



# SUSTAINABILITY

## SUSTAINABILITY GOAL

Be a community that places a high value on environmental stewardship, advances the well-being of residents, and fosters economic resilience in order to provide a high quality of life for current residents as well as future generations. Enhance sustainability in Town government operations and policies. Work in partnership with the community to promote sustainable practices throughout Town. To emphasize the Town's commitment to sustainability, each chapter of the Comprehensive Plan contains a specific Sustainability Goal related to that chapter's content.

### Community Engagement

Sustainability is best advanced when the Town and the community work in concert. When the Town adopts and implements policies and programs to integrate sustainability into decision-making, individuals can more readily make choices in their everyday lives that will conserve natural resources, protect ecosystems, and improve human health. When sustainable choices for housing, transportation, food, energy, and waste diversion become convenient and accessible for all, a truly sustainable community becomes possible. Meaningful community engagement is also key to the Town's ethic of governance. There are a number of committees and working groups that advise staff and Town Council on sustainability-related topics including the Climate Action Plan Working Group, the Climate Vulnerability Assessment Advisory Team, the Greenway/Bikeway/Sidewalk Corridor Committee, the Recreation Advisory Board, and Planning Commission. Residents are invited to participate Town-affiliated sustainability initiatives and programs by joining the planning teams for Sustainability Week and Sustainability through the Seasons, a longstanding partnership between the Town, Virginia Tech and Sustainable Blacksburg, a local community group. There are also numerous opportunities to join or volunteer with community groups and non-profits that work to advance a wide range of sustainability goals throughout the New River Valley. A list of these organizations can be found on the Town of Blacksburg website under Sustainability: Community Engagement.

## OVERVIEW

Although definitions have shifted over time, at its most basic, the concept of sustainability is relatively simple: a community that is stable and resilient over time because it works within the adaptive and regenerative capacity of the natural resource base that ultimately supports the community's social and economic systems.

Blacksburg's vision of sustainability is about ensuring options for community members in how they choose to live their lives while providing for the well-being of future generations. More explicitly, that means that Blacksburg seeks to:

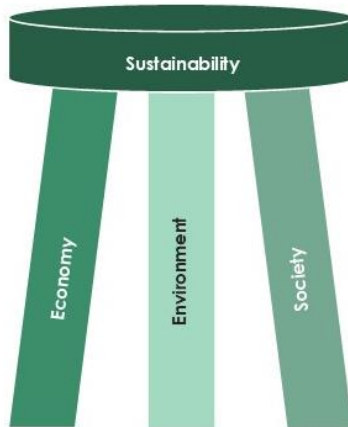
- sharply reduce community-wide greenhouse gas emissions in the coming years
- fully transition to 100% renewable energy by mid-century
- develop climate adaptation strategies in response to priority climate hazards
- establish land-use policies that make wise use of existing infrastructure
- reduce car-dependency and encourage greater access by proximity to key destinations
- restore damaged urban environments such as brownfields

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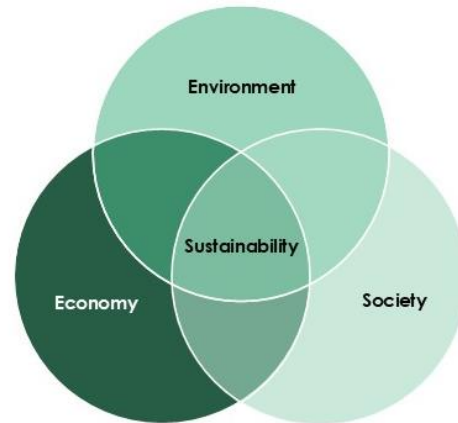
- support economic diversity and resilience
- create affordable, appropriate, and durable housing for the community’s residents and workforce
- support resource conservation while reducing pollution and hazardous wastes
- create a built environment and community programs that improve public health outcomes
- foster resilient local and regional food systems
- improve the health and biodiversity of local and regional ecosystems
- increase public awareness of the critical value of the local environment and bioregion

## Defining Sustainability

Over time, different models have been used to help explain the concept of sustainability. The Three-Legged Stool and Overlapping Circles/Venn-Diagram models rightly emphasize that all three dimensions (economy, society, and environment) are required for a community to thrive and ensure a high quality of life. The downside of these models is the implication that the economy, society, and environment can exist separately from one another – outside the physical reality and functioning of natural systems - and are equally weighted in supporting a functioning community.

