Sound Transit

Sustainability Progress Report

Easy connections to more places for more people.

– Sound Transit vision statement

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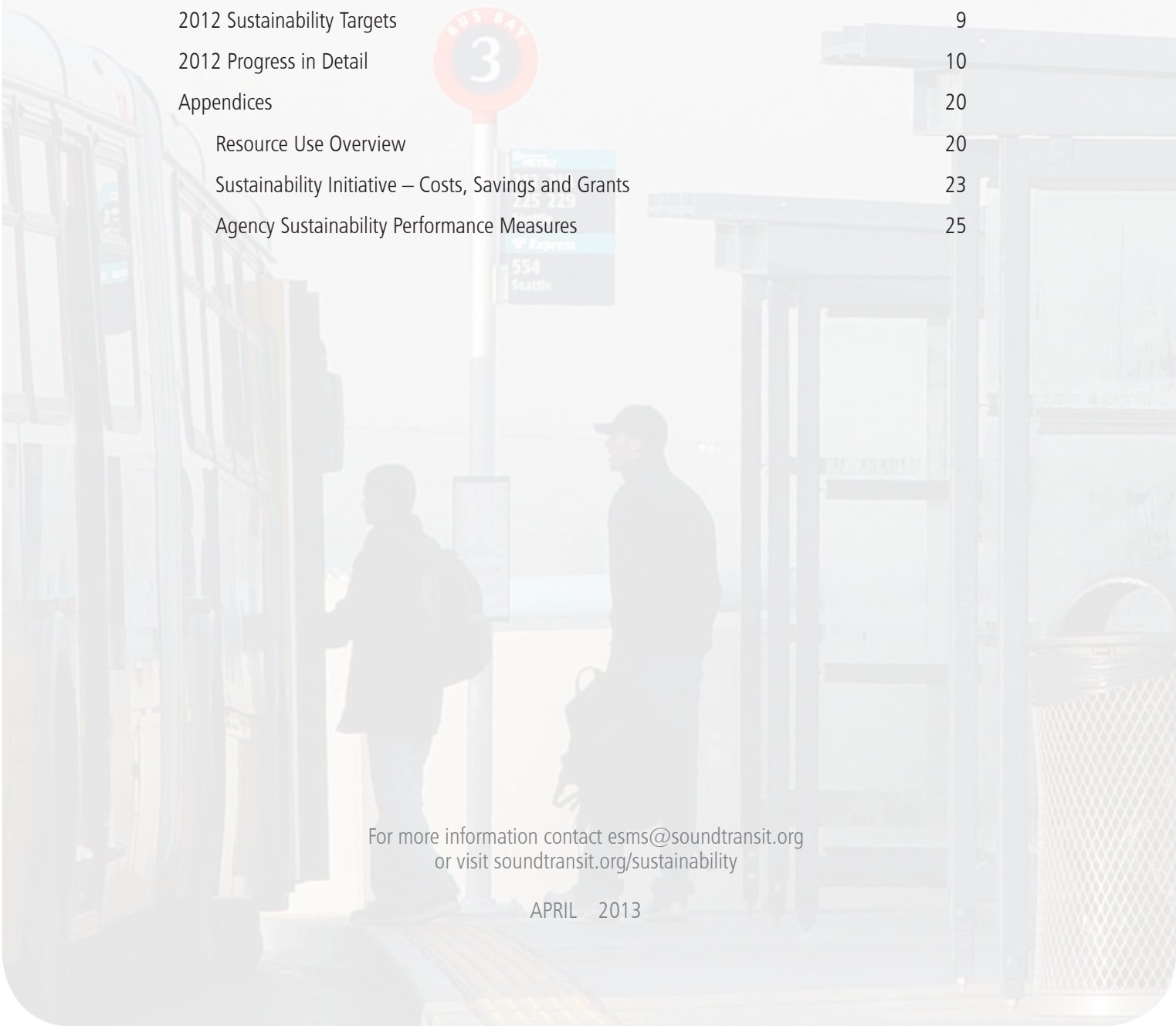


For more information contact esms@soundtransit.org
or visit soundtransit.org/sustainability

APRIL 2013

Letter from the CEO

Year-by-year we're working to become one of the most sustainable transit agencies in the nation. We're doing so by incorporating sustainability into everything we do, from planning and designing our regional system, to building our capital projects and operating our trains and buses.

Sustainability is measured in many ways. At Sound Transit, our most important job, and the one most helpful for the environment, is moving people out of their cars and onto our buses and trains. In 2012 we enjoyed our most successful ridership year ever with about 28 million passenger boardings, a 12 percent increase from the previous year.

Our regional transit system provides the building blocks for a sustainable future. In 10 years, we will operate 50 miles of light rail along with an extensive network of bus and commuter rail services. Exchanging cars for transit improves air quality and reduces congestion to help make the Puget Sound region a better place to live and work.

The year 2012 was sustainable in other ways as well. We carried many more riders while using resources wisely and keeping costs in check. Sounder commuter rail increased fuel efficiency per mile of service by four percent, and ST Express buses maintained fuel efficiency. We also began making efficiency upgrades at four transit facilities, reduced water use at our maintenance facilities by 12 percent and increased recycling and composting in our administrative facilities by 22 percent.

Sustainability is also increasingly important in the design of our projects. Last year we applied sustainable criteria to all our major projects. When we open the Angle Lake light rail station in the City of SeaTac in 2016, it will be a showcase of green design.

This past year was the first full year of our Sustainability Plan, and we're proud of the many annual sustainability targets we met. We made significant strides, but opportunities for improvement remain. We also know that the outcome of some important design efforts are the foundation for our long-term sustainability success.

Sincerely,

Joni Earl

Joni Earl, Sound Transit CEO

Showcasing sustainable design at Angle Lake Station This future light rail station, located on South 200th Street in the City of SeaTac, will be a sustainable showcase. This station is part of the light rail extension from Sea-Tac Airport to South 200th Street and is expected to open in late 2016.

Sustainable design principles were an integral component of the project's requirements, from the initial bid process through final design. The features include:

- An efficient station footprint that reduces the concrete and steel needed for construction
- Solar panels to generate over five percent of the station's energy needs
- A rainwater harvesting system to provide 100 percent of irrigation needs
- Contractor commitment to reducing air pollutant emissions

Ridership reaches all time high It's official: Sound Transit carried more riders than ever in 2012—with about 28 million passenger boardings, a 12 percent increase from the previous year.

Executive summary

Continually improving

In a time of incredible transition and growth, Sound Transit carried significantly more riders in 2012. At the same time, we maintained resource efficiency and cost effectiveness—as well as incorporated sustainability into our everyday business.

Achieving our numerous short-term goals helps us establish a solid foundation for long-term change.

Our framework for sustainability can be summed up in three important words:

People	Help people move freely by increasing the availability and use of regional transit
Planet	Promote environmental stewardship and conserve natural resources
Prosperity	Maximize agency efficiency and enable people and businesses to save time and money

Sound Transit holds itself accountable to these principles by maintaining a robust Environmental and Sustainability Management System and reporting annually on our progress. In 2012 we:

- Retained international ISO 14001 certification
- Remained a gold level signatory of the APTA Sustainability Commitment
- Met 80 percent of our sustainability targets (16 out of 20)

Transit-oriented development (TOD) policy strengthened

"In the future, our stations will serve as magnets for vibrant commercial and residential projects that create places where people want to live, work and play, attracting even more riders." – Sound Transit Board Chair and Pierce County Executive Pat McCarthy

The Sound Transit Board adopted a TOD policy that focuses on increasing ridership by promoting positive land use and development within walking distance of transit facilities. Evaluating opportunities for TOD will play an increased role in all phases of planning, constructing and operating our regional transit system.

Transit is sustainability in action

Sound Transit's core mission is to provide regional transit services that contribute to the Central Puget Sound's sustainable future. As the region attracts one million more residents by 2030, Sound Transit's expansion helps provide the transit backbone for smart regional growth.

