minimize lifecycle costs. The standards for the various types of business needs include service intervals, optimum and maximum lifecycle and new vehicle purchases. In 2013, the group also explored joint purchasing opportunities for biodiesel and arranged to have presentations on compressed natural gas and liquefied petroleum gas from industry experts to determine the current state of these alternative fuels and assess the extent to which either fuel might be suitable for the various applications in the County's light-duty fleets. The goal is to provide the most cost effective solution for providing the large variety of County services while reducing the carbon footprint of the County's light-duty fleet.

Light-duty Hybrid Vehicle Purchases

Of the 205 light-duty vehicles purchased by Fleet Administration and Solid Waste Divisions in 2013, 78 were hybrid vehicles, or 38 percent of the total light-duty vehicles purchased for the year. Thirteen of the 78 replaced existing hybrids and 65, or 62 percent, replaced regular internal combustion engine vehicles.

Employee Outreach and Commute Trip Reduction Programs

As part of ongoing efforts to educate employees, King County Employee Transportation Program (ETP) employees, along with Commute Trip Reduction employees, visited 10 primary County worksites to promote eco-driver concepts and alternative commute options. Simple changes in driving habits can reduce fuel consumption by as much as 15 percent.

In 2013, ETP employees conducted the CTR survey at 11 CTR-affected King County worksites. Survey results showed that King County employees continue to utilize alternatives to driving alone at a high rate: 63 percent of King County employees at surveyed locations reduced drive-alone trips by taking transit, sharing a ride, biking, walking or telecommuting. At downtown Seattle worksites, use of alternative modes is even higher, with over 80 percent of employees opting to not drive alone and 60 percent of downtown employees using transit.

Northeast Novelty Hill Road Project

King County road projects improve mobility as land-use patterns evolve, and incorporate sustainable design features to reduce greenhouse gas emissions. The Northeast Novelty Hill Road Project incorporated a variety of sustainable design features as part of a major



196th Ave. NE at Perrigo Park of the Novelty Hill Road Project showing porous asphalt shoulders

arterial corridor improvement project to improve mobility and reduce congestion east of the City of Redmond. This project includes roundabouts, wildlife habitat mitigation, reuse of materials, and Low Impact Development features including pervious pavement, porous sidewalks and shoulders, and bio-retention swales. The project also includes pedestrian and non-motorized transportation improvements. There were no additional costs associated with achieving the targeted Platinum level using the King County Sustainable Infrastructure Scorecard. The project estimates over 25,000 metric tons in greenhouse gas emission savings, avoids energy use associated with stoplights and reduces fuel use from traffic idling at red lights.

Regional Trails System Expansion

In early 2013, King County secured ownership of 15.6 miles of the Eastside Rail Corridor, preserving the former rail line for future use as a multi-use corridor including regional trail and transportation uses, as well as for other public uses and connecting communities from Renton to Woodinville and Redmond. In June, the newly developed 2.2-mile Issaquah segment of the East Lake Sammamish Trail opened to the public, providing a multi-use path for trail users of all ages and abilities. Additionally, planning and design continues on the Renton, SeaTac and Burien segments of the 16-mile Lake to Sound Trail. Construction is anticipated to begin in early 2015.

Metro Transit's new three-story garage on the Bellevue-Kirkland border utilized the Sustainable Infrastructure Scorecard and opened in September 2013. A neighboring Built Green mixed-use housing project is scheduled for completion in 2014. Together, the garage and housing make up a transit-oriented development with holistic green building strategies, successfully concentrating housing and a transit hub to reduce



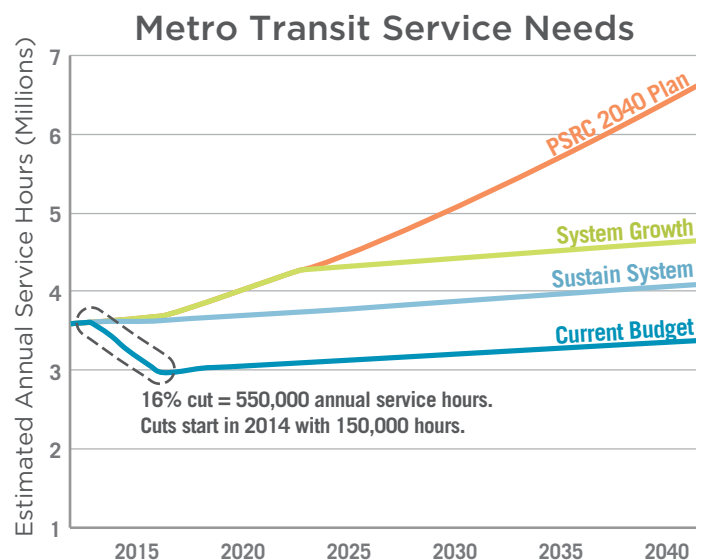
South Kirkland Transit Oriented Development project.

the need to drive or own a vehicle. The 242-unit housing development uses the Evergreen Sustainable Development Standard and will include 61 affordable units for occupants whose incomes are at 30, 40 or 60 percent of the King County median income. The garage has seven electric vehicle spaces with charging stations and two rows of bike racks. Additional sustainable achievements include the use of permeable pavement, Low Impact Development, water efficient irrigation, energy efficient elevators and lighting, and cement substitutes. The park-and-ride serves various Metro and Sound Transit routes.

CHALLENGES & OPPORTUNITIES

Funding Shortfalls

To be consistent with our region's long range transportation plan, Metro Transit will need to provide approximately twice as much public transportation service in 2040 as it did in 2010. The region's long-term transportation plan – PSRC's Transportation 2040 – is the source of King County's transit service targets (shown in red on the graph) and is based on this premise. To date, no funding has been identified for this growth in transit service, nor have revenues been identified to fund the immediate service priorities identified in Metro's Transit Service Guidelines. These needs (shown in green) would require approximately 10 percent more service than Metro Transit provided in 2012.



For more than five years, Metro Transit has taken extraordinary actions to preserve bus service while experiencing a \$1.2 billion shortfall in sales tax revenue caused by the recession. Metro Transit cut more than 100 staff positions, improved operating efficiency, raised fares five times, dug into reserve funds, and took many other steps to save or raise about \$800 million from 2009 through 2013. However, without additional tools to close the large, ongoing budget gap, service levels must be reduced to balance the budget.

Currently, Metro Transit is planning to cut up to 550,000 hours in annual service, with service reductions beginning in fall 2014 and continuing into 2015. Overall, Metro Transit expects to reduce service by 16 percent. This reduction is due to an annual budget shortfall of \$75 million attributable to falling sales tax revenues – Metro Transit’s largest source of funding. Sales tax revenues have grown in recent years but is still below inflation adjusted 2008 revenues.

LOOKING FORWARD

Updating and Expanding Transportation Equipment

In addition to tackling the funding challenge, the County faces the pressing need to expand types and quantities of transportation equipment. There is not a “one size fits all” solution to the variety of business needs and vehicle and equipment solutions for the County’s fleets. While electric vehicles may work in certain circumstances, the vast expanse of the County service area prohibits widespread use because of current technology limitations. The County will continue to search for the best solutions to effectively meet its specific business needs.

For Metro Transit, the vision for a future fleet is one driven by clean electric energy. As a transition toward this vision, Metro Transit will utilize electric trolleys and diesel-electric hybrid buses. This will support the transition toward a truly all electric transit bus as the battery propulsion technology matures. Metro Transit has numerous projects under way to help enhance the efficiency of fleet vehicles, reduce emissions and test innovative technologies, as highlighted below.

- **Trolley Fleet Replacement** – Metro Transit was awarded a contract in summer 2013 for the purchase of a new fleet of electric trolley buses. The replacement trolley buses will have off-wire capability provided by an on-board electric energy system and will be more efficient than current DC-powered vehicles. The result will be a zero emission trolley bus system that can operate without interruptions due to construction projects, reducing fuel consumption and GHG emissions relative to the existing trolley fleet which frequently cannot be used on weekends when construction often occurs.

- **Diesel Bus Replacement** – Metro Transit is continuing to acquire diesel-electric hybrid buses to replace the aging diesel fleet. A total of 43 60-foot low floor hybrid coaches were delivered in 2013 to serve the new RapidRide lines E and F. These hybrid buses are up to 30 percent more fuel efficient than the diesels they replace. Metro Transit has a contract to purchase an additional 120 hybrid coaches (both 35- and 40-foot coaches) to replace existing diesel coaches beginning in 2014.
- **Battery Bus Pilot Project** – Metro Transit is at the forefront of public transportation technology with its all electric, zero-emissions heavy duty transit bus pilot program. Initial bids received for the \$5 million federally funded battery powered bus project in 2012 were rejected due to technological limitations on travel range and charging, and the project was re-bid in 2013. A contract should be awarded in mid-2014 with expected delivery in 2014-2015. If successful, battery-powered buses may become the transit fleet of the future.
- **Electric Vehicle Subcomponents** – Metro Transit is initiating the use of electric subcomponents on transit vehicles by replacing components that are traditionally driven off belts and gears from the engine, such as cooling fans. Electric engine fan cooling systems are expected to improve fuel efficiency on coaches by up to 5 percent. Additional benefits associated with these upgrades include better reliability, lower emissions, easier maintenance, and improved bus performance.
- **Eco-Driving/Connect** – Metro Transit will test onboard telematics and operational monitoring systems to promote gentler acceleration, braking, turning and reduced idling in a limited number of hybrid coaches in 2014. Such techniques have been shown to reduce fuel use by approximately 6 percent.

