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Chapter 2

VALUE OF URBAN OPEN SPACE

Why Conserve Land?



2.1 Benefits of Open Space

The Natural and Economic Benefits of Open Space Protection

Q: What is the value of open space to you?

A:

"Open spaces will keep Burlington a highly desirable place to live."

"Open space provides a respite from the daily grind. Nature, green spaces, and aesthetically pleasing landscapes all rejuvenate the soul and provide a sense of calm in a hectic world."

"We must make sure the urban area is livable, enjoyable, and healthy. I would like to see an Open Space Plan for 'sustainable development' in Burlington."

"[Open space] is important to our spirit and mental health."

--Some responses from Burlington residents

There is a long-held belief that undeveloped land that even though it may be nice to look at is not economically productive, and that it only really carries its weight in the local tax base after it is developed. Communities are quickly finding out the opposite. More and more studies are showing that conserving open land and choosing carefully where development goes is not contrary to economic health, but essential to it.

The choice we face is not one of environment and aesthetics versus economics, after all. Instead, the fact is that land conservation is a sound investment. Studies comparing the fiscal impacts of development to those of open space protection have found that open space preservation has a more positive impact on a community's economy than most conventional forms of suburban-style development, even when property is preserved through public dollars.

This does not mean that open space protection should be used as an excuse to exclude the diverse housing, schools, roads, businesses, and services needed to keep a community viable, accessible and sound. In fact, providing affordable housing, infrastructure and protecting open space all involve using land appropriately and concentrating development where it can best be served. Development that destroys community resources and natural features is both economically and environmentally wasteful.¹³

There are eight compelling reasons why communities can benefit, economically and otherwise, from land protection.

1. Land conservation is often less expensive for local governments than development

All over the country, studies have shown that residential development in particular, but even commercial and industrial development, often do not provide as much in tax revenue as they cost a community in public services and less tangible "costs" to quality of life. Moreover, open space lands, public and private, usually require minimal public service provision, yet can contribute significantly to the economic welfare and vitality of a community. And in cases where public funds are used to protect land and support its continuing uses such farming or forestry, the community is enhanced from the scenic or recreational benefits of preserving the landscape, as well as from supporting industries that pay taxes, create jobs and reflect the community's special heritage.

Studies in nearby Massachusetts and Connecticut show that on average, the residential property tax rate is higher in towns and cities with more residents, commercial and industrial property and jobs, and lower in places where there are more acres of open land per capita. Why? "Cows don't go to school" is an old adage that explains most of why residential development often is a net loss for municipalities. The average homeowner will often pay less in annual property taxes than the cost of schooling his or her children alone for that same period, much less the additional costs of police and fire services, snow removal, sewer and water projects, etc. Plus, as a community grows, the *per person* cost of providing services has actually been found to increase. As towns that were once small enough to need only part volunteer or part time public safety forces upgrade to full



A crisp and sunny fall day on the Burlington Bike Path.

What these findings *do* mean is that development is not a surefire economic boon, and protecting a communities natural resource base pays off.

time, as small unpaved roads are converted to paved roads or highways, or as development branches into previously unserved areas, public services are forced to spend proportionately more just to keep up.^{13,17,18}

Retail or industrial development, once thought to be tax-positive for cities and towns, may also bring the need for more public safety, transportation, and other services, due in part to their direct use needs, but also due to a high correlation between these types of development with increased residential development -- homes following jobs...which accounts for why even towns with higher percentages of retail and industrial tax bases often have higher tax burden than those with less.^{17,18}

2. Giving land conservation a high priority encourages more cost-efficient development

It stands to reason that development that uses less land, and that is built in areas already improved with water, sewer, and public safety services, will have less marginal tax impact than development that requires new roads, pipelines, or schools. The concept of "clustering" is not a new one.

"The National Association of Home Builders first documented the economic benefits of clustering in 1976. In evaluating this tool for encouraging development and land conservation at minimal public cost, the association found that a sample 472-unit cluster cost 34% less to develop than a conventional grid subdivision."¹³

Good community planning can take this notion of "clustering" and apply it community-wide, by encouraging open space protection in areas of most natural or recreational need and benefit, and encouraging development in those areas where

investments in public services are most efficient and economical to provide, saving both the community's fiscal and natural assets.