In 2012 Sound Transit supported the region's residents, the environment and the local economy by:

Enabling more people to travel the region affordably and reliably

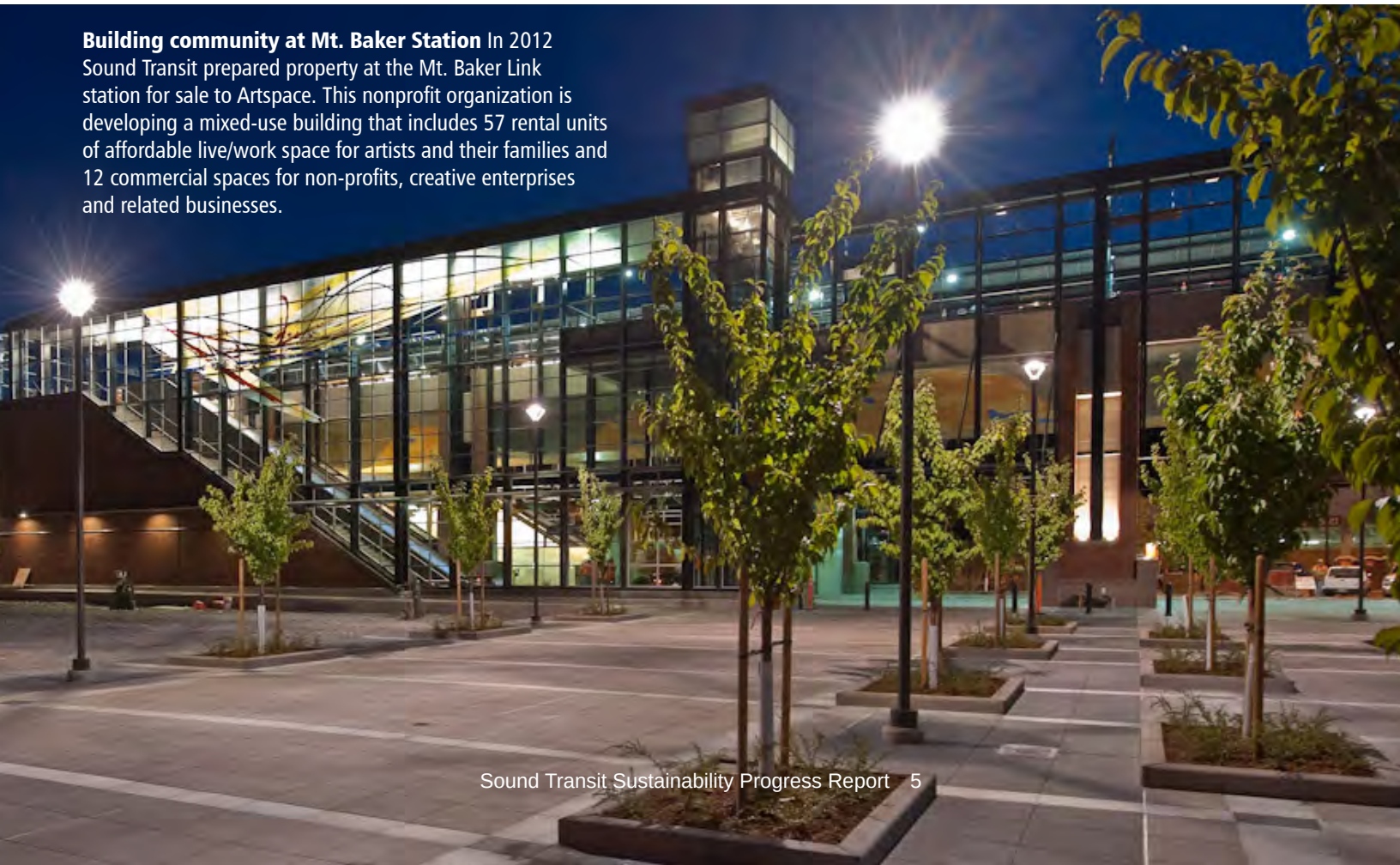
- Carrying more riders than ever with a 12 percent increase in trips across the region

Making the region cleaner and greener

- Reducing car trips—for every 100 gallons of gas consumed by Sound Transit, residents throughout the region save more than 170 gallons
- Powering Central Link light rail with clean electricity that's over 85 percent carbon free
- Improving air quality by lowering harmful emissions from ST Express buses and Sounder trains

Growing the region smartly

- Intensifying our commitment to transit-oriented development
- Advancing a policy to improve station access
- Assessing the potential impacts of climate change to our regional transit system



Building community at Mt. Baker Station In 2012 Sound Transit prepared property at the Mt. Baker Link station for sale to Artspace. This nonprofit organization is developing a mixed-use building that includes 57 rental units of affordable live/work space for artists and their families and 12 commercial spaces for non-profits, creative enterprises and related businesses.

Planning and delivering services sustainably

As we deliver our transit projects and operate our trains and buses, Sound Transit is also doing its best to incorporate sustainability—from designing new projects to conducting day-to-day business. In 2012 we enhanced our sustainability by:

Delivering the highest level of environmental compliance

- Receiving zero environmental permit violations across all construction projects
- Accepting two gold awards from King County for exemplary compliance with wastewater requirements for University Link construction

Designing and building greener projects

- Requiring sustainable design criteria for all major projects
- Incorporating sustainability into the environmental review for Lynnwood Link
- Strengthening recycling requirements for construction sites

Operating more efficiently at our facilities

- Starting an energy efficiency program to upgrade four facilities
- Developing strategies to reduce energy, water and waste
- Improving water efficiency by 12 percent at our maintenance facilities

Enhancing local parks Sound Transit partnered with Metro Parks Tacoma to lessen environmental impacts from South Tacoma and Lakewood Sounder expansion by helping restore McKinley Park. We built nearly a half-acre of wetland, removed invasive plants, created a new stream channel, replanted native vegetation and built a trail and boardwalk around the site.

Environmental excellence award for restoring the Qwuloolt estuary Sound Transit received the Washington Department of Ecology's highest award for its efforts to compensate for environmental impacts to the Sounder north line from Seattle to Everett. The project near Marysville restores 380 acres of unused farmland into a salt marsh and reestablishes salmon habitat to aid in the recovery of Puget Sound.

Operating our fleets more effectively

- Increasing cost efficiency per boarding by five percent
- Improving Sounder fuel efficiency by four percent
- Stabilizing fuel use for ST Express, while carrying significantly more passengers
- Developing a fuel efficiency strategy for our ST Express fleet

Enhancing our sustainability know-how

- Updating our Environmental and Sustainability Management System procedures and formally integrating them into agency processes
- Streamlining staff environmental compliance and sustainability training—trained 100 percent of new staff and 60 percent of existing staff
- Receiving the American Heart Association's gold recognition as a Fit-Friendly Worksite

Greening our design Sustainability is an increasingly crucial component of Sound Transit 2 design work. From using natural lighting at our stations to maximizing the use of recycled materials, we're working to reduce our environmental footprint and construction impacts.

Ongoing Opportunities

As we record our progress, we're also highlighting areas that need extended focus to achieve continual improvement. In 2013 we are strengthening our work by:

- Integrating sustainability into early planning processes, including Sound Transit 3 development
- Implementing sustainable best management practices for construction
- Strengthening sustainable design criteria and their application in major projects
- Institutionalizing agency resource efficiency programs to control consumption and costs
- Evaluating continual sources of funding for the Sustainability Initiative

Strengthening the agency through employee wellness Our growing culture of wellness makes Sound Transit a healthier place to work—and enables us to better serve our customers. Our staff Wellness Program focuses on enhancing health and quality of life, with activities such as our staff bike-to-work commute challenge.

Sustainability Plan

We use our Sustainability Plan to set annual targets and calibrate success.

Priorities These nine priorities form the core of our activities to help build a sustainable Central Puget Sound and achieve long-term success.

Long-term targets Each priority includes one to three long-term targets that provide direction for current planning efforts and represent our preferred future. These targets, which may be strengthened as successes are achieved, include both quantitative and qualitative goals for measuring progress. We aim to meet these targets by 2030.

