Town Council Meeting
Climate Action Plan

◆

September 13, 2016

Blacksburg Climate Action Plan

Review of Planning Process

Strategy Refinement & Prioritization Process

Review of Draft Plan - Outline & Format

Citizen Feedback on Draft Plan & Final Revisions

Going Forward

- **Implementation**
- **Plan Updates (Comp Plan, Vulnerability Assessment)**

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Origin and Process 2006 - 2016	
2006	Signatory to Mayors' Climate Protection Agreement
2007	Emissions Target Set by Town Council: *80% below 1990 levels by 2050*
2008-2011	Partnership with Virginia Tech UAP Department: (2008 Greenhouse Gas Emission Inventory, Projections & Scenarios; Public Engagement; Draft GOS; Draft Technical Report
mid 2013 - present	Process Re-Established
	• Update GHG Emissions Inventory, Projections & Scenarios
	• Reconvene Leadership Team/Working Group, Prioritize Strategies
	• Complete Technical Report, Translate to Community Plan Document

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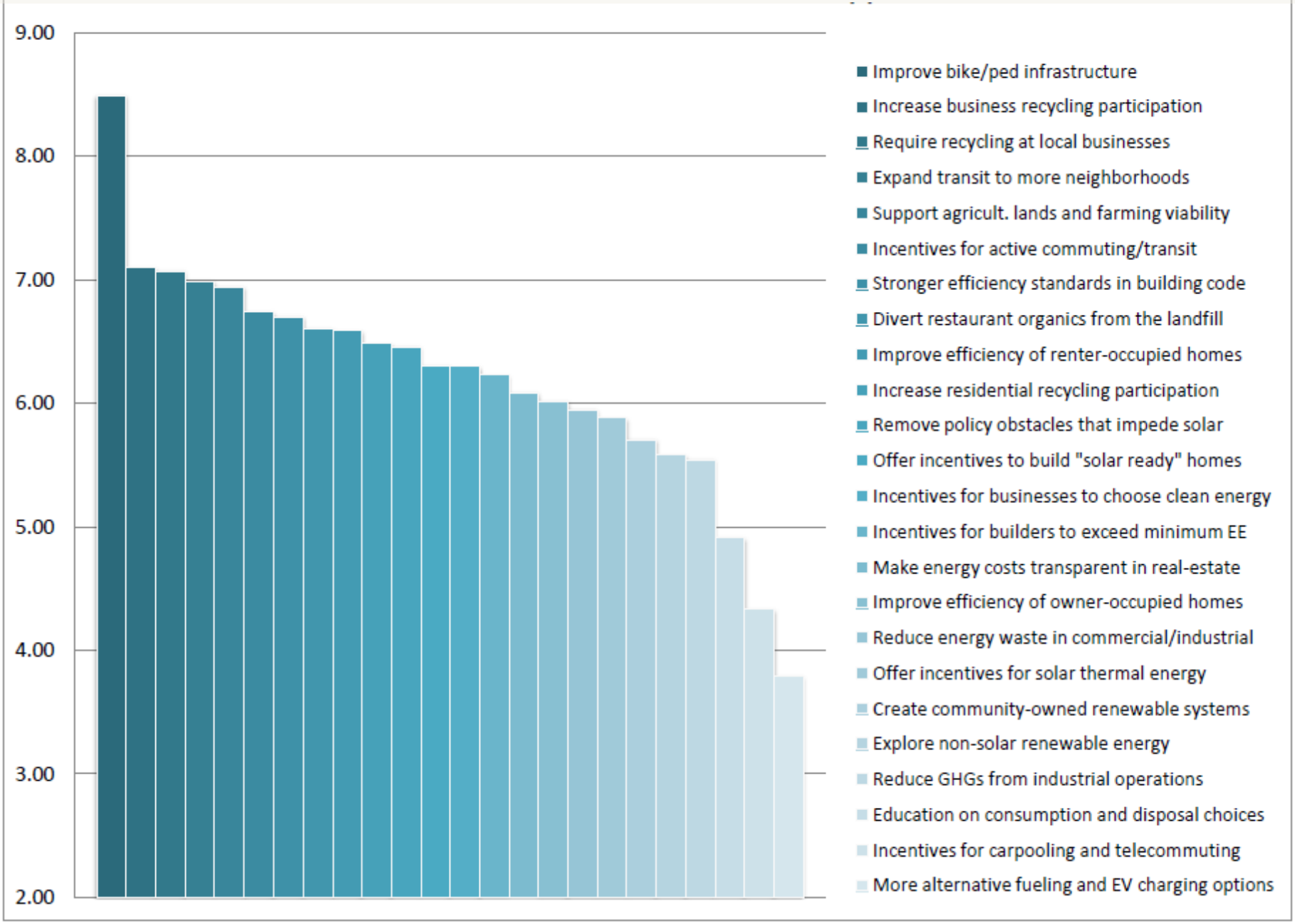
Strategy Refinement & Prioritization – Citizen Priorities



Strategy Refinement and Prioritization: Establishing & Weighting Criteria

Ranking Criteria	Max Score	Min Score	Avg Score
1. Impact on Goal; Co-Benefits to Community	7	1	5.6
2. Greenhouse Gas Impact	9	1	5.9
3. Demographic/Geographic Scope of Impact	5	1	3.5
4. Citizen Priority and Support	9	3	6.3
5. Local Capacity and Technical Feasibility	6	-2	3.1
6. Impact on Local Economy & Employment	4	1	2.5
7. Funding & Financing Options; ROI	5	-2	3.7
8. Integration with established community goal/policies; state policy drivers/obstacles	5	-3	2.8
	50	0	33.6

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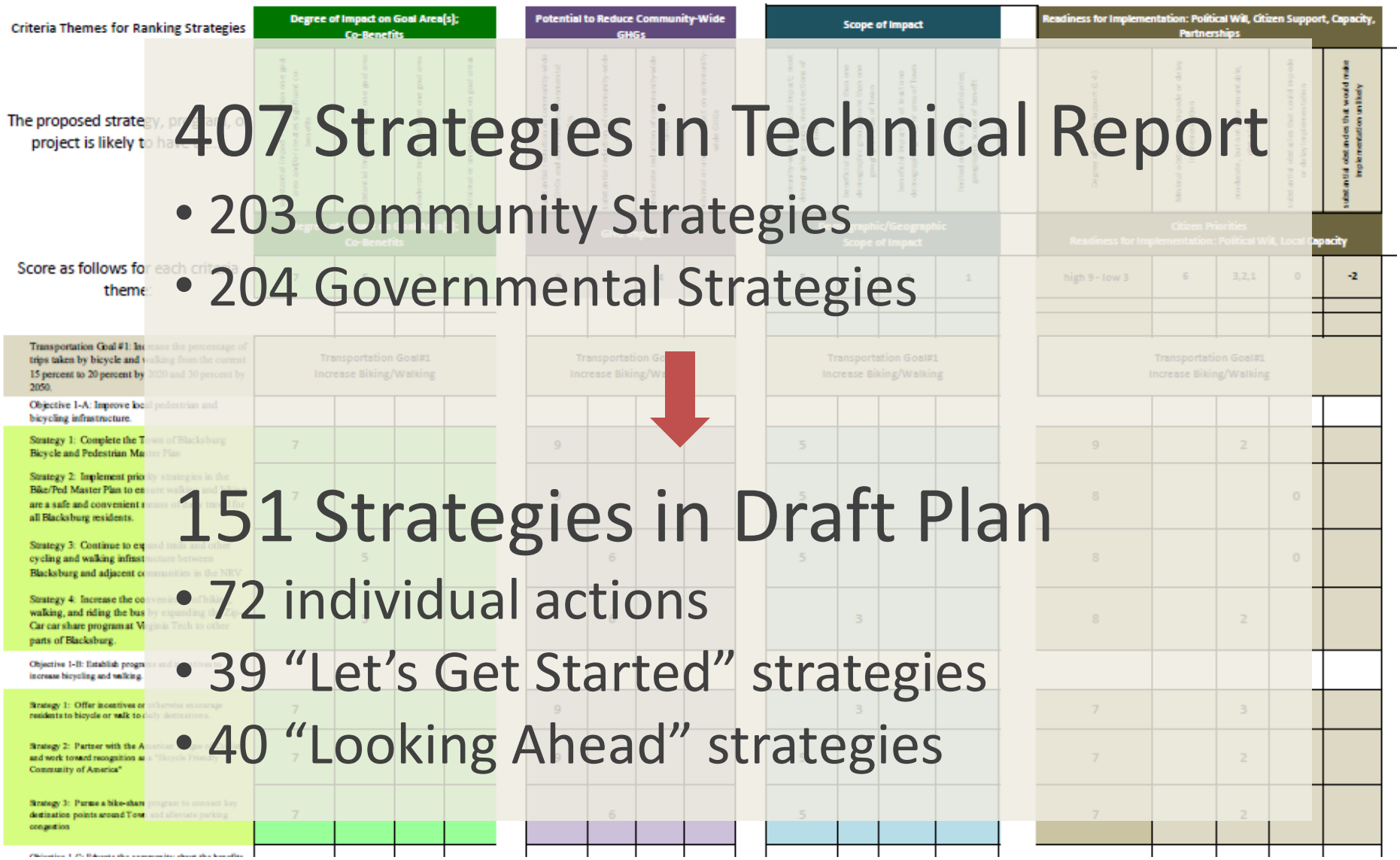
Strategy Refinement and Prioritization