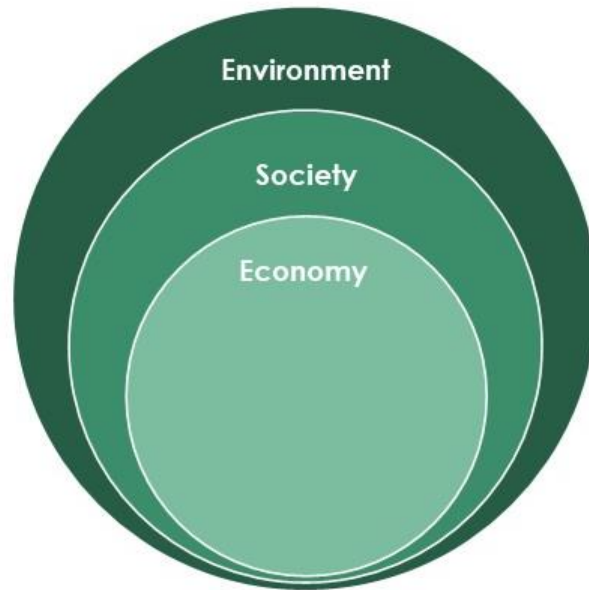


Three-Legged Stool Model



Venn-Diagram Model

In more recent years, a nested-dependencies model has emerged, that more accurately demonstrates that economic systems exist within social systems, which in turn, are built upon the renewable and non-renewable resources that arise from our environment. Everything we need to survive and thrive comes from the natural world, and everything we produce ultimately returns to this same system. Our choices and actions can either support or degrade the availability of critical resources - fresh air, fertile soil, clean water, stable climate, and raw materials - to sustain our way of life and the well-being of future generations. This is the model upon which the Town of Blacksburg’s sustainability policies are built.



**Nested Dependencies Model of Sustainability**

### **Regional and State-Level Collaborations**

Many sustainability issues extend beyond jurisdictional boundaries, and regional coordination is often the best way to effectively and efficiently address them. Ongoing areas of regional collaboration include planning and policy development efforts on:

- water supply resiliency and water quality improvements
- water and wastewater infrastructure
- solid waste disposal
- emergency response planning
- alternative transportation expansion
- economic development
- multi-use trail connectivity

Additionally, there are a number of sustainability issues that increasingly warrant coordination with other Virginia localities to identify and advance shared policy priorities. These include state-level policy and regulatory advocacy on clean energy, affordable housing, and sustainable transportation options.

The Town of Blacksburg is committed to working locally, regionally, and at the state level to meet the needs of the community, advance the sustainability goal, and to provide a livable future for all.

An example of the Town's involvement in a regional sustainability effort is its committed and continued involvement in the New River Valley Livability Initiative. The New River Valley Regional Commission guided this planning process, which was supported by a consortium of regional non-profits, businesses, local governments, and universities. The NRV Livability Initiative sought to develop and prioritize regional solutions to some of the region's longstanding and intersecting challenges on an array of topics including housing, transportation, energy, agricultural systems, public health, natural resources, internet access, aging-in-place, economic

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and workforce development. The planning phase of the Livability Initiative, completed in January of 2014, resulted in three topic-area plans for the region.



Regional Collaboration: New River Valley Livability Initiative Plans

The plans themselves as well as progress and updates on implementation efforts can be found at [www.nrvlivability.org](http://www.nrvlivability.org). The Town of Blacksburg continues to be an active implementation partner on the NRV Livability Initiative along with the Community Foundation of the New River Valley, the New River Valley Regional Commission and other members of the original planning consortium.

At the state level, the Town is involved in policy advocacy work through Virginia Municipal League, the Virginia Energy & Sustainability Peer Network, and through direct engagement with our representatives in the Virginia General Assembly on legislation.

Whether the strategies are local, regional or state-level, the Town's sustainability efforts are built upon this nested-dependencies model, with focus on the topic areas of economic sustainability, social sustainability and environmental sustainability. While these facets of sustainability are interdependent, they are discussed separately on the following pages for ease of comprehension and organization.