ACTION AREAS	PRIORITIES	LONG-TERM TARGETS
People **Ridership** *Increase the availability and use of regional transit*	**Ride** Provide safe, secure and reliable transportation choices.	▪ Transit services, ridership and market share are expanded.
	Live Support healthy, diverse, transit-oriented communities.	▪ Pedestrian, bicycle, rideshare and connecting transit access is improved at all Sound Transit stations and facilities. ▪ Customer experience and amenities are improved at all stations. ▪ Transit-oriented development projects are established at all applicable Central Link properties owned by Sound Transit.
	Advocate Increase community support for transit investments and services.	▪ A strong majority of regional leaders and residents recognize the benefits of transit system expansion.
Planet **Conservation** *Promote environmental stewardship by conserving natural resources*	**Save Energy** Reduce energy use, greenhouse gas emissions and air pollution.	▪ All fleets deploy the most fuel-efficient, clean and cost-effective vehicles that optimize the use of proven technology. ▪ 40 percent of greenhouse gas emissions are reduced (per vehicle revenue mile). ▪ Electricity use is carbon neutral.
	Protect Ecosystems Protect natural habitats and conserve water resources.	▪ One percent of indoor and outdoor water use is reduced (per vehicle revenue mile) on average per year. ▪ Total ecosystem functions are improved. ▪ Low impact development (LID) treats 100 percent of stormwater in new facilities.
	Use Less, Buy Green Reduce materials consumption and increase recycling and environmentally preferable procurement.	▪ 100 percent of the waste stream is diverted from landfills. ▪ 100 percent of purchases are assessed for environmentally preferable products. ▪ Sound Transit is a 'paperless office.'
Prosperity **Operating Efficiency** *Maximize agency efficiency and enable people and businesses to save time and money*	**Connect** Provide the mobility necessary for strong economic growth by connecting regional urban centers.	▪ The ST2 Plan for regional transit is completed, and the system is operated and maintained at maximum efficiency.
	Streamline Incorporate sustainability into agency decision-making processes.	▪ Operational efficiency and financial savings are maximized by fully evaluating economic, environmental and social costs.
	Engage Enhance staff participation in sustainability initiatives.	▪ Sound Transit maintains a highly-skilled workforce that actively contributes to sustainability solutions.

2012 Sustainability Targets – Year in Review

Supporting people, planet and prosperity

Additional information on these targets is available in the "progress in detail" section of this report. Outstanding targets will be advanced in 2013.

People

Live

- ☐ Integrate sustainability criteria into interlocal agreements for early planning and transit-oriented development

Advocate

- ✔ Communicate the agency's positive impact on regional job creation
- ✔ Communicate how Sound Transit projects and services enhance the region's air and water quality and respond to climate change

Planet

Save Energy

- ✔ Develop a revenue fleet energy efficiency strategy

Protect Ecosystems

- ✔ Develop a near-term water reduction strategy

Use Less, Buy Green

- ✔ Increase recycling and waste diversion rates
- ☐ Implement a green procurement policy

Prosperity

Connect

- ✔ Incorporate sustainability considerations into early planning processes

Streamline

- ✔ Integrate sustainable design criteria into major capital projects*
- ✔ Enhance "best practices" for sustainable construction*
- ☐ Propose a dedicated funding mechanism to finance select sustainability projects
- ✔ Integrate the Environmental and Sustainability Management System into the agency's document control system
- ✔ Initiate FTA project to assess climate change impacts to Sound Transit*

Engage

- ✔ Streamline staff environmental compliance and sustainability training program

Ongoing Targets

Save Energy

- ✔ Complete a near-term energy management strategy for facilities
- ✔ Increase facility energy efficiency
- ✔ Maximize revenue fleet energy efficiency

Protect Ecosystems

- ☐ Complete environmental mitigation and revegetation projects at two new sites
- ✔ Reduce irrigation water usage

Streamline

- ✔ Strengthen resource conservation measures in agency design guidelines and specifications

* 2012 Agency Milestone

2012 Sustainability Progress in Detail

On the coming pages you will read about how we're implementing our Sustainability Initiative and meeting the goals in our Sustainability Plan.

2012 progress
This section illustrates the major trends, accomplishments or challenges that we faced implementing our 2012 Sustainability Targets, which are organized by each priority in our Sustainability Plan. Where we can, we share data from our performance measures to indicate progress.

2012 targets
This section provides an overview of our 2012 Sustainability Targets. These annual objectives are part of our Environmental and Sustainability Management System and respond to the long-term targets in our Sustainability Plan. Here we indicate if we accomplished these targets, what actions were achieved and what we're still working towards.

Performance measures
The Sustainability Plan includes a suite of metrics that establish our baseline for sustainability performance. First recorded in 2010, the metrics are updated annually to assess our progress. The data is interspersed throughout this section and collated in Appendix D.

The annual performance measures reflect multiple reporting frameworks and standards. Our metrics include those used by other transit agencies and local governments, as well as those required by the American Public Transportation Association's Sustainability Commitment and The Climate Registry.

Ride Provide safe, secure and reliable transportation choices

Mobility is about connecting the places people live, work and play. Our mission—to provide a public transit system that offers easy connections to more places for more people—also helps our environment, economy and community through sustainable transportation choices.

2012 progress

- Experienced record ridership increases.
  - Riders took about 12 percent more trips and traveled seven percent more miles on Sound Transit services.
  - The average Sound Transit rider travels longer distances than other riders nationwide—with an average passenger mile distance of 13.1 per trip.

Live Support healthy, diverse, transit-oriented communities

We support transit-oriented development projects to promote walkable, bike-friendly neighborhoods with a mix of residences and businesses served by regional transit. Encouraging residents, workers and shoppers to use transit helps reduce household transportation costs, supports area businesses and improves community vibrancy and safety.

2012 progress

- Adopted a transit-oriented development policy that intensifies our commitment to increase transit ridership by fostering positive land use and development within walking distance of our facilities.
- Developed a system access and parking policy to present to the Sound Transit Board in early 2013.
- Contributed to the development of and served on the Board of Directors for the non-profit Puget Sound Bike Share.

2012 targets

- ☐ Integrate sustainability criteria into interlocal agreements for early planning and transit-oriented development.
  - Evaluated sustainability criteria for the Capitol Hill TOD term sheet and agreement, which will be finalized in 2013.
  - Continue to evaluate what sustainability criteria to include in interlocal agreements with the jurisdictions where we operate. These criteria will help guide our early planning work and land use. This work will continue in 2013 with the agency's planning staff.

Advocate Increase community support for transit investments and services

Engaging our community is about gaining and maintaining support for regional transit investments. Raising awareness about the benefits of transit and sustainability increases the number of residents riding transit and supports the expansion and enhancement of these services across Sound Transit and our partner agencies.

2012 progress

- Received good grades from riders.
  - We retained a "B+" grade on overall customer satisfaction.
  - 46 percent of our riders rated us an "A" on overall customer satisfaction (compared to 48 percent in 2011).
  - 66 percent of our riders strongly agree that taking Sound Transit is a good way to help the environment (compared to 68 percent in 2011).

2012 targets

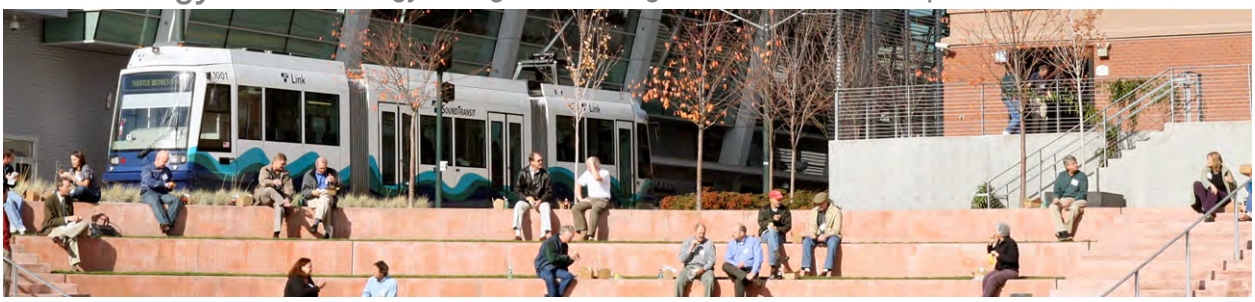
- ✓ Communicate how Sound Transit projects and services enhance the region's air and water quality and respond to climate change.
  - Collated national and agency-specific data for use by our Communications Department to explain how transit use displaces regional greenhouse gas emissions and how Link light rail runs on 87.6 percent low carbon electricity from hydropower.
  - Created standardized messages for use when communicating about our Environmental and Sustainability Management System and added them to our community outreach materials.
- ✓ Communicate the agency's positive impact on regional job creation.
  - Developed data on the number of jobs the agency brings to the regional economy, including the number of jobs created by Sound Move and Sound Transit 2 once fully implemented. We included this data in a variety of external communications materials.