Criteria Themes for Ranking Strategies	Degree of Impact on Goal Area(s): Co-Benefits				Potential to Reduce Community-Wide GHGs				Scope of Impact				Readiness for Implementation: Political Will, Citizen Support, Capacity, Partnerships				
The proposed strategy, program, or project is likely to have a.....	substantial impact - more than one goal area and/or creates significant co-benefits	substantial impact - at least one goal area	moderate impact - at least one goal area	minimal or unclear impact on goal area	substantial reduction of community-wide GHGs and additional environmental benefits	substantial reduction of community-wide GHGs	moderate reduction of community-wide GHGs	minimal or unclear impact on community-wide GHGs	community-wide beneficial impact; most demographic groups; most sections of Town	beneficial impact to more than one demographic group, more than one geographic area of Town	beneficial impact to at least one demographic group or area of Town	limited or unclear beneficiaries; geographic scope of benefit	Degree of Citizen Support (1-4)	Minimal obstacles to impede or delay implementation	moderate, but not insurmountable, obstacles....	substantial obstacles that could impede or delay implementation	substantial obstacles that would make implementation unlikely
Score as follows for each criteria theme:	Degree of Impact on Goal Area(s): Co-Benefits				GHG Impact				Demographic/Geographic Scope of Impact				Citizen Priorities Readiness for Implementation: Political Will, Local Capacity				
	7	5	2	1	9	6	4	1	5	3	2	1	high 9 - low 3	6	3,2,1	0	-2
Transportation Goal #1: Increase the percentage of trips taken by bicycle and walking from the current 15 percent to 20 percent by 2020 and 30 percent by 2050.	Transportation Goal#1 Increase Biking/Walking				Transportation Goal#1 Increase Biking/Walking				Transportation Goal#1 Increase Biking/Walking				Transportation Goal#1 Increase Biking/Walking				
Objective 1-A: Improve local pedestrian and bicycling infrastructure.																	
Strategy 1: Complete the Town of Blacksburg Bicycle and Pedestrian Master Plan	7				9				5				9		2		
Strategy 2: Implement priority strategies in the Bike/Ped Master Plan to ensure walking and biking are a safe and convenient means of daily travel for all Blacksburg residents.	7				9				5				8			0	
Strategy 3: Continue to expand trails and other cycling and walking infrastructure between Blacksburg and adjacent communities in the NRV		5				6			5				8			0	
Strategy 4: Increase the convenience of biking, walking, and riding the bus by expanding the Zip-Car car share program at Virginia Tech to other parts of Blacksburg.		5				6				3			8		2		
Objective 1-B: Establish programs and incentives to increase bicycling and walking.																	
Strategy 1: Offer incentives or otherwise encourage residents to bicycle or walk to daily destinations.	7				9					3			7		3		
Strategy 2: Partner with the American League of Cyclists and work toward recognition as a "Bicycle Friendly Community of America"	7				9				5				7		2		
Strategy 3: Pursue a bike-share program to connect key destination points around Town and alleviate parking congestion	7					6			5				7		2		
Objective 1-C: Educate the community about the benefits																	

Strategy Refinement and Prioritization



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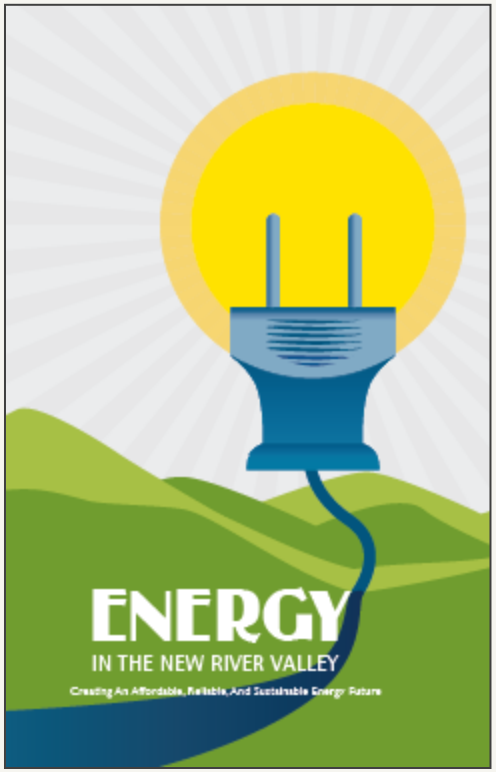
Blacksburg Climate Action Plan: Format & Outline

Plans from Other Communities

- Virginia – **Arlington & NRV**
- Illinois - **Chicago**
- Oregon – **Eugene & Portland**
- Washington - **Seattle**



Blacksburg Climate Action Plan: Format & Outline

Best Attributes from Other Plans:

- Short and relatively simple (most were 75-90 pgs)
  - (backed up by longer technical report, data tables, implementation framework, monitoring guide, etc.)
- Vision and/or message from community leader(s)
- Visually engaging – especially with data; design and layout are clean, uncluttered, easy to navigate
- Realistic call to action – incremental steps, positive messaging, role models, creating and sustaining momentum
- Sets up measurable indicators of success – with milestones
- Highlights co-benefits (economy, community health, etc)

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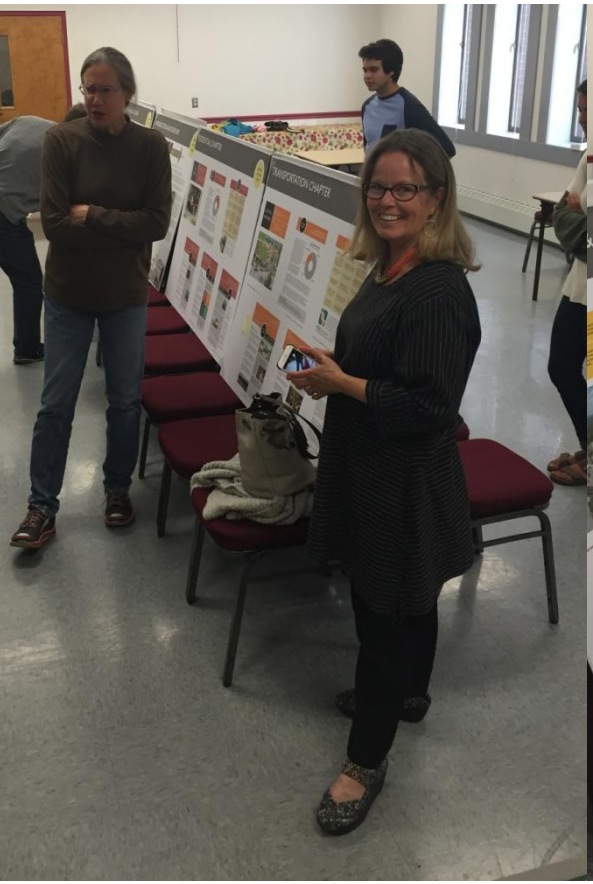
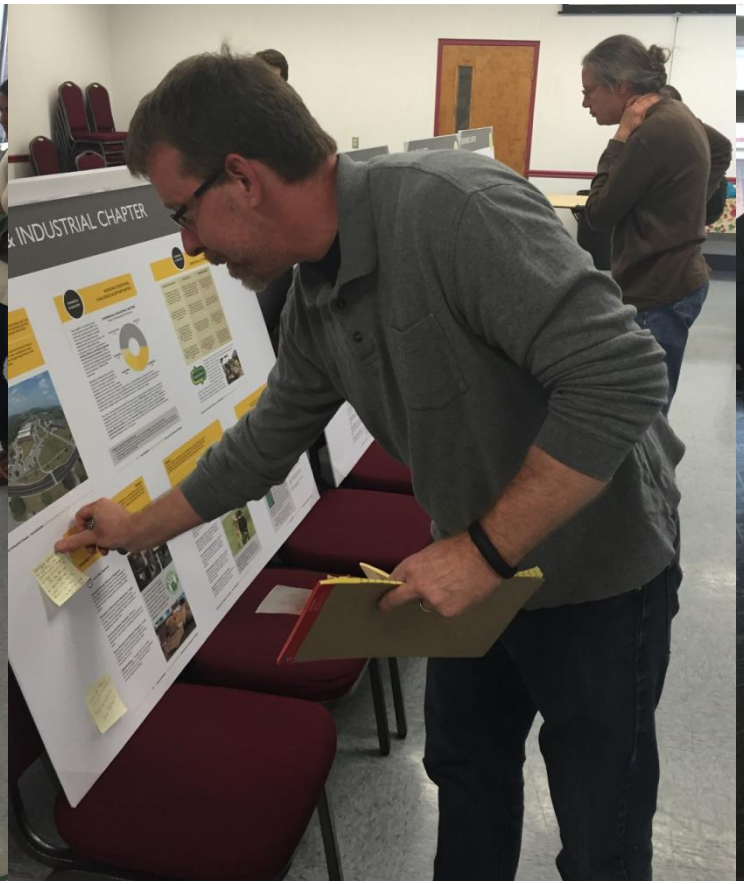
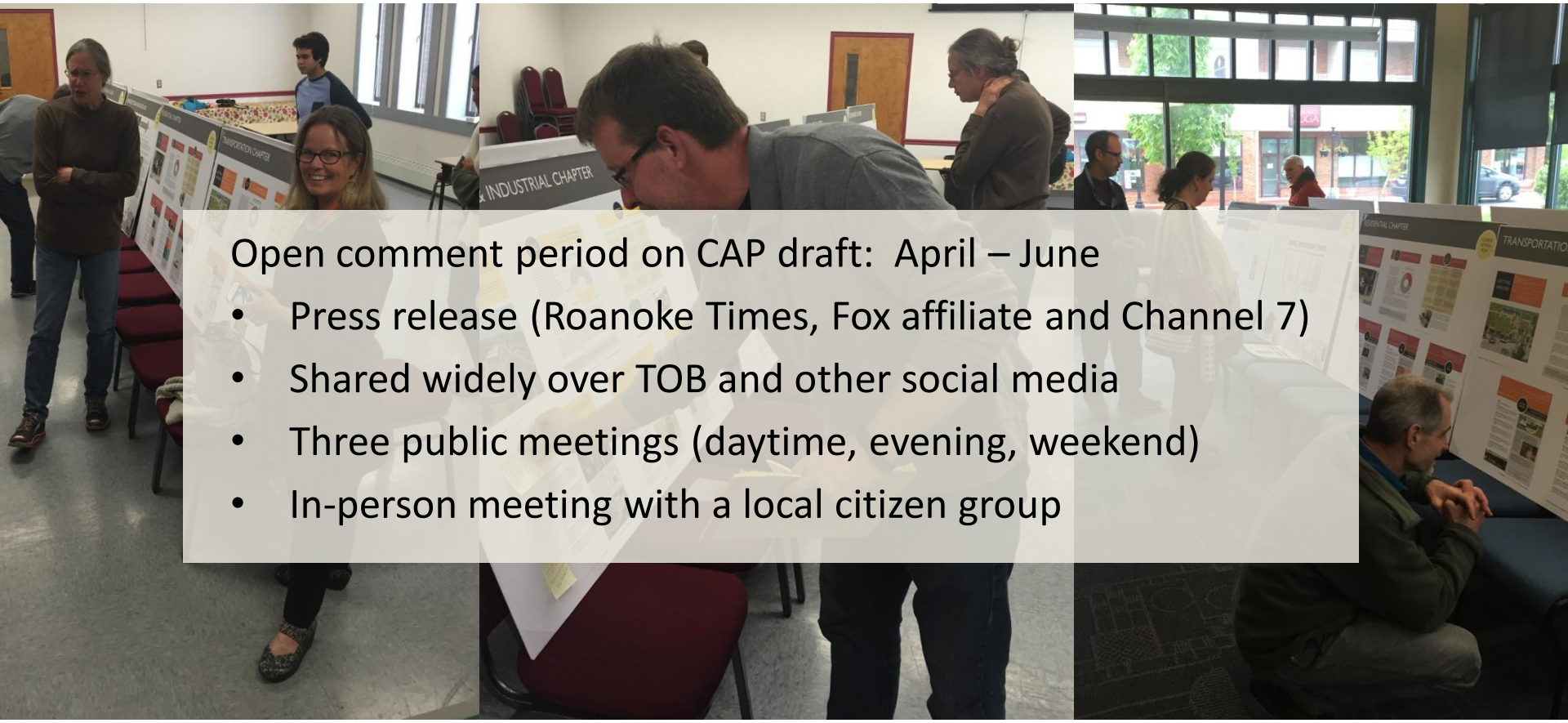
Blacksburg Climate Action Plan
Citizen Engagement