As Metro Transit moves ahead to upgrade the fleet, it will use the adopted Strategic Plan for Public Transportation to guide potential investments in new services. Demand for Metro Transit's services is growing even as service reductions are planned. Metro Transit will strive to configure its services to attract the maximum gains in ridership to ultimately reduce GHG emissions in King County.

GOAL AREA 2

ENERGY AND GREEN BUILDING

BACKGROUND

Residential, commercial and industrial buildings account for approximately 50 percent of community scale GHG emissions generated in King County. The County is continuing to reduce the impacts of its buildings and facilities through such actions as: more efficient operation of existing buildings; efficient design and construction of new facilities; meeting energy needs with renewable resources resulting from County operations; and taking advantage of cost-effective opportunities to generate renewable energy. Energy continues to be a major cost to the County, and reducing this expense will contribute to King County's ability to maintain critical services.

King County has set aggressive energy efficiency and sustainable development goals in the 2010 Energy Plan (Ordinance 13368), the 2012 SCAP, and 2013 Green Building Ordinance (Ordinance 17709). In addition, King County's Strategic Plan includes objectives to minimize its operational environmental footprint, limit costs to support County services, and plan for long-term sustainability. Advancing energy, green building and sustainable development goals ensure progress toward achieving the objectives and strategies in the King County Strategic Plan.

On a communitywide level, the King County GreenTools Program continues to collaborate with regional residential, construction and city stakeholders to increase green building activity in the private sector. The GreenTools Program has provided substantial support through technical assistance to city jurisdictions and non-profit partners, in addition to convening these groups through the Regional Code Collaboration and Roundtable lecture series.

COUNTY SERVICES

Climate Action Plan Goal S.2

King County will help reduce energy use by county residents and by business and other partners and will support development of increasing amounts of local renewable energy.

PERFORMANCE MEASURE 1

Percentage of energy produced, used, or procured by the County that is renewable energy

Target 1

Produce, use or procure renewable energy equal to at least 50 percent of total county net energy requirements on an ongoing basis.

2013 Status

Year-end Renewable Energy Generation and Use

At the end of 2013, the County was exceeding its 50 percent renewable energy goal, with an estimated 52.4 percent and more than 1.98 million of British Thermal Units (MMbtu) of the County government's energy needs being produced, used or procured through renewable sources.

Key contributors to the County's success with renewables continue to be the Cedar Hills Regional Landfill BioEnergy Washington (BEW) Plant and the Wastewater Treatment Division (WTD), whose renewable energy generation efforts included beginning full operations at the West Point Treatment Plant Cogeneration Facility. Net renewable energy generation was down compared to the previous year, due to a pipe break and resulting two-week shutdown of BEW in December, and an extended shutdown of the South Treatment Plant gas scrubber caused by both mechanical and digester issues. These shutdowns highlight the challenges of generating renewable energy from biogas, given the inconsistent nature of the gas feedstock, and the complicated processes required to purify gas for beneficial uses.

PERFORMANCE MEASURE 2

Percentage of residential housing development in King County that is Built Green or LEED-certified

Target 2

The 2012 SCAP indicated that a residential green building target would be developed as part of King County's 2013 Green Building and Sustainable Development Ordinance. King County's updated Green Building policy was adopted in December 2013 and focused on green building standards for government owned facilities and infrastructure. A new residential green building target is currently in development - to include Built Green, Evergreen Sustainable Development and LEED residential certification standards - and will be included in the 2015 SCAP update.

2013 Status

In 2013, 20 percent of new single-family and multi-family homes combined were constructed to the Built Green 3-5 Star level of certification.

U.S. GREEN BUILDING COUNCIL (USGBC) RESPONSE TO KING COUNTY ADOPTING NEW GREEN BUILDING ORDINANCE

Best in class: King County, WA leads by platinum example

"Exceptional leadership is derived from exceptional people and the worlds they choose to create. County Executive Constantine, his staff, and our colleagues at the Cascadia Green Building Council have been setting a high bar for sustainability leadership in the Pacific Northwest for years, and this latest action is in keeping with their unwavering commitment to a future that benefits every citizen in the county."

- Rick Fedrizzi, USGBC President, CEO and Founding Chairman

2013 KEY ACCOMPLISHMENTS

2013 Government Confluence

The highlight of this year's program was the semi-annual GreenTools Government Confluence co-sponsored by the Cascadia Green Building Council. Topics ranged from rooftop gardening to resiliency impacts and sustainable transit. The Confluence was produced in conjunction with the Living Future Conference, giving attendees access to presenters from outside the region and North America. The Confluence also provided continuing education credits for architects, engineers and green building experts via the American Institute of Architects, American Planning Association, the U.S. Green Building Council (USGBC) and the Living Future Institute. The May 15 Confluence was combined with the Living Future unConference, bringing collaboration through partnership with the Cascadia Green Building Council. Regional, state, national and international leaders came together with government employees and elected officials with the goal of kick-starting or enhancing their green building initiatives. The 2013 gathering proved to be the largest Confluence to date, with some 300 people representing 31 cities, five counties, five states, the District of Columbia, as well as international participants from Canada, Germany, Mexico, and the Netherlands. Executive Constantine was the keynote speaker for this event.

Providing Green Building Assistance to Diverse Audiences

The King County GreenTools Program developed its first Vietnamese-language materials with a green remodel guide. The piece was specifically developed to address the needs of the Vietnamese community with custom graphics and information tailored to serve a growing audience. Outreach efforts included a Sustainable Cities Roundtable featuring Vu Lee, Director of the Vietnamese Friendship Association, and distributing 4,000 guides in 28 locations throughout King County.

GreenTools also provided technical assistance to new senior housing projects in Normandy Park and Redmond. The Greenworks project in Normandy Park is comprised of 10 townhomes built in the early 1970s. The project is anticipating a solar array for the community center, rain gardens for the site and two whole house remodels. Redmond Senior Housing, owned by the City of Redmond, consists of 75 units of affordable senior housing plus a commercial tenant space.

King County GreenTools produced a detailed workshop with national green building leader and universal design expert Sim Van der Ryn, a senior himself at the age of 85, who brought his unique perspective to a small group of interested industry, government and community leaders.

Regional Code Collaboration

The Regional Code Collaboration is a multi-jurisdictional group of planners and code officials from both within and outside King County that have come together to develop and update green codes to advance sustainability and green building practices. It consists of over 40 members representing 12 cities and three counties. In 2013, the GreenTools Program convened the Regional Code Collaboration with the City of Seattle to continue the

momentum started in 2012. The cities of Issaquah, Seattle and Shoreline were the first to successfully pass their code packages. King County legislated the development of a cutting-edge demonstration ordinance for the Living Building Challenge, which was unveiled in 2013 and included in the newly passed green building ordinance.

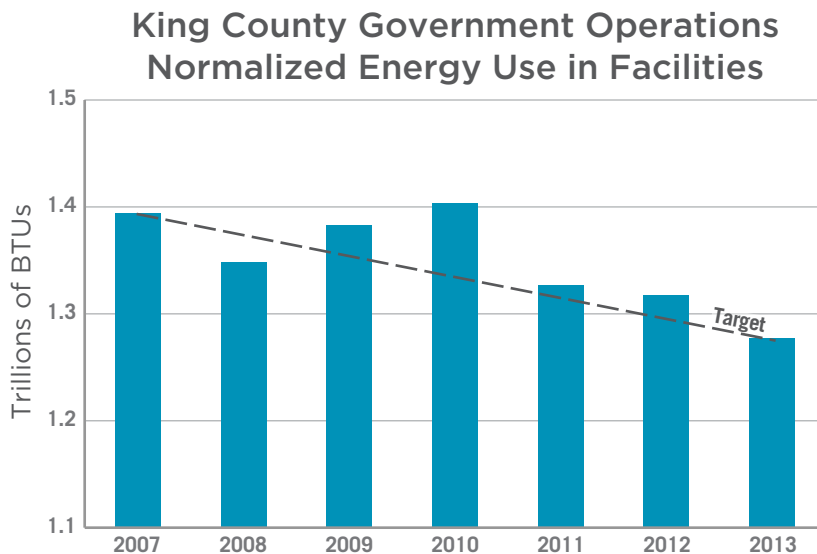
West Point Cogeneration

By year-end 2013, the cogeneration system at the West Point Wastewater Treatment Plant was in full operation. The 2.3-megawatt system is anticipated to generate more than 17 million kilowatt hours of electricity each year, in addition to providing valuable heat for the treatment plant. Moving to full operation of the cogeneration plant was a multi-year effort, dating back to the decommissioning of the former, outdated cogeneration plant in 2007. The electricity from the West Point cogeneration plant is sold to Seattle City Light, and is marketed as green energy. The heat from the cogeneration system is used to heat the plant and digesters, offsetting energy used to generate heat from propane or direct biogas use.

COUNTY OPERATIONS

Climate Action Plan Goal 0.2

King County will reduce the amount of energy used in government operations.



PERFORMANCE MEASURE 1 Energy use at County facilities

Target 1

King County will reduce normalized net energy use from government operations in its buildings and facilities, as compared to a 2007 baseline, by at least 10 percent by 2012, at least 15 percent by 2015, and 20 percent by 2020.