Sound Transit contributes to the local economy

The agency will generate more than 100,000 construction jobs throughout the lifetime of the Sound Transit 2 plan. In 2012 the agency built transportation infrastructure needed for economic development by investing capital spending in the following areas:

- $461.1 million for Link light rail
- $176.5 million for Sounder commuter rail
- $21.2 million for ST Express bus capital projects

Save Energy Reduce energy use, greenhouse gas emissions and air pollution

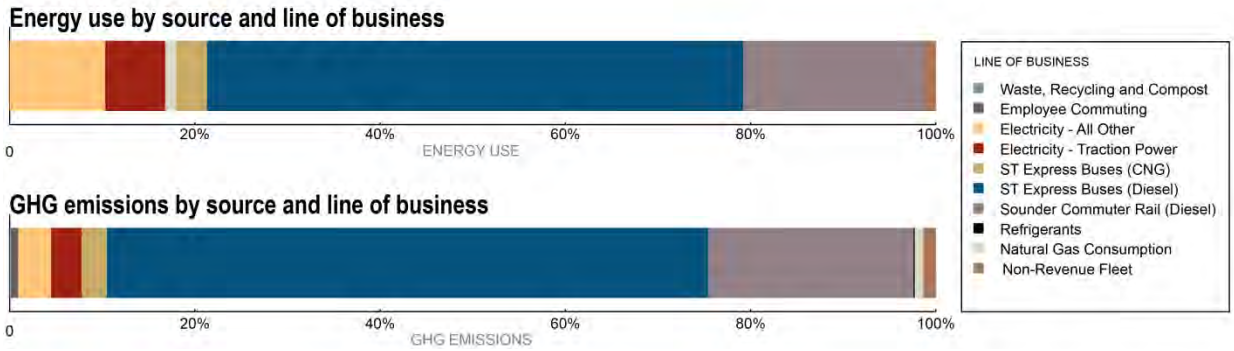


We are prioritizing energy efficiency and making sure that the energy we use comes from clean and renewable sources. Fuel and electricity consumption represent a significant portion of agency operating expenses and the primary source of our greenhouse gas emissions and air pollution. Energy efficiency improves air quality and enhances human and environmental health.

Our services reduce fossil fuel use throughout the region. Although the energy needed to build, power and operate our expanding train and bus services is slowly growing, we offset these increases in the community by reducing the number of cars on the road.

2012 progress

- Continued to invest in energy efficiency by purchasing hybrid electric buses, planning for a new wayside power project and implementing facility energy efficiency projects.
- Reduced fuel use across all modes by 0.6 percent—led by a 3.4 percent decrease in Sounder commuter rail fuel use due to idling reduction.
- Maintained fuel efficiency on Link light rail and ST Express buses while also carrying 12 percent more passengers.
- Reversed aggressive increases in facility energy use—from 2011 to 2012 facility electricity use grew by only 2.5 percent even with the addition of two new Sounder facilities. From 2010 to 2011 electricity use grew by 18 percent.
- Reduced total greenhouse gas emissions by 1.2 percent.
  - For every one ton of carbon emissions or 100 gallons of gas consumed by Sound Transit, 1.76 tons of emissions were averted or more than 170 gallons of gasoline were not consumed throughout the region.
- Operated our facilities and Link light rail services on clean electricity sourced from more than 85 percent non-carbon generating sources. In comparison, nationwide only nine percent of electricity consumed is from non-carbon generating sources.



Federal grants enable significant fuel savings

Hybrid bus purchases. A portion of $8.4 million in federal State of Good Repair and $2.3 million in federal Clean Fuels funding was used to replace aging 40-foot conventional diesel buses with 22 diesel-hybrid buses on ST Express routes serving King and Pierce Counties.

These replacement models improved fuel efficiency by up to 24 percent. The 22 hybrid buses put in service in 2012 saved over 30,000 gallons of diesel fuel and over $95,000 in associated costs over the older model conventional diesel buses they replaced.

Locomotive upgrades. $1.12 million in federal EPA Clean Diesel funding will be used to upgrade two existing Sounder locomotives with less polluting engines.

EPA analyses estimate that switching from Tier 0 to Tier 3 engines will save an estimated $2 million annually in local health costs by reducing the need for hospital visits caused by respiratory conditions intensified by diesel emissions.

Light rail vehicle regenerative braking. Initiated in 2011, this $1.6 million federal grant (Transit Investments for Greenhouse Gas and Energy Reduction) will enable the agency to capture and reuse energy from the existing regenerative braking systems on three light rail vehicles.

Initial estimates indicate that the regenerative braking system may reduce electricity use by 25 percent per car.

2012 targets

- ✓ Complete a near-term energy management strategy for facilities.
  - o Completed a Facilities Energy Strategy, which includes near-term recommendations to advance our energy efficiency and energy management efforts. This strategy commits the agency to improving our energy tracking and monitoring, analyzing reduction opportunities and setting near-term energy management performance standards.
- ✓ Develop a revenue fleet energy efficiency strategy.
  - o Evaluated a menu of approaches to increase fuel efficiency for ST Express as well as improve procurement processes. From driver training programs to using synthetic lubricants, the strategy provides a variety of options to consider for implementation.
- ✓ Increase facility energy efficiency.
  - o Completed energy audits and funded the suggested upgrades at Union Station, Federal Way Transit Center and Kent and Auburn parking garages. In July 2012 we received a $400,000 grant from the Washington State Department of Commerce for this project. We completed lighting upgrades at the Kent parking garage and will complete the remaining work in 2013.
  - o Revised lighting design criteria and standards to incorporate more LED technologies. LED lights were selected for the Northgate Link Extension tunnel after conducting a total cost of ownership analysis that demonstrated electricity and maintenance savings.
- ✓ Maximize revenue fleet energy efficiency.
  - o Put 22 hybrid buses into service.
  - o Tested ST Express hybrid engine fans, which improve fuel efficiency by up to 5 percent in national studies.
  - o Issued notice to proceed for our federally-funded Link light rail vehicle energy capture pilot project.

Protect Ecosystems Protect natural habitats and conserve water resources

We strive to preserve and protect environmental health during operations and construction by minimizing harm to wetlands, streams, native plants and wildlife. Maintaining and restoring ecosystems and promoting native vegetation maximize water efficiency and quality, while protecting local streams, lakes and Puget Sound.

2012 progress

- Continued to manage a strong ecosystem protection program—for every acre of wetland impacted by Sound Transit construction, we continue to create or restore about three acres.
- Planted 2,113 native plants in our wetland mitigation areas.
- Established landscaping at two new facilities associated with Lakewood-Seattle Sounder service expansion.
- Decreased water use by 12 percent at maintenance facilities, primarily due to water efficiency efforts at the Central Link Operations and Maintenance Facility, which has the most costly water bills of any agency facility.
  - The vast majority of water use continues to be from maintenance facilities and irrigation at customer facilities. Water use at transit centers, stations and park-and-rides, accounted for almost 66 percent of total use in 2012, followed by maintenance facilities at 24 percent.
- Increased overall water use 5.6 percent, due to a record summer and fall dry spell and the opening of two new Sounder facilities.

2012 targets

✓ Develop a near-term water reduction strategy.
  - Developed a Water Use Reduction Strategy, which includes near-term recommendations and priorities for implementing water efficiency measures at our facilities.

✓ Reduce irrigation water usage.
  - Decreased water usage at maintenance and administrative facilities.
  - Completed water audits to determine how to conserve water use and reduce utility costs at Overlake Transit Center, Issaquah Transit Center, Central Link Operation and Maintenance Facility and Mercer Island Park-and-Ride.
  - Implemented water conservation measures at Overlake Transit Center and Lakewood Station.
  - Installed an irrigation sewer sub-meter at Central Link OMF to reduce water costs.
  - Updated our Design Criteria Manual to require water budgets and sustainable landscaping, including integrated pest management practices and use of drought-tolerant plants.
  - Applied mulch at all facilities—a priority recommendation from our 2011 Sustainable Landscaping Evaluation.
  - Awarded a landscaping maintenance contract that includes sustainable landscaping best management principles.

☐ Complete environmental mitigation and re-vegetation projects at two new sites.
  - Completed construction of the McKinley Park project, which built a nearly half-acre of wetland adjacent to an existing wetland to mitigate for construction impacts associated with Sounder service expansion to South Tacoma and Lakewood.
  - Delayed the pilot revegetation projects along the south Sounder railroad corridor to 2013.

Use Less, Buy Green

Reduce materials consumption and increase recycling and environmentally preferable procurement

We are committed to reuse, recycling and composting. We also use environmentally preferable, locally sourced goods and services where possible to enhance human and environmental health.

2012 progress

- Recycled and composted 30 percent of the agency's waste stream, which reduces our disposal costs and related greenhouse gas emissions. This rate is slightly less (two percent) than 2011.
- Collected 10 percent more recycling by volume in 2012 than 2011, but composted 4.5 percent fewer materials than in 2011.
- Increased recycling and composting at our administrative facilities by 22 percent.
- Generated 17 percent more waste, due to waste associated with the delivery of 62 new light rail vehicles.
- Decreased the number of pesticides used from 29 in 2011 to 28 in 2012.