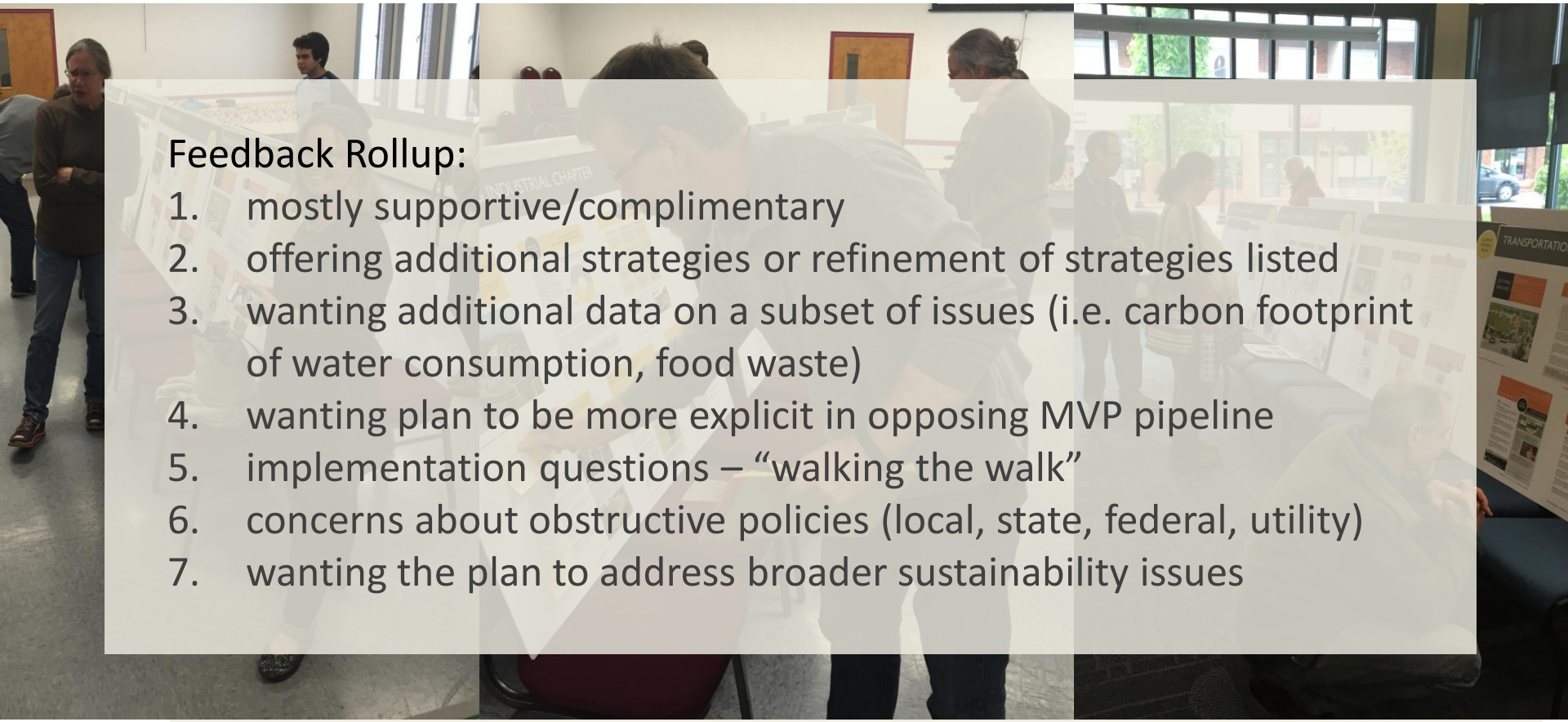
Blacksburg Climate Action Plan
Citizen Engagement



Open comment period on CAP draft: April – June

- Press release (Roanoke Times, Fox affiliate and Channel 7)
- Shared widely over TOB and other social media
- Three public meetings (daytime, evening, weekend)
- In-person meeting with a local citizen group

Blacksburg Climate Action Plan Citizen Engagement



Feedback Rollup:

1. mostly supportive/complimentary
2. offering additional strategies or refinement of strategies listed
3. wanting additional data on a subset of issues (i.e. carbon footprint of water consumption, food waste)
4. wanting plan to be more explicit in opposing MVP pipeline
5. implementation questions – "walking the walk"
6. concerns about obstructive policies (local, state, federal, utility)
7. wanting the plan to address broader sustainability issues

* All feedback is available on the Town's website along with the CAP draft and other supporting materials: http://www.blacksburg.gov/departments/departments-l-z/sustainability/climate-protection/climate-action-plan-and-supporting-documents