## ECONOMIC SUSTAINABILITY

Blacksburg’s vision of economic sustainability acknowledges that any economy functions within the larger ecosystem and cannot exist without it. The ecosystem provides all the inputs needed for an economy to thrive: land, natural resources, **ECOSYSTEM SERVICES**, and labor. These inputs, in combination, create the capital needed to fuel economic activity. A sustainable economy manages these resources so they will not be depleted or degraded and will remain available for future generations.

### Ecosystem Services

Ecosystem services are a collection of benefits that humans freely gain from the natural environment and properly-functioning ecosystems. These services generally fall into four broad categories:



**provisioning** (production of food, raw materials, and re-charge of water supplies)



**regulating** (erosion control, pollution, carbon sequestration, and waste recycling)



**supporting** (pollination of crops, wildlife habitat, biodiversity, and nutrient cycles)



**cultural** (recreational, restorative, and civic amenities)

Taken together, the open and natural spaces that support these ecosystem services form the community’s green infrastructure. This green infrastructure is as essential to the Town as its traditional gray infrastructure such as roads, power lines, and water systems.

A sustainable local economy is resilient to economic shocks and downturns and offers equitable access to employment that provides dignity, stability and a living wage to all residents. Diversified revenue sources and stable major employers, such as the University, have historically helped the Town withstand economic volatility. However, the housing crisis of 2008 and the global pandemic of 2020 yielded important lessons on how entire sectors of Blacksburg’s local economy can be suddenly made vulnerable to external events. These unusual circumstances point to strategies the Town can consider to ensure Blacksburg is better positioned to prepare for and respond to challenges like these in the future.

Lastly, Blacksburg’s vision for a sustainable local economy also includes a government that is fiscally responsive to community priorities and is a good steward of taxpayer dollars. Both of these commitments promote a viable and resilient business climate that fosters private sector investment, equitable employment opportunities for Blacksburg residents and the wider region, and responsible development. An example of how the Town operationalizes its commitment is through thoughtful selection, design, and construction of public buildings, infrastructure and other public projects. The Town strives to minimize both the construction and operating costs of buildings and equipment, pursues grant funding opportunities, and seeks public/private partnerships to minimize the total cost of a project to taxpayers. The Town’s commitment to green building practices for its municipal facilities, which results in lower operational expenses over the life of a building, can be found in the *Public Safety & Community Facilities chapter*.

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The Town had a general operating budget of approximately \$40 million and a capital budget of \$11.6 million for fiscal year 2020-2021. The Town's revenue is derived from multiple sources, such as business licenses and permits, plus taxes on real estate, local sales, telecommunications, meals, and lodgings. The Town adheres to the adopted "Town of Blacksburg Principles of Sound Financial Management" policy statement that articulates financial guidelines. This has resulted in the Town winning the Distinguished Budget Presentation Award every year since 1992 and the Certificate of Achievement for Excellence in Financial Reporting every year since 1979. Both are bestowed from the Government Finance Officers Association. The Town's bond rating as of **June 2019 is AA bond rating** by Standard & Poor's and Aa2 by Moody's, the highest rating available to a community of this size.

All of the above factors contribute to a stable economic base that strategically positions the Town for existing private businesses to grow their current operations and to attract new business development opportunities that enhance the Town's quality of life. The Town recognizes the value of stable large employers as well as local and regional small, independent businesses to our local economy. Additional information can be found in the *Economy & Employment chapter*.