3. Communities with well thought-out land protection programs may improve their bond ratings and become a more attractive place for businesses

Bond ratings are measures of the credit-worthiness of a particular jurisdiction. Communities are rated by bond-rating agencies in order to establish their ability to take on new debt, and are rated in several areas, including one category called "administration", according to Robert Stanley, a lead rating analyst with Moody's Investment Services. "This is where a community's management of open space and agricultural land and pacing of development comes into play. Do we see a strain? Will values continue to support the debt?" Hy Grossman, managing director of Standard and Poor's public-finance department adds that "Community improvements -- parks, libraries, education -- means an attractive community where people will want to live, and that means the community will be better able to meet its debts."¹

Business leaders pay attention to this balance, too. Corporate CEO's say quality of life for employees is the third-most important factor in locating a business, behind only access to domestic markets and availability of skilled labor, while owners of small companies ranked recreation/parks/open space as the highest priority in choosing a new location.

Open space is vital to the function, livability, and aesthetic character of the urban environment. Water and air quality, stormwater management, wildlife habitat, recreational opportunities, and human comfort are all benefits provided by urban open space.

Q: What is the value of open space to you?

A:

"What is the value of peace of mind? of clean air? of quiet times? of watching a tree grow? of hearing a heron or a flock of geese? of clean water? Thank you."

"Open space is an acknowledgment and recognition of our necessary and sacred relationship with the planet. Without it we ultimately wither and die."

"Open space is important for getting in touch with yourself and with nature and for quiet exercise and the appreciation of beauty."

"The value of [open space] is huge. Protecting and increasing natural areas increases home values, keeps people living here, and raises the quality of life."

--Some responses from Burlington residents

These benefits have distinct and quantifiable economic values and are essential to a City's quality of life.

4. Conserving land provides environmental benefits critical to sustaining the health of the city

Open Space: The Lungs of the City

It is well documented that urbanized areas are warmer than surrounding areas due in part to the abundance of rooftops and paved surfaces. As hot air builds and rises into the atmosphere, cooler air is drawn in from suburbs and open spaces which

surround the city. This air is kept relatively clean and cool by the urban open spaces and greenbelts it flows through. In this sense the "fine mesh" of street tree corridors, small woodland patches in parks, open spaces and backyards all act together to purify air as the "lungs of the city." Vegetation traps the particulate matter of airborne pollutants; leaves can effectively absorb ozone and sulfur dioxide; and all plants consume carbon dioxide. A St. Louis study estimated that to take up the 462,000 tons of sulfur dioxide released annually in the city would require 50 million trees, a population which would occupy about 5% of the City's land area. Reduction of

airborne pollutants has been shown to reduce health problems, and thus health care costs, in urban environments.

Climatic Modification

A number of studies in cities throughout the world have established the value of open spaces and vegetated areas in

helping to moderate climate. These areas are important for the reduction of glare, maintaining cooler air temperatures, and reducing heat loading on buildings. Trees in particular are an important factor in mitigating the adverse impacts of high winds on human comfort in the outdoors and heating requirements in the indoors. A study of Richmond, Virginia's 200,000 street and woodland trees concluded that they reduced ambient air temperature in the city, and consequent heat loading on adjacent buildings, reducing air conditioning costs by as much as \$800,000 annually. Open lands mitigate climatic extremes; air temperatures in parklands are typically several degrees cooler in summer than surrounding built-up areas, providing both relief from and moderation of overall temperatures.

Noise Pollution

The Federal Highway Administration has shown in its research that trees, hedges and wooded areas overall reduce sound decibel levels when placed between highways and living and/or work environments. Tree belts 100 feet wide and 45 feet high, for example, can cut highway noise in half. A six-foot high, ten-foot thick deciduous and evergreen hedge can cut the noise of a lawn mower on its other side by 40%. The rustle of leaves, the sound of running water in streams, and even the sounds of songbirds also provide audible alternatives which can mask undesirable urban sounds such as traffic, machinery, etc.