2012 targets

✓ Increase recycling and waste diversion rates.
  - Generated more waste in 2012 and retained recycling rates at 20 percent in both 2011 and 2012. Overall, more recycling was collected in 2012.
  - Finalized our Waste Management Plan and implemented its priorities.
  - Worked to ensure compliance with state and federal universal waste and hazardous materials requirements, as well as municipal waste, recycling and composting ordinances.
  - Organized an agencywide "Think Before You Throw" waste reduction campaign to clarify recycling and composting practices for staff.
  - Revised construction specifications to proactively address upcoming municipal construction and demolition waste regulations and reduce construction costs.

☐ Implement a green procurement policy.
  - Inventoried our goods and services procurements to determine areas of opportunity for environmentally preferable procurement.
  - Improved our Design Criteria Manual and construction specifications to require the use of more environmentally preferable materials.
  - Continued to develop a green procurement policy. Policy adoption will be advanced in 2013.

Information Technology goes green

Environmentally preferable workstations and large format printers
Our computer frames are ENERGY STAR models that use electricity efficiently and contain 10 percent post-consumer recycled plastic. We also safely recycled three older model large format printers and replaced them with efficient models that use only $3.50 per month in electricity costs. These printers minimize particulate emissions in our offices and create little toner waste.

Toner and electronic equipment recycling
Sound Transit implemented a toner recycling program for all printers and copiers. We also safely recycled all end-of-life computers, monitors, printers and peripherals.

Green office supplies
We made 100 percent recycled office supplies, such as paper and pens, more accessible to staff.

Connect

Provide the mobility necessary for strong economic growth by connecting regional urban centers

Economic vitality is a product of strong job opportunities, diverse businesses and a high quality of life. We serve this vision by providing accessible, reliable transit connections that save people time lost to congestion. Our mission contributes to making the region more competitive and prosperous.

Regional travel trends indicate that transportation constitutes a significant portion of the budget and time for residents of this region.

- In 2010-2011 Seattle area households spent 15.35 percent of their annual budgets on transportation (Bureau of Labor Statistics).
- The American Public Transportation Association estimated that an individual using transit in Seattle instead of driving saved $11,877 in 2012.
- The average Seattle area commuter spends 48 hours delayed in traffic—that's four more hours spent in traffic in 2011 than they spent in 2010 (Texas Transportation Institute).

2012 progress

- Increased cost efficiency by five percent per boarding across Sound Transit services.
  - ST Express buses provided the lowest cost-per-mile of service and carried the greatest number of riders.
  - Link light rail provided the lowest cost-per-boarding and carried the second-greatest number of riders.

2012 targets

- ✓ Incorporate sustainability considerations into early planning processes.
  - Integrated the evaluation of sustainability criteria into the Lynnwood Link Extension Draft Environmental Impact Statement and Sounder Yard and Shops Draft Environmental Assessment. These criteria focus on energy, air quality, greenhouse gas emissions and transit-oriented development.

Sound Transit studies vulnerability to climate change

Initiated in 2011, a federal climate risk reduction grant enabled us to study the potential impacts of climate change on our regional transportation services. University of Washington researchers project that the region will experience wetter winters and drier summers in the coming decades.

As we build our system, we have a critical opportunity to plan for the potential impacts of climate change—to best manage the consequences and maximize any potential benefits.

In 2012 we worked with our partners—the University of Washington and Washington State Department of Transportation—to develop a white paper summarizing how temperature, precipitation, flooding and sea level rise may change in the Puget Sound region as a result of climate change. The project also assessed systemwide and geographically specific areas of potential vulnerability to the possible impacts of climate change.

Streamline Incorporate sustainability into agency decision-making processes

By effectively leveraging resources, we optimize how we provide transit services. Resource efficiency provides an important check and balance to decision-making, while also streamlining business processes to cut costs, maximize social benefits and minimize environmental impacts.

2012 progress

- Required sustainability measures to be applied to all agency capital projects.
- Integrated sustainable design forums into the East Link design process.
- Studied how environmental and social factors could be included in agency cost benefit analyses.
- Updated our Environmental and Sustainability Management System procedures.
- Began studying the potential impacts of climate change to agency infrastructure.

2012 targets

✓ Enhance "best practices" for sustainable construction.
  - o Created a series of sustainability specifications for use in future construction projects.
  - o Revised specifications for concrete to a performance-based standard that enables the use of mixes with lower embodied energy use and greenhouse gas emissions.
  - o Evaluated sustainability best management practices for construction. We are developing select best management practices for implementation in 2013.

✓ Integrate sustainable design criteria into major capital projects.
  - o Required the application of the Design Criteria Manual to all major capital projects. This manual includes a chapter on sustainable design.

✓ Initiate FTA project to assess climate change impacts to Sound Transit.
  - o Partnered with the University of Washington's Climate Impacts Group and Washington State Department of Transportation to study how the potential impacts of climate change may affect our transit services.

✓ Integrate the Environmental and Sustainability Management System into the agency's document control system.
  - o Updated our ESMS Operational Control Procedures, which provide guidance to staff on agency processes to ensure compliance with environmental regulations, as well as agency environmental and sustainability commitments. We integrated these procedures into the agency's document control system to improve agencywide visibility.

✓ Strengthen resource conservation measures in agency design guidelines and specifications.
  - o Improved water conservation and energy efficiency requirements for capital projects.
  - o Updated construction waste specifications to meet City of Seattle's new recycling ordinance.

☐ Propose a dedicated funding mechanism to finance select sustainability projects.
  - o Evaluated various internal budget models for dedicated sustainability funding and vetted these proposals with executive leadership. Further agencywide efforts on total cost of ownership and sustainable design criteria should be completed before elevating these proposals for further discussion. This evaluation will continue in 2013.
  - o Received state and federal sustainability-related grants. See Appendix C for more details.

Engage Enhance staff participation in sustainability initiatives

We encourage Sound Transit staff to become active participants in agency sustainability efforts. Employee wellness improves employee well-being and contributes to a healthier, more productive community.

2012 progress

- Strengthened our staff Wellness Program.
- Completed the first year of our formally chartered senior management level Environmental and Sustainability Management System (ESMS) Steering Committee and technical working groups.
- Continued to train 100 percent of new employees on our ESMS.
- Completed over 7,700 hours of staff training hours via 195 training sessions for staff. These trainings included new employee orientation and sessions focused on project management, senior management and leadership.

2012 targets

✓ Streamline staff environmental compliance and sustainability training program.
  - o Updated our staff general awareness training on our Environmental and Sustainability Management System and trained 60 percent of staff. We will complete the remaining staff training in 2013.
  - o Improved the internal website for the Office of Environmental Affairs and Sustainability to improve staff access to policies, procedures, trainings, events and contact information.
  - o Conducted an agencywide "Think Before You Throw" waste reduction campaign.
  - o Held a lunchtime sustainability speaker series for staff and organized a month of events during April for "Earth Month"—scheduled weekly speakers and tours and held a home conservation fair in Union Station's Great Hall.

Employees reduce waste

In 2012 Sound Transit launched a staff-focused waste reduction campaign. We created simple messages posted around our offices to clarify what items should be placed in waste, recycling and composting bins. Our staff lives in cities and counties throughout the region—and what's good to do at home is not always the same as at work.