2013 Status

King County achieved an 8.5 percent normalized energy use reduction between 2007 and 2013. Raw energy use was down over 13 percent in tracked facilities, which was normalized to the lower figure due to milder weather. Departments and divisions across County government continue to pursue energy efficiency investments that demonstrate notable energy reductions. Specifically, the Metro Transit and Wastewater Treatment divisions have been investing millions of dollars in efficient mechanical and lighting systems that are producing energy and costs savings. Investments are continuing in 2014, and are focused on achieving a clear path toward meeting the 15 percent energy use reduction target by 2015, and the 20 percent reduction goal by 2020.

2013 KEY ACCOMPLISHMENTS

New 2013 Green Building Ordinance adopted

The Metropolitan King County Council approved an update to the green building ordinance that includes improvements to meet long-term County goals. The ordinance establishes minimum performance requirements for energy, emissions, stormwater management, and construction and demolition materials diversion, while raising the certification goal for capital projects to Platinum using the LEED and Sustainable Infrastructure Scorecard rating systems. It also supports flexibility by allowing alternative green building rating systems, such as Built Green and Living Building Challenge.

In support of equity and social justice efforts, Department of Community and Human Services (DCHS) staff worked with affordable housing stakeholders to include county funded affordable housing projects in the new ordinance. This will recognize the green building achievements the stakeholders and staff have accomplished using the Evergreen Sustainable Development Standard, an existing green building practice for equitable access to improved public health, air quality, and walkable communities for homeless and low-income residents.

Green Community Initiative

King County worked with the Washington State Housing Finance Commission (WSHFC) to establish a Green Community Initiative that facilitates access to Qualified Energy Conservation Bonds (QECBs) for community businesses, governments and non-profit organizations. The QECBs are a federal buy-down of interest rates for project bond financing, thereby offering extremely attractive interest rates for energy and other environmentally-beneficial projects. The Green Community Initiative framework established between King County and WSHFC also served as a template for Kitsap County's Green Community Initiative.

Green Building Compliance

Green building activity by King County agencies in 2013 consisted of seven LEED projects and 280 projects using the King County Sustainable Infrastructure Scorecard. This represents 98 percent of all capital projects, which is an improvement over the 92.5 percent compliance in 2012.

Energy Efficiency Facility Renovations

Many King County facilities tackled energy saving retrofits in 2013. Examples include:

South Treatment Plant lighting

The South Treatment Plant began a comprehensive lighting retrofit project that is replacing over 4,000 of the plant's lamps with LED and induction lighting technologies. The resulting lamps will save on energy while reducing maintenance costs. The two-phase project will be completed in 2014 and is on track to reduce electricity use by over 800,000 kWh and \$60,000 per year, while bringing in over \$260,000 of rebate money from Puget Sound Energy.



Downtown Seattle Transit Tunnel Lighting Upgrades

Metro Transit's lighting efficiency program began in 2012, targeting various transit bases, support facilities and Downtown Seattle Transit Tunnel (DSTT) stations. In 2013, 11 lighting upgrade projects were completed at all five DSTT stations, resulting in estimated annual savings of more than 477,000 kWh, \$30,000 in utility costs and 260 metric tons of avoided GHG emissions. In addition, Metro Transit received over \$99,000 in energy conservation incentives from Seattle City Light for these upgrades. The lighting efficiency program will continue in 2014 at the DSTT, transit facilities and park-and-ride facilities.

Energy efficient lighting upgrades in the DSTT – Westlake Station

Energy Awareness Campaign

For the second year in a row, King County conducted a fall energy awareness effort, to educate employees on actions they can take to contribute to reduction efforts. Three trainings were offered to County employees focused on energy conservation. These trainings provide resources and examples to support employees to meet the County's energy targets. Attendees learned about energy auditing and assessments, low cost energy and water saving actions, cost effective energy investments and King County's Green Operations and Maintenance Guidelines Handbook. In addition, three monthly newsletters were published, and hundreds of employees attended energy awareness events. More than 1,300 employees took a pledge to reduce their energy use. The fall energy awareness effort will be an annual event to engage employees in conservation activities at the beginning of each heating season.

Metro Transit replaced seven bus garage ventilation fans and related equipment at the North Base transit facility in 2013. This project is projected to save approximately 2 million kWh per year, equivalent to over \$116,000 in annual savings. In addition, Metro Transit received over \$450,000 in incentive payments from Seattle City Light for this project. Project elements that support energy efficiency goals included air quality monitoring systems to bring in the proper amount of fresh air, high-efficiency lighting in the fan rooms and variable speed fan motor starters. An integral project element was installation of controls to ensure fans come on when certain atmospheric conditions require them (i.e., when nitrous oxide and carbon monoxide gas levels require ventilation). This is a major contributing factor to the reduced electricity requirement, as the fans run when needed, rather than on a timer, which results in less run time and less energy use.



Installing new ventilation fans at the Metro Transit North Base Garage.

Partnership with Built Green

In an effort to increase the number of projects using green-building rating systems, King County GreenTools has partnered with the Master Builders Association's Built Green program for many years. It is estimated that by the end of 2017, residential construction units will exceed pre-recession levels, and 35 percent of all new construction could be Built Green, LEED, Evergreen or Living Building certified. Built Green is one of the only regional rating systems in the country to have certifications for retrofits, whole house remodels and new construction. Partnership efforts in 2013 included an annual conference, held at the Brightwater Education Center, providing education to developers and builders, opening the zHome Stewardship Center, and further development of a carbon neutral standard called Emerald Star.



Dignitaries at the grand opening event of Maleng Regional Justice Center

Maleng Regional Justice Center

Executive Constantine, District Court Chief Presiding Judge Corinna Harn, and other local leaders formally opened newly renovated space in the Maleng Regional Justice Center in Kent in November. The \$8.2 million remodeling project delivered five new courtrooms and support space for the King County District Court. It also added a new security screening area and a reconfigured rotunda. The improvements made in the new District Court area of the building make it the first King County-owned courthouse eligible for LEED Platinum certification. Some of the green building attributes include: 96 percent construction and demolition diversion rate from

landfills; water efficiency fixtures and appliances reduce water use by 30 percent; energy efficient lighting systems reduce energy loads by 35 percent; 100 percent LED lighting in the courtrooms; 100 percent Green Power through Puget Sound Energy; low or no volatile organic compound-emitting materials; and 50 percent of the wood used is Forest Stewardship Council certified. These green building measures minimize King County's operational environmental footprint and reduces operations and utility costs from lower energy and water bills. These improvements also increase the longevity of the facility and reduce maintenance needs.

CHALLENGES & OPPORTUNITIES

Energy Conservation Goal

The County is continuing to make investments and take actions toward meeting its 15 percent energy reduction goal by 2015. The goal is attainable, and raw energy use in 2013 is down over 13 percent since 2007 at facilities being tracked. County divisions are assessing and planning the actions that will be needed to achieve the 15 percent and 20 percent reduction goals.

County employees began meeting in 2013 to address access to funding for energy efficiency projects. As part of the 2015-2016 budget cycle, a framework has been established for departments and divisions to propose projects and access 10-year loans that will be paid back from utility savings. This approach is intended to help overcome the financial barrier for project implementation, by helping to fund projects that can pay for themselves in 10 years or less. Also by the end of 2013, by leveraging a utility grant, a comprehensive and customized Building Operator Certification training series was put in place. This eight-day training program, to take place in 2014, will educate more than 40 County employees on specific energy efficiency opportunities in buildings.

LOOKING FORWARD

Continued Growth in Renewables Production

In 2014, the West Point cogeneration plant will have its first full year of operation, which will contribute to the County's renewable energy efforts. The South Treatment Plant is focused on ensuring the gas scrubbing system remains operational, to maximize renewable energy output. As of early 2014, King County received a \$525,000 grant from the State of Washington Department of Commerce for installing a 104 kilowatt photovoltaic array on the roof of the Weyerhaeuser King County Aquatic Center. This array will be among the 10 largest systems in the state, and the largest with panels and inverters manufactured within the state.

Project Information Center Database

The Office of Performance, Strategy and Budget is working on expanding the countywide capital Project Information Center database to include green building performance measurement criteria. This will streamline reporting requirements and increase the ability for comprehensive data collection, analysis and use in optimizing design decisions in future projects.

Life Cycle Cost Analysis

Refinements were made to a Life Cycle Cost Analysis (LCCA) tool as a resource to County and city employees to assist and determine cost effective energy and green building investments. Further improvements will be made to the LCCA tool and trainings will be provided to employees.

Operational Savings

King County is committed to reducing energy and resource use within its portfolio of facilities, vehicles, and through the services it provides. The County has aggressive policies and guidelines mandating energy and resource reductions, and employees are carefully monitoring progress. In 2014, the County will be working with all available sources of energy and resource consumption data to pinpoint operational enhancement opportunities which will reduce resource use and operating costs throughout its facilities.

Upcoming Projects

Future green building and energy efficiency projects include:

- **Children and Family Justice Center** – This project will include a newly constructed courthouse, juvenile detention facility and a parking structure at the existing Youth Service Center. The project established high energy conservation and green building goals in the facility performance standards during its procurement process.

- **Energy Efficiency** – King County received a \$500,000 Washington State Energy Efficiency Grant to partially fund a mechanical system energy efficiency project at the Weyerhaeuser King County Aquatic Center, and a lighting retrofit project at the West Point Treatment Plant.
- **Lake to Sound Trail** – Segment B of the trail project includes building 1.5 miles of 10- to 12-foot-wide trail on the east shoulder of Des Moines Memorial Drive and connecting the cities of SeaTac and Burien. Some of the green building strategies in the design phase are pervious asphalt paving, a goal of diverting 95 percent of construction and demolition materials, treating 75 percent of stormwater through low impact development techniques, and using high recycled-content or renewable materials.

