
MEMO

DATE: August 2015
TO: Shoreline City Council
FROM: Rika Cecil, Environmental Programs Coordinator
Miranda Redinger, Senior Planner
Elizabeth Willmott, Climate Solutions' New Energy Cities Program
RE: Carbon Wedge Analysis: Strategies to Implement the Climate Action Plan

Overview

This memo provides an update regarding the City of Shoreline's process of screening and prioritizing community greenhouse gas (GHG) reduction strategies to achieve the City's goal of 50% GHG reduction below its 2007 level by 2030 (50x30). Based on this process, City of Shoreline staff recommends that the Shoreline City Council take the following actions:

1. Schedule a Council workshop to select strategies from this screening process;
2. Direct staff time and allocate resources to implement the highest-priority strategies; and
3. Advocate at the regional and state levels for the highest-priority policies and programs related to community carbon reduction, including but not limited to the King County-Cities Climate Collaboration (K4C) Joint City-County Climate Commitments.

The proposals included in this memo are at a conceptual stage, and their full implementation will depend on Council direction and resource allocation.

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I. BACKGROUND

To date the Shoreline Green Team and Climate Solutions' New Energy Cities team have:

- Developed an Energy Map showing Shoreline's energy use and GHG emissions in the year 2012, and Carbon Wedge graphics that depict what it would take for the Shoreline community to achieve the 50x30 goal.
- Proposed sector-based targets that contribute to achieving the 50x30 goal.
- Assembled potential strategies and best practices from:
 - The City of Shoreline's Climate Action Plan;
 - *The Road to 80x2050* report on best practices in city climate action planning;
 - The City of Seattle's Climate Action Plan, and *Getting to Zero: A Pathway to a Carbon-Neutral Seattle*;
 - King County's Climate Action Plan and consumption-based GHG inventory; and
 - New Energy Cities' original research.
- Adapted quantitative findings from:
 - The City of Seattle's Climate Action Plan Transportation Technical Advisory Group, staffed by Nelson\Nygaard;
 - Stockholm Environment Institute analysis for the City of Seattle and King County;
 - New Energy Cities' ongoing partnership with the City of Issaquah, WA.
- Analyzed and reviewed the strategies based on:
 - Estimated climate benefit;
 - Resources needed to execute the strategies;
 - Whether the strategies are already underway; and
 - Alignment with existing Shoreline plans, the Joint City-County Climate Commitments under consideration by the King County-Cities Climate Collaboration (K4C), and state policy.
- Facilitated an open house/poster session from July 22, 2014 through August 1, 2014 for a broad group of Shoreline staff to provide input on potential strategies regarding:
 - Political complexity;
 - Financial complexity;
 - Timing;
 - New suggestions; and
 - Implementation readiness.
- Developed this memo to the Shoreline City Council, which represents staff feedback and recommendations regarding potential carbon reduction strategies for the City of Shoreline to consider pursuing.

II. STRATEGIES

The potential strategies are organized in the areas of transportation, buildings, energy supply, consumption, solid waste management, biocarbon/natural infrastructure, and measurement, with associated goals and targets. New Energy Cities calculated the targets based on what it would take to achieve the 50x30 goal, with input from City of Shoreline staff, as well as from the King County-Cities Climate Collaboration (K4C).

Current analysis indicates that if the City of Shoreline were to achieve all of the targets outlined in this memo, through a mix of advocacy, partnerships, and local action, and if Washington State were to adopt carbon pricing, it is likely that the Shoreline community would meet the overall 50x30 goal. A table comparing the targets in the K4C Joint City-County Climate Commitments and the proposed City of Shoreline targets is included in the Appendix.

Screening Criteria

In tables at the beginning of each suite of strategies, we provide additional information about the strategies according to the following screening criteria:

- Climate benefit;
- Additional resources needed to implement a strategy beyond what the City is already committed to funding and staffing for existing work; and
- Alignment with existing City or regional priorities, including K4C proposed commitments.

A checkmark indicates that a strategy is already underway.

Colors

Implementation readiness of individual strategies is expressed in the following colors:

Green

0-1 year, already underway or ready to start in 2015. The strategy is already underway, or staff perceives limited barriers to starting the strategy now.

Yellow

2-6 years, 2016-2020. Staff cannot start the strategy now, due to specific obstacles that must be overcome or conditions that must be in place to start, such as new resources, tools, partnerships, or outside opportunities.

Red

7 or more years, 2021-2030. Staff identified too many obstacles to start the strategy in the next six years, or identified conditions that must be in place that are not likely to arise in the near-term or medium-term.

TBD

Staff is still exploring the feasibility and potential timeframe of the strategy.

A. CARBON PRICING

1. CARBON PRICING GOAL: Support strong federal, regional, state, countywide, and local climate policy, including a science-based limit on carbon, and a carbon pricing approach that charges emitters for GHG pollution

a. Carbon Pricing Strategy

Climate benefit	In British Columbia, use of petroleum fuels dropped by 15% in the first four years of the province’s carbon pricing policy; in the Regional Greenhouse Gas Initiative (RGGI) member states, the share of coal in the regional electricity generation mix has declined significantly under that carbon pricing approach (Sustainable Prosperity report on BC carbon tax, 6/2012; Energy Information Administration’s Today in Energy newsletter, 2/13/2014).
Resources needed	Council time for advocacy.
Alignment	Washington State Executive Order on Climate Change.

Green

- Advocate for comprehensive federal, regional, and state science-based limits on carbon, and a carbon pricing approach that charges emitters for GHG pollution
 - *Carbon pricing creates a powerful business case for GHG reductions across sectors, which does not currently exist. A portion of revenue from carbon pricing should support local GHG reduction efforts, such as public transit, vehicle electrification, energy efficiency, and renewable energy. The K4C Joint City-County Climate Commitments include support for carbon pricing, and the Shoreline City Council can adopt those commitments, and can also advocate with K4C for carbon pricing.*

B. TRANSPORTATION

1. VEHICLE MILES TRAVELED (VMT) TARGET: Reduce VMT 35% by 2030 relative to 2012

a. Congestion and Parking Pricing—Suite of Strategies

Climate benefit	Nelson\Nygaard estimated that a similar suite of congestion and parking pricing strategies, if applied in Seattle, could result in 28% combined VMT reduction relative to 2030 projections.
Resources needed	No additional cost or staff time unless noted below.
Alignment	TBD.

i. Congestion Pricing

Green

- Research examples of pricing policies to reduce VMT in other cities, and determine best practices, factors for success, and local applicability
 - *In analysis for the City of Seattle’s Climate Action Plan, Nelson\Nygaard found that “congestion pricing is the most essential strategy [for VMT and GHG reduction] over the long term, as it offers the benefit of substantial direct VMT and GHG reduction, while representing the single largest potential source of local or regional funding for the other actions and strategies [that a city can undertake to reduce transportation-related GHG emissions].” Because pricing policies are challenging to implement, staff can explore the roles that cities like Shoreline can play in a regional pricing conversation, as well as policies that can be implemented locally. Such research will become increasingly important as Shoreline’s population and commercial base grows in the future. If proven to be applicable, educating the public and stakeholders about pricing benefits will be crucial.*