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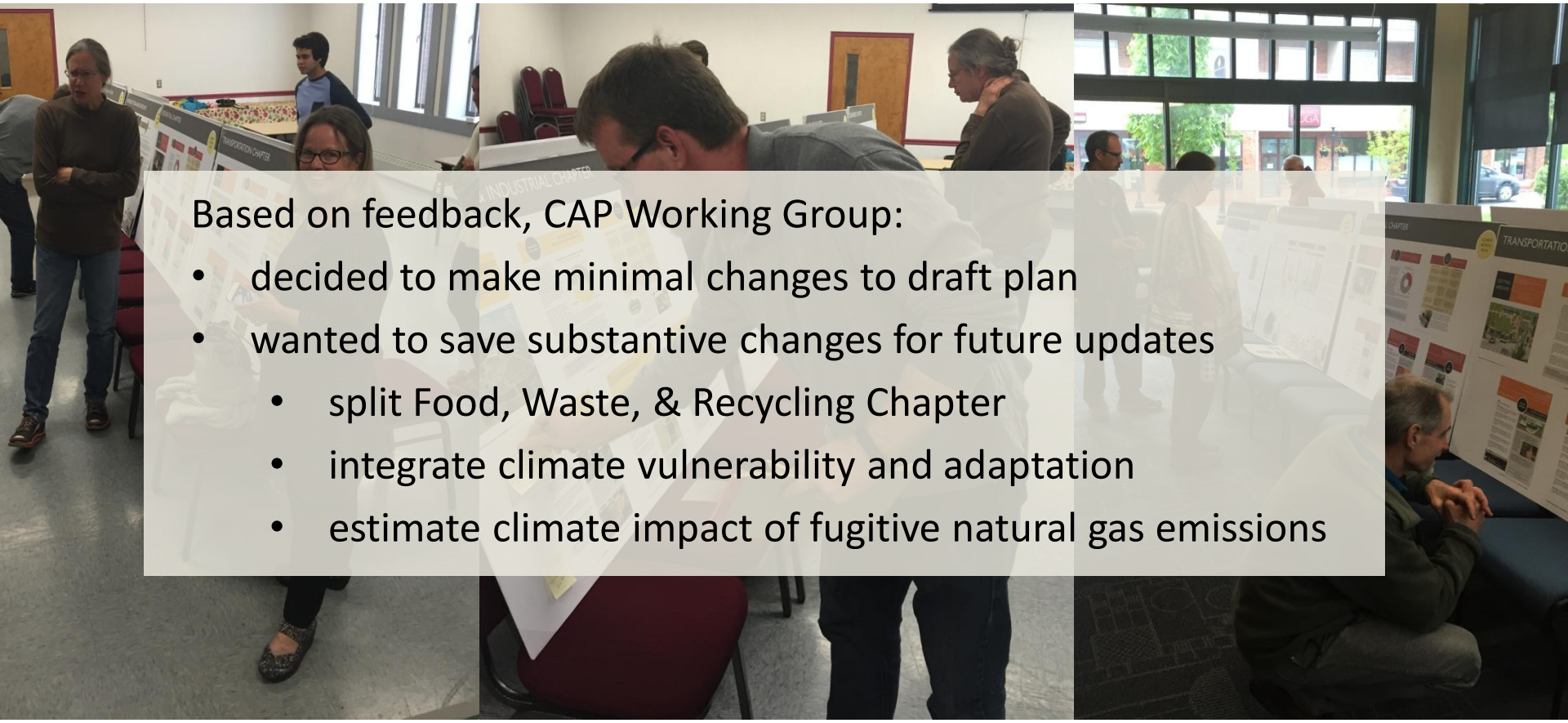
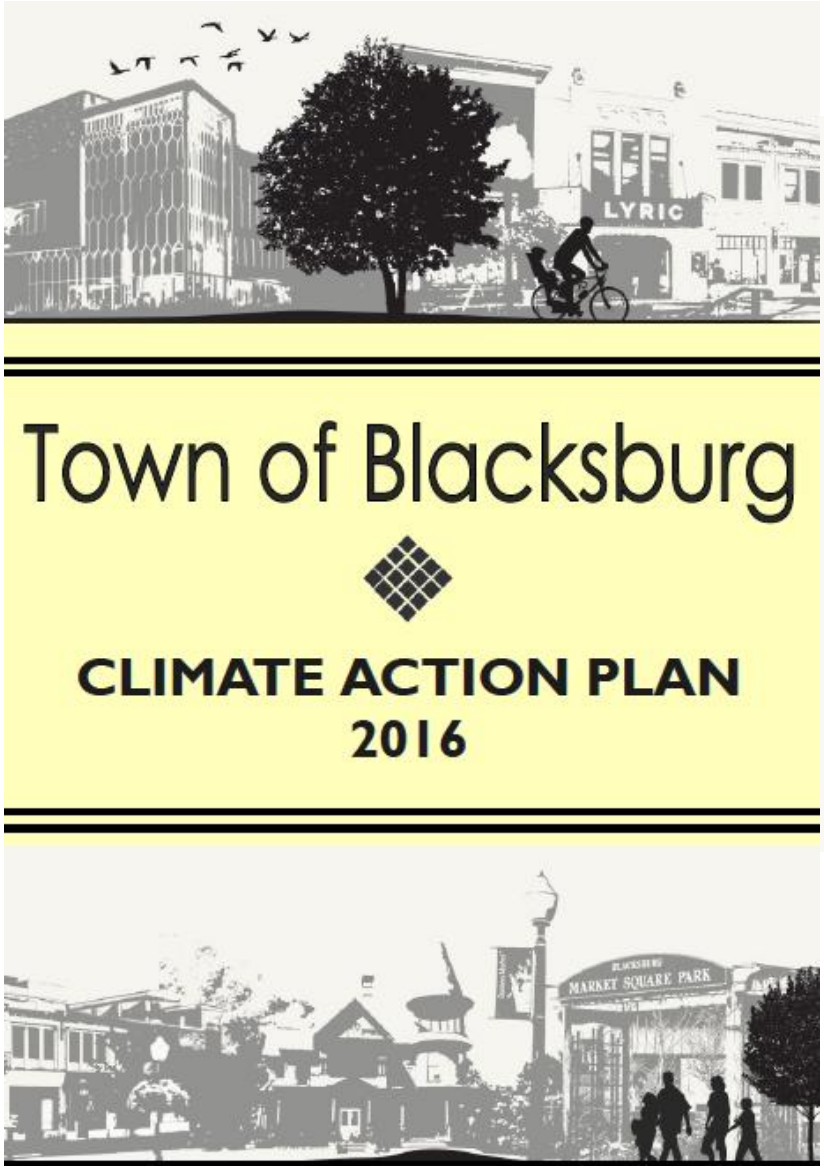


Based on feedback, CAP Working Group:

- decided to make minimal changes to draft plan
- wanted to save substantive changes for future updates
  - split Food, Waste, & Recycling Chapter
  - integrate climate vulnerability and adaptation
  - estimate climate impact of fugitive natural gas emissions

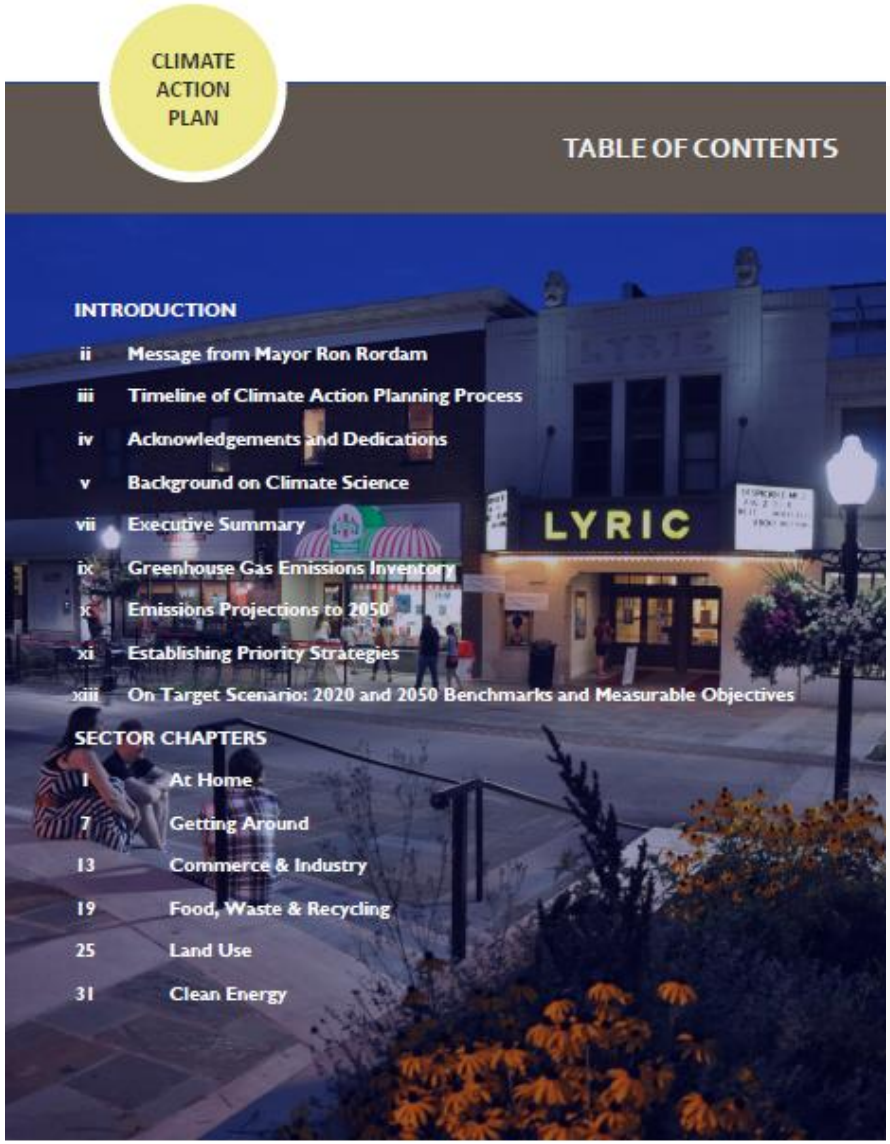
Climate Action Plan - Format



- 300+ page Technical Report

- 51 pg. consumer-friendly version
- Introduction + Six Chapters

Climate Action Plan - Format

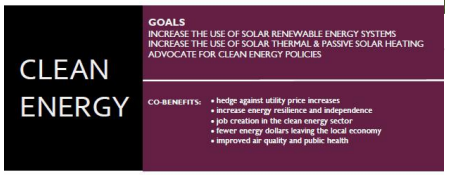


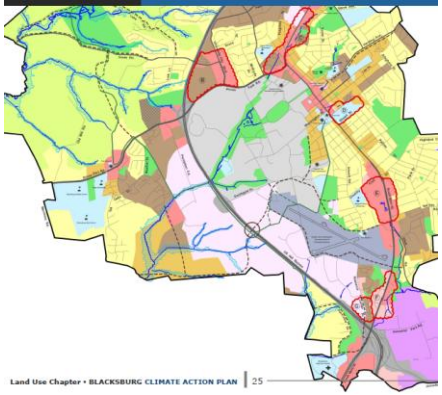
Introduction:

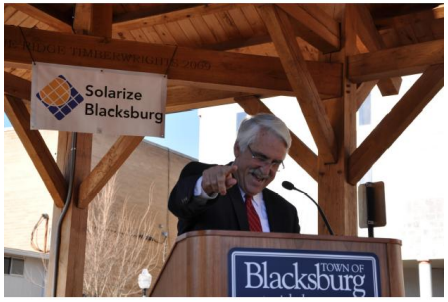
- Message from Mayor Rordam
- Timeline of Planning Process
- Acknowledgements & Dedication
- Background on Climate Science
- Executive Summary
- Greenhouse Gas Emissions Inventory
- Emissions Projections to 2050
- Process for Establishing Priority Strategies
- On-Target Scenario with 2020 and 2050 Benchmarks
- Sector Chapters