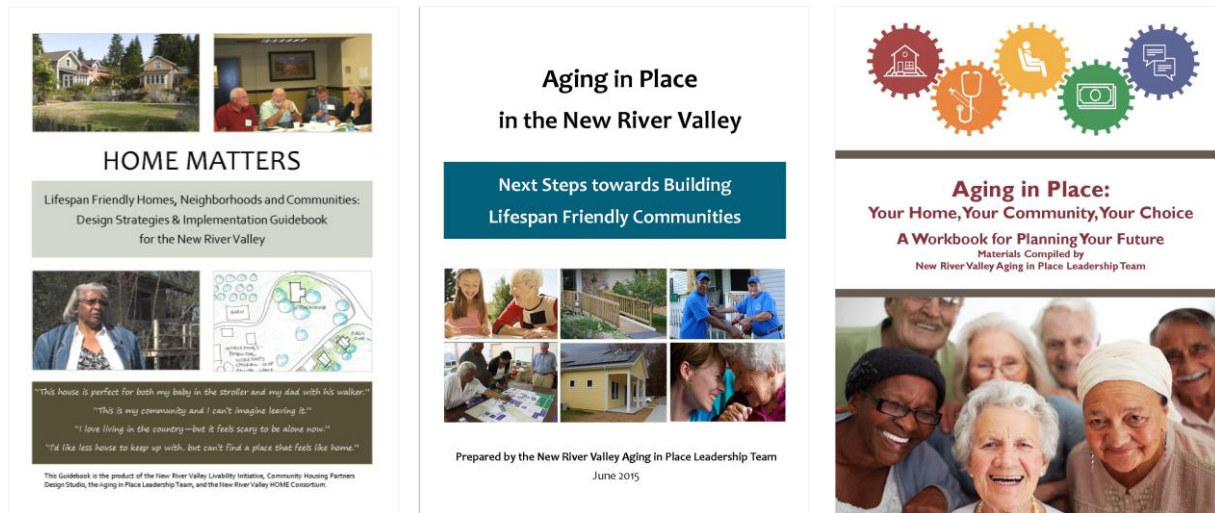
The Town also works closely with the business community to promote environmental awareness and sustainability on a number of initiatives. One example is the Electronics Recycling Partnership, a combined effort utilizing Sustainable Blacksburg volunteers, a collection site managed by the YMCA Thrift store, and staff support from the Public Works department.

## **SOCIAL SUSTAINABILITY - PEOPLE**

Blacksburg's vision for a socially sustainable community is one that promotes the well-being of residents and actively plans for the needs of future generations. A socially sustainable community designs physical spaces that support public health and community wellbeing; provides civic amenities that allow social and cultural life to thrive; creates systems for meaningful community engagement and responsive governance structures; and fosters equitable opportunities for education and work that enable individuals to grow and thrive. To achieve Blacksburg's vision to succeed as a sustainable community, the interdependency between social sustainability must be equally addressed with the other two components of sustainability: the economy and the environment. A sustainable community is inclusive and strives to meet the needs of its diverse population. Town policies and programs should support equitable access and help community members connect with the resources they need.

This type of social equity includes respecting others' choices, embracing the diversity in Blacksburg, and engaging with the community. Individuals help strengthen the fabric of the Blacksburg community by participating in government, schools, volunteer emergency services, civic groups, and religious organizations. Community engagement increases the quality of government planning and policies. This type of capacity building typically benefits both the individual and the community at-large, and is critical to Blacksburg's vision of a sustainable community. Additional information on social equity and community engagement can be found in the *Equity & Community Wellbeing chapter*.

One example of the Town's commitment to social sustainability is a multi-year effort to make Blacksburg and the wider New River Valley Region more lifespan friendly. The regional Aging in Place Leadership Team, made up of a cross-jurisdictional, cross-sectoral team, has developed and begun implementation of a number of plans and initiatives.



***Design Guidebook, Action Plan, and Personal Aging in Place Planning Guide created by the Aging in Place Leadership Team***

## ENVIRONMENTAL SUSTAINABILITY

Blacksburg’s vision of environmental sustainability includes:

- reducing air and water pollution as well as greenhouse gas emissions
- fostering green business and hospitality practices
- supporting the viability and sustainability of local food systems
- planning for future climate resiliency and adaptation
- reducing light pollution
- supporting biodiversity and conservation of open spaces
- expanding tree canopy
- promoting energy conservation, energy efficiency and expansion of renewable energy
- reducing car-dependency
- adopting land-use policies that promote smart growth practices
- minimizing waste and encouraging recycling
- improving watershed management practices and water quality