Yellow

- Pilot pay-as-you-drive (PAYD) insurance
 - *King County has initiated a pilot of PAYD insurance, and the State legislature has considered related legislation in the past. The City may not be a lead on implementing this model, but can stay open to opportunities to partner and enhance this work in the future.*

- Advocate for regional congestion pricing authority, with flexibility to dedicate revenues to multimodal projects and services, including Transportation Demand Management (TDM)
- Advocate for and implement other user fees, such as a VMT-fee, carbon tax, or other pollution taxes/fees

ii. Parking Pricing and Management

- *All parking pricing strategies outlined in this section may be appropriate at some point following initiation of light rail service. Monitoring will be necessary as stations and station subareas develop.*

Yellow

- On-street parking pricing where demand is high
- Reform off-street parking requirements in Transit Communities, while enacting and adjusting policies to minimize spillover impacts in adjacent areas
- Advocate for authority to develop and levy a non-residential parking space tax
- Develop a Parking Benefit District (PBD) in an area with high demand for on-street parking; dedicating revenues to access improvements within the District
- Improve parking customer information

Red

- Require parking cashout, such as providing free ORCA cards instead of free parking, for establishments with 100 or more employees
- Require or incentivize unbundled parking, which means renting or selling residential and commercial parking spaces separately from rent or purchase price of a building unit, rather than automatically including them with building space, and therefore likely reducing the total amount of parking required for a building
 - *Due to community concerns about residents parking on the street rather than in designated spaces when there is a separate charge, the Council included regulations to require bundled parking in the 185th Street Station Subarea Plan.*

b. Land Use Planning and Zoning Reform—Suite of Strategies

Climate benefit	Based on Nelson\Nygaard’s analysis for the City of Seattle, this suite of strategies could result in 13% reduction in VMT relative to 2030 projections.
Resources needed	No additional cost or staff time unless noted below.
Alignment	Comprehensive Plan (CP), Climate Action Plan (CAP), and Transportation Master Plan (TMP).

i. Land Use Policy and Planning

Green

- ✓ Adopt and implement a Transit Communities Policy to align planning and zoning for transit-supportive development within walking distance of high-capacity transit
 - *Many such policies exist in the CP and TMP; additional policies and implementation, such as regulations, were adopted through the 185th Street Station Subarea Plan (185SSSP).*
- ✓ Reduce cost and uncertainty of project review in Transit Communities
 - *Light Rail Station Subarea Plans (LRSSP) include Planned Action Ordinances that exempt development analyzed under the City's Environmental Impact Statement (EIS), which is based on the State Environmental Policy Act (SEPA) requirements.*
- ✓ Advocate with other cities to amend State Growth Management Act (GMA) to encourage carbon reduction and resilience
 - *A committee of the Washington chapter of the American Planning Association is considering potential amendments.*
- ✓ Advocate at state level for city tools, such as funding and regulatory authority, to support Transit Communities
 - *Councilmembers and staff will continue to do this.*

TBD

- Create a Transit Communities Development Authority to facilitate/implement transit oriented development (TOD)
 - *Staff needs to research what this could entail, including what type of work plan adjustment it would require.*

ii. Zoning Reform

Green

- ✓ Utilize zoning and permitting methods to concentrate new growth in proximity of services and transit
 - *New zoning designations were developed for the 185SSSP that concentrate new growth in proximity to transit, including allowing for a mix of uses and removing density limits.*
- ✓ Increase the diversity of housing types in multi-family zones (including family-sized housing)
 - *Regulations adopted through the 185SSSP allow a variety of housing styles to facilitate greater choice.*
- ✓ Increase flexibility in Neighborhood Commercial Zones

- *Mixed-Use Residential (MUR) zones, adopted as part of the 185SSSP, increase flexibility with regard to uses.*
- ✓ Use zoning to increase affordable housing and affordable commercial space
 - *Regulations adopted through the 185SSSP codified a variety of incentives and mandates to increase housing affordability. This effort was recognized through an award from the King County Housing Development Consortium. Although often considered a strategy for social equity, increasing stock of affordable housing and business space (including live/work lofts) also allows employees to live closer to work, thereby reducing commuting VMT.*

Yellow

- Increase the diversity of housing types in single-family zones
 - *Adoption of the 185SSSP rezoned existing single-family designations near the future light rail station to multi-family, including allowing a greater variety of housing styles.*

c. Transportation Demand Management—Suite of Strategies

Climate benefit	Based on Nelson\Nygaard’s analysis for the City of Seattle, this suite of strategies could result in 14% reduction in VMT compared to 2030 projections.
Resources needed	No additional cost or staff time unless noted below.
Alignment	CAP, TMP, forevergreen, and K4C.

i. Marketing, Education, and Incentives

Green

- ✓ Transit-Oriented Development Community Engagement
 - *LRSSP process has included extensive public engagement.*
- ✓ Expand and implement “Safe Routes” education programs and capital projects
 - *The City has a “Safe Routes to School” program; LRSSPs and Sound Transit’s Lynnwood LINK Final EIS include additional project recommendations to prioritize non-motorized connection to transit.*
- ✓ Community Walks/Bikes Program
 - *The City Parks, Recreation and Cultural Services (PRCS) Department offers Shoreline Walks program.*
- Develop brand to recognize businesses and communities that promote the economic benefits of pedestrian and bicycle improvements
 - *forevergreen logo could be used for this purpose.*

- Partner with King County and nonprofits to encourage shared transport: vanpools, rideshare, carshare, fleetshare
 - *At present, carshare programs may be more limited in their viability than vanpools, as they rely on significant residential and commercial densities to be successful. The City hopes that new zoning and future light rail stations will provide appropriate market signals to attract companies like Car2Go and Zipcar to Shoreline. Similarly, success of bikeshare programs depends on factors such as short or medium distance between destinations and the presence of separated bike lanes.*
- Expand environmental mini-grants, City communications, and other tools to encourage community efforts to shift to alternative modes of transportation
 - *City has mini-grant programs in place, such as climate education that empowers students to take action, which could be expanded to promote climate actions. Communications Plan could recommend additional efforts.*

Yellow

- Voluntary GHG reduction programs
 - *This could happen at the neighborhood level with such partners as Neighborhood Associations, school campuses, and the private sector. One example is the International Living Futures Institute's (ILFI) Living Communities program.*
- Expand the Commute Trip Reduction (CTR) program and support services to include medium-sized companies
 - *The State of Washington supports CTR programs by allocating a designated amount of funding per employer. CTR support for additional companies outside of this formula would be an additional cost that would require funding from the State.*
- Provide grants and incentives to convert parking and other areas to community uses, such as bike parking and plaza space, and facilitate business access by low-carbon transportation modes
 - *Development of the 2015 Green Team Communications Plan could include examination of related opportunities.*
- Expand customized travel options tools and outreach programs
 - *Staff anticipates that Sound Transit and Metro Transit will continue to enhance existing tools and outreach, and that the City will have new opportunities to partner in this area.*

ii. Planning and Infrastructure Management

Green

- ✓ Plan for multimodal mobility corridors
 - *Aurora Corridor Project, Town Center, commercial and mixed-use zoning regulations, and LRSSPs include policies, strategies, and codes for corridors.*
- Adopt a transportation decision hierarchy prioritizing (1) walking, cycling and transit, followed by (2) freight and goods movement, (3) high occupancy vehicles, and (4) single occupancy vehicles
 - *TMP includes these elements, but does not organize them by priority.*