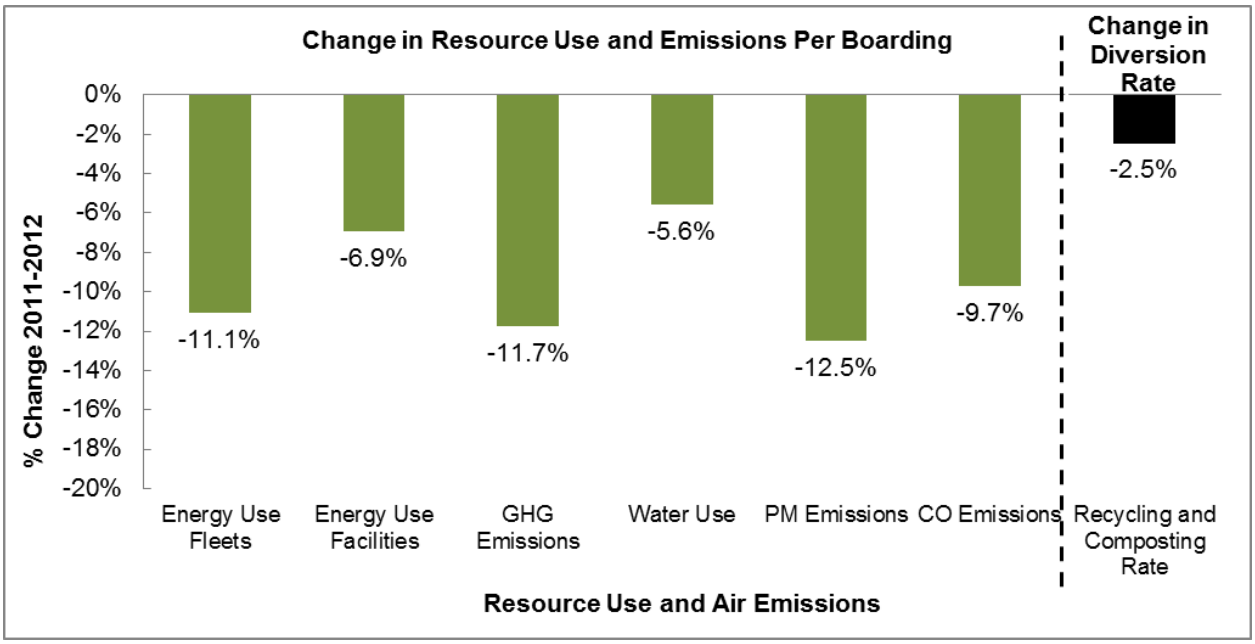
We increased recycling and composting in our administrative facilities by 22 percent.

Appendix A: Resource Use Overview – Change from 2011 to 2012

Change in resource use and emissions per boarding

In 2012 the agency consumed resources more efficiently per passenger trip, with the exception of waste and recycling.

This figure illustrates changes in how efficiently we consume natural resources in relation to our ridership. This data is affected by how many trips riders take on our services.

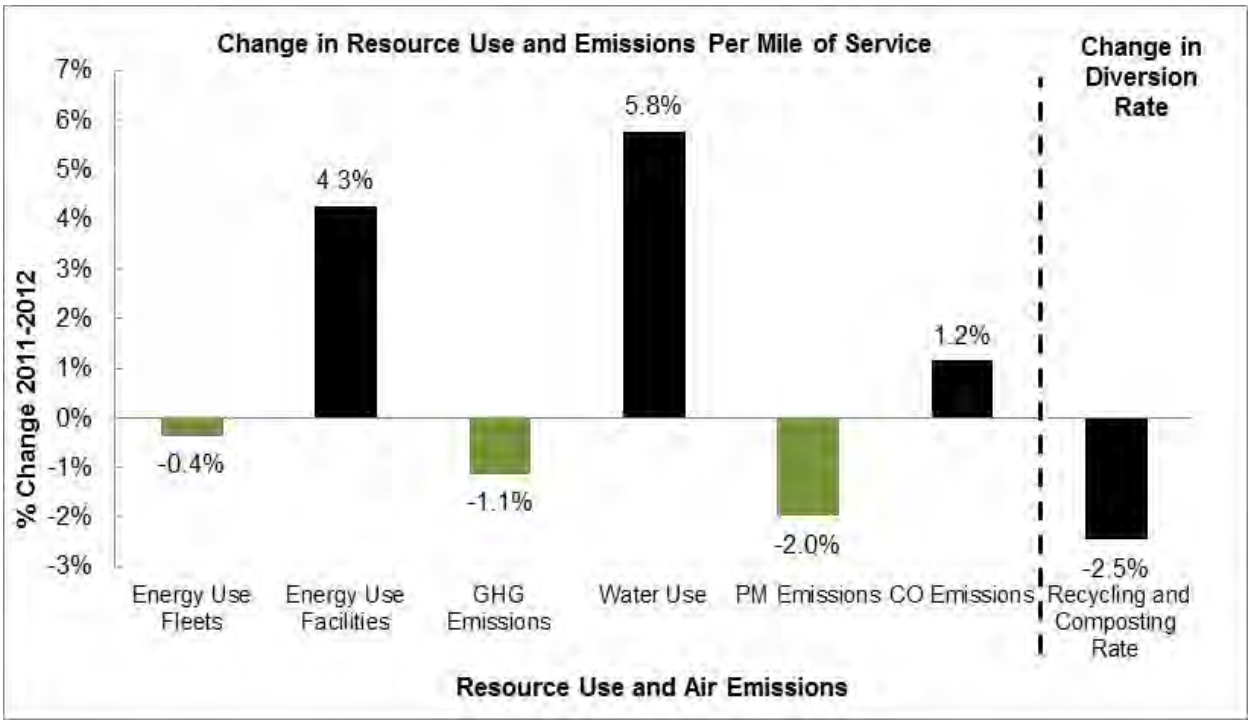


Positive changes are shown in green (fleet and facility energy use, GHG emissions, water use, PM and CO emissions), and negative changes (recycling and composting rate) are shown in black. All data is normalized by boardings (unlinked passenger trips). A lowered recycling and composting rate is not an improving trend because we want to increase the proportion of recycling and composting that is diverted from the waste stream.

Most of these changes are driven by an increase in passenger trips with no corresponding increase in revenue vehicle activity. In facilities, energy consumption increased slightly, which is why the percent decrease in facility energy use per boarding is less than the other metrics shown above. The same is true for water use.

Change in resource use and emissions per mile of service

This figure illustrates changes in how efficiently we consume natural resources in relation to the volume of service we provide, irrespective of ridership.



Positive changes are shown in green (fleet energy use, GHG emissions and PM emissions), and negative changes are shown in black (facility energy use, water use, CO emissions and recycling/composting rate). All data is normalized by revenue vehicle miles. A lowered recycling and composting rate is not an improving trend because we want to increase the proportion of recycling and composting that is diverted from the waste stream.

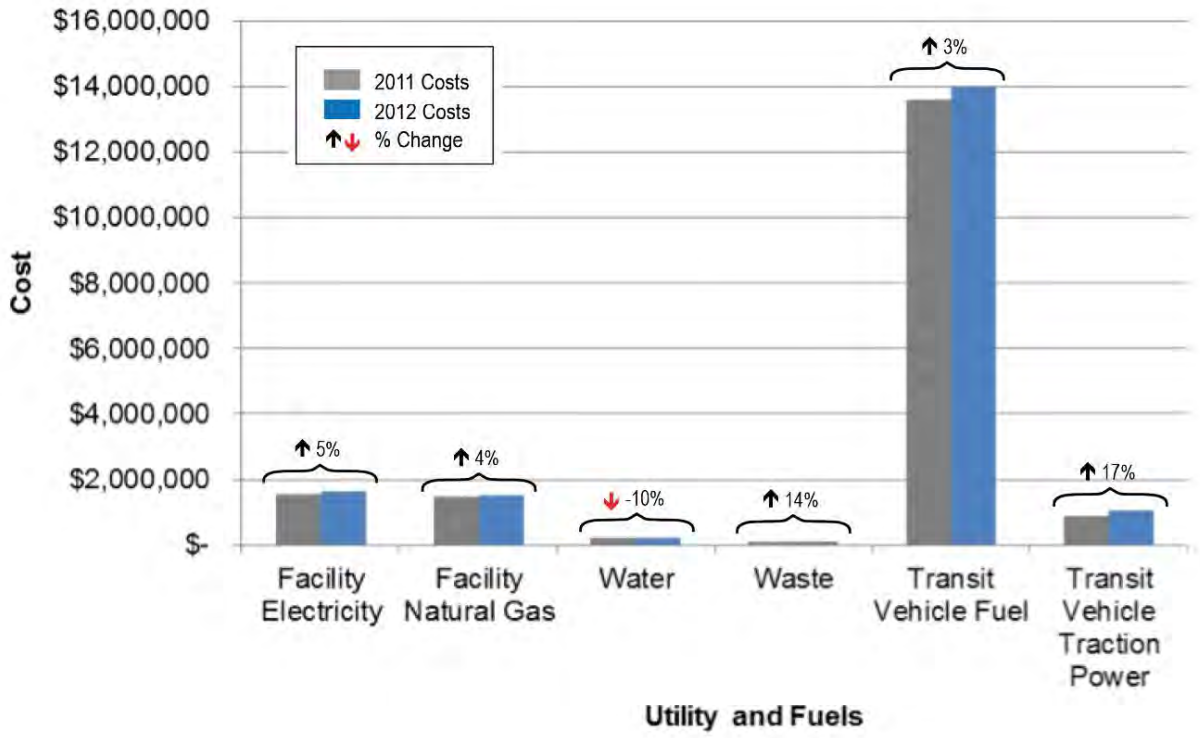
- The overall energy efficiency of the Sound Transit fleet improved. While ST Express and Link efficiency stayed essentially constant, Sounder saw a four percent decrease in gallons consumed per revenue mile. This Sounder efficiency increase is due to a reduction in idling; trains idle more in colder weather, and 2012 was a relatively warmer year in Seattle.[1] Also, additional wayside power and idling technology was in place to aid in fuel conservation.
- Total energy consumption for facilities per revenue mile increased by 4.3 percent, due to increased electricity use primarily at Sounder and Link customer facilities.
- GHG emissions per revenue mile decreased by 1.1 percent, likely due to the increase in efficiency for Sounder, as mentioned above, and reduced electricity emissions due to a smaller electricity emission factor for Puget Sound Energy, one of our largest electricity providers.
- Water use per vehicle mile increased by 5.8 percent. We saw an increase in water use at new facilities associated with the new Sounder Lakewood to Tacoma service. However, water use at maintenance facilities, where some efficiency efforts were targeted, was reduced by 12 percent.
- Our transit vehicles continued to emit fewer pollutants, particularly Sounder which increased fuel efficiency. As a result, PM emissions per mile of service decreased by two percent. Diesel vehicles emit relatively high concentrations of PM.
- Our growing non-revenue vehicle fleet for staff and maintenance contributed to the increase of CO emissions per mile by 1.2 percent. In 2012 fuel consumption was reported for 20 additional vehicles compared to 2011.