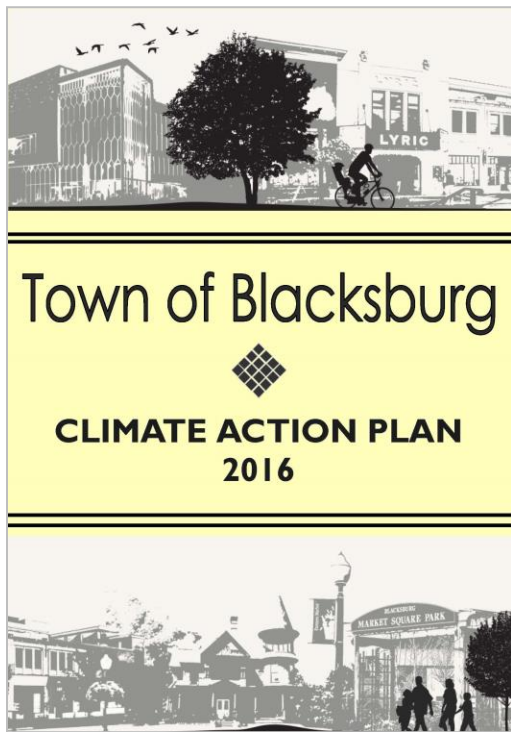
This vision is accomplished through an iterative process of planning, policy development, community engagement, partnership building, and project implementation. Recent accomplishments in each of these areas include: completion of the Climate Action Plan, Climate Vulnerability Assessment, and Bicycle Master Plan; a significant update to the Apartment Recycling Ordinance; the decade-long partnership with Virginia Tech and Sustainable Blacksburg on Sustainability Week; creation of the Solarize Blacksburg and Solarize Montgomery programs, and attainment of SolSmart Silver Community designation. Two of these accomplishments have recently garnered awards: Sustainability Week was awarded a Governor’s Excellence Award for 2016 and Solarize Blacksburg was awarded a U.S. Conference Mayors Climate Protection Award for 2015.

### **Climate Action & Greenhouse Gas Emissions Reduction**

Climate change will be the defining challenge of the 21st century. Evidence continues to mount that continued inaction on greenhouse gas emissions could lead to catastrophic changes,

destabilizing the very systems that support and sustain human civilizations. Billions of people will experience these changes through threats to public health, disruption of national and local economies, and food and water insecurity. Buildings and infrastructure will be increasingly impacted by the severity and frequency of weather events. For certain coastal communities, these threats will be amplified by rising sea levels. While a worldwide policy response to climate change is required, a great deal of the action and implementation will have to take place at the local level. Blacksburg is proud to join the majority of U.S. cities that have made a formal commitment to reduce their community’s greenhouse gas emissions.

The long-range goal, established by Town Council in 2007, is to reduce our community-wide greenhouse gas emissions by 80% below 1990 levels by 2050. Since that initial commitment, the Mayor and Council have repeatedly updated and reaffirmed the Town’s commitment to taking action on climate change and planning for climate adaption and resiliency. In 2015, Blacksburg joined the Compact of Mayors, which strengthened our commitment to work actively toward climate solutions.



***Blacksburg’s Climate Action Plan***

Between 2007 and 2016, the Climate Action and Community Sustainability Working Group was convened to work on development of the Blacksburg Climate Action Plan. This Working Group was made up of key stakeholders representing a cross section of the community, including Town Council, representatives from the commercial, industrial, housing, energy, transportation, water & wastewater sectors, Virginia Tech researchers and faculty, Town Staff, Sustainable Blacksburg, and the community at large. Due to the hard work and dedication of this working group, the Town completed a community-wide baseline energy and greenhouse gas inventory, developed and prioritized a list of implementation strategies, and completed the plan, which was unanimously accepted by Town Council in September of 2016. Integration of key strategies from the Climate Action Plan into the Comprehensive Plan and other community plans and policies is an important first step toward full implementation of the plan.

In 2017, following adoption of the Climate Action Plan, Blacksburg became a signatory to the “We Are Still In” open letter, representing a coalition of more than 2,300 localities across the US who affirm they will continue to work toward the goals outlined in the Paris Climate Agreement. That same year, Town Council passed a resolution supporting Blacksburg transitioning to 100% renewable energy by 2050.

Meeting these commitments will require active engagement with other Virginia localities on state-level energy policy. It will also require bold and ambitious local action. The community will need to prioritize energy conservation and efficiency in the buildings where people live, work and go to school; to be more deliberate in everyday consumption and disposal choices, to rethink the ways people get around; to make wise development decisions as the population grows; and to invest in



clean energy sources and transportation infrastructure that reduce reliance on fossil fuels. Some of these changes will require significant investment, but it is clear that the costs of inaction would be far greater.