Climate Action Plan - Format

SIX SECTOR CHAPTERS







Food, Waste & Recycling Chapter • BLACKSBURG CLIMATE ACTION PLAN | 19

Land Use Chapter • BLACKSBURG CLIMATE ACTION PLAN | 25

Clean Energy Chapter • BLACKSBURG CLIMATE ACTION PLAN | 31

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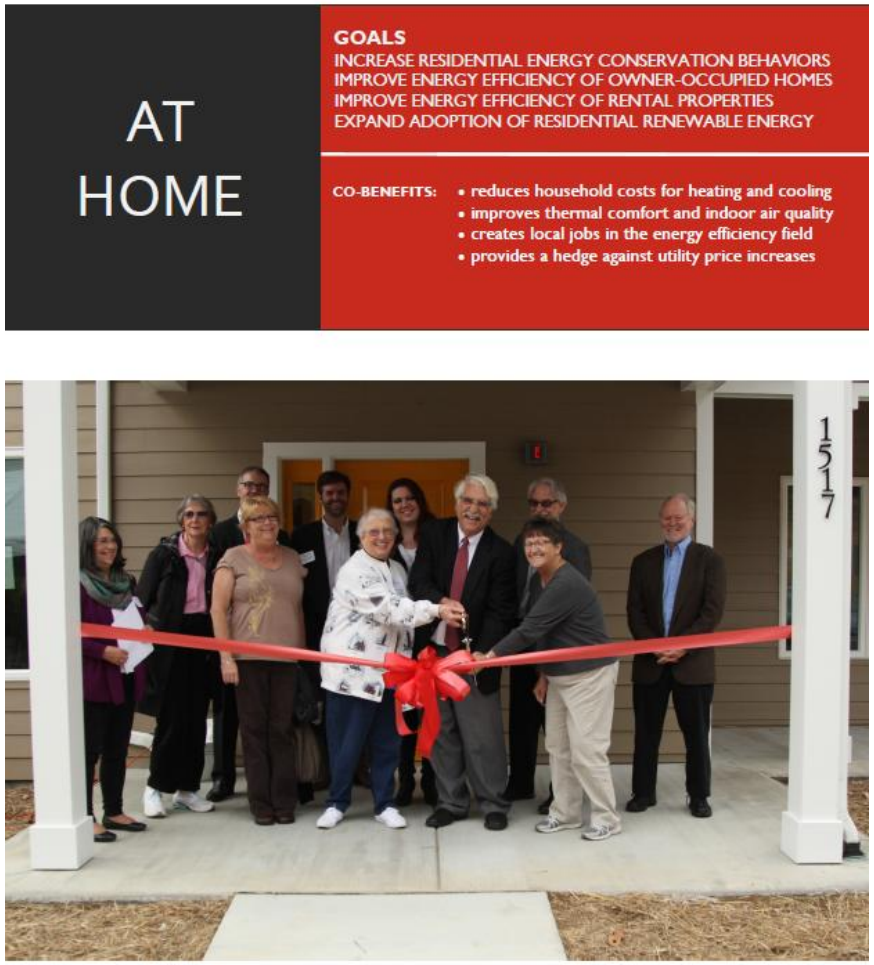


Page 1/6: Introduction Page:

- Lists Broad Goals
- Identifies Co-Benefits
  - Community Health
  - Economy & Employment
  - Other Environmental
  - Quality of Life

Climate Action Plan - Format

AT HOME

GOALS

INCREASE RESIDENTIAL ENERGY CONSERVATION BEHAVIORS
IMPROVE ENERGY EFFICIENCY OF OWNER-OCCUPIED HOMES
IMPROVE ENERGY EFFICIENCY OF RENTAL PROPERTIES
EXPAND ADOPTION OF RESIDENTIAL RENEWABLE ENERGY

CO-BENEFITS:

- reduces household costs for heating and cooling
- improves thermal comfort and indoor air quality
- creates local jobs in the energy efficiency field
- provides a hedge against utility price increases

FOOD, WASTE & RECYCLING

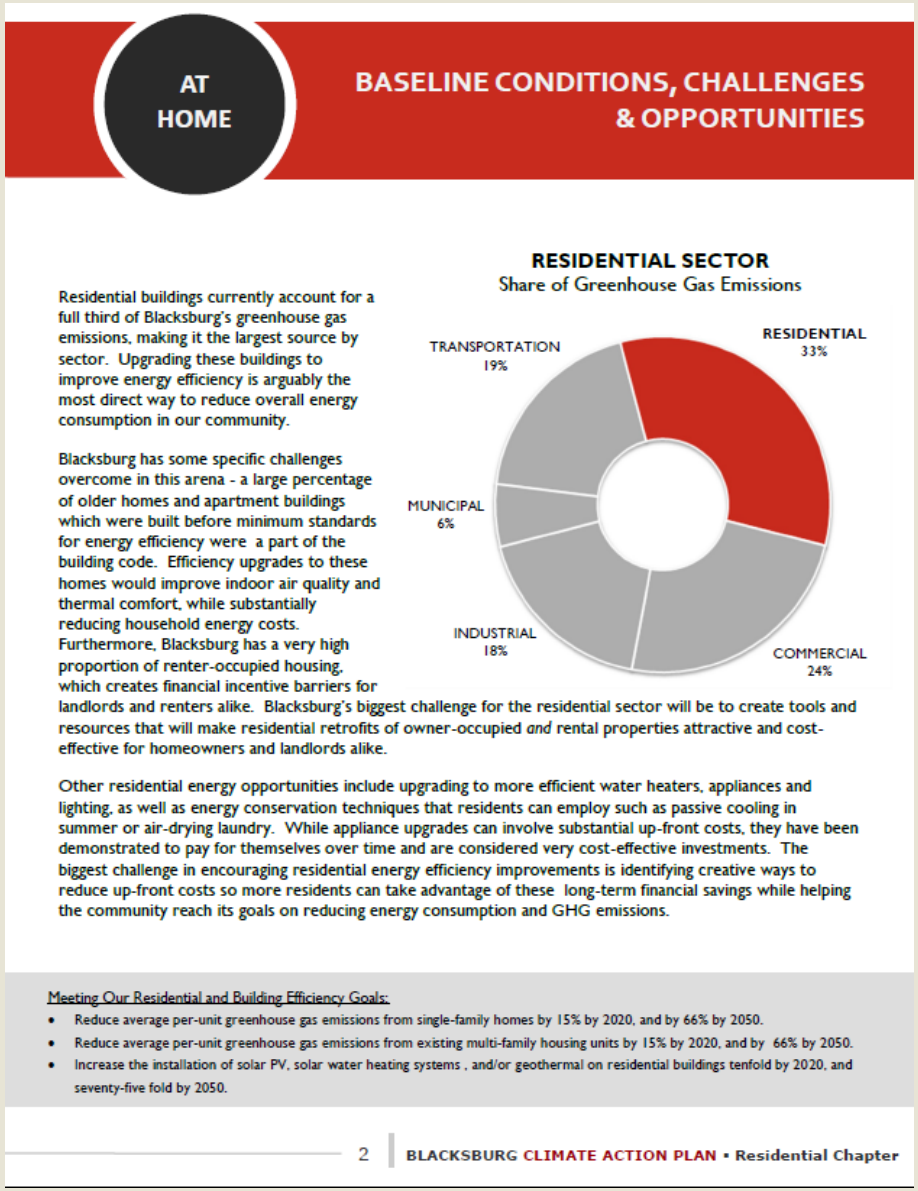
GOALS

REDUCE THE AMOUNT OF WASTE SENT TO LANDFILLS
REDUCE GHG EMISSIONS ASSOCIATED WITH FOOD CHOICES
EXPAND GREEN BUSINESS PRACTICES IN TOWN
REDUCE EMISSIONS ASSOCIATED WITH CONSUMER CHOICES

CO-BENEFITS

- supports local farmers and food system resiliency
- conserves regional landfill space
- improves personal and public health
- saves money for individuals and households
- reduces habitat destruction from material extraction

Climate Action Plan - Sector Chapters



AT HOME

BASELINE CONDITIONS, CHALLENGES & OPPORTUNITIES

Residential buildings currently account for a full third of Blacksburg's greenhouse gas emissions, making it the largest source by sector. Upgrading these buildings to improve energy efficiency is arguably the most direct way to reduce overall energy consumption in our community.

Blacksburg has some specific challenges overcome in this arena - a large percentage of older homes and apartment buildings which were built before minimum standards for energy efficiency were a part of the building code. Efficiency upgrades to these homes would improve indoor air quality and thermal comfort, while substantially reducing household energy costs. Furthermore, Blacksburg has a very high proportion of renter-occupied housing, which creates financial incentive barriers for landlords and renters alike. Blacksburg's biggest challenge for the residential sector will be to create tools and resources that will make residential retrofits of owner-occupied *and* rental properties attractive and cost-effective for homeowners and landlords alike.

RESIDENTIAL SECTOR
Share of Greenhouse Gas Emissions

Other residential energy opportunities include upgrading to more efficient water heaters, appliances and lighting, as well as energy conservation techniques that residents can employ such as passive cooling in summer or air-drying laundry. While appliance upgrades can involve substantial up-front costs, they have been demonstrated to pay for themselves over time and are considered very cost-effective investments. The biggest challenge in encouraging residential energy efficiency improvements is identifying creative ways to reduce up-front costs so more residents can take advantage of these long-term financial savings while helping the community reach its goals on reducing energy consumption and GHG emissions.

Meeting Our Residential and Building Efficiency Goals:

- Reduce average per-unit greenhouse gas emissions from single-family homes by 15% by 2020, and by 66% by 2050.
- Reduce average per-unit greenhouse gas emissions from existing multi-family housing units by 15% by 2020, and by 66% by 2050.
- Increase the installation of solar PV, solar water heating systems , and/or geothermal on residential buildings tenfold by 2020, and seventy-five fold by 2050.