Yellow

- Adopt a budget prioritization tool using Triple Bottom Line (TBL) assessment, which includes social and environmental factors, as well as traditional financial performance
 - *This could be achieved through an expansion of the Environmentally Preferable Purchasing Guidelines (EPPG) and would need to be incorporated into staff work plans. The City of Eugene, OR uses a TBL framework to prompt decision-makers to think about and explore the environmental, equity, and economic costs and benefits of public policy and programmatic choices.*
- Consider installation of "smart" water meters
 - *If City assumes water utility, installation of smart meters reduces operational VMT and staff time checking meters manually. The City of Renton estimated that smart water meters could save as much as \$800,000 a year.*

d. Pedestrian, Bicycle, and Transit Facilities and Services—Suite of Strategies

Climate benefit	Based on Nelson\Nygaard’s analysis for the City of Seattle, this suite of strategies could result in 7% reduction in VMT compared to 2030 projections.
Resources needed	The City must aggressively pursue grant funding for capital projects, land use strategies, and non-motorized transportation.
Alignment	CAP and TMP.

i. Pedestrian Facilities and Services

Green

- ✓ Safe Route to Transit (SR2T)
 - *The City has a Safe Routes to School program. LRSSPs and Sound Transit’s Lynnwood LINK Final EIS will include additional recommendations, and could be implemented through LRSSP, TMP, and Capital Improvements Plan (CIP).*
- ✓ Enhance sidewalks, crossings, and public spaces in commercial zones
 - *Commercial regulations require improvements.*
- ✓ Pedestrian and Bicycle Master Plan

- *TMP contains these elements.*

Yellow

- Reallocate excess portions of public right-of-way in selected areas to public/pedestrian spaces
 - *Staff has identified limited maintenance resources as a concern regarding implementation of this strategy.*

ii. Bicycle Facilities and Services

Green

- ✓ Develop cycle tracks and greenways within the City with connections to and through densely populated neighborhoods
 - *TMP and LRSSP will include specific recommendations. Cost could be covered by developers and grant funding.*
- ✓ Implement intersection priority and safety improvements
 - *Reflected in TMP and Neighborhood Traffic Action Plans (NTAP).*
- ✓ Bike Parking
 - *Through the King County Regional Code Collaboration (RCC), the City adopted standards for short- and long- term bicycle parking. Additional regulations could be considered.*

Yellow

- Electric Bike Sharing
 - *Bike and program administrative cost could be covered by business sponsors/partners. Staff will monitor success of Seattle program.*

iii. Transit Facilities and Services

Green

- Advocate to increase transit service 100% by 2030 and 200% by 2050 (or set other time-specific targets for transit increase)
 - *As the City is not a transit provider, it can only act in an advocacy role or provide funding to transit providers for service.*
- Implement capital improvements in priority bus corridors (related to Transit Communities planning)
 - *LRSSPs and 145th Street Corridor Study will make specific recommendations.*

Yellow

- Support development of real-time transit info/trip planner app

- *Staff anticipates that Sound Transit and Metro Transit will continue to enhance existing tools and outreach, and that the City will have new opportunities to partner in this area.*

**2. CLEAN TRANSPORTATION FUELS AND VEHICLE TECHNOLOGY TARGET:
Reduce carbon intensity of private vehicles 25% by 2030 relative to 2012,
by promoting clean transportation fuels and vehicle technologies**

a. Private/Community Transportation Fuels and Vehicle Technology—Suite of Strategies

Climate benefit	This suite of strategies could result in 25% reduction in transportation sector GHG emissions. Note that a significant increase in private/community adoption of low- or zero-emissions vehicles will be necessary to achieve the target and related carbon reduction.
Resources needed	No additional cost or staff time unless noted below.
Alignment	CAP and K4C.

Green

- ✓ Advocate for 10% state Clean Fuels Standard
 - *Every member of Shoreline’s City Council signed a letter expressing support for a statewide clean fuels standard. City staff will continue to monitor opportunities for City Council to support this proposal.*

Yellow

- Advocate for Seattle City Light to embrace a leadership role in EV adoption
 - *Shoreline could urge Seattle City Light to play a more aggressive role in driving EV adoption in Shoreline and the region.*
- Adopt EV-ready building code changes
 - *Through the RCC, the City adopted standards requiring commercial or mixed-use construction to include conduit for future charging stations. Additional regulations could be considered, but it may be appropriate to wait until market demand is higher.*
- “Plug-in-Ready” partnership to enable private adoption of electric vehicles (EVs)
 - *Elements of this initiative, such as providing or partnering with businesses to ensure EV-ready infrastructure in the City limits, will be necessary as EV demand increases. Shoreline could explore partnerships with K4C, Seattle City Light, and Shoreline Community College to promote EV adoption and EV-ready buildings.*
- Support development and adoption of next generation biofuels
 - *The City currently works with Central Market to collect waste cooking oil for biofuel production.*

b. Government Fleets and Transportation—Suite of Strategies

Climate benefit	Dependent on project.
Resources needed	Investment in green fleets and environmentally-friendly purchasing.
Alignment	CAP and K4C.

Green

- ✓ Continue investing in more efficient fleet vehicles
 - *Introduction of three high-efficiency hybrid vehicles saved the City an estimated 900 gallons of fuel and \$3,400 in fuel costs in 2012. Shoreline could assume a leadership role by developing an EV replacement plan for the 48 vehicles of its current passenger fleet. K4C is investigating bulk (multi-jurisdictional) purchasing agreements to bring down costs. Per the Washington State Alternative Fuel Use Requirement for Public Fleets, effective June 1, 2018, all local government agencies must, to the extent practicable, use 100% biofuels or electricity to operate all publicly owned vehicles. K4C is partnering with Western Washington Clean Cities on ways to comply with this rule.*
- Continue to encourage a decrease in SOV commuting by City employees
 - *The City could consider reinstating its prior incentive program. 80% of City employees still drive to work alone, making up 20% of the City's municipal GHG emissions.*

Yellow

- Consider participation in the Clean Cities consortium to reduce the use of petroleum and support clean air
 - *The Clean Cities consortium provides valuable guidance on how to incorporate clean vehicles in government fleets.*

C. BUILDING SECTOR AND RENEWABLE ENERGY

1. NEW BUILDINGS TARGET: Achieve zero net greenhouse gas emissions in 100% of new buildings community-wide by 2030

a. New Building Construction—Suite of Strategies

Climate benefit	100% of potential new emissions avoided.
Resources needed	Funding for Zero Net Energy (ZNE or Net Zero) or Living Building demonstration project. Staff time to adapt and adopt Living Building Challenge Ordinance.
Alignment	RCW 19.27A.160, K4C.