### **Climate Vulnerability, Adaptation & Resiliency**

While Blacksburg's Climate Action Plan establishes a set of ambitious strategies to sharply reduce community-wide greenhouse gas emissions by mid-century, it does not attempt to evaluate how Blacksburg might be specifically vulnerable in a changing climate. Starting in late 2019, a Climate Vulnerability Advisory Group worked with the Town in analyzing the best available data and climate modeling and use those findings to assess what Blacksburg can do to prepare and adapt to a changing climate. Blacksburg completed its assessment of climate vulnerability in September 2020 and identified several areas of heightened vulnerability.

Blacksburg's Climate Vulnerability Assessment Report details the critical community systems that are most at risk from the hotter summers, warmer winters and changing precipitation patterns that are anticipated for our region. These areas of heightened vulnerability are identified in the *Environment chapter* and will warrant special attention and focus for climate adaptation policy-making. Additional detail, objectives and policies related to climate adaptation and resiliency can be found in the *Environment chapter*, the *Utilities chapter*, and the *Public Safety & Community Facilities chapter*.

## **SUSTAINABILITY**

### **Objectives and Policies**

- S.1. Work with regional partners, other Virginia localities, and multi-jurisdictional agencies like Virginia Municipal League (VML) and Virginia Association of Counties (VACO) to advance state-level policy changes that support the sustainability objectives in this plan.
- S.2. Support implementation of the New River Valley Livability Initiative coordinated by a partnership between the Community Foundation of the New River Valley and the New River Valley Regional Commission as well as other regional sustainability efforts.

## **ECONOMIC SUSTAINABILITY**

- S.3. Expand efforts to support a diverse mix of business types to ensure the Town is economically resilient in times of economic recession.
- S.4. Support development of a regional green business program in collaboration with local businesses and environmental/sustainability advocacy groups.
- S.5. Continue to support local business associations and other groups that support and serve local small business development.
- S.6. Expand efforts to recognize the value of outdoor recreation, agritourism, small-town community character, historic and cultural assets, and the arts as an engine of local economic development.
- S.7. Support policies that promote local workforce development and the creation of jobs that offer a living wage to employees.
- S.8. Continue to evaluate and modify land-use policies to strengthen local agricultural viability as part of the Town economy. See *Environment chapter*.

## **SOCIAL SUSTAINABILITY**

- S.9. Develop equitable climate adaptation policies and programs that address the needs of demographic groups that may be disproportionately vulnerable to anticipated climate risks in the following areas:
  - Food security and resiliency
  - Human health and wellbeing
  - Infrastructure and basic services
- S.10. Expand efforts to plan for changing demographics with special attention paid toward meeting the needs of underserved, vulnerable, or historically marginalized groups.
- S.11. Investigate and establish metrics and a process for tracking progress toward meeting the needs of underserved, vulnerable, and historically marginalized groups.
- S.12. Expand efforts to support and offer opportunities for meaningful engagement in community planning and policy development.

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- S.13. Expand efforts to ensure Blacksburg remains an inclusive place for its diverse population.
- S.14. Expand efforts to offer programs and development incentives that improve affordability of housing, energy, and transportation for underserved and lower-income residents.
- S.15. Continue to evaluate and modify land-use policies and transportation investments to promote healthy behaviors and lifestyles, and create access to natural areas and outdoor recreation.
- S.16. Continue to recognize the value of natural, cultural, artistic and historic assets and events in building community.
- S.17. Continue to look for opportunities to create vibrant civic spaces and support community-building events that contribute to the social and cultural fabric of Blacksburg.
- S.18. Work to include underserved, vulnerable, and marginalized groups in the planning community events and creation of civic spaces.
- S.19. Work to expand participation of underserved, vulnerable, and marginalized groups in formal or informal advisory town boards or committees
- S.20. Continue to support and partner with volunteer, non-profit, philanthropic, and regional organizations that are helping to advance the goals articulated in this plan.
- S.21. Continue to foster opportunities to educate and encourage children and youth in becoming engaged in their community.