GOAL AREA 3

FORESTS AND AGRICULTURE

BACKGROUND

King County's forests and farms provide significant environmental, social, and economic benefits. Forests and farms offer important recreational opportunities, improve air quality, and provide food, water and cover for endangered salmon, wildlife and people. These same forests and farms provide employment in wood, paper, recreation, tourism, fishing and agricultural industries. Healthy forests and sustainable farms can also help reduce local climate change impacts while reducing local sources of GHG emissions.

This goal area directly ties to the KCSP objective "reduce climate pollution" as well as the objective to "encourage sustainable agriculture and forestry." It also directly relates to King County's Open Space Plan (2010), which provides the policy framework for the County's acquisition, development, stewardship, management, and funding of King County's open space system.

King County has taken significant action to encourage sustainable land management practices and to help permanently protect privately-owned forest and agricultural lands through tax incentives, conservation easements, preservation programs, and public education and outreach. The County is also demonstrating leadership through careful stewardship of County owned lands.

The County increased conservation acreage through the Open Space and Forestland current use taxation programs, agricultural land preservation, conservation easements, and forest planning and stewardship throughout 2013.

COUNTY SERVICES

Climate Action Plan Goal S.3

King County will support healthy, productive farms and privately owned forests that maximize biological carbon storage, promote public health, and are resilient to changing climate conditions.

PERFORMANCE MEASURE 1

Privately owned rural² acreage that has stewardship plans or is enrolled in Open Space (RCW 84.34) and Forestland (RCW 84.33) designated current use taxation incentive programs

² For this report, "rural" refers to all rural-zoned and agriculture-zoned land in King County, including on Vashon Island but excluding the Forest Production District. An additional 200,000 acres of commercial timberlands in the Forest Production District are designated Forestland for current use taxation.

Target 1

500 additional acres per year of privately owned rural acreage that has stewardship plans or is enrolled in current use taxation incentive programs

2013 Status

In 2013, 660 new acres were enrolled in Open Space and Forest Land designated current use taxation incentive programs or completed stewardship plans, exceeding the annual target. At the end of 2013, there were approximately 65,600 rural acres enrolled in these programs, which provide significant property tax incentives to encourage landowners to voluntarily conserve, protect and manage open space and forestland.

PERFORMANCE MEASURE 2

Privately owned forestlands permanently conserved through easements that remove the development rights

Target 2

200,000 forest acres permanently conserved through easements that remove the development rights by 2016

2013 Status

In 2013, King County conserved an additional 550 acres of forested land in rural zones of King County near the boundaries of the Forest Production District. The 550 acres of newly conserved forestland resulted from a total of five transactions: four fee purchases totaling 450 acres and one Transfer of Development Rights (TDR) easement purchase on an additional 100 acres.

There are now more than 142,100 acres of forestland protected through King County's TDR program. Since 2004, public TDR transactions have protected more than 96,000 acres and private transactions have protected nearly 46,000 acres. Fee purchases of an additional 15,500 acres of forestlands bring the total to nearly 158,000 acres of forest lands permanently conserved.

PERFORMANCE MEASURE 3

King County agricultural lands permanently conserved through easements that remove the development rights

Target 3

In 2014, the Water and Land Resources Division (WLRD) will continue to collaborate with the King County Agriculture Commission to develop targets for the number of acres preserved in the Farmland Preservation Program. Under the County's new Food Economy Initiative, WLRD will also partner with the Commission and develop appropriate partnerships to increase agricultural production.

2013 Status

The Farmland Preservation Program began in 1979 when the voters of King County approved an initiative authorizing the County to preserve rapidly diminishing farmland by purchasing conservation easements. During the 1980s, King County acquired the development rights on 12,600 acres of high quality farmland within its boundaries. The County has continued to purchase development rights on select properties and by the end of 2013 approximately 13,500 acres had been permanently protected through this program. WLRD also supports farming in King County by assisting with drainage, flood risk reduction, marketing, cost share for resource improvement practices, and other issues affecting farm productivity. The division will continue to evaluate how best to encourage increased agricultural production.



In December 2013, King County acquired nearly 200 acres of rich Snoqualmie Valley farmland – an abandoned golf course known as the “Tall Chief” property. This fertile land that was recently threatened with development will be returned to farming, helping sequester carbon in soil, creating more jobs for rural residents, supporting a more robust local food supply, and ensuring an even stronger “wall against sprawl.”

2013 KEY ACCOMPLISHMENTS

Forest Stewardship Courses and Workshops

Over 100 forest landowners expanded their forest management skills in County-sponsored trainings and seminars in 2013. Opportunities ranged from forest stewardship planning classes, to demonstrations of silvicultural techniques, wildlife habitat enhancement, timber harvest planning, and forestry economic development forums. A summer 2013 Forestry Economic Development Twilight Tour on Vashon Island highlighted the use of locally-grown and locally milled wood on the island. Additionally, in 2013, the County partnered with the Cascade Harvest Coalition to create a Puget Sound Grown website, complete with mobile app and GIS map connections, to promote local forest products and connect wood users and forest landowners.



Firewise Communities

Well-managed forests with sufficient growing space for trees are not only healthier and more drought tolerant, they are less susceptible to wildfire. The County promotes Firewise practices for healthy forests – such as allowing for sufficient growing space for trees and creating fire-adapted space around homes. In King County, 14 communities covering more than 7,000 acres have completed Firewise community fire safety plans for their homes and wooded areas. In 2013, the County worked with communities near Carnation, North Bend and Black Diamond to complete projects that demonstrate techniques for reducing hazardous fuels buildup near homes.

Wildfire fuels reduction project near North Bend. By removing the limbs from the lower 10-15 feet of the trunk, residents can help prevent wildfire along the ground from moving up into the tree canopy. These lower limbs are often dead or dying. When possible, after branches are cut, they are chipped into a carbon-storing mulch that is returned to the forest or home landscape.

Farmers Markets and Sustainable Agriculture

In 2013, there were 41 active farmers markets in King County with estimated sales of approximately \$30 million. Same market sales remained steady (increased about 1 percent) between 2012 and 2013. King County supports this success through the ongoing Farmers Market Forum.

COUNTY OPERATIONS

Climate Action Plan Goal O.3:

King County will acquire, manage and restore its parks and other natural lands in ways that maximize biological carbon storage and are resilient to changing climate conditions.

PERFORMANCE MEASURE 1

Percentage of King County Parks forested sites over 200 acres in size that have developed and are implementing Forest Stewardship Plans

Target 1

100 percent by 2025

2013 Status

On track; 21 percent of King County Parks forested sites over 200 acres are now implementing Forest Stewardship Plans, including the Danville-Georgetown Open Space forest, highlighted in the 2013 key accomplishments section on the next page.

PERFORMANCE MEASURE 2

Number of native trees and shrubs planted in restoration of King County Parks forestlands

Target 2

A combined total of 30,000 native trees and shrubs per year

2013 Status

Parks' volunteers planted 22,202 native trees and shrubs at 16 sites in 2013. The Water and Land Resources Division planted an additional 104,336 plants and shrubs as part of its restoration efforts. Overall, in 2013 more than 126,500 trees and shrubs were planted on King County Parks lands.

2013 KEY ACCOMPLISHMENTS

Forest Assessment

In 2013, King County Parks in partnership with the United States Forest Service and Forterra completed a four-year forest assessment, known as FLAT – Forest Landscape Assessment Tool – on over 24,000 acres of King County managed forestlands. Parks employees collected field data that describe current forest conditions at over 180 King County Parks' sites. This project establishes a permanent database of forest conditions. The baseline data is used to develop more detailed forest stewardship plans, such as at Danville-Georgetown Open Space (see below accomplishment), and provides guidance that will help direct the stewardship and management of Parks' forests and allow for more efficient and productive use of restoration and stewardship resources. The project was funded by the Forest Service through the American Recovery and Reinvestment Act.

Danville-Georgetown Forest Stewardship Plan

The Danville-Georgetown Forest Stewardship Plan was adopted in 2013 for this 334-acre open space site east of Maple Valley that is dominated by 35-year old Douglas-fir plantations. In the summer of 2013, 120 acres were thinned to accelerate development of late seral, "old growth" forest conditions. The long-term goal is to maintain forest health through adaptive practices that promote plant and ecosystem diversity.



Forest health thinning at the Danville-Georgetown Forest

Loop Biosolids

One way that King County supports healthy, productive farms and forests that help maximize biological carbon storage is with Loop biosolids, an organic product extracted during the wastewater treatment process. As a soil amendment and replacement for synthetic fertilizer, Loop returns nutrients and carbon-rich organic matter to the soil, both improving soil health and growing plants faster. King County estimates that in 2013 approximately 39,000 metric tons of carbon dioxide equivalent of GHG emissions were reduced through the land application of Loop biosolids. As a result of the Loop program, in conjunction with its energy efficiency and renewable energy efforts, King County's Wastewater Treatment Division is now almost 70 percent GHG neutral in its operations.

Forest Restoration Volunteer Program

In 2013, more than 8,300 volunteers gave over 59,000 hours of service during 330 scheduled events that helped restore critical lands and improved over six miles of trails. Volunteers planted 22,202 native trees and shrubs at 16 sites and removed 574 cubic yards of noxious and invasive weeds, including blackberries, Scot's broom, ivy, tansy ragwort, knotweed, loosestrife, butterfly bush, thistle, reed canary grass and poison hemlock from 33 sites during 76 events.