Green

- In partnership with the Regional Code Collaboration (RCC), advocate for the State of Washington to outline and adopt a code pathway for new buildings in 2031 to be 70% more energy efficient than new buildings were in 2006, and to create a stretch energy code program for cities
 - *State law currently mandates that the state energy code be progressively strengthened to meet this 70% improvement goal, which would put the goal of zero net GHG emissions in new buildings in reach. However, such code changes are not currently being implemented. In partnership with the RCC, Shoreline can support state action to implement this law.*
 - *Advocates are also proposing a stretch energy code, as Massachusetts has successfully implemented, which is a more energy efficient alternative to the standard energy provisions of a code that a municipality may adopt. The Massachusetts model includes utility incentives, which is reportedly an important contributor to the success of the stretch code program.*
 - *Staff will monitor opportunities for City Council advocacy.*
- Remove code barriers to ZNE buildings/Living Buildings and adopt Living Building Challenge Ordinance.
 - *King County and the International Living Futures Institute (ILFI) have already identified code barriers, but additional staff time may be needed to revise regulations. This is a 2016 priority for the K4C/RCC.*

Yellow

- Research what it would take to construct a ZNE/Living Building City facility or demonstration project

- *According to the New Buildings Institute assessment of ZNE buildings: "Costs for getting to zero are difficult to distinguish from overall project costs, however, the team conducted an analysis to identify incremental cost premiums for energy and water conservation, as well as for photovoltaic and water reuse systems that would bring the project to net zero. The cost premium for energy efficiency was approximately 1-12% depending on the building type. This rose to 5-19% for net zero energy."*
- Restructuring of development review fees as incentive
 - *Staff will monitor the City of Seattle's progress in exploring this concept, including potential revenue reduction.*
- Density bonus, enabling developers to build more housing units, taller buildings, or floor space than typically allowed, as an incentive for ZNE or Living Building construction
 - *This could be explored as a mandatory component of a development agreement in MUR-70' in light rail station subareas.*
- Property tax exemption for ZNE-ready developments
 - *This requires advocacy at the state level for authority to implement. Staff will monitor progress by the City of Seattle in exploring this concept, including potential revenue reduction.*
- Technical assistance for ZNE development
 - *This strategy requires staff training and capacity.*

2. EXISTING BUILDING RETROFIT AND RENEWABLE ENERGY TARGET: Reduce use of natural gas for heating 40% by 2030 relative to 2012

Climate benefit	<p>New Energy Cities estimated the following community-wide natural gas reduction benefits associated with different types of strategies:</p> <ul style="list-style-type: none"> ▪ Retrofit policy requiring all cost-effective upgrades—10-12% if targeted to homes with natural gas. ▪ Regional retrofit program—5-10% at current program participation rates and results. ▪ Energy assessment and disclosure policies—No estimates developed because these policies are part of a facilitating strategy, and are not direct reduction drivers. ▪ Community Resource Conservation Manager—4-5%, if incentives are in place. ▪ Retrofit policy targeted to worst-performing buildings—3-4%, depending on how the program is designed. ▪ Utility and/or City incentives—2-3%. ▪ Voluntary energy challenge—2-3%. ▪ Demonstration project—Less than 1%. ▪ Solarize or other distributed renewable energy campaign—No estimates developed at this time; estimates will be necessary to inform strategy for full achievement of natural gas reduction goal <p>New Energy Cities did not calculate the combined effects that these policies would have if implemented together, meaning that the numbers here cannot be summed for a single total reduction value.</p>
Resources needed	<p>See notes below strategies for details.</p>
Alignment	<p>CAP and K4C.</p>

a. Existing Building Retrofits—Suite of Strategies

Green

- Advocate for dedicated state funding of local/regional energy efficiency programs
 - *Climate Solutions’ New Energy Cities program is currently researching what it would take to fund and implement a regional retrofit program at the scale necessary to achieve K4C and Shoreline building energy use reduction goals. Preliminarily, we know that the states, such as CA, MA, and NY, which have succeeded in fostering these programs are those that dedicate carbon pricing revenue to work toward these goals. Staff will monitor opportunities for City Council advocacy toward these goals.*

- Support use of existing utility incentives for energy efficiency and conservation in buildings, and advocate for utilities to adopt outcome-based incentives, which are based on actual energy savings of an energy upgrade rather than projected savings of individual actions
 - *As part of the K4C work program on utility outreach, Shoreline could advocate for PSE to expand its existing outcome-based incentive program, and for Seattle City Light to adopt a similar approach.*

Yellow

- Retrofit policy requiring all cost-effective upgrades at time of renovation or sale of building
 - *This policy would need to be preceded by the development of a much more robust regional retrofit economy, with widely available services that make it easy for residents and businesses to retrofit their buildings.*
- Regional retrofit program
 - *Cost would depend on the structure of the program, which cities could fund jointly and implement through an interlocal agreement, or which could be funded from state carbon pricing revenue. Climate Solutions' New Energy Cities program is currently researching what it would take to fund and implement a regional retrofit program at the scale necessary to achieve K4C building energy use reduction goals.*
- Audit/disclosure policy
 - *The City of Seattle has 2.5 FTEs for education, troubleshooting, and enforcement of its benchmarking and disclosure policy. This strategy may be better suited for implementation at County level and/or via regional collaboration. It could also go hand in hand with a regional retrofit program.*
- Create a permanent Community Resource Conservation Manager position on City staff to support residential and commercial energy efficiency and renewable energy projects
 - *The cost would depend on the structure of the role and program. If the position were dedicated only to Shoreline, it could be staffed by 1 full-time employee (FTE). Alternatively, a regional network of such individuals could be jointly funded by the K4C cities and implemented through an interlocal agreement*
- Retrofit policy requiring upgrades of worst-performing buildings, based on results of annual/regular energy use assessment process
 - *This policy would need to be preceded by: 1) an audit/disclosure policy that helps to identify the worst-performing buildings, and 2) the development of a much more robust regional retrofit economy, with widely available services that make it easy for residents and businesses to retrofit their buildings.*

- Incentives and education for large multifamily and commercial building owners to continuously monitor and optimize the performance of their buildings
 - *This strategy would require coordination with multi-family and commercial building owners to help design an incentive program, and staff analysis and capacity to implement.*
- Property tax exemption for existing rental housing owners who undertake significant energy retrofits
 - *This requires advocacy at the state level for authority to implement. Staff will monitor progress by the City of Seattle as it explores this concept, including potential revenue reduction.*
- Voluntary energy challenge to encourage energy use reduction in businesses, schools, and/or homes
 - *City could partner with King County to build on Green Schools program and Best Workplaces for Waste Prevention and Recycling recognition program. However, staff capacity for this program is limited; would need to determine the level of support the City can provide and integrate it into work plans.*
- Zero Net Energy (ZNE)/Living Building retrofit demonstration project
 - *Significant staff time and funding would be needed to implement this project, per the City of Issaquah's ZHome townhome demonstration. Shoreline would also need to partner with a progressive developer/owner.*

b. Renewable Energy—Suite of Strategies

Green

- Renewable energy demonstration projects
 - *Cost depends on site and technology. Parks and schools are visible, education-oriented sites that could host these projects.*
- Standardization of solar installation process
 - *Staff is following progress of cities working with Northwest Solar Communities to standardize permitting process.*
- Building envelope & heating technology incentives
 - *The City of Seattle uses \$200,000 in general funds for activities not covered by existing utility incentives, such as offering homeowners the opportunity to transition off of heating oil.*
 - *Shoreline could offer expedited permit review or reduced fees for eligible projects.*
- Solar-ready roofs policy
 - *Staff is following progress of cities working with Northwest Solar Communities and the RCC on model language.*