[1] There were 164 heating degree days for Sounder in 2012 compared to 283 heating degree days in 2011. (Source: www.degreedays.net – calculated relative to 40 degree Fahrenheit baseline)

- The waste diversion rate decreased by 2.5 percent from 32 to 30 percent. This change was driven by an increase in waste tonnage of 17.5 percent (and no significant change in revenue miles). Although the overall amount of recycled tonnage increased by 10 percent, this amount was not enough to offset the increase in total waste. The locations where waste levels increased were at our primary maintenance and warehouse facilities. Composted tonnage also decreased by 4.5 percent.

Change in utility and fuel costs

As shown in this figure, total costs for most utility and fuel types have increased.



- Efficiency efforts support cost stabilization. Costs increased less steeply between 2011 and 2012 than they did for the previous two years, with the exception of electricity for traction power and waste/recycling/composting. Costs increase due to a combination of consumption and utility rate increases. Our 2012 costs thus increased only slightly due to stabilized resource use and modest rate increases across most utilities.
- Small fuel efficiency efforts have large financial gains for the agency. Efficient vehicle operations, driven by Sounder fuel use reductions, contributed to a one percent drop in overall transit vehicle fuel use from 2011 to 2012. This decrease translates to more than $125,000 in savings. However, because fuel costs per gallon increased by four percent on average, transit vehicle fuel costs increased overall by three percent.
- Facility energy costs increased by five percent because of increasing electricity and natural gas consumption and an average increase in electricity unit costs of two percent. Natural gas unit costs actually declined by four percent.
- Waste, recycling and composting costs increased by 14 percent, due to an increase in waste generation of 17.5 percent and a minor (one percent) increase in waste hauling costs per ton.
- Traction power electricity costs increased by 17 percent. This change was caused by both a five percent increase in electricity use and a 12 percent increase in electricity cost per kWh.
- Water costs decreased by 10 percent. This change occurred despite an increase in water use of almost six percent, due to a decrease in water prices per unit of over 15 percent.

Appendix B: Sustainability Initiative – 2012 Costs and Savings

This table shows some of the major costs and savings from annual sustainability targets. Many significant program costs and savings are captured here. However, sustainability is fully integrated into many projects in ways that make it difficult to represent direct costs and benefits in these terms.

PROJECT	YEAR	CAPITAL COSTS	2012 SAVINGS	SAVINGS TO DATE	PAYBACK ACHIEVED	DESCRIPTION
CAPITAL INVESTMENT PAID BACK						
ST Express mid-day bus storage	2008	$0	$178,000	$1,214,653	2008	Our mid-day bus storage program enables buses coming from Pierce County in the morning to remain in Seattle until the afternoon commute to avoid driving back and forth empty.
Computer low power mode program	2009	$11,500	NA	$39,361+	2010	Data was not available for 2012; the installation of new equipment prohibited data collection for the year. This program puts computers in low power mode during non-work hours and when unattended for extended periods.
Irrigation sewer meters	2012	$2,600	$17,707	$17,707	2012	Installing an irrigation sewer sub-meter at our Central Link Operation and Maintenance Facility enabled us to deduct the water used for irrigation from our utility bills. Utility districts typically charge a sewer fee for any water use; this meter shows that irrigation water does not enter the waste water stream.
CAPITAL INVESTMENT EXPECTED IN 1-3 YEARS						
Sounder Automatic Engine Start-Stop System	2009	$230,596	$155,491	$207,189	2013	All Sounder locomotives have Automatic Engine Start Stop (AESS) Systems. This equipment shuts down the engines when not in use to reduce engine idling time by about 34 percent. The system significantly reduces particulate matter and toxic air emissions.
Sounder L-Street Yard wayside power	2010	$490,000	$75,237	$187,200	2015	Electric wayside power units are used instead of the locomotives' diesel Head End Power units to heat and power coach cars during layover, reducing diesel use and air pollutants. L-Street Yard wayside power has saved us over 61,000 gallons of fuel from 2010-2012, while the Everett Station wayside power saved us about 33,000 gallons.
Sounder Everett Station wayside power	2011	$315,000	$80,253	$108,527	2015	
Removal of data servers	2011	$52,000	$20,870	$41,740	2013	33 data servers were removed in 2011 reducing the 24/7, 365 days a year energy use of this equipment.

Appendix C: Sustainability Initiative – Grants

This table summarizes the active grants that Sound Transit has received to help advance our Sustainability Initiative.

PROJECT	YEAR	GRANT AWARD	2012 SAVINGS	SAVINGS TO DATE	DESCRIPTION
Federal Clean Fuels and State of Good Repair	2010-2011	$10.7M	$99,003	$99,003	22 hybrid electric buses showed a 24 percent mile per gallon fuel increase over the conventional diesel buses replaced. This purchase saved over 30,000 gallons of diesel. The cost to purchase these hybrid electric buses was paid with $8.4 million in federal State of Good Repair and $2.3 million in federal Clean Fuels funding. The fuel efficiency gain is high because in addition to replacing standard diesel buses with hybrid electric models, engine technology has improved significantly.
WA State Dept. of Ecology Clean Diesel	2011	$400,000	NA	NA	We received this grant to install two electrical wayside power units at the Lakewood Layover Yard. Units displace diesel to heat and power coaches during layover, reducing diesel use and improving air quality. There were no cost savings in 2012, as the units will be installed in 2013.
Federal State of Good Repair	2012	$5M	NA	NA	ST Express will purchase diesel-hybrid replacement buses by paying the incremental cost over a diesel bus with this grant money. Fuel efficiency gains of up to 30 percent are expected. There have been no savings to date, as the buses will not be in service until 2013 or 2014.
Federal EPA Clean Diesel	2012	$1.12M	NA	NA	Two existing Sounder locomotives will be upgraded with less polluting engines in 2013. EPA analyses estimate that switching from Tier 0 to Tier 3 engines will save an estimated $2 million annually in local health costs by reducing the need for hospital visits caused by respiratory conditions intensified by diesel emissions.
Federal Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER)	2012	$1.6M	NA	NA	This grant enables us to capture and reuse energy generated from the existing regenerative braking systems on three light rail vehicles. There have been no cost savings yet, as the capacitors will not be put into service until 2013.
Federal Climate Adaptation	2012	$105,000	NA	NA	With partners the University of Washington and WA State Department of Transportation, we are studying the thresholds where flooding, drought, extreme temperature or weather events may cause stress or failure of our transit infrastructure and operations.
WA State Dept. of Commerce Energy Efficiency	2012	$400,000	NA	NA	We received a $400,000 state grant—leveraged by more than $175,000 in utility incentives—to assist with $1.4 million in energy efficiency upgrades at four facilities—Union Station, Federal Way Transit Center and Auburn and Kent parking garages. Savings for the first full year of implementation (2013) are expected to be more than $80,000.