Parks and Open Space Levy

In August 2013, King County voters approved by 70 percent the 2014-19 King County Parks, Trails, and Open Space Replacement Levy, which supports operations and maintenance of the Parks Division's 200 parks, 175 miles of regional trails and 26,000 acres of open space while investing in the future through open space acquisitions, construction of regional trails and trailhead facilities, major infrastructure repair, and community and corporate partnerships.

Maury Island Marine Park – Restoration Project



King County Parks and Washington Department of Natural Resources are involved with a major restoration project of the Maury Island Marine Park. This project was made possible by a Puget Sound Corps – Special Obligation Bond Jobs Package. This site has been home to huge areas of invasive weeds since it was acquired in 1994. During 2013, Washington Conservation Corps crews spent over 12,000 hours clearing and grubbing approximately 37 acres of invasive blackberries and Scot's broom. Crews have planted over 60,000 native trees and shrubs representing more than two dozen different species. This project is reclaiming an old mine site and protects over a mile of Puget Sound shoreline.

Restoration at the Maury Island Marine Park

In 2013 the Friends of Island Center Forest completed a multi-year project funded by Parks' Community Partnership and Grants Program - construction of a new "forest cathedral" shelter and educational interpretive signage about forests and carbon sequestration. The Douglas-fir posts and beams of the timber-frame structure come from Vashon forests and were milled at the Vashon Forest Stewards' sawmill.



Vashon Island Center Forest – Cathedral Shelter and Carbon Sequestration

The grant also funded a series of 18 interpretive signs throughout the forest, including one that highlights a carbon sequestration restoration project in which the soil at a former landfill "borrow pit" was restored using a mix of mulch and biosolids. The project was part of a study between King County and the University of Washington. The study could have wide ranging application toward sequestering more carbon in soil and vegetation.

CHALLENGES & OPPORTUNITIES

Preparing Land Managers for Climate Change

Over time, forest landowners will be challenged to adapt land management strategies to changes in climate. As the effects of climate change become better understood, it will be important to educate owners of small lot forestlands to adapt land management priorities and actions to changing conditions.

Forest Stewardship with Tribes

In 2013, a new program provided forest stewardship training for Tribal members. WLRD employees will continue to seek partnerships with local Tribes to expand opportunities for integrating traditional land management practices into forestry education and outreach.

LOOKING FORWARD

Developing New Partnerships

For the past 10 years, King County Parks has successfully developed corporate and community partnerships that help improve parks, trails, and recreation amenities. From volunteer habitat restoration work parties to protecting new open space lands, the division continues to develop diverse types of partnerships. On the horizon are exciting new partnership opportunities that will allow for more forest restoration – for example in 2014 King County Parks will partner with Forterra's Carbon Capturing Companies Program and the University of Washington's School of Environmental and Forest Sciences - collaborative efforts that will help accelerate progress toward King County's forest restoration and GHG emissions reduction commitments.

Updating Performance Measures and Targets

In updating King County's 2015 SCAP, employees from the WLR and Parks divisions will improve the usability and value of the Forests and Agriculture Goal Area performance measures. For example, King County will work to adopt next step targets for forest conservation as well as consider new targets related to restoration.

GOAL AREA 4

CONSUMPTION AND MATERIALS MANAGEMENT

BACKGROUND

The purchase, use, and disposal of goods and services by King County residents, businesses, and governments are associated with significant GHG emissions. These emissions can occur at all stages of a product's life cycle, from resource extraction, farming, manufacturing, processing, transportation, sale, use, and disposal.

According to a 2012 County emissions inventory, purchasing goods and services accounts for 270,000 metric tons, or about 42 percent, of the County's operations-related GHG emissions of 643,000 metric tons. These emissions can be reduced by purchasing "environmentally preferable products." Recycled content, low toxic, resource efficient, and more durable products all have a lesser or reduced impact on the environment. The purchase and reuse of these products avoids resource extraction and consumption, and ultimately disposal, of new materials which decreases GHG emissions.

King County provides an extensive number of services that support county residents and businesses in choosing sustainable products, reducing the amount they purchase, reusing goods when possible, and recycling following their use. The County operates a system of transfer stations that offer a variety of recycling options, partners with cities who contract for residential and commercial collection in many areas of the county, sponsors programs that increase recycled content in goods consumed within the county, and conducts outreach campaigns to promote best practices.

Internally, the Environmentally Preferable Purchasing Program provides County personnel with information and technical assistance to help them identify, evaluate, and purchase economical and effective environmentally preferable products and services, while the GreenTools Program works with King County projects on deconstruction, salvage and reuse, construction debris recycling, and specification of green building materials.

COUNTY SERVICES

Climate Action Plan Goal S.4

King County will encourage and support behaviors, purchasing, and waste management strategies that account for and minimize the life-cycle impacts of consumption and materials.

PERFORMANCE MEASURE 1

Recycling rates in King County solid waste service area

Target 1

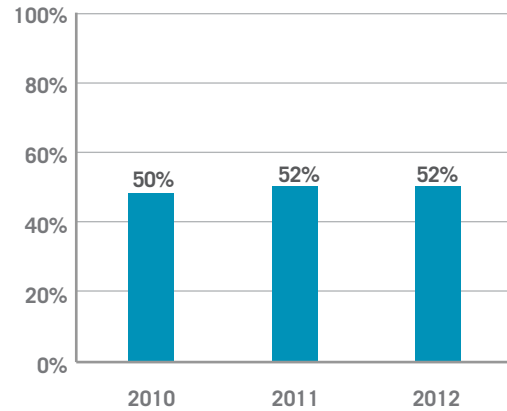
By 2020, 70 percent recycling rate of all municipal solid waste

2012 Status

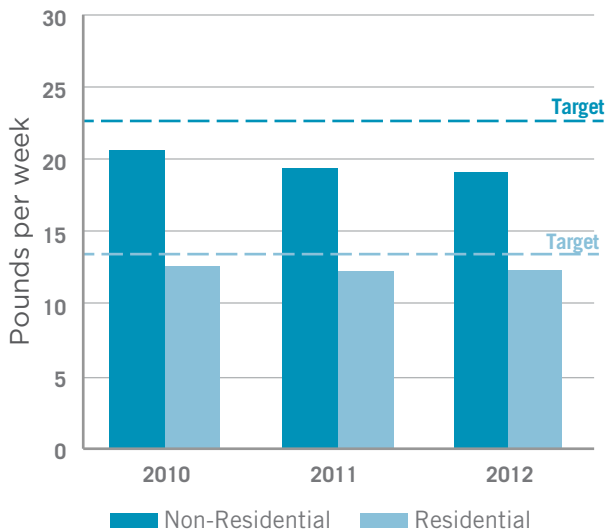
Overall recycling rates remained the same as 2011 at 52 percent. Data for 2013 is not available at the time of printing due to state reporting requirements and timelines.

While the County has a variety of programs that contribute to the success of recycling, a number of other factors play a role, such as ongoing efforts by the private sector to collect and process waste, and, more fundamentally, the daily consumption and disposal habits of the population based primarily on economic factors. In order to reach a 70 percent recycling rate, potential implementation of new policies, regulations, programs, technologies and facilities that serve the region may be needed.

Percentage of Waste Recycled or Composted



Pounds of Waste Disposed Per Week



Target 2:

By 2030, zero waste (no landfilling) of resources that have economic value for reuse, resale or recycling.

2012 Status

Zero Waste of Resources (ZWR) is a materials management philosophy to minimize disposal of material that can be put back into the economy as a feedstock and re-consumed, providing jobs and purpose for an end user. ZWR does not mean zero garbage, as there will always be some portion of the waste stream that requires waste management. The Solid Waste Division tracks this target in two ways:

- **Residential/Non-Residential Waste Prevention Goals** – In 2012, 21.9 pounds of waste per week were generated per capita. This is the same figure reported the previous year and continues to trend toward meeting the Comprehensive Solid Waste Management Plan goal of 20.4 pounds per week by 2020. Waste generated per employee in 2012

in King County was 50.8 pounds per week, which is also a reduction compared to the previous reporting period, but this surpasses the Comprehensive Solid Waste Management Plan goal of 58 pounds per week.

- **Residential/Non-Residential Disposal Goals** - In 2012, residents disposed of 13.4 pounds of waste per week, which is a modest reduction compared to the previous reporting period and surpasses the Comprehensive Solid Waste Management Plan goal of 14.2 pounds per week by 2020. In King County businesses, the amount of waste disposed per week, per employee in 2012 was 18.6 pounds, which is also a reduction compared to the previous reporting period and surpasses the Comprehensive Solid Waste Management Plan goal of 22.9 pounds per week. The downward trends here and the above non-residential waste prevention per employee figure is most likely attributed to strong and continued effort in the business sector to extensive cost cutting efforts given the state of the economy.
- **Note** - A reduction in these goals in this case is a positive result – less waste generated.

2013 KEY ACCOMPLISHMENTS

Recycle More. It's Easy to Do

“Recycle More. It's Easy to Do” is a regional education campaign focused on increasing residential recycling rates, particularly in areas of the county with lower recycling rates.

It is estimated that in 2013 more than 866,000 tons of recyclables were collected in King County from residents and businesses, including 9,500 tons from transfer stations. According to Environmental Protection Agency (EPA) modeling, this represents GHG emission reductions equivalent to 1.3 million metric ton equivalents of carbon dioxide. This is the equivalent of removing annual emissions from 207,415 passenger vehicles or conserving 118,589,445 gallons of gasoline per EPA's Waste Reduction Model.



