

Economic Benefits of Urban Natural Resources in Anchorage, Alaska

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Introduction

Urban natural resources are essentially the green spaces that make our communities beautiful places to live. They compose the natural system – our wetlands, lakes, streams, greenbelt corridors and open spaces - in which the built system exists. Where communities have a shortage of these green spaces we make up for them with surrogate greenways and gardens to provide beauty and a connection to the natural system.

Anchorage, like many winter cities, is blessed with abundant green space. Numerous wetlands and streams wandering from mountain to shoreline dominate the terrain. Because of its water-rich setting Anchorage has a large amount of riparian and coastal greenway providing excellent opportunities for recreation and viewing. Fortunately some of this greenbelt has been successfully reserved for trails and public access to waterways and their associated resources. Other areas of it have been developed, some well, but some to the point of constricting or eliminating flow and function.

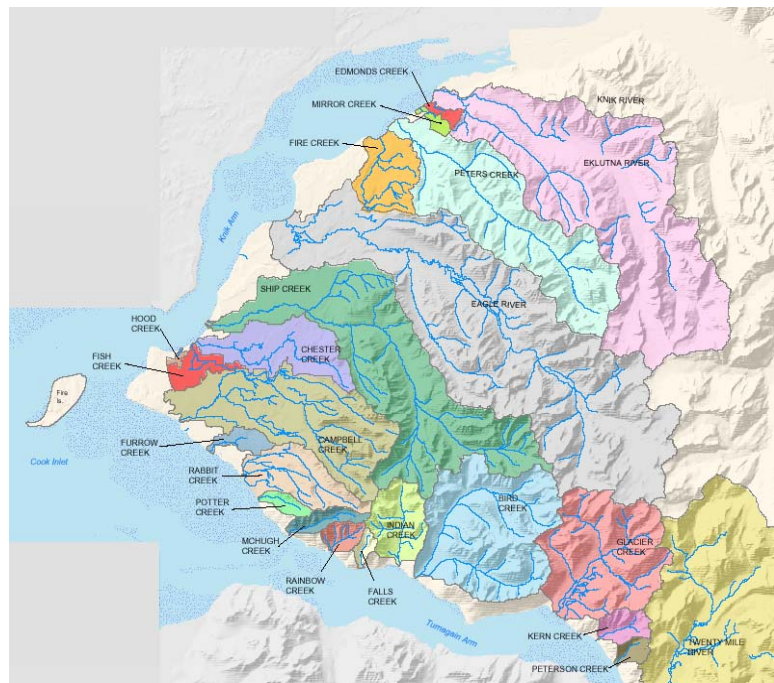


Figure 1. Anchorage Watersheds

Unfortunately, Anchorage and other cities often approach acquisition, development, and maintenance of riparian parks and greenways with highly constrained budgets and limited visions. These activities are performed in a piecemeal fashion as occasions or needs arise. The effect of this reactive approach is that cities are not afforded the opportunity to plan and manage greenbelts from a whole-system approach. Thus, where extensive, functional greenbelts exist they are largely serendipitous occurrences.

In Anchorage, and everywhere, people enjoy using greenbelts as part of their recreational activities and generally agree these resources contribute to neighborhood

attractiveness. However, most of these people believe greenbelts are passive infrastructure to be supported, and would fail to consider that greenbelts play a strong interactive role in their neighborhood property values or their community economics.

A deeper look at trails and greenbelts however provides the following conclusions:

- ✓ Greenbelts play a fundamental role in a community's economic health, and an active commitment to develop and maintain trail and greenway systems provides great economic benefit for a community; moreover,
- ✓ Failure to maintain the function of greenways particularly near lakes and streams actually costs a community more money in terms of flooding losses and increased infrastructure maintenance costs.

A community's best economic interest is served when its members recognize the value of their trail and greenway resources, and then develop and use them to their highest potential.

Greenways: Urban Gold

Little science is needed to recognize that urban greenways are attractive to businesses and residents alike. Studies show that homebuyers not only prefer cities with greenspaces and homes near greenways and parks but also are willing to pay premiums for them (Magat et. al. 2000, Quayle; and Hamilton, 1999). Businesses list 'quality of life' including access to open space as a primary factor in sustaining a strong and growing economy (Center for Watershed Protection, 2000; Lerner and Poole, 1999). However beyond this simple qualitative recognition of human appreciation of greenways lies the less widely known fact that these urban systems are, plainly put, moneymakers.

A growing number of studies show that open space generally, and greenbelts and greenways specifically, are in fact powerful economic engines for local communities (Barbier et. al., 1997; Lerner and Poole, 1999; National Park Service, 1995; Przybylski and Lindsey, 1998; Quayle and Hamilton, 1999). However, translating the economic value of greenways into dollars—and public acceptance of this value—can be much more difficult (Lindsey and Przybylski, 1998). Nevertheless, detailed economic analyses of greenways across the nation typically show large benefit-to-cost ratios, particularly where these types of systems are maintained along functional stream corridors. Floodways dedicated to open space and community trail systems can and do save the nation billions of dollars in reduced flood losses (FEMA, 2002). Where properties can be located close to greenways increases in land values of 10 to 30% (Center for Watershed Protection, 2000; Quayle and Hamilton, 1999) can be expected, raising tax revenues while maintaining a constant tax rate. Communities with well-integrated urban trail systems and open spaces are attractive to tourists and businesses alike. Urban trail systems, connecting open spaces and integrating residential, cultural and commercial centers, act as particularly powerful economic engines, generating

millions of dollars annually in related sales across whole communities (U.S.FWS, 2002; Rails to Trails Conservancy, 2003; Lindsey and Przybylski, 1998).