Page 2/6: Baseline Conditions:

- Offers narrative description of this sector today
- Identifies challenges and areas of opportunity
- Gives snapshot of GHG data for sector
- Lists measurable indicators of success with 2020 and 2050 milestones

Climate Action Plan - Sector Chapters

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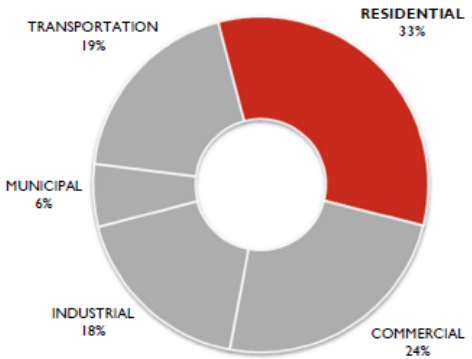

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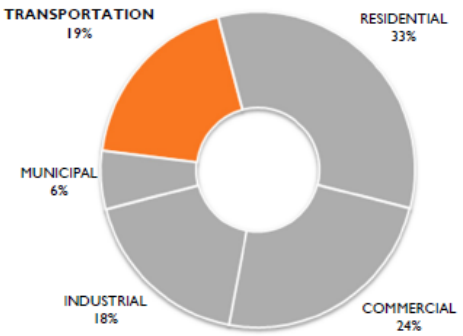
GETTING AROUND

BASELINE CONDITIONS, CHALLENGES & OPPORTUNITIES

Transportation is one of the most promising areas for reducing overall energy use. Most of Blacksburg's citizens rely on a private vehicle to get around (78%), and two-thirds of drivers say they normally drive alone for their daily commute. At the same time, average vehicle miles traveled (VMTs) are close to 10 miles per person per day, which makes walking, biking, and riding the bus a realistic option for many of the Town's residents. This is especially true for work and school commutes as these trips typically follow a fixed daily route, tend to be solo trips (single-occupancy vehicles), and don't usually involve transporting goods such as groceries.

When surveyed on a host of potential strategies that were being considered for inclusion in this Climate Action Plan, Blacksburg's citizens by far expressed their strongest support for expanding the Town's bike and pedestrian infrastructure.

TRANSPORTATION SECTOR
Share of Greenhouse Gas Emissions



Fortuitously, Blacksburg has recently completed its Bike Master Plan so the framework is already in place to significantly advance that goal in the coming years. Furthermore, the Greenway/Bikeway/Sidewalk Committee has worked tirelessly over the years to advance the best options for planning and development of multi-use trails, bike lanes, and sidewalks. As a result of their efforts, Blacksburg has a robust system of biking and walking trails as depicted in the "Paths to the Future" map, which is included in the Town's Comprehensive Plan.

Blacksburg Transit is also one of the Town's greatest alternative transportation assets. Right now, BT routes are targeted toward the transportation needs of the student population. In the coming years, it will significantly help Blacksburg reach its Climate Action goals if the routes are expanded to better serve the non-student population. Given all these assets and the Town's relatively small geographic area, Blacksburg is very well-positioned to transition to a lower-carbon transportation future.

Meeting Our Transportation Goals:

- Increase the percentage of trips taken by bicycle and walking by 33% percent by 2020 and 100% percent by 2050.
- Increase the percentage of trips taken by bus or other mass transit by 33% percent by 2020 and 100% percent by 2050.
- Support improvements in vehicle efficiency (the ratio of GHG emissions to VMT) by 20 percent by 2020 and 50 percent by 2050.

Climate Action Plan - Sector Chapters

Page 3/6: Individual Actions

- Take Action Today
- Next Steps
- Bigger Changes

with hyperlinks to resources

COMMERCE & INDUSTRY

INDIVIDUAL ACTIONS

TAKE ACTION TODAY!	NEXT STEPS....	BIGGER CHANGES
Avoid disposables. Bring your own bags to the grocery, your own travel mug to the coffee shop, and even your own to-go container to the restaurant.	(Politely) ask your favorite restaurant to switch from Styrofoam cups and to-go containers to something recyclable, compostable, or better yet—reusable (for a small fee).	Make a six-month commitment to not use any disposable items and share your progress with friends and family on social media.
If you catch your favorite local businesses doing something green, be sure the tell them you notice and appreciate it!	Nudge. If you see ways that your favorite local businesses could "green" their practices, let them know you would welcome a change.	Vote with your dollars and reward the local businesses that are going the "extra green mile" .
If you work in an office, think about the spaces where "daylighting" might be possible—places where natural light is sufficient for a good portion of the day.	Point your employer toward local resources that can help Blacksburg businesses improve the energy efficiency of their buildings.	Form a "green team" at your workplace and look for other opportunities to save energy and resources across the organization.
If you are a local business owner, investigate the DEQ's Virginia Environmental Excellence Program (VEEP), or the Virginia Green initiative.	Look into green certifications for your industry sector (such as the Green Restaurant Association, or the U.S. Green Retail Association)	Pursue and attain state and/or industry green certifications for your place of business. Display these proudly for all your customers and clients to see!

Virginia Green

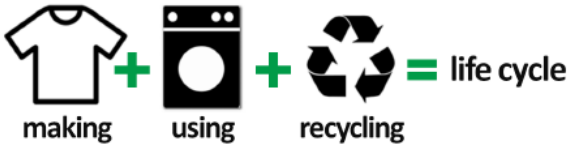
You have power as an individual and as a consumer, and you can "vote" with your dollars every day when you choose alternatives to energy-intensive products and services. Instead of buying food that has traveled 1,500 miles to the local grocery store, why not pick up some in-season produce at the farmers market? The table above lists actions you can take as an individual consumer, an employee, and a business owner. Simple things you can try today, next steps to start building new habits, and bigger changes you can take on when you're ready to be a champion for greening our local economy.

Climate Action Plan - Sector Chapters

FOOD, WASTE & RECYCLING

INDIVIDUAL ACTIONS

TAKE ACTION TODAY!	NEXT STEPS....	BIGGER CHANGES
Next time you are wrapping a gift, try newspaper comics or reusable gift bags or boxes! Paper gift wrap consumes about 250,000 trees each year in the U.S.	Most of us have too much "stuff" already. What about spending the same amount of money on a donation to the recipient's favorite charity?	What about he holidays? Many families have shifted their approach: focusing present-giving on the little ones, and keeping things small, simple (and green) for the grownups.
Try Meatless Mondays. A mere 1% reduction in world meat consumption would have the same effect as $3 trillion in solar energy investments.	Investigate the carbon intensity of different food types.	Make a 6-month commitment to eat a lower-carbon diet.
Switch to a reusable water bottle. Americans used about **50 billion** plastic water bottles last year. However, less one-quarter of these are recycled on average.	Try to go a whole day without using anything disposable. Take stock of all the little things you encounter that are made for single-use. Share your experience on social media!	Make a commitment to stop using five common disposable items for 6 months, replacing them with reusable options. (paper towels, coffee mugs, grocery bags, styrofoam to-go containers, batteries, to name a few)
Recycle (Good): When something is at the end of its useful life, be sure to recycle it properly.	**Reuse (Better)**: Chances are you can borrow something or find it second-hand. Or, if you need to make a purchase, think about quality and durability, so the item can be used for a long time and passed on when you no longer need it.	**Reduce (Best)**: Buying something new has the largest energy impacts, from extraction of raw materials, to manufacturing, to packaging and distribution. Before buying new, think about alternatives like borrowing or buying second-hand.



You can make a positive difference by examining and adjusting your everyday choices as a consumer. Borrowing, buying for durability (rather than disposability), repairing, re-using, re-purposing, and recycling are all ways that you can make energy-wise consumer choices. The table above lists simple actions you can try out today, next steps to start building new habits, and bigger changes you can take on when you're ready to become a champion for a truly green economy.

COMMERCE & INDUSTRY

INDIVIDUAL ACTIONS

TAKE ACTION TODAY!	NEXT STEPS....	BIGGER CHANGES
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Climate Action Plan - Sector Chapters

GOALS
REDUCE CAR DEPENDENCY
INCREASE BIKING, WALKING & TRANSIT FOR DAILY TRIPS
IMPROVE VEHICLE EFFICIENCY

PRIORITY STRATEGIES

GETTING AROUND

LEADING BY EXAMPLE:
BETH LOHMAN and JERRY FORD

Let's Get Started:

Bike Master Plan: Work toward full integration of the Town of Blacksburg's Bicycle Master Plan into other Town policy documents.

Active Commute Incentives: Offer incentives or otherwise encourage residents to bicycle or walk to daily destinations.

Education & Outreach: Increase awareness of the individual benefits of alternative and active commuting and the variety of options available in the community

Bicycle Friendly Community Status: Partner with the American League of Cyclists and work toward recognition as a "Bicycle Friendly Community of America"

Planning for Alternative Transportation: Continue to coordinate land use decisions with alternative transportation services.

Ride and Car Share Opportunities: Promote and expand adoption of existing ride-share and carpool matching programs with local employers and employees.

Enthusiastic cyclists and committed-bike commuters, husband and wife team **Jerry Ford** and **Beth Lohman** co-founded the **NRV Bike Kitchen** in 2012. The Bike Kitchen is committed to providing disadvantaged people with affordable, quality transportation bicycles, and utilizes volunteers to recycle and repair donated bicycles.

The **Habitat for Humanity ReStore** in Christiansburg hosts the Bike Kitchen, providing space for the workshop where bikes are repaired and stored until matched with a community member in need.

Top: Original artwork created for the Bike Kitchen by local artist, Jackie Harder.
Above: Beth posing next to some newly repaired bikes at the Bike Kitchen HQ.

10 | BLACKSBURG CLIMATE ACTION PLAN • Transportation Chapter

Page 4/6: Shorter Term Strategies

- "Let's Get Started" implement over a 2-5 year time horizon
- Leading By Example Vignette

Climate Action Plan - Sector Chapters

GOALS
REDUCE CAR DEPENDENCY
INCREASE BIKING, WALKING & TRANSIT FOR DAILY TRIPS
IMPROVE VEHICLE EFFICIENCY

PRIORITY STRATEGIES

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GOALS
INCREASE THE USE OF SOLAR RENEWABLE ENERGY SYSTEMS
INCREASE THE USE OF SOLAR THERMAL AND PASSIVE SOLAR HEATING
ADVOCATE FOR CLEAN ENERGY POLICIES

PRIORITY STRATEGIES

CLEAN ENERGY

LEADING BY EXAMPLE:
BLACKSBURG !

Let's Get Started:

State Energy Policy: Work with other localities across Virginia to advocate for more favorable clean energy policies to be expanded at the state level.

Local Solar Policy: Create a local policy environment and promote existing (and emerging) resources that will foster the expansion of solar PV and solar water heating.