Food: Too Good To Waste

The GHG emissions of food production and consumption are significant, on par with emissions associated with building energy usage, and yet Americans waste a quarter of all the food they purchase. The average single-family household in King County throws away 390 pounds of food each year. In fall 2013, King County launched “Food: Too Good to Waste,” a countywide education campaign aimed at reducing the amount of residential food waste. The campaign was designed through a collaboration between the EPA, King County, and more than 25 other government partners. King County piloted the campaign in 2012 with a local elementary school. More recent approaches included online videos that combined cooking and grocery shopping tips with food waste prevention strategies in partnership with a local grocery store; an advertising and media campaign to drive video views; and expanded web resources.



COUNTY OPERATIONS

Climate Action Plan Goal O.4:

King County will minimize operational resource use, maximize reuse and recycling, and choose products and services that have low environmental impacts.

PERFORMANCE MEASURE 1

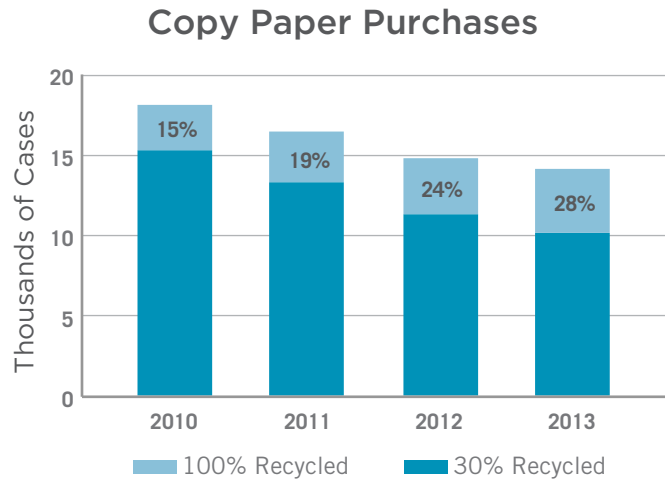
Total amount of copy paper purchased

Target 1

20 percent reduction in copy paper usage by 2013 compared to 2010

2013 Status

The 2013 target has been exceeded (KCC 18.20.040). Overall, use is down more than 21 percent since 2010. In 2013, King County agencies purchased 14,177 cases of white, recycled content copy paper. This represents a slight reduction of one percent over 2012 consumption.



In addition, the County has achieved savings of \$209,860 over the past three years, as a result of waste reduction efforts, including default double-sided copying, electronic documents in lieu of paper copies and other paper conservation strategies. This savings reflects the increased cost of purchasing 100 percent recycled content copy paper which is currently more expensive than 30 percent recycled content paper.

PERFORMANCE MEASURE 2

Percentage of 100 percent recycled content copy paper purchased

Target 2

100 percent compliance by all county agencies

2013 Status

Approximately 28 percent of copy paper purchases comply with the goal to use only 100 percent recycled content copy paper. This number is slowly, but steadily rising, up from 25 percent last year. The remaining 72 percent of purchases contain 30 percent post-consumer recycled fiber.

2013 KEY ACCOMPLISHMENTS

Paystubs for employees using direct deposit are now paperless and only available online

PAPERLESS DIRECT DEPOSIT

In November, Payroll went completely paperless. No longer, will any paper pay stubs be printed unless requested and will only be available online. Although more than 90 percent of County employees had their pay deposited directly into a bank account, around 80 percent of those employees still received a paper paystub.

Beyond the environmental impact of printing paper paystubs, the County will save more than \$120,000 a year in printing and distribution of more than 10,000 paper paystubs every two weeks.

Materials Diversion on County Projects

On average, of those projects that reported in 2013, King County capital projects diverted 64 percent of construction materials from landfills. This is lower than the 77 percent average in 2012. Examples of projects with high diversion rates are:

- **Countyline Levee Setback Project** – Recycled 45,000 yards of fill and 3500 tons of material, diverting 75 percent of construction and demolition (C&D) materials.
- **Countywide Hot Mix Asphalt (HMA) Overlay Project** diverted 95 percent of C&D materials primarily including old asphalt.
- **Reddington Levee Setback and Extension Project** diverted 95 percent of C&D materials including soil, concrete, asphalt, and park structures.
- **Flood Zone Hazard Reduction Home Buyouts Program** diverted 81 percent of C&D materials.
- **West Point Waste-To-Energy Project** recycled 426 tons of concrete, metal and co-mingled matter diverting over 75 percent of C&D materials.
- **Removal of Hangar 5 Project** recycled approximately 200 tons of material, with a savings of almost \$500,000 compared to standard demolition.



Hangar 5, King County International Airport

Salvage and Deconstruction Assistance Program & Flood Hazard Reduction Home Buyouts

The GreenTools Program provided salvage and deconstruction assistance (including onsite building assessments) to over 20 King County projects. Most notably, the River and Floodplain Management Section of WLRD continued its ongoing project to reduce flood damages by removing at-risk homes from floodplain areas. Many of these homes were removed using salvage and deconstruction methods instead of traditional demolition. Deconstruction makes materials available to be salvaged and reused, reducing the need for new materials to be produced.

Electronics Recycling

King County is a designated “e-Stewards Enterprise” through the Basel Action Network’s standard for responsible recycling and reuse of electronic equipment. The County recycles all of its electronic waste, or “e-waste” with a certified e-Stewards® recycler consistent with County Code (KCC 18.20). E-waste is of particular concern if disposed of improperly because it contains a variety of heavy metals and other toxins that can leach into the environment. In 2013, King County recycled approximately 137,300 pounds of electronic equipment with certified e-Stewards recyclers. This included computers, servers, monitors, televisions, printers, phones, cell phones, copiers, fax machines and miscellaneous office electronics.



Recycled Asphalt Shingles (RAS) in Paving

Post-consumer asphalt roofing shingles are valuable and represent a key waste diversion opportunity. It is becoming increasingly common throughout the United States to use RAS in Hot Mix Asphalt (HMA) pavements. King County Road Services Division’s Materials Lab completed the third and final year of pavement performance testing on the Southeast 416th Street Shingles in Paving Demonstration Project — a controlled experimental study of the use of RAS in HMA conducted in partnership with the King County Solid Waste Division (SWD). Results showed that the pavement containing RAS is performing as well as the traditional pavement. King County Road Services Division is now developing updated specifications for use in its own projects.



Solid Waste Division staff highlights green features such as Recycled Asphalt Shingles (RAS) in pavement during tour of Bow Lake Recycling and Transfer Station

In 2013, the SWD used nearly 10,000 tons of HMA containing 3 percent RAS at the new Bow Lake Recycling and Transfer Station. The SWD also maintains an asphalt work order contract, under which HMA containing RAS is used for all pavement work at its recycling and transfer stations and at the Cedar Hills Regional Landfill. At the state level, 2013 saw the approval and use of the first mix design for hot mix asphalt containing RAS, which met the Washington State Department of Transportation’s general special provisions for that material.

PROJECT PROFILE:

Metro Transit was a founding signatory of the American Public Transportation Association (APTA) Sustainability Commitment program and has put in place a comprehensive sustainability program to reduce its environmental footprint. In 2013, Metro Transit was awarded with Gold-level recognition from APTA for significant reductions in areas such as energy, water use and waste. Metro Transit was recognized for significant improvements to decrease waste generation and increase the amount of waste that was reused or recycled. From 2003-11 (the period measured for APTA's 2013 award) Metro Transit reduced solid waste generation by 34 percent and increased the amount of waste diverted from landfills by 11 percent.



METRO TRANSIT RECEIVES APTA
GOLD RECOGNITION

PROJECT PROFILE:

Imagine a football field, including the end zones, overflowing with office chairs, desks, partitions, tables, filing cabinets, shelving, and binders, innumerable binders, that King County no longer needs. These items had accumulated from moves, consolidations, and downsizing over several years, and much of this mountain of surplus furniture and more was stored in a rented warehouse space at Harbor Island near downtown Seattle.

Since this was an unsustainable process, King County Facilities Management Division, Fleet Administration Division Surplus Program and the Solid Waste Division embarked on a "Lean" project. The result: A dramatic increase in the amount of office furniture and supplies being reused, or recycled with 51 truckloads removed from the warehouse, and most items going to local nonprofits for redistribution. At the Lean-required 90-day report out, Harbor Island was empty, saving rental costs, local nonprofits had new furniture, landfill disposal was reduced, and a streamlined process was established for future furniture surplus and office moves.



Furniture stockpile at Harbor Island Warehouse before Lean event

FURNITURE REUSE LEAN EVENT

BOW LAKE RECYCLING AND TRANSFER STATION

PROJECT PROFILE:

The New Bow Lake Recycling and Transfer Station was completed in 2013, with an expanded recycling area. This single station receives about one third of the County's total garbage tonnage for transfer to the landfill, and is now on track to double the amount of recycling that takes place in the transfer station system.

The design of the new station incorporates many new features, including:

- Two pre-load compactors to improve operational efficiency and decrease the number of transfer trailer truck trips required to and from the station;
- Sustainable building design features, such as solar panels and energy-efficient lighting, that will result in lower life-cycle costs than conventional building design;
- Multiple gutters channel rainwater from the roof into two underground 15,000-gallon vaults. The rainwater is used in washing down station floors and equipment;
- Asphalt paving contains recycled asphalt shingles - locally sourced through the SWD's LinkUp program;
- Green building materials are incorporated throughout the facility including 90 percent of wood used is certified by the Forest Stewardship Council; and
- 98 percent of C&D materials were diverted from landfills.