## **ENVIRONMENTAL SUSTAINABILITY**

- S.22. Collaborate with other Virginia localities to re-establish the VML Green Government Challenge, or equivalent.
- S.23. Explore the potential for Blacksburg to attain national-level certification as a green community through Sustainability Tools for Assessing and Rating (STAR) communities, U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) for Cities & Communities, or similar national program.
- S.24. Establish and report goals and convey accomplishments to regulatory agencies such as Department of Environmental Quality (DEQ) and to voluntary programs such as the Tree City USA program and the Global Covenant of Mayors.
- S.25. Create opportunities for community engagement, similar to the Sustainability Week Planning Committee, Corridor Committee, and the Climate Action & Community Sustainability Working Group, to integrate sustainability policies throughout the Town.
- S.26. Work with business stakeholders to develop and launch a local green business challenge program that prioritizes high-impact business practices to reduce greenhouse gas

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emissions, divert organic and recyclable materials from the landfill, and reduce single-use plastics.

- S.27. Engage community groups and environmental advocates to develop a local “Green Living Challenge” program for individuals and households.
  - S.27.1. Expand efforts to help residents to reduce the volume of solid waste overall and divert a greater proportion of re-usable, recyclable, and compostable materials from the solid waste stream through community engagement and education on and the four “Rs”: ReThink, Reduce, ReUse, Recycle.
  - S.27.2. Expand education and outreach to the public on the life-cycle impact of everyday consumer choices, from resource extraction, to creation, to use, to disposal.
  - S.27.3. Encourage residents to explore “zero waste” choices for everyday products in order to minimize use of single-use products.
- S.28. Continue to design and construct new public facilities and renovate existing public facilities to meet U.S. Green Building Council LEED building rating system standards, silver or higher. Facilities shall also meet current best management practices that provide for resource-efficiency, pollution prevention, occupant health and safety, and cost-effective operations over the expected life of the facilities.
- S.29. As part of the development review process, consider how well proposed applications support the Town’s community commitment to sustainability.
- S.30. Promote environmental education and awareness to individuals and businesses by supporting events and initiatives such as Sustainability Week, the Electronics Recycling Partnership, Blacksburg Farmers Market, the Creative ReUse Center, Solarize Blacksburg, and the City Nature Challenge.
- S.31. Continue to support local youth environmental education initiatives and seek partnerships with community groups such as Seek Education, Explore, DiScover (SEEDS) and the New River Land Trust as well as local schools to advance this objective.
- S.32. Educate and encourage residents and private businesses when constructing or renovating homes and buildings to be more energy efficient and meet EarthCraft or LEED building rating system standards.
- S.33. Expand efforts to modify regulatory amendments to promote sustainable neighborhood development practices for private development.

## **Climate Action and Greenhouse Gas Emissions Reduction**

- S.34. Integrate priority strategies from the Climate Action Plan into other community plans and align policies and ordinances to support the plan’s implementation:
  - S.34.1. Evaluate opportunities to collaborate with other Virginia localities to advance clean energy policies at the regional, state and national level.
  - S.34.2. Dedicate resources toward implementation of priority strategies within the Climate Action Plan.

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- S.34.3. Investigate creating incentives for homeowners and rental-property owners to improve the energy efficiency of Blacksburg’s existing housing stock.
- S.34.4. Investigate creating incentives for homebuilders and developers to adopt green building standards for new construction.
- S.34.5. Evaluate policy opportunities to reduce car dependency; increase biking, walking and transit for daily trips; and encourage improved vehicle efficiency.
- S.34.6. Investigate creating incentives to reduce energy waste in the commercial and industrial sectors including establishing a local Commercial Property Assessed Clean Energy (C-PACE) program.
- S.34.7. Investigate options to expand commercial recycling options throughout the Town.
- S.34.8. Investigate options to expand diversion of organic waste from the landfill.
- S.34.9. Promote land use forms that reduce greenhouse gas emissions.
- S.34.10. Promote land use management programs that increase carbon sequestration.
- S.34.11. Partner with community groups and landowners to strategically conserve and restore natural areas.
- S.34.12. Evaluate and modify existing Town policies to foster use of renewable energy systems and encourage conservation of resources.
- S.34.13. Update the Climate Action Plan every five years and evaluate progress toward the Town’s emissions reduction target on an ongoing basis.
- S.34.14. Expand upon the community-wide Climate Vulnerability Assessment and develop a Climate Adaptation and Resiliency Plan.