Public Engagement on Renewables: Raise the profile of all types of renewable energy in Blacksburg by offering information (online resources, tours, workshops, community discussions) regarding renewable energy potential and opportunities in Blacksburg.

Municipal Solar Potential: Perform a community-wide analysis of muncipal buildings and public properties to determine sites that might be suitable for a muncipal solar array or solar water heating system.

Green Power Purchasing Consider a Town policy requiring purchasing of green power or installation of solar PV systems on municipal buildings, wherever possible and practical.

Favorable Financing: Consider establishing a low-interest public revolving loan fund, on-bill or PACE model financing options, or establish a public "loan loss" reserve agreement with local lenders to help local residents and businesses finance solar projects.

Solarize Blacksburg

In March of 2014, Blacksburg became the first community in Virginia to launch a Solarize Initiative, which resulted in more than quadrupling the amount of residential solar in 6 short months and over one million dollars in local clean energy investment. Before the close of 2015 **twenty-five other Virginia communities** had followed Blacksburg's lead and launched Solarize initiatives of their own, creating real momentum and demonstrating the enormous amount of untapped consumer demand for clean energy in Virginia.

The Solarize Blacksburg Team and Local Solar Installers
Baseline Solar & Solar Connexion
Community Kick-Off Event - March 2014

Climate Action Plan - Sector Chapters

GOALS
REDUCE THE AMOUNT OF WASTE SENT TO LANDFILLS
REDUCE GHG EMISSIONS ASSOCIATED WITH FOOD CHOICES
EXPAND GREEN BUSINESS PRACTICES IN TOWN
REDUCE EMISSIONS ASSOCIATED WITH CONSUMER CHOICES

PRIORITY STRATEGIES

FOOD, WASTE & RECYCLING

Looking Ahead:

Commercial Recycling & Diversion of Organics: Establish a coalition of businesses and nonprofit leaders to explore creative ways to reduce waste and encourage recycling and diversion of organics in the commercial sector.

Conservation of Working Lands: Work with community land trusts, property owners, local government to develop a conservation strategy for agricultural lands and forests.

Expand Commercial Recycling: Expand upon the successes of the Downtown Recycling Program to include commercial clusters outside the downtown area.

Urban Agriculture: Explore opportunities to pilot "urban agriculture" and "agri-burbia" projects.

Pay As You Throw: Investigate the feasibility a volume-based "pay as you throw" refuse program whereby fees are based upon the amount of non-recyclable waste generated.

Local Food Production: Where practical and desirable to the community, address policy barriers that hinder local production of food including neighborhood restrictions on gardening, food processing, and keeping small livestock such as chickens.

Farm To School: Work with the Montgomery County School District, private schools or childcare facilities, and local food advocates to pilot a "Farm to School" program, incorporating locally-produced foods in student meals.

Curbside Composting: Investigate the feasibility of a curbside composting program that could serve the needs of single family residences; explore opportunities to expand such a program to multi-family residences or those with limited yard space.

KEY CONCEPT:
EMBODIED ENERGY

Cost is often the first thing American consumers consider when making a purchase, but **embodied energy** is another important value to explore, particularly if one is serious about reducing their share of global emissions. In short, embodied energy is the sum of all the energy required to produce something. From exacting and processing raw materials, to manufacturing, to transporting that item to your local store (or doorstep).

Consider this armchair and all the energy embodied in its constituent parts and assembly process. Now imagine this armchair has gotten a little threadbare over the years.

Although it might cost exactly the same amount of money to buy a new armchair vs. having the old one re-upholstered and re-stuffed would require far, far less energy—all while supporting a local craftsman and contributing to the local economy.

Page 5/6: Longer Term Strategies

- "Looking Ahead" – implement over a 5-15 year time horizon
- Key Concept Sidebar

Climate Action Plan - Sector Chapters

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INCREASE THE USE OF SOLAR THERMAL AND PASSIVE SOLAR HEATING
ADVOCATE FOR CLEAN ENERGY POLICIES

PRIORITY STRATEGIES

CLEAN ENERGY

KEY CONCEPT:
RPS AND SRECS

Looking Ahead:

Solar Gardens/Coops: Establish cooperatives or joint ventures (such as solar gardens) within the community that accelerate the adoption of residential and commercial solar.

Financing Municipal Solar: Investigate the array of options (and degree of public support) for funding or financing to subsidize municipal solar projects.

Non-Solar Renewable Potential: Explore opportunities for non-solar renewable energy development in Blacksburg, particularly wind, geothermal, and biomass energy generation.

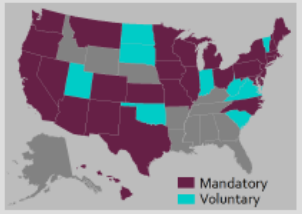
Solar Schools: Facilitate the creation of community-owned PV systems on large municipal buildings or schools, such as through a solar co-operative.

Non-Solar Renewable Policies: Create a local policy environment and promote existing (and emerging) resources that will foster the expansion of non-solar renewable energy, (wind, geothermal, biomass energy, methane capture) where practical and desirable to the community.

Renewable energy policy is an alphabet soup of acronyms, however two of these are key to understanding why Virginia is so far behind neighboring states when it comes to renewables - **RPS** and **SREC**s.

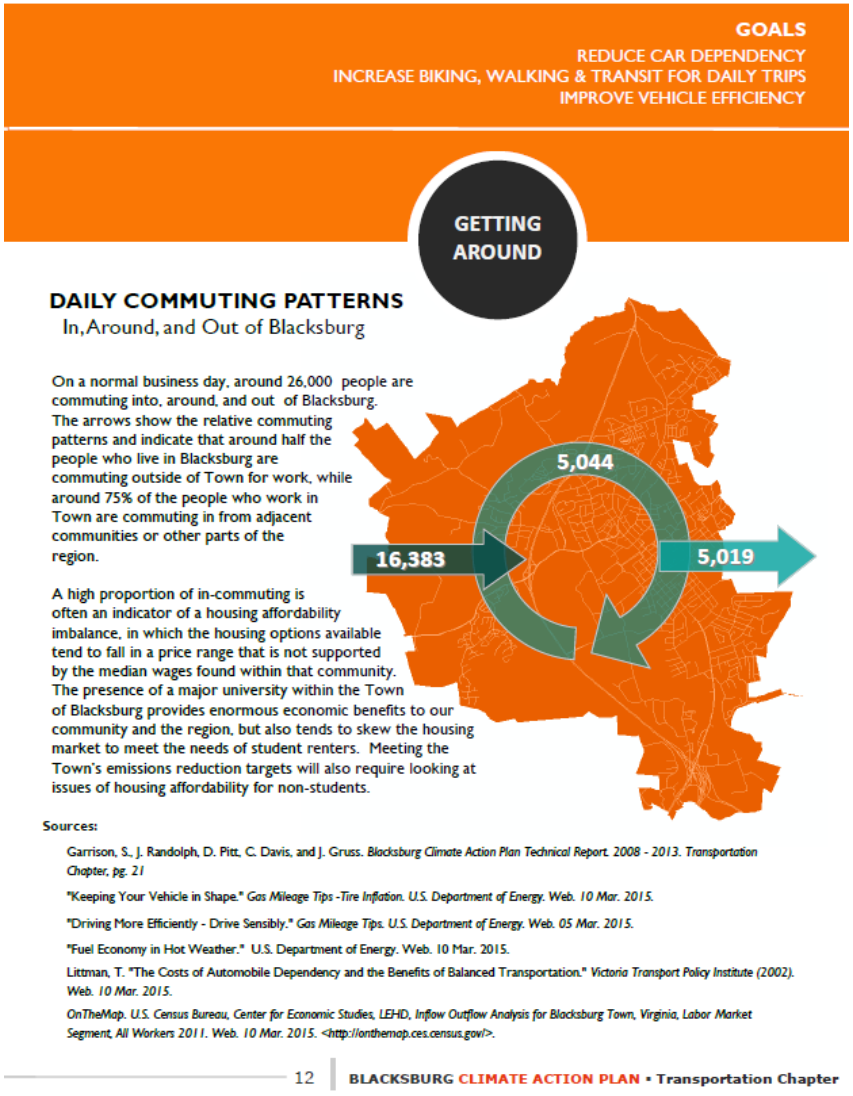
RPS stands for **Renewable Portfolio Standard**. An RPS is a state policy dictating how much of the utilities' overall energy portfolio will come from renewable sources. Most other states (shown in purple below) have established a mandatory RPS, which has driven significant growth in renewables in those states. By contrast, Virginia only has a renewable energy "goal" which is unenforceable and has left Virginia behind when it comes to renewables.

SRECs (**Solar Renewable Energy Certificates**) are earned for every 1000 kilowatts hours of electricity produced. A mandatory RPS creates a market for SRECs.



The owner of the system can sell these on the open market, which reduces the payback period for a solar array, sometimes by many years. SRECs are quite valuable in states with an RPS —as high as $400 in Washington D.C. In a typical example, a home with an average sized solar array, say 5kW could sell its SRECS for anywhere $500—$2,400 annually, depending on market demand.

Climate Action Plan - Sector Chapters



GOALS

REDUCE CAR DEPENDENCY
INCREASE BIKING, WALKING & TRANSIT FOR DAILY TRIPS
IMPROVE VEHICLE EFFICIENCY

GETTING AROUND

DAILY COMMUTING PATTERNS

In, Around, and Out of Blacksburg

On a normal business day, around 26,000 people are commuting into, around, and out of Blacksburg. The arrows show the relative commuting patterns and indicate that around half the people who live in Blacksburg are commuting outside of Town for work, while around 75% of the people who work in Town are commuting in from adjacent communities or other parts of the region.

A high proportion of in-commuting is often an indicator of a housing affordability imbalance, in which the housing options available tend to fall in a price range that is not supported by the median wages found within that community. The presence of a major university within the Town of Blacksburg provides enormous economic benefits to our community and the region, but also tends to skew the housing market to meet the needs of student renters. Meeting the Town's emissions reduction targets will also require looking at issues of housing affordability for non-students.