Wildlife Habitat

Burlington's open space areas are home to a surprisingly diverse population of animal species, many of which are found in Vermont's more remote wild lands. In the last five years, the presence of large mammals such as moose, fisher, river otter, mink, fox and deer have been repeatedly documented in the wilder parts of the city. The long-term viability of wildlife populations in the City's conservation areas and undeveloped lands depends on their connection to

Open land provides space for nature to perform a multitude of life-sustaining services that otherwise would have to be provided technologically at great expense:

- degradation of organic wastes
- filtration of pollutants from soil and water
- buffering of air pollutants
- moderation of climactic change
- conservation of soil and water
- provision of medicines, pigments, and spices
- preservation of genetic diversity
- pollination of food crops and other plants" ^{1,3}

open spaces beyond the city limits. Maintaining suitable travel corridors helps sustain and replenish existing wildlife populations. The presence of wildlife also enriches the human experience and provides opportunities for environmental education and stewardship.

Recreation

Most urban dwellers readily appreciate the recreational opportunities provided by a City's open spaces and parklands. Recreational amenities are integral to and support a higher quality of life for both the City's residents and its work force, and also serves as an important attraction for businesses. Numerous studies have also demonstrated that access to adequate open space for active as well as passive recreational pursuits contributes to an individual's mental and physical well-being. Recreation areas in Burlington such as the beaches, waterfront open spaces and trail systems offer a diversity of outdoor experiences which are interconnected with community identity, livability and sense of place.

Water Quality Protection

"Polluted runoff is now widely recognized by environmental scientists and regulators as the single largest threat to water quality in the United States." (Nonpoint source Education for Municipal Officials Project of UCONN Cooperative Extension Service) Phosphorus has been identified as the greatest water quality threat to Lake Champlain. Within the Champlain basin, urban land produces approximately 18% of the average annual nonpoint source phosphorus load to the Lake - much more phosphorus per unit area than either agricultural or forested land (Lake Champlain Basin Program, 1996).

Natural cover plays an important role in reducing the amount of pollutants entering the water supply. Soils filter out many types of contaminants; grasses and ground cover slow the flow of water, allowing sediment to settle; trees reduce siltation by

stabilizing soil along stream banks and hillsides, and slowing the force of precipitation as it reaches the ground. For all these reasons, development within a watershed creates a dual threat to water quality. As natural lands are degraded, their buffering capacity is reduced. And as development spreads in these areas, land and water pollution increases.⁸

Cost savings from land protection in watersheds is well documented. New York City recently decided to invest \$1.5 billion to protect its upstate watershed, including \$260 million for watershed protection, to avoid the immediate need for filtration that would cost more than \$5 billion to build and another \$300 million annually to operate. In Connecticut, where filtration is mandatory, one company spent \$105 million on filtration and water treatment in the decade from 1986 to 1996, the same amount spent in the previous 129 years, and the limited ability to protect already developing watersheds in that state may mean increasing filtration mandates to come. The EPA grants millions of dollars in water quality monitoring waivers in cases where watersheds are protected by natural land buffers. Lake Champlain and its tributaries provide Burlington's drinking water, so protection of the shores of the lake and rivers contribute to the future quality of the drinking supply, as well as an aesthetic treasure.

Flood water retention

"Floodplains function well as emergency drainage systems + for free + when they are left undisturbed...Human encroachment on the natural flood corridors often increases the risk to downstream homes and businesses by increasing the volume of runoff and altering the flood path. The resulting demands for costly drainage improvements, flood control projects, flood insurance, and disaster relief are all, ironically, preventable. Rockland County, Maryland greenways acquisition program was inspired by the county's dismay over the costs of coping with drainage problems caused by encroachment into floodplain systems."¹³

"Nature pervades the city, forging bonds between the city and the earth, air, water, and living organisms within and around it. In themselves, the forces of nature are neither benign nor hostile toward humankind. Acknowledged and harnessed, they represent a powerful resource for shaping a beneficial urban habitat."

--Ann Whiston Spurr,
The Granite Garden

Wetlands are among the richest ecosystems in Vermont in the variety of species they support. Some species, such as the Canada goose, wood duck, great blue heron, muskrat, snapping turtle, and bullfrog live in and depend on wetlands. Other species, including the black bear, moose, deer, wood frog, marsh hawk, and northern pike depend on wetlands during part of their life-cycle or during certain times of the year.²

"Economic growth and development must take place, and be maintained over time, within the limits set by ecology in the broadest sense--by the interrelations of human beings and their works, the biosphere and the physical and chemical laws that govern it...It follows that environmental protection and economic development are complementary rather than antagonistic processes."