The Bow Lake Recycling and Transfer Station achieved LEED Platinum certification and received the 2013 Northwest Construction Consumer Council's Green Project of the Year



Aerial photo of new Bow Lake Recycling and Transfer Station

Award for Achievement in Sustainability. The project was completed on schedule and under budget, while maintaining a stellar safety record. With the completion of a new scale facility and recycling area, a grand opening celebration was held in October.



BINDERPALOOZA

In August 2013, Facilities Management Division led a county-wide effort to round up all of the gently used binders that could be found for donation to Seattle Communities in



More than 200 boxes of binders were delivered to the Stuff the Bus Campaign

Schools' annual "Stuff the Bus" program which supplied the binders to kids in need who were going back to school. For the binders which weren't gently-used, arrangements were made with AtWork, a work training program in Issaquah, for them to take small quantities of binders, on an on-going basis, for manual disassembly and recycling of the cardboard and metal. They now take all of our binders at no cost.

CHALLENGES & OPPORTUNITIES

Collaborative Efforts to Achieve Zero Waste

Achieving a 70 percent recycling rate and zero waste of resources will take a collaborative effort on the part of the County, the cities, and the private solid waste and recycling companies. It is likely that a combination of efforts will be required to encourage the desired behaviors:

- Making sure that adequate public and/or private infrastructure is in place (e.g., building new transfer stations; Materials Recycling Facilities capacity/capabilities);
- Continued education and promotion;
- Incentives, such as grants and recycling fees at transfer stations; and
- Mandates or bans on disposal of certain materials such as those with a high value or are easily recyclable.

100 Percent Paper Compliance

Achieving 100 percent compliance of the purchase of 100 percent recycled content copy paper remains a challenge. The cost of 100 percent recycled content is approximately 15 to 20 percent more than 30 percent recycled content paper, which limits agencies full participation in this effort. When factoring in 20 percent copy paper reductions achieved, the County is able to offset the additional cost of the higher recycled percentage of paper, which results in an overall cost savings.

The Environmental Defense Fund Paper Calculator estimates that if the County converted the remaining purchases to 100 percent recycled content copy paper, instead of 30 percent content; the resulting environmental impact would conserve the equivalent of 4,560 trees, 2.13 million gallons of water and approximately 197 tons of CO₂ annually.

New Green Building Ordinance

The 2013 Green Building Ordinance includes minimum performance requirements for diverting construction and demolition material from landfills for County owned capital projects. Performance will be phased in with an 80 percent diversion rate by 2016, and an 85 percent diversion rate by 2025, in order to meet the King County Comprehensive Plan's goals of achieving zero waste of resources by 2030. In addition, the new green building policy will include reporting criteria to track use of environmentally preferred products and C&D diversion performance. Better data collection will help identify where improvements can be made.

LOOKING FORWARD

There are many efforts planned for 2014 and beyond to increase waste diversion, to reduce GHG emissions associated with consumption, and to ensure compliance with internal policies, including:

Material Resource Recovery at Transfer Stations

The Solid Waste Division will test recovery methods and evaluate feasibility of targeting additional materials for diversion that have previously been disposed. Initial materials include high value resources, including wood, metal and cardboard. Lessons learned will be used to standardize operational practices across the system, where applicable, to significantly increase diversion.

Recycled Paper Compliance

Additional strategies will be implemented to increase the purchase of 100 percent recycled content paper by County agencies, including quarterly compliance reporting by departments to the Executive's Office, and incentives/directives for compliance. Metro Transit added the purchase of 100 percent recycled content copy paper as a specific target in its first ever Sustainability Plan (released in April 2014) and its Sustainability Program Coordinator is working with individual sections to provide education and outreach on both decreasing paper use and increasing purchases of 100 percent recycled content paper.

Sustainable Purchasing Leadership Council Founding Membership



King County became a founding member of this organization in 2013. Employees from Procurement and Contract Services are active in this national nonprofit, serving on the Strategic Advisory Committee that

advises the Board of Directors, and participating in the 2014 inaugural annual meeting to be held in Washington, D.C. in May. The upcoming work programs of the council, which include guiding principles, landscape scan, action plans, metrics, and a leadership standard, will elevate and recognize the work of public and private institutions in sustainable purchasing.



Sustainable Purchasing Leadership Council Founder's Summit Meeting, Washington D.C.

West Coast Climate and Materials Management Forum – Government Purchasing Workgroup

King County participates in this EPA-led workgroup focusing on governments purchasing for climate protection. In 2014, the workgroup will develop a toolkit for use by other jurisdictions to assist them in identifying high impact areas through GHG and supply chain inventories, and identify ways to reduce these impacts.



GOAL AREA 5

PREPARING FOR CLIMATE CHANGE IMPACTS

BACKGROUND

Across the globe, climate change is having serious impacts; sea levels are rising, heat waves and droughts are occurring more frequently and for longer periods, glaciers are melting, and climate-related natural disasters are causing significant environmental, public health and economic impacts.

In the Pacific Northwest, scientists have documented warming temperatures, increasing ocean acidity, declining glacial area and spring snowpack, and changing streamflows. These long-term changes are consistent with those observed globally as a result of human-caused climate change. In the coming decades, short-term natural climate variability will continue to affect our weather and climate, but cannot distract us from planning for important long-term trends.

According to the American Association for Advancement of Science's recent summary report, "We are at risk of pushing our climate system toward abrupt, unpredictable, and potentially irreversible changes with highly damaging impacts. Earth's climate is on a path to warm beyond the range of what has been experienced over the past millions of years." King County faces significant environmental and economic challenges stemming from climate change, including stressed and changing ecosystems, costly impacts on public and private property, and new public health risks.

County efforts to prepare for climate change directly tie to the KCSP objective "prepare for the effects of climate change on the environment, human health, and the economy." This work also relates to diverse County policies focused on preparing for climate change impacts, as summarized in King County's Comprehensive Plan, including policies to partner with others to address the impacts of climate change, and to reduce the impacts of climate change on public and private infrastructure, the natural environment, and public health.

The County has developed programs and projects to help reduce the impacts of floods, support farm and forest owner action to address climate change impacts, and begin to prepare the region for the effects of climate change on stormwater, public health, and emergency response. These efforts promote equity and social justice by helping those who are most vulnerable to climate change impacts. King County is also working to plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.

Much of King County's focus in 2013 was on strategies to reduce GHG emissions. King County continues to take incremental steps to incorporate climate change information into relevant projects and programs. However, significant work remains to follow through on the SCAP goals related to preparing for climate change impacts.

COUNTY SERVICES

Climate Action Plan Goal S.5

King County will work with local cities and other partners to prepare for the effects of climate change on the environment, human health and the economy.

PERFORMANCE MEASURE 1

Number of King County homes at risk of flooding or river channel migration

Target 1

Targets are being developed as part of river corridor plans scheduled to be completed on individual river segments between 2014 and 2016.

2013 Status

There were 3,820 homes in King County that were within mapped 100 year river floodplains, channel migration zones or historic river channel meander belts in 2012, which was the first year that this performance measure was tracked. Of the 3,820 homes, 171 were classified by the Federal Emergency Management Agency as repetitive loss structures based on the frequency and magnitude of flood insurance claims. Efforts such as the purchase or elevation of repetitively damaged homes will help decrease the number of structures at risk. However, there is the potential for the number of homes at risk to increase in some King County cities where regulations may allow for development in flood and channel migration hazard areas. Over the long term, climate change could also affect the number of homes in flood areas.

2013 KEY ACCOMPLISHMENTS

Manage Flood Risks

As service provider to the King County Flood Control District between 2007 and 2013, King County completed the following actions to reduce the risk of flooding and channel migration:

- Acquired 160 parcels totaling 356 acres;
- Demolished 160 at-risk structures and relocated 17 structures outside the flood hazard area;
- Elevated 54 homes, three agricultural structures and supported the construction of 26 farm pads to increase community resiliency to flooding; and
- Completed 76 construction projects, ranging from small repair to major levee setbacks.

In 2013, King County completed the largest in-river flood protection project since the 2007 creation of the King County Flood Control District. The new, mile-long levee along the western bank of the Green River was completed on time and within budget. The levee protects thousands of Auburn residents, more than 300 residential properties and 275 commercial properties with a combined value of \$680 million, plus several major transportation corridors. The \$17 million project involved excavating enough soil to fill 80,000 full-sized pickup trucks, installing nearly 4,300 feet of drainage pipe, placing 340 logs and 48,000 tons of rock and planting more than 18,000 native trees and shrubs to stabilize soil and provide habitat for fish and wildlife.



Reddington Levee Setback Project

Emergency Management

Climate change is being factored into hazard and vulnerability assessments as part of the update to the King County Regional Hazard Mitigation Plan. Representatives from 54 different cities, schools, fire districts, hospitals and utility districts are collaborating with King County's Office of Emergency Management and Tetra Tech, Incorporated – the contractor leading the hazard assessment and plan development. Each hazard in the plan – such as flooding, severe weather and fire – will include a section on how it may be affected by climate change. The hazard assessments and particular vulnerabilities identified in the plan will ultimately be used to inform other aspects of emergency management planning, such as the Comprehensive Emergency Management Plan.

COUNTY OPERATIONS

Goal 0.5

King County will plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.