Sources:

Garrison, S., J. Randolph, D. Pitt, C. Davis, and J. Gruss. *Blacksburg Climate Action Plan Technical Report. 2008 - 2013. Transportation Chapter, pg. 21*

"Keeping Your Vehicle in Shape." *Gas Mileage Tips -Tire Inflation. U.S. Department of Energy. Web. 10 Mar. 2015.*

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OnTheMap. U.S. Census Bureau, Center for Economic Studies, LEHD, Inflow Outflow Analysis for Blacksburg Town, Virginia, Labor Market Segment, All Workers 2011. Web. 10 Mar. 2015. <http://onthemap.ces.census.gov/>.

Page 6/6: Flex Page

- 2nd Leading By Example Vignette

or

- 2nd Key Concept Sidebar

or

- Additional Data

+

- Sources, Notes, Photocredits

Climate Action Plan - Sector Chapters

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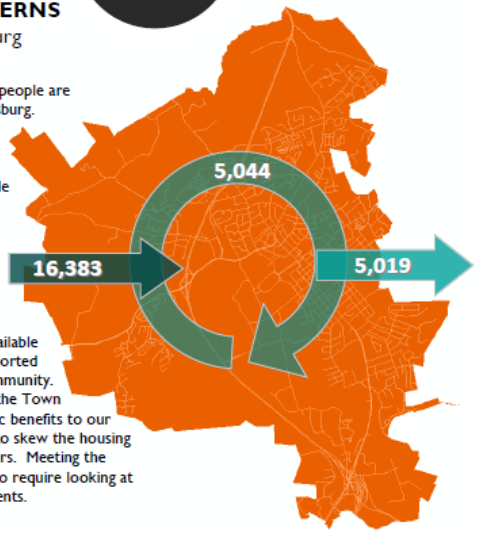

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CLEAN ENERGY

LEADING BY EXAMPLE:

DAVE ROPER

Back in 1979, Virginia Tech physics professor and local clean energy advocate Dave Roper purchased a small apartment building on Broce Drive as an investment property. The building, containing 12 apartments, was constructed in 1968, prior to establishment of minimum building code standards for energy efficiency. Wanting to set an example for other rental property owners, Dave worked with local building efficiency and solar firms, **Energy Check** and **Baseline Solar**, to improve the building's energy efficiency and install a large solar hot water array in 2008. This project was the first of its kind in Blacksburg and was featured in the **2009 NRV Green Buildings Tour**.

Above: The Solar Hot Water System installed by Dave Roper at his apartment building on Broce Drive. A wealth of other details on Dave's Solar Water Heating array (and pretty much any other energy topic) can be found at his blog: http://www.roperld.com/science/SolarHotWaterApartmentHouse.htm

In Dave's Own Words:

"Some calculations have shown that investing in solar energy gives as good or better returns as investing in the stock market did over the past twenty years.

However, that is not at the top of my list of reasons for doing this project. My main concern is to reduce the amount of carbon dioxide that I am responsible for putting into the atmosphere, the consequences of which my descendants, along with all other people, will have to deal with in the future.

My second reason for doing this project is to be a test case that other apartment-house owners might follow to reduce their carbon emissions.

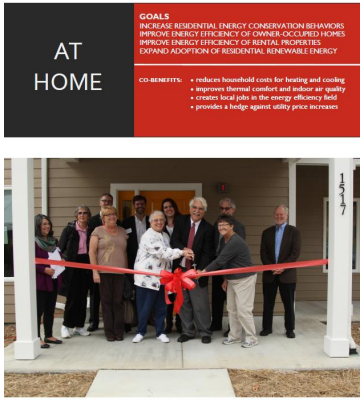
My third reason is that the science of doing it is very interesting and educational. Having been a physics educator for thirty-one years at Virginia Tech until 1998, this projects continues my devotion to teaching physics to the general public.

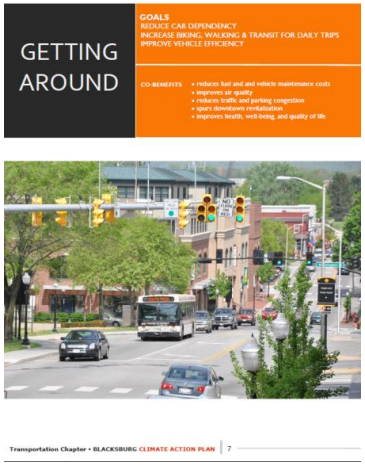
- excerpted from Dave's handout on the Solar-Hot-Water Apartment House

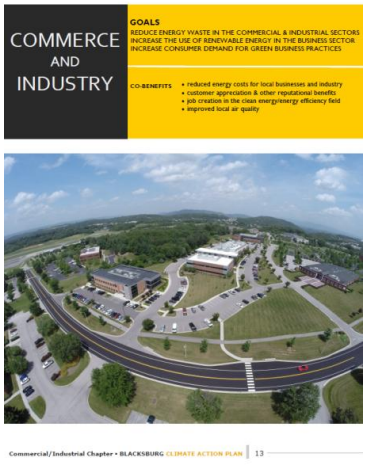
Climate Action Plan

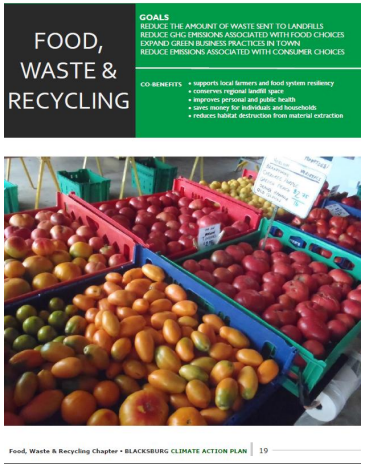
Town of Blacksburg

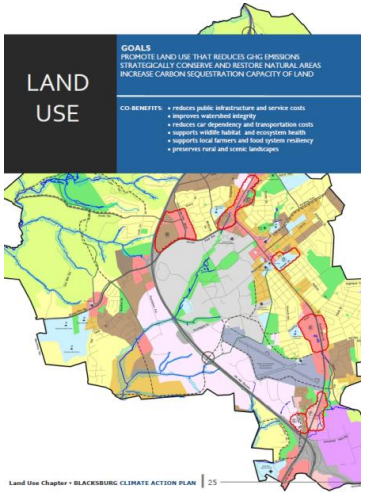
CLIMATE ACTION PLAN
2016

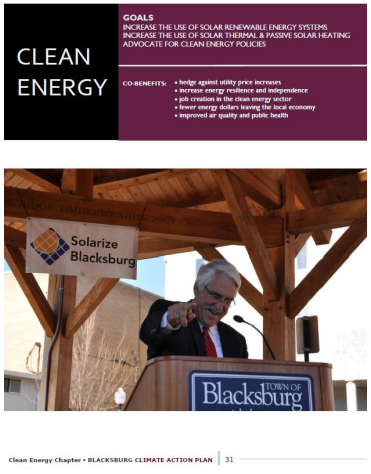












Blacksburg Climate Action Plan

Review of Planning Process

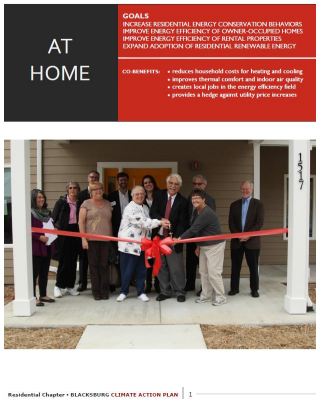
Strategy Refinement & Prioritization Process

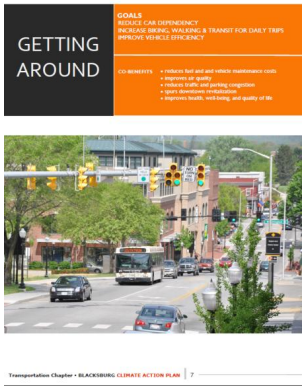
Review of Draft Plan - Outline & Format

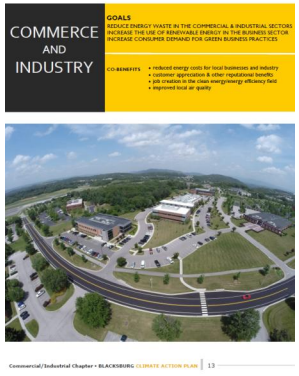
Citizen Feedback on Draft Plan & Final Revisions

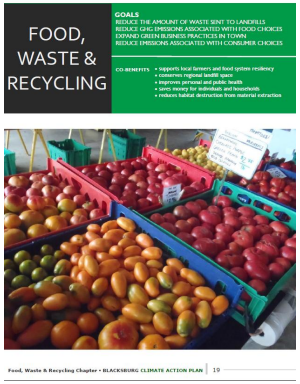
Going Forward

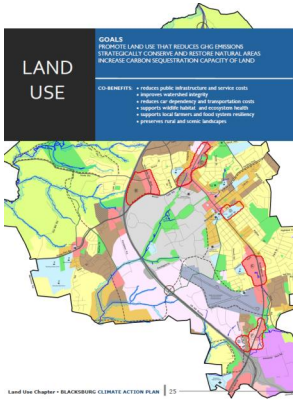
- **Implementation**
- **Plan Updates (Comp Plan, Vulnerability Assessment)**

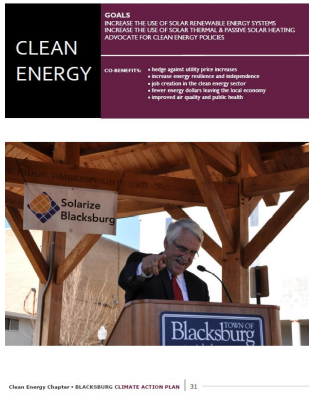












THANK YOU

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Questions?