--William D. Ruckelshaus, "Toward a Sustainable World"

5. Open space increases property values and the desirability of cities and towns

As early as the 1850's, landscape architect Frederick Law Olmsted justified the purchase of land for New York's Central Park by noting that the rising value of adjacent property would produce enough in taxes to pay for the park. By 1864, Olmsted could document a \$55,880 net return in annual taxes over what the city was paying in interest for land and improvements. By 1873, the park + which until then had cost approximately \$14 million + was responsible for an extra \$5.24 million in taxes each year.²³

Between 1980 and 1990, the percentage of Denver residents who said they would pay more to live near a greenbelt or park rose from 16 percent to 48 percent.

In a June 1995 article from the journal *Planning*, William Lucy and David Phillips expose the reality that suburbs are increasingly facing the same decline, and for the same reasons, that cities have been experiencing for some time. "Decline" was measured in this study as a reduction in the median family income. The housing ages, consumers demand newer and larger units, changes make older neighborhoods less attractive, and investment declines. They also explore the question of why some cities and suburbs in the D.C. area did not

decline, or at least not as rapidly as others. Their conclusion was that combination of good planning, transit and preservation were keys to the winners' success. - the

winner's maintained a sense of place. One particular case in point was the town of Greenbelt, notable for its park and greenway systems. Despite the fact that between 1960 & 1990 the percentage of renters in the community increased dramatically (from two in five to four in five), that the town tripled in size, and nine of its neighboring communities' median income rate dropped between 20 and 42%, Greenbelt's dropped only 3.6% in that time. Cities such as Portland, Minneapolis, Toronto, and more recently Chattanooga, that are often studied as good examples, are doing the same things, avoiding sprawl by creating healthy city centers and investing public funds to protect natural resources in and around the

6. Outdoor recreation, tourism, and agriculture are big business

city.

A recent article in the *Burlington Free Press* reported that visitors now pump more than \$3 billion into Vermont's economy. The University of Vermont recently completed a study of tourism and the economy of Vermont. This study concluded that "Vermont has become one of the most travel-expenditure-dependent economies in the United States in the 1990s."²⁴ A 1991 survey by the Division of Economics in the U.S. Fish and Wildlife Service notes that wildlife-related recreation is one of the most popular forms of recreation in the United States, boasting annual participation at 109 million, 3 million more than total attendance for all major league baseball, football, basketball and hockey games in the U.S. Natural areas, scenic and historic landscapes, and recreation in nature are growing tourism niches, and investment in the protection of these resources is good business practice.

Conversely, taking these assets for granted can have devastating effects on an economy.

Open Space Benefits Index

Fraction of Denver residents who in 1980 said they would pay more to live near a greenbelt or park: **16%**

Fraction of Denver residents who said this in 1990: **48%**

Estimated amount a three-mile greenbelt near the center of Oakland, California, adds to the value of surrounding properties: **\$41 million**

Estimated value of economic activity supported by open space in New Hampshire: **\$8 billion**

Annual reduction in water treatment costs after the city of Gastonia, North Carolina, relocated its drinking water intake to a lake without surrounding development: **\$250,000**

Estimated annual value of urban trees to improving the air quality of Atlanta, Georgia: **\$15 million'**

Case in point: the May 1996 cover story in the magazine, "Florida Trend" bemoans Florida's decreasing tourism numbers, the number of people driving to Florida having declined as much as 10% per month over the previous several years. "Why is Florida's tourism industry seeing its market share erode?...our mounting competition isn't just from new out-of-state theme parks and beach resorts. Florida tourism is also losing market share because consumers around the globe increasingly prefer destinations that evoke a strong and unique sense of place. In the face of this trend, Florida continues to squander its natural and cultural assets, to the point that its image is now increasingly that of a non-place - a land of generic attractions and condo canyons, surrounded by featureless sprawl that might as well be anywhere....at least 10% of Florida vacationers go home unsatisfied because they couldn't find the Florida they came to see."¹⁶