Yellow

- District energy systems and/or combined heat and power
 - *Sewer utility planning could capture heat and convert it to energy, which would take additional direction and resources to investigate and implement.*
 - *Council could further direct staff to investigate the feasibility of district energy or combined heat and power as part of the planning process for assumption of water and wastewater utilities, or through Development Code regulations on the scale of individual projects.*
 - *As one illustration of what is possible, the City of Portland, OR is partnering with Lucid Energy to generate hydroelectric power from municipal water pipes.*
- Support of utility-provided program that offers green power purchase options to City facilities, residents, and businesses
 - *No additional cost to City for community adoption of green power; residential customers may purchase green power in increments of 25%, 50% or 100% of their electricity use for \$3, \$6 or \$12 per month, and business customers may participate at any level and earn Silver, Gold or Platinum Partner recognition based on their annual electricity (kilowatt-hour) use.*
- Solarize campaign to install solar on rooftops of homes and businesses
 - *Northwest SEED, the nonprofit administrator of the Solarize campaign, offers support to cities interested in starting a Solarize program. Sample support packages range from \$3,500 to \$7,500, with varying degrees of online support and on-call program coaching. Shoreline can also request a customized bid for Northwest SEED to serve as the overall campaign manager. In general, a Solarize partnership could present an opportunity to work with Shoreline Community College, and could also be cross-marketed with an EV campaign for high-income residents and businesses.*
- Right-of-way for renewable energy
 - *The City could waive lease payments for right-of-way site permits. This strategy requires more investigation by staff on a site-by-site basis.*
- Community-wide distributed renewable energy plan
 - *As a follow-up to the district energy study anticipated in 2015, a distributed energy plan would include a community-wide target to adopt a defined percentage of distributed renewable energy to help reduce direct natural gas consumption, and related technical analysis regarding how to achieve such a target.*

c. Government Buildings, Facilities, and Operations—Suite of Strategies

Green

- Work with utility providers to develop a package of strategies for sustainability and carbon reduction
 - *Strategies could include:*
 - *Rate structures or incentives for customers to conserve water.*
 - *Installation of smart water meters to reduce vehicle miles required for utility staff to read meters. The City of Renton estimated that installation of smart water meters could save them as much as \$800,000 a year.*
 - *Sewer heat and/or micro-hydropower capture, as described in the Renewable Energy section.*
- ✓ Work with Seattle City Light to continue converting streetlights to LEDs
 - *The Shoreline Climate Action Plan noted that this would reduce the City's current estimated streetlight electricity use by more than half. This strategy is already underway and almost fully implemented.*
- Consider creating a permanent position related to sustainability and climate action, such as a Community Resource Conservation Manager to support residential and commercial energy efficiency and renewable energy projects
 - *See details in Existing Building Retrofits section.*
- Incorporate energy efficiency into upgrades of City facilities to meet ENERGY STAR building performance standards for similar building types, and incorporate energy efficiency best practices into new City buildings
 - *Staff recommends tracking facility energy use through ENERGY STAR building software to identify the best efficiency upgrade opportunities.*
- Incorporate energy efficiency best practices into new City buildings and consider seeking green building certifications such as LEED or ENERGY STAR for new construction projects, potentially including the new police station to be built near City Hall.
 - *K4C is working on a related commitment to build "green" facilities in its cities. Staff will track this conversation and may wish to advocate that Shoreline be home to one of the proposed projects.*
- Expand the City's Environmentally Preferable Purchasing Guidelines (EPPG) to include additional products that increase energy efficiency
 - *More staff capacity would be needed to expand and fully implement the EPPG.*
- Increase City green power purchase through Seattle City Light's Green Up program
 - *Based on the City Hall's LEED Gold award and amount of kilowatt-hours (kWh) used annually, Shoreline pays \$8,730 each year for Green Up. The City's investment in 2012 prevented the release of 409,061 lbs. of GHG emissions, and supported the production of 291,240 kWh of renewable*

energy. These benefits could increase if the City obtains the Platinum level for \$12,350, requiring Council approval during the budget process.

- Assess potential replacement of fixtures and equipment in high-use operations in all City facilities with high-efficiency options
 - *As a cautionary note, staff has concerns about vandalism in these facilities.*

Yellow

- Make efficiency upgrades to Shoreline Pool facility to reduce energy use and lower operating costs as funding allows
 - *City would likely need to renew the Parks bond to make these improvements. Staff has also suggested using solar power for pool heating.*

Red

- Once state regulatory issues have been resolved, investigate the opportunities for rainwater harvesting and greywater reuse at existing and new City facilities and open spaces
 - *The City's ability to implement this strategy will depend on the outcome of State regulations regarding greywater use, but the City could advocate for progressive legislation to enable this use.*

D. UPSTREAM CONSUMPTION AND SOLID WASTE MANAGEMENT

1. UPSTREAM CONSUMPTION TARGETS:

- Reduce community food waste by 3%
- Reduce size of homes by 30% across 25% of residential sector
- Double the useful life of household furnishings and clothing for 25% of community consumption

Climate benefit	<p>In 2012, King County published an expanded GHG emissions inventory, called a consumption-based GHG inventory, which examined GHG emissions associated with household and business purchasing. This view of emissions is significantly larger in scope than the typical community GHG inventory, and is also outside the scope of the Carbon Wedge analysis. Based on this work by Stockholm Environment Institute, New Energy Cities made the following carbon reduction estimates of potential targets that the City of Shoreline could adopt (all relative to an expanded view of the community footprint):</p> <ul style="list-style-type: none"> ▪ Food waste reduction target—0.6% carbon reduction ▪ Home size reduction target—0.4% carbon reduction ▪ Furnishing and clothing target—0.5% carbon reduction. <p>These figures are approximate, and measurement of progress toward these goals would be challenging.</p>
Resources needed	No additional resources needed if the primary action is to incorporate related messaging into 2015 Green Team Communications Strategy.
Alignment	CAP and K4C.