Appendix D: 2012 Sustainability Performance Measures

As part of our Sustainability Plan, we chose a suite of metrics to establish the agency's baseline for sustainability performance. We first recorded the metrics in 2010 and update them annually to assess our progress.

The annual performance measures selected do not reflect one particular reporting framework or standard. The metrics include those used by other transit agencies and local governments, as well as those required by the American Public Transportation Association's Sustainability Commitment and The Climate Registry.

Primary Metrics

Ride – Provide safe, secure and reliable transportation choices			
Passenger miles traveled TCR	367,667,323		
Boardings *Reported to APTA and NTD as unlinked passenger trips*	Total	27,966,337	
	Per capita in service area	10.05	
Vehicle revenue miles APTA, TCR	15,649,079		
Vehicle revenue hours TCR *Hours of operation by service vehicles*	733,992		
Live – Support healthy, diverse, transit-oriented communities			
Boardings by station	See 2013 Service Implementation Plan		
Bicycle counts *Bikes observed on Sound Transit services during a sample fall day during the evening peak period*	Partners (freeway routes)	216	
	ST Express buses	246	
	Sounder commuter rail	111	
	Central Link light rail	124	
	Tacoma Link light rail	0	
Advocate – Increase community support for transit investments and services			
Favorability rating	65%		
Customer satisfaction	Overall – B+ grade (3.3 / 4) 46% rated Sound Transit "A" grade		
Percent of customers who believe taking Sound Transit is a good way to help the environment	66% strongly agree 26% somewhat agree		
Save Energy – Reduce energy use, greenhouse gas emissions and air pollution			
Energy use APTA *Including direct and indirect sources*	Total	707,610 MMBTU	
	Per boarding	0.0253 MMBTU	
	Per vehicle revenue mile	0.0452 MMBTU	
Greenhouse gas emissions APTA, TCR	Total	48,059 tonnes CO2e	
	Per boarding	0.0017 tonnes CO2e	
	Per vehicle revenue mile	0.0031 tonnes CO2e	
Percent electricity from renewable sources *Source WA Dept. of Commerce for 2011 – Note: 2012 data not yet available*	87.6%		
Criteria air pollutant emissions APTA	Units – lbs	Carbon monoxide	Particulate matter
	Total	160,727	14,436
	Per boarding	0.0057	0.0005
	Per vehicle revenue mile	0.0103	0.0009

Protect Ecosystems – Protect natural habitats and conserve water resources		
Water use APTA	Total	28,052 CCF
	Per boarding	0.0010 CCF
	Per vehicle revenue mile	0.0018 CCF
Number of native plantings *Installed in our wetland mitigation areas*	2,113	
Use Less, Buy Green – Reduce materials consumption and increase recycling and environmentally preferable procurement		
Waste to landfill APTA *Not including construction waste*	Total	512 tons / 1,024,845 lbs
	Per boarding	0.0366 lbs
	Per vehicle revenue mile	0.0655 lbs
Percent of waste stream diverted to recycling APTA	20%	
Percent of waste stream diverted to composting APTA	10%	
Number of pesticides/harmful toxics used *Number of harmful toxics yet to be baselined*	28 pesticides	
Paper use	13,802 reams	
Connect – Provide the mobility necessary for strong economic growth by connecting regional urban centers		
Percent of household budget spent on transportation *Source BLS for 2010/2011*	15.35% on transportation (12.5% of total transportation expenses was spent on public transit.) 1.91% on public transit	
Average annual savings from public transit use *Source APTA for 2012*	$11,887	
Time per year in traffic *Source TTI for 2011*	48 hours	

Note: 2012 data not yet available for the Seattle metropolitan area

Streamline – Incorporate sustainability into agency decision-making processes

Operating expenses
As reported in Sound Transit 2013 Adopted Budget; may differ from final expenses reported to NTD

Units – $	Sounder	Central Link	Tacoma Link	ST Express
Total	$33,205,087	$52,975,729	$3,856,025	$100,568,824
Per boarding	$11.81	$6.09	$3.77	$6.52
Per vehicle revenue mile	$22.02	$20.75	$55.36	$8.73

Engage – Enhance staff participation in sustainability initiatives	
Percent of annual sustainability targets met	80%

Key: *Unless otherwise indicated all data is from Sound Transit.*

APTA	Data requested by the American Public Transportation Association's Sustainability Commitment
BLS	Data from the U.S. Bureau of Labor Statistics
NTD	Data required for submittal to the National Transit Database of the Federal Transit Administration
Partners	Community Transit (Snohomish County), King County Metro (King County), Pierce Transit (Pierce County)
PSRC	Data from the Puget Sound Regional Council Metropolitan Planning Organization
TCR	Data requested by The Climate Registry's Performance Metrics for Transit Agencies
TTI	Data from Texas Transportation Institute's Urban Mobility Report

Secondary Metrics

Ride - Provide safe, secure and reliable transportation choices		
Vehicle miles traveled per capita in region served APTA *Source PSRC for 2011 – Note: 2012 data not yet available*	24.26	
Number of people within Sound Transit district	2,781,740	
Passenger miles traveled per capita in region served	132.17	
Average weekday boardings by mode	ST Express	50,370
	Sounder	9,552
	Tacoma Link	3,096
	Central Link	25,084
On-time performance	ST Express	88.3%
	Sounder	96.4%
	Tacoma Link	100%
	Central Link	91.3%
Number of Regional Reduced Fare Permits	32,607 issued in 2012 147,767 issued since rollout in April 2009	
Percent of ORCA cards sold as Regional Reduced Fare Permits	9.5%	
Security customer contacts	1,140,000 (fare enforcement) 400,000 (transit security)	
Security fare inspection rate	9.96% of ridership	
Fare evasion rate	2.26% of inspected riders	
Save Energy – Reduce energy use, greenhouse gas emissions and air pollution		
Fuel use by mode *Note: All diesel is Ultra Low Sulfur Diesel (ULSD).*	ST Express	3,131,724 gallons diesel 233,805 therms
	Sounder	1,058,773 gallons diesel
	Non-Revenue Fleet	51,384 gallons gasoline 19,456 gallons diesel
Greenhouse gas emissions TCR	Per revenue vehicle hour	0.0655 tonnes CO2e
	Per passenger mile	0.0001 tonnes CO2e
Estimated greenhouse gas emissions displaced (avoided) by Sound Transit services *Note: This data was developed using the APTA guidance document, Quantifying Greenhouse Gas Emissions from Transit, to assess how public transit displaces emissions from the combustion of motor fuels.*	Mode shift - *changes in the means of transportation*	84,656 tonnes CO2e
	Congestion relief - *reduced travel volume and traffic*	39,911 tonnes CO2e
	Land use - *change in density and development patterns*	219,119 tonnes CO2e
Protect Ecosystems – Protect natural habitats and conserve water resources		
Wetland mitigation ratio – *acres mitigated to impacted*	3:1	
Connect – Provide the mobility necessary for strong economic growth by connecting regional urban centers		
Percent of downtown Seattle commuters using transit *Source Downtown Seattle Association*	43% in 2012 40% in 2010	
Engage – Enhance staff participation in sustainability initiatives		
Percent of employees taking ESMS training	100% of new employees 60% of total employees	
Number of sustainability suggestions from employees	16	

Future Metrics

Ride - Provide safe, secure and reliable transportation choices
Connectivity to other transit agency routes
Percent of services accessed by pedestrian/bicyclist
Live – Support healthy, diverse, transit-oriented communities
Jobs/housing balance in station and transit corridor areas
Mode share of station access
Save Energy – Reduce energy use, greenhouse gas emissions and air pollution
Percent construction contractors with energy/greenhouse gas emission reduction plans in place
Energy use per department/facility/mode
ENERGY STAR ratings for facilities
Protect Ecosystems – Protect natural habitats and conserve water resources
Percent of facilities with low impact development features
Percent of contractors using Integrated Pest Management/sustainable landscaping
Acres re-vegetated with native plants
Percent of native plant cover
Area of invasive species removal
Use Less, Buy Green – Reduce materials consumption and increase recycling and environmentally preferable procurement
Percent recycled materials used in construction projects
Percent of products purchased that are environmentally preferable
Cost of recycled materials used for operations as percentage of operations materials
Streamline – Incorporate sustainability into agency decision-making processes
Percent capital projects with sustainable design requirements
Small and MWBE/DBE businesses participating in agency contracts *Note: Data is currently collected by project and contract type.*
Engage – Enhance staff participation in sustainability initiatives
Staff participation in external sustainability trainings
Staff awareness of Sustainability Plan implementation