7. Parks and recreation have been linked to better quality of life and crime prevention in cities across America

There is something for everyone in nature. Executives go fly-fishing to relieve stress and anxiety; inner city recreation areas give kids a positive outlet for their enormous energy, and artists see nature through their second sight. Moreover, this connection between nature and human nature is being rediscovered as an essential character-building conduit. Outward Bound-like exercises are teaching everyone from adolescent offenders to corporate divisions about discipline, self-motivation, and teamwork. 40% of a schoolchild's waking hours are discretionary, and when researchers for a Carnegie study asked adolescents what they wanted most during nonschool hours, safe parks and recreation



centers topped the list. Adults are saying it too. For example, 75% of the Fort Myers, FL children enrolled STARS (Success Through Academics and Recreational Support) in 1991 had a less than 'C' average. Less than 2 years later, 80% of the 1,500 children had brought their grades up to 'C' or better, and the recreation center was not a crime center as some had predicted - in fact Fort Myers reported a 28% drop in juvenile arrests in the first four years of the program. Mayor Smith of Fort Myers proclaimed, "As the mayor of a city that totally committed itself to using recreation and academic support as the vehicle for combating violent juvenile crime, I can tell you that it works...In my judgment it is the best, most cost-effect, and most responsible position to take in the very complex search for solutions to juvenile crime."

8. Open space conservation is an integral aspect of planning for a sustainable city

Planning for a sustainable future means bringing the bigger picture into the view frame. Instead of planning at the scale of a

Tourists' expenditure accounts for 15 percent of Vermont's Gross State Product.²⁴

Burlington, Vermont: The Case For Smart Growth

"Burlington, Vermont—with its dynamic, activist municipal government, and up-and-coming reputation—makes a strong case for the value of sustainable development. The City government, working in partnership with a network of municipally supported nonprofit organizations, pursued a sustainable development strategy before the term was invented. The result has been a city that is considered one of the most livable in the country and promises to be so in the future. A broad spectrum of people in Burlington agree: sustainable development is a valuable concept—even a critical one for our well-being."²⁴

“Sustainable development” is...

...a planning strategy in which the needs of the present are met without compromising the ability of future generations to meet their own needs

--The United Nations World Commission on Environment and Development

...a series of innovations in planning and management of natural resources, economic growth, and community health.

--from “Creating a Sustainable City: The Case for Burlington, Vermont”

...a three-pronged approach that considers economic, environmental, and cultural resources. A sustainable development plan should consider the allocation of these resources not only in the short term, but also over the long term.

--Center for Excellence for Sustainable Development

house lot, cities should plan at the scale of the community and city. The concepts of sustainable development and smart growth are integral to the development of a suitable plan for city growth. These planning paradigms work hand in hand to achieve the goal of just allocation of resources over both space and time, transcending both neighborhoods and generations.

Burlington serves as a “Regional Growth Center” (*Chittenden County Regional Plan*), with the intent to concentrate development within the City to preserve open lands in the surrounding communities. Thus, efficient and sustainable development within the City is of paramount importance. A balance between development and conservation must be achieved within the City to preserve a high quality of life for its residents.

Open space protection is essential to any sustainable development plan. The designation of public open spaces is paramount to ensure long-term quality of life. Evidence suggests that the most successful higher density neighborhoods—those most attractive to home buyers—offer easy access to parks, playgrounds, trails, greenways, and natural open space.³ Not only does open space provide resources for direct use and enjoyment by city dwellers, but it also ensures that natural processes, such as animal movement and hydrological flows, will continue to function at full capacity. Open space serves such natural functions as wastewa-

ter treatment and air pollution control, functions which would be extremely expensive and technologically complicated engineering projects in the absence of open space.

The importance of open space preservation to sustainability has been recognized and addressed by national, as well as local leaders. Clearly, the time for an open space initiative has arrived.

Conclusion

Open space protection can no longer be dismissed as a frill. The economic, cultural, public safety and health benefits of balancing community development with open space protection are increasingly being quantified in economic, as well as social measures that show them to bring significant and diverse values to society. Open space protection is an important component behind successful community development projects, and a major contributor to the character of place that forms the foundation of its economy. Community investment and planning will determine where and how development occurs, how cost effectively it occurs, and whether the most important natural systems are preserved and sustained. Weighing the true costs and benefits of development and of open space protection is the key to making the right investment choices, for in the final analysis, the cost of protecting a community’s important natural systems and open spaces may seem high, but the cost of not protecting them may be much, much higher.



Enjoying the view of Lake Champlain and the Adirondacks from Waterfront Park.