PERFORMANCE MEASURE 1

Number of key facilities and natural resource assets and programs assessed for vulnerability to climate change impacts

Target 1

A target will be established as part of the 2015 SCAP update.

2013 Status

King County will plan and prepare for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.

PERFORMANCE MEASURE 2

Number of key facilities and natural resource assets and programs vulnerable to climate change impacts that implement a plan for reducing likely impacts

Target 1

A target will be established as part of the 2015 SCAP update.

2013 Status

King County is working to document key facilities and programs that are vulnerable to climate change impacts and develop targets for reducing likely impacts. Performance measures and targets related to this work will be formalized as part of the 2015 SCAP update.

2013 KEY ACCOMPLISHMENTS

Sea-Level Rise Impacts to Wastewater Treatment Infrastructure

In 2013, WTD's climate change program assessed its conveyance system and performed a hydraulic analysis of sea-level rise impacts on essential facilities in the conveyance system. This assessment included measuring and quantifying the current impact of saltwater intrusion into the conveyance system. The evaluations looked at both the potential for structural flooding of the facility and the increased level of saltwater intrusion into the conveyance system through outfalls. The analysis indicated that 20 facilities are at risk of saltwater inflow because their weir elevations are lower than the highest predicted tides.



This photo shows just minor damage of the construction site as a result of a record high tide. Damage would have been much worse if the construction crew hadn't accounted for sea-level rise. Work started again within hours and there was no loss of equipment.

WTD has also completed an assessment of on-site flooding from sea-level rise to the West Point Treatment Plant located on Puget Sound. The assessment concluded that West Point is adequately protected against flooding from sea-level rise, both now and in the foreseeable future, because of the past construction of large landscaped walls and earthen berms around the plant.

The Barton Pump Station in West Seattle is being upgraded to protect Puget Sound and the surrounding environment from sewer overflows. The project has incorporated likely sea-level rise impacts into its design.

Coastal Wetland Restoration

The Water and Land Resources Division considers climate change impacts in habitat assessments, environmental review of land use, and in species and habitat recovery efforts. For example, as part of the Cove Creek shoreline restoration project on Vashon Island, saltwater wetlands are being constructed to include topographic variability to ensure proper function at multiple tidal elevations, which also provides resiliency as sea level rises.



Before



After

The Dockton Heights shoreline restoration project on Vashon Island, mostly completed during 2013, removed creosote pilings, shoreline armoring and fill from a marine shoreline. The project was designed to have the necessary resiliency to withstand sea-level rise.

CHALLENGES & OPPORTUNITIES

The Challenge of Unprecedented Changes

The rate and magnitude of climate change impacts facing the Puget Sound region is daunting. Changes already observed, such as increasing temperatures, decreasing snowpack, and acidifying waters in the Puget Sound, are cause for alarm. There is reason to be optimistic that global sources of GHG emissions will be curtailed and the most serious impacts will be averted. If they are not, the region will need to respond to increasingly drastic changes and impacts to its environment, economy, and public health.

Creating Resilience

Many actions that help reduce GHG emissions – such as King County’s efforts to provide transportation choices, support development of local, renewable energy, and encourage healthy forests – also foster communities that are more resilient in the face of climate change-related risks and impacts. For example, in the case of severe weather, healthy forests can help reduce the impacts of stormwater runoff and flooding, while transportation and energy alternatives can allow for decreased community impacts and faster recovery. King County is working to help implement preparedness strategies that have the dual climate change benefits of reducing GHG emissions and also supporting resilient, healthy communities.

LOOKING FORWARD

Wastewater Treatment Division and River Flooding

In 2014, WTD is assessing the potential impacts from possible increased river flooding on key facilities and transportation infrastructure that support the operation of WTD's facilities and conveyance system.

The division is developing strategies for reducing the risks and mitigating future impacts from sea level rise and river flooding. The division also performs a vulnerability assessment of wastewater facilities and conveyance systems during project planning so design teams can consider reducing the risk associated with future sea-level rise.

Assessing New Impacts: Stormwater and Puget Sound Ocean Acidification

Scientists, governments, businesses and the public are recognizing that the era of human-caused climate change has arrived, and are taking new steps to reduce these impacts. King County is exploring new collaborative partnerships with, for example, King County's cities, the federal government, and non-profit foundations and organizations. For example, in 2013 King County partnered with EPA scientists to begin assessing climate change impacts on future rainfall patterns and future stormwater management needs. In addition, as part of the 2014 budget, the King County Council directed the Water and Land Resources Division to begin monitoring ocean acidification in Puget Sound, in cooperation with several federal agencies and the Washington State Department of Ecology.

Mainstreaming Climate Change Preparedness

The County and its partners are working to incorporate climate change considerations early into program and project designs. The goal is that these efforts are less "retrofits" and more everyday business. Although climate change preparedness is an emerging field, an early focus on prevention can be the most effective and efficient solution. This is why King County is committed to planning and preparing for the likely impacts of climate change on County-owned facilities, infrastructure and natural resources.

Measuring Success

As King County works to implement climate change preparedness actions, it will be critical to measure their effectiveness. However, measuring effectiveness of prevention-focused actions is challenging, especially in light of the uncertainty of climate change impacts. The performance measures related to this goal area of the SCAP, in conjunction with the new environmental, health and economic impacts of climate change indicators, are the early stages of effective climate change preparedness performance management. Several related efforts – King County's participation as a pilot Sustainability Tools for Assessing and Rating Communities (STAR) community, the King County Flood Hazard Management Plan Update, and the 2015 SCAP update – mean that there will be significant near-term progress toward measuring the impacts of these efforts.

APPENDIX

King County Ordinance 17270 requires this report include information about all expenses associated with the climate change program and a cost-benefit analysis of the program.

APPROACH AND COST OF CLIMATE CHANGE PROGRAM

The King County Comprehensive Plan includes policies directing King County to reduce greenhouse gas (GHG) emissions, prepare for climate change impacts, assess this work, and collaborate with others on solutions. King County's Strategic Plan includes the objective to "reduce climate pollution and prepare for the impacts of climate change on the environment, human health, and economy."

In 2012, King County adopted its Strategic Climate Action Plan (SCAP), was submitted to the County Council by Executive Dow Constantine in response to Ordinance 17270. The plan synthesizes and focuses King County's most critical goals, objectives, and strategies to reduce greenhouse gas emissions and prepare for the effects of climate change. The Comprehensive Plan, Strategic Plan, and SCAP guide King County's efforts as they relate to climate change.

The County's climate change efforts are led out of the Department of Natural Resources and Parks (DNRP). The 2013 expenditure for the one employee position focused on climate change was approximately \$115,000.

The actions needed to carry out climate-related Comprehensive Plan, Strategic Plan and SCAP goals and objectives intersect with the roles and work of multiple departments and divisions in King County. In order to integrate actions and pool technical resources across County agencies, the climate program employee works closely with several climate-focused teams supporting development and implementation of County directives related to climate change. These interdisciplinary teams bring together additional County employees focused on complementary tasks, such as those implementing the Energy Plan, the Green Building and Sustainable Development Program, the Environmental Purchasing Program, and those in Forestry and Agriculture programs.

The County also pools resources for climate-related technical assessments (e.g., GHG emissions inventories), public outreach, and program development with cities through the Sustainable Cities Roundtable, King County-Cities Climate Collaboration, and through professional associations such as Climate Communities and ICLEI-Local Governments for

Sustainability. Membership in these types of organizations gives King County employees ready access to information on local government approaches to reducing climate pollution and preparing for climate changes, federal and state grant programs, and changing regulatory requirements. Dues for these organizations were approximately \$25,000 in 2013.

BENEFITS OF CLIMATE CHANGE PROGRAM

Supporting implementation of a climate change-related projects and programs, such as those highlighted in this report, have direct climate-related benefits, as well as other benefits, such as reducing water pollution, creating new local green jobs, and enhancing residents' quality of life. Specific financial benefits include:

- **Helping Secure Revenue to Support Related County Projects and Programs.** For example, in 2013, King County received a \$500,000 Washington State Energy Efficiency Grant to partially fund a mechanical system energy efficiency project at the Weyerhaeuser King County Aquatic Center and a lighting retrofit project at the West Point Treatment Plant.
- **Increasing Efficiency of County Operations.** Significant cost savings and new revenue sources have been achieved through climate related projects that reduce GHG emissions by minimizing energy, waste and resource expenditures and by creating new resources such as renewable energy. For example, King County has reduced energy use in government-owned facilities by nearly 10 percent since 2007, and in doing so has reduced operational resource costs by approximately \$2.6 million annually through related projects.
- **Mitigating Future Climate Change Impacts.** A key benefit relates to minimizing and avoiding climate change risks by integrating climate change science into the planning and design of diverse projects and programs. For example, the Wastewater Treatment Division has been integrating data about sea level rise into wastewater infrastructure design and operations. The financial value of making these decisions is likely significant. For example, the Washington State Department of Ecology's "Impacts of Climate Change on Washington's Economy" concluded that if GHG emissions are not reduced, and proactive steps to minimize impacts are not taken, the annual Washington state price tag of climate change impacts will be at least \$3.8 billion by 2020.

There are other less-quantifiable benefits related to climate solutions: County Council and Executive leadership on the issue, improving relations with King County cities through regional collaboration, improving the quality of life and health of our residents, helping residents and businesses save money on energy and resource costs, supporting community and business environmental and climate efforts, and achieving other environmental sustainability related objectives.