a. Reducing Food Waste and Food Miles Traveled—Suite of Strategies

Green

- Food Too Good to Waste Campaign
 - *The City could partner with King County under an existing US Environmental Protection Agency pilot campaign.*
- Join the King County Farm City Roundtable
 - *The City could help educate the public about urban agriculture and encourage farmer-grocery-restaurant relationships, in partnership with Diggin' Shoreline, Seattle Tilth, King County, and others.*

b. Low-Carbon Construction—Suite of Strategies

Green

- Modify Development Code regulations to encourage smaller homes/structures
 - *The Planning Commission could discuss this as part of the 145th Street Station Subarea Plan (145SSSP) or as part of a future batch of amendments.*
- ✓ Adopt construction and demolition waste amendments in Shoreline Municipal Code
 - *The City instituted a Demolition Waste Diversion Plan in 2015.*
- Incentives to reduce construction waste, including encouraging “EcoMod” or green modular homes that are both green and prefabricated
 - *This could include designating pre-approved building plans for expedited permitting when City staff has reviewed them. Planning Department staff could researching this strategy further.*

Yellow

- Technical assistance and incentives to encourage small or clustered housing
 - *This may require staff training and additional capacity. Council may wish to revisit regulations for cottage housing.*

c. Extending the Useful Life of Products—Suite of Strategies

Green

- Use mini-grant program and 2015 Communications Strategy to promote sharing, lending libraries, repair education, and outreach on consumption choices
 - *The City could partner on this strategy with Neighborhood Associations, King County Green Schools Program, Senior Services, and Aging Your Way, including promotion and creation of lending libraries, and inter-generational bartering of skills and services.*
- Advocacy on product stewardship and support/promotion of reuse markets
 - *Staff is exploring how to incorporate this into the 2015 Green Team Communications Plan.*
- Outreach to Chamber of Commerce on sustainable purchasing and green businesses
 - *Staff is exploring how to build on related past experience with the Chamber of Commerce. The City could also partner with King County and other cities on a regional green business program.*

2. SOLID WASTE MANAGEMENT TARGET: Achieve a 55% recycling rate citywide by 2020, and zero waste of resources that have economic value for reuse, resale, and recycling by 2030

Climate benefit	Decrease in GHG emissions due to lower energy requirements, compared to manufacturing from virgin inputs; other avoided GHG emissions; increase in carbon forest sequestration; increase in soil carbon storage.
Resources needed	No additional resources needed if accomplished through future solid waste contracts.
Alignment	CAP, K4C, and King County Solid Waste Comprehensive Plan.

a. Recycling and Composting—Suite of Strategies

Green

- ✓ Require solid waste collection, and embed collection of food scraps and yard debris in future solid waste contracts
 - *Only commingled recycling is embedded in current contract. A solid waste collection requirement and embedded collection of yard debris and food scraps are being considered in the 2017-2024 RFP solid waste contract.*
- ✓ Waste audit program
 - *This program is in the City’s current contract and is included in 2017-2024 proposed RFP contract.*
- ✓ Material ban—residential and business garbage
 - *Under the current contract, household hazardous waste is banned. The City could enhance its existing efforts by working with regional partners to site a more visible location or to enhance signage that helps residents find the stationary facility.*
- ✓ Outreach/incentives to increase recycling and composting
 - *This is already underway through the current contract. Embedding residential yard debris and food scraps recycling in the 2017-2024 contract would greatly enhance waste diversion from the landfill and improve resource conservation. King County is discussing this option as a regional agreement, in order to maintain the landfill for a longer period of time.*
- Compressed Natural Gas Trucks
 - *Require 2016 Compressed Natural Gas Trucks for solid waste collection in 2017-2024 contract to keep rates low when oil prices increase, and to assist the City in meeting its climate targets.*
- Recycle More—It's Easy to Do program
 - *This strategy requires partnering with King County to leverage its existing program.*

- Outreach/incentives to use recyclable food supplies
 - *Staff is researching related efforts in the City of Seattle.*
- Advocacy for increased recycling and composting at transfer stations
 - *King County takes the initiative to propose new items and is receptive to Shoreline's suggestions of materials to accept for recycling at the Shoreline Transfer Station..*
- Commercial recycling ordinance
 - *An unlimited volume of multifamily complex recycling and commercial recycling is allowed in the 2017-2024 proposed RFP contract.*
- Every-other-week garbage
 - *This is being considered in the 2017-2024 RFP solid waste contract.*

b. Waste Recovery—Suite of Strategies

Green

- Expand current partnerships with local businesses to collect waste cooking oil for biofuel production, and develop/expand markets for waste-to-resource products
 - *The City currently works with Central Market to collect waste cooking oil for biofuel production. The City could explore a partnership with Shoreline Community College to expand the scope of this existing work. As an illustration of what is possible, the City of Keene, NH used a federal grant to develop a public-private partnership that would use landfill gas to power a greenhouse aquaponics project, and in turn generate algae for animal feed and possibly biofuel production.*

c. Government Consumption and Solid Waste—Suite of Strategies

Green

- ✓ Increase percentage of recycled content in paper to 100% for color copies when possible
 - *This was recently completed.*
- Continue to expand recycling and organics collection services at City facilities and open spaces, and establish space with large containers to collect and recycle yard debris from Public Works and Parks operations at Hamlin Yard and North Maintenance Facility
 - *This would likely require additional Parks staff capacity to implement.*

TBD

- Select new electronics that meet Electronic Product Environmental Assessment Tool (EPEAT) standards and consider becoming an EPEAT purchasing partner when possible

- *This could be included as part of an updated Environmentally Preferred Purchasing Guideline/Policy.*
- Investigate the use of recycled asphalt shingles (RAS) or other recycled products in asphalt used for City paving projects
 - *Staff is exploring the feasibility of this strategy.*

E. BIOCARBON STORAGE AND NATURAL INFRASTRUCTURE

1. **BIOCARBON AND NATURAL INFRASTRUCTURE GOALS: Sequester carbon and protect existing carbon stores through:**

- **Increased natural infrastructure (trees, other vegetation, soil, and wetlands);**
- **Reduce impervious areas by agreed-upon number of acres or lane-miles; and**
- **No net loss of urban tree canopy.**

Climate benefit	Trees, wetlands, and natural infrastructure sequester carbon and protect existing carbon stores and make communities more resilient by helping to mitigate the urban heat island effect and reducing stormwater runoff. These climate benefits are not quantified in the Carbon Wedge analysis, which focuses on GHG emissions sources rather than carbon sequestration.
Resources needed	See notes below strategies for details.
Alignment	CAP and K4C.

a. **Land Use and Planning—Suite of Strategies**

Green

- Living Communities Partnership
 - *Cost depends on scope of partnership to be developed in conjunction with International Living Futures Institute*

Yellow

- Set a target to expand natural infrastructure through stormwater management
 - *By adopting the State Department of Ecology Stormwater Manual, the City currently evaluates projects for the degree to which they enhance natural infrastructure. The NPDES Permit is currently under review and through that process, or the proposed update of the Surface Water Master Plan, additional opportunities could be identified.*
- Consider policy requiring ecosystem benefits calculation in land use and infrastructure decisions
 - *The City would not need to take a leadership role in determining the formula for these calculations, but if such a system were available, the City could utilize it.*
- Ensure that stormwater and development codes require best management practices for soil, encourage natural infrastructure, and remove code barriers to natural infrastructure projects
 - *The City may not be able to initiate this strategy in the near-term, but could include it in the next update for the Surface Water Master Plan or a future packet of Development Code amendments. Removing code barriers could be more immediate, but would still require staff time to research and implement.*
- Acquisition, restoration, and management of undeveloped natural areas
 - *The ability of the City to execute this strategy would depend on specific opportunities for acquiring or restoring land, as well as a supportive funding mechanism. The City may wish to consider candidate sites in light rail station subareas as an initial priority if resources and opportunities become available. This could be further explored through the update to the Parks, Recreation, and Open Space Master Plan.*

b. Natural Infrastructure—Suite of Strategies

Green

- ✓ Natural infrastructure demonstration projects
 - *The City has a Green Streets Demonstration Project on 17th Avenue and many examples at City Hall and along the Aurora Corridor. Additional projects should be encouraged. Cost depends on project.*
- ✓ Incentives and mandates to encourage natural infrastructure
 - *The City has adopted the Department of Ecology Stormwater Manual, which requires use of Low-Impact Development (LID) techniques. The City’s “Soak It Up” program also partially reimburses homeowners who install rain gardens or other natural infrastructure.*
- Track green building and natural infrastructure data in new permit tracking software

- *This opportunity should be considered as new software is evaluated.*

TBD

- Explore local applicability of Seattle’s Green Factor score-based code requirement, which increases the amount and improves the quality of landscaping in development
 - *Staff needs to research, track results, and assess applicability of Seattle model.*
- De-paving initiative (existing development)
 - *Staff needs to research what program opportunities exist in Shoreline and the Seattle area to adapt this Portland-originated model.*

c. Soil Biocarbon Storage—Suite of Strategies

Yellow

- Encourage builders to comply with Washington State Building Soil guidelines for new construction, and provide education to improve and protect soil health on existing landscapes
 - *Leading scientists are still working to understand the role of soil biocarbon storage in mitigating climate change. Climate Solutions’ Northwest Biocarbon Initiative is researching the best available science and working to make it accessible to cities and other stakeholders. Additionally, a University of Washington study found that adding 15-30% compost to soils resulted in a 50% reduction in stormwater runoff because of enhanced soil structure and improved moisture-holding capacity.*

TBD

- Amend City Green Building policy to require compost as soil amendment for landscaping, and promote bulk purchasing of organic fertilizer
 - *The City of Eugene, OR has adopted a policy requiring compost as a soil amendment City-wide.*
- Partner on City projects with companies that promote soil health
 - *This could be included in an update to the EPPG.*

d. Urban and Regional Forests—Suite of Strategies

Green

- Work with King County and other partners on initiatives, such as a transfer of development rights, that recognize the regional value of density in Shoreline

- *Shoreline is working with Forterra on a study regarding the regional ecosystem benefits of density. Council provided direction to proceed at their July 20, 2015 meeting.*

TBD

- Set tree canopy goals that consider carbon sequestration, resiliency to climate change impacts, and equitable distribution of tree-related benefits across the city
 - *Staff is exploring how to align these strategies with the Urban Forest Strategic Plan.*
- Seek funds to hire an urban forester and tree maintenance staff to oversee urban forest stewardship and coordinate community volunteers
 - *Staff is exploring how to align these strategies with the Urban Forest Strategic Plan.*
- Protect and expand healthy, climate-resilient urban tree canopy
 - *In general, large trees store more carbon, and a healthy tree canopy can help mitigate the urban heat island effect. Staff is exploring how to align these strategies with the Urban Forest Strategic Plan.*

e. Blue Carbon (Coastal and Riparian Wetlands)—Suite of Strategies

Green

- ✓ Policy to protect coastal wetlands
 - *Shoreline Master Program (SMP) includes guidelines and regulations for coastal wetlands.*
- ✓ Education on ocean acidification
 - *This is not technically a blue carbon/biocarbon strategy but represents an important coastal issue on which Shoreline has taken a stand by hosting a Sustainability Forum in 2012 with Jay Manning, a member of the Governor’s Blue Ribbon Panel on Ocean Acidification. Additional opportunities for public education and action can be pursued.*
- Riparian planting and restoration
 - *Staff is exploring how to align these strategies with the Urban Forest Strategic Plan.*

F. MEASUREMENT AND VERIFICATION

1. MEASUREMENT AND VERIFICATION GOAL: Participate actively in King County-led activities to establish a system for measuring and verifying progress toward shared carbon reduction and energy goals

a. Measurement and Verification Strategy

Yellow

- ✓ Continue to implement the forevergreen initiative, and explore opportunities to partner with King County on related measurement projects to inform regional climate action
 - *In 2009 and 2012 the City performed carbon footprint analyses that informed the forevergreen site, and will need recurring staff resources to meet the commitment of updating this work every five years. The continuation of carbon footprint tracking and the forevergreen initiative will be valuable as King County and the K4C explore a public-facing dashboard as a regional collaboration. Staff will track how these efforts relate and how to leverage Shoreline's leadership on forevergreen most efficiently.*

III. RECOMMENDED PRIORITIES

These recommended actions represent a distillation of the strategies that are: most likely to result in significant carbon reduction; opportunistic regarding existing or expected partnerships, such as the K4C Joint City-County Climate Commitments; and supported by City staff. They are organized according to the following categories:

- Top Recommendations for City Council Advocacy
- Top Partnership Activities
- Top Local Activities that Require Full Implementation through Council Direction or Allocation of Resources

Top Recommendations for City Council Advocacy (8)

- Carbon Pricing
 - Advocate for statewide carbon pricing
- Fossil Fuel Export
 - Participate in the Safe Energy Leadership Alliance
- Transportation
 - Continue to advocate for statewide Clean Fuels Standard
 - Advocate to increase transit service 100% by 2030 and 200% by 2050 (or set other time-specific targets for transit increase)
 - Advocate for Seattle City Light to embrace a leadership role in EV adoption
- New Buildings
 - In partnership with the Regional Code Collaboration, advocate for the State of Washington to outline and adopt a code pathway for new buildings in 2031 to be 70% more energy efficient than new buildings were in 2006, and to create a stretch energy code program for cities
- Existing Buildings and Renewable Energy

- Advocate for state funding for local/regional energy efficiency programs
- Participate in K4C outreach to utilities on energy efficiency and renewable energy

Top Partnership Activities (8)

- Transportation
 - “Plug-in-Ready” partnership to enable private adoption of EVs
 - Partner with King County and nonprofits to encourage shared transportation in vanpools, rideshare, carshare, and fleetshare
- Buildings and Renewable Energy
 - Partner with Seattle City Light and Community Power Works on an energy efficiency retrofit program, with emphasis on building envelope and heating technology measures to reduce natural gas consumption
 - Partner with Northwest SEED, NW Mechanical, Shoreline Community College, and Solar Shoreline on a Solarize campaign to install solar on rooftops of homes and businesses, with emphasis on measures to reduce natural gas consumption
 - Partner with Northwest Solar Communities on standardization of solar installation process
- Consumption and Solid Waste Management
 - Continue to partner with King County at regional Metropolitan Solid Waste Management Advisory Committee (MSWMAC) meetings
 - Partner with King County on Food Too Good to Waste campaign
 - Partner with King County, Diggin’ Shoreline, Seattle Tilth, and others on Farm City Roundtable

Top Local Activities that Require Full Implementation through Council Direction or Allocation of Resources (20)

- Council Priority
 - When setting 2016-2017 Council Goals, incorporate climate and emission reduction targets
- Transportation—*A number of these strategies are being addressed through Light Rail Station Subarea Planning.*
 - Research examples of pricing policies to reduce VMT in other cities, and determine best practices, factors for success, and local applicability
 - Aggressively target grant funding for capital projects, land use, and non-motorized transportation
 - Adopt and implement a Transit Communities Policy to align planning and zoning for transit supportive development within walking distance of high capacity transit
 - Reduce cost and uncertainty of project review in Transit Communities

- Utilize zoning and permitting methods to concentrate new growth in proximity of services and transit
- Implement Transit-Oriented Development Community Engagement
- Implement Transit, Pedestrian, and Bicycle components of the Transportation Master Plan, including developing cycle tracks and greenways within the city with connections to and through densely populated neighborhoods
- Adopt a transportation budget prioritization tool using Triple Bottom Line (TBL) assessment, which includes social and environmental factors as well as traditional financial performance
- Buildings and Renewable Energy
 - Building on the 2015 completion of a district energy study, Council-directed plan for community-wide distributed renewable energy
 - Consider creating a permanent position related to sustainability and climate action, such as a Community Resource Conservation Manager to support residential and commercial energy efficiency and renewable energy projects
 - Develop a package of strategies for sustainability and carbon reduction in the City's existing and new utilities
 - Work with Seattle City Light to continue converting streetlights to LEDs
- Consumption
 - Use mini-grant program and 2015 Communications Strategy to promote sharing, lending libraries, repair education, and outreach on household consumption choices
- Solid Waste Management
 - Require solid waste collection, and embed collection of food scraps and yard debris in future solid waste contracts
 - Adopt King County's recycling goal, and approve a new solid waste contract that: 1) encourages conscious consumption, and 2) offers services that maximize waste recycling and reuse throughout the community
 - Expand current partnerships with local businesses to collect waste cooking oil for biofuel production, and develop/expand markets for waste-to-resource products
- Biocarbon Storage/Natural Infrastructure
 - Work with King County and other partners on initiatives, such as a transfer of development rights, that recognize the regional value of density in Shoreline
 - Protect and expand a healthy, climate-resilient urban tree canopy to store more carbon and mitigate the urban heat island effect
 - Encourage builders to use soil best management practices in new construction, and provide education to improve and protect soil health on existing landscapes

IV. CONCLUSION

New Energy Cities' analysis indicates that the strategies outlined in this memo, based on best practices known today, are likely to result in significant carbon reduction in the areas of transportation, buildings, and energy supply. Supplementary actions in the areas of biocarbon storage, consumption, and solid waste will also have important climate and non-climate benefits.

Current analysis indicates that if the City of Shoreline were to achieve all of the targets in this memo, through a mix of advocacy, partnerships, and local action, and if Washington State were to adopt carbon pricing, it is likely that the Shoreline community would meet the overall 50x30 goal.

If the City of Shoreline were to implement the green and yellow strategies, it would make significant progress toward achieving the 50x30 goal. However, implementation of the green strategies alone (i.e., those already underway or ready for implementation in the next year) will not be sufficient. Moreover, the City does not have staff capacity to implement all green strategies in the near term, and will have to prioritize the most important strategies and/or allocate additional resources.

We recommend that the City place a high priority on fully funding and implementing the green strategies, as well as identifying the resources necessary to implement the yellow strategies, which have specific obstacles or conditions that must be in place to start, such as new resources, tools, partnerships, or outside opportunities. Although the City may opt for a later implementation timeframe, such as two to six years out, for yellow strategies, we recommend that the City begin to lay the foundation now for their successful implementation.

For both green and yellow strategies, the first foundational steps could include:

- City Council adoption of community-wide carbon reduction as a new Council priority at the 2016 Council retreat;
- City Council engagement on prioritization and implementation of these strategies;
- City Council advocacy at the regional and state levels for the most leveraged policies related to community carbon reduction, including but not limited to the K4C Joint City-County Climate Commitments;
- Participation in regional partnerships that will drive community carbon reductions in areas that are outside of the City's traditional authority;
- Identification of existing and/or new staffing resources to execute the most leveraged strategies for community carbon reduction; and
- Allocation of budgetary resources for new program elements.

As a natural part of implementation, the City will also need to:

- Evaluate the effectiveness of strategies over time, including examination of improvements in technology, positive market changes, and unexpected program efficiencies.
- Adapt to both positive and negative developments over the course of implementation, and adjust its strategies accordingly in order to meet its sector targets and the overall goal.

The City can use its ongoing carbon footprint analyses and forevergreen website to track and report progress of these initiatives over time.

Shoreline and New Energy Cities staff looks forward to additional guidance from Council on next steps, which could include a Council workshop for more detailed discussion of options and implementation strategies.

V. APPENDIX—COMPARISON OF K4C JOINT CITY-COUNTY CLIMATE COMMITMENTS & PROPOSED SHORELINE CARBON REDUCTION TARGETS

Category	K4C Commitments	Proposed Shoreline Carbon Reduction Targets
Shared Goals and Climate Policy	<ul style="list-style-type: none"> Adopt science-based countywide GHG reduction targets that help ensure the region is doing its part to confront climate change Support strong federal, regional, state, countywide, and local climate policy 	<ul style="list-style-type: none"> Shoreline adopted science-based, measurable targets in its 2012 Climate Action Plan Support strong federal, regional, state, countywide, and local climate policy, including a science-based limit on carbon, and a carbon pricing approach that charges emitters for GHG pollution
Transportation	<ul style="list-style-type: none"> 15% reduction in vehicle carbon fuel intensity due to proposed 10% statewide clean fuels standard (CFS) and 5% additional reduction 20% reduction in vehicle miles traveled 	<ul style="list-style-type: none"> 25% reduction in carbon intensity of private vehicles by 2030, by promoting clean transportation fuels and vehicle technologies (including 10% statewide CFS) 35% reduction in vehicle miles traveled by 2030
New Buildings	<ul style="list-style-type: none"> Achieve net zero GHG emissions in new buildings by 2030 	<ul style="list-style-type: none"> Achieve net zero GHG emissions in 100% of new buildings community-wide by 2030
Existing Building Retrofit and Renewable Energy Supply	<ul style="list-style-type: none"> 25% reduction in existing building electricity use, and 25% reduction in direct natural gas use for heating in existing buildings 90% renewable electricity use (20% more than 2012 level), phase out coal-fired electricity by 2025, and limit natural gas-based electricity generation to current level 	<ul style="list-style-type: none"> 40% reduction in natural gas use for heating by 2030 Seattle City Light already has 90% renewable electricity, and since 2000, has had a mandate to meet all new electrical demand with cost-effective conservation and renewable energy resources, and to achieve zero net GHG emissions