Remarkably, despite this growing confirmation of the dollar value of greenways, communities often remain reluctant to emphasize funding for these systems (MOA, 2003). Unfortunately, greenspace maintenance is almost never a zero-sum game. While healthy greenways generate huge economic benefits to a community, failure to maintain greenways as functional systems, particularly near natural waters and waterways, actually increase costs to communities in terms of maintenance for community infrastructure and mitigation for losses to flooding and erosion, including, for many winter cities, icings and icings-related damage.

Greenways as Floodways

Flood prevention has long been recognized as having obvious economic underpinnings, and thus historically has been a primary factor in attempts to manage river floodplains as continuous green space corridors. This management strategy becomes increasingly important as urbanization amplifies the potential for flooding and flood impacts. It's well established that urbanization raises the potential for flooding and stream erosion as a result of increased storm water runoff (Leopold, 1968). Of course, losses from flooding occur as a direct result of property damage, but there is also some evidence that urban-driven flooding can depress property values by as much as 20% for up to a decade following a catastrophic event (Tobin and Montz, 1997). Conversely, there is a growing understanding that natural channel structure and vegetation along an undeveloped and functional stream riparian zone can significantly mitigate for urbanization impacts on flooding (Blaha et. al., 2002; Booth, 2000). Forest cover both within greenways and throughout the watershed also serves to significantly reduce storm water runoff, decreasing urban impacts on stream flooding (American Forests, 2004). A national study of flood impacts found that communities that conserved floodplains (i.e., set aside from development) increased adjacent land values by an average of greater than \$10,000 per acre (Center for Watershed Protection, 2000).

From a flood loss perspective, damage or loss of functional riparian zone structure can be particularly costly for winter cities. Studies at the Municipality of Anchorage (MOA) have demonstrated a greater than three-fold increase in stream flood volumes and almost an order of magnitude increase in flood peaks for highly urbanized Anchorage watersheds (MOA, 2000). These same studies have revealed as well that stream channel structure has been highly channelized and modified in the more urbanized parts of the Municipality (MOA, October 2003). The increasing flood flows along with urban stream deepening and straightening have resulted in locally significant increases in stream bank erosion and sedimentation, creating property hazards and increasing infrastructure maintenance costs. Of particular importance to Anchorage as a winter city is that this channelization has also increased the frequency of stream icings at an estimated annual mitigation cost of \$100,000.

Though north latitude cities may particularly expect greater winter impacts from poorly maintained stream corridors, the United States Federal Emergency Management

Agency (FEMA) incorporates maintenance and management of open spaces along floodplains as a nation-wide philosophy under its National Flood Insurance Program (NFIP). Since 1969 FEMA has paid \$11.9 billion in losses but conversely estimates that conservation and regulation of floodplains as open spaces saves over a \$1 billion annually (FEMA, 2002). Under FEMA's Community Rating System (CRS), communities receive credit for placing more restrictive requirements on development within floodplains and for preservation of open space and other measures that reduce flood damage or protect the natural resources and functions of floodplains. Long-term community savings for maintaining open space in floodplains can be substantial under the CRS program, with associated discounts in insurance rates of up to 45%.

Why Park-Side Real Estate Is Worth More

Second only to flood prevention, the positive economic effect of greenways on real estate is perhaps the most widely accepted, at least as a concept. It is a basic tenet in real estate marketing that properties 'with a view' are worth more than properties without this amenity. Homeowners commonly rank proximity to greenways as a top reason (in one poll at a higher priority even than proximity to schools (Quayle and Hamilton, 1999)) for selecting a new home location or moving to a new city, and homeowners along greenways typically feel that that proximity adds significantly to the value of their home. Although this increased valuation appears to vary depending on a number of factors, a review of recent studies suggests that proximity to a greenway can be counted on to positively increase residential property values by 10 to 35% or more. A survey conducted in 1991 by the Department of Housing and Urban Development and summarized by the National Association of Home Builders states that "when all else is equal, the price of a home located within 300 feet from a body of water increases by up to 27.8 percent" (U.S.EPA, 1995). In a study completed in 1999 of four urban Canadian communities, researchers showed that land adjacent to greenways had property values 12 to 16 percent greater than those properties that were not on the greenway (Quayle and Hamilton, 1999). A limited analysis of residential properties by MOA property appraisers suggests land values for homes adjacent to Anchorage greenways are as much as 15% higher than similar interior properties (Brown, 2004). These appraisers found that relative increases in land values for residential properties adjacent to greenways that contain streams are generally even larger, ranging from 15% to 60% depending on the size of the waterbody and the quality of greenbelt. The National Park Service summarized a number of studies correlating land value to greenway proximity and concluded that quality of open space is reflected positively in real property values and increased marketability (NPS, 1995). Most studies cited in the Park Service's summary also showed a direct correlation between property value and distance from greenways. One cited study reported a 33%, 9% and 4.2% increase in value for land within 40 feet, 1000 feet and 2500 feet respectively of a local 1300-acre park in Philadelphia. Another study summarized by the Park Service reported that property values declined at rates of \$4.20 to as much as \$10.20 per foot of distance from nearby greenways for distances of up to 3200 feet from the greenbelts.

However the Park Service also reported that the characteristics of the adjacent open space and the orientation of the nearby properties to it may significantly affect the

degree to which property values are influenced. They cited studies that suggested that naturally vegetated open space rather than highly developed facilities, and limited vehicle corridors having good recreational access and good security and maintenance had the greatest positive influence on adjacent land value. Studies of the economic value of trees in greenways and residential property support this analysis. Tree conservation alone can enhance property values by 6 to 15% at a benefit-to-cost ratio of from 2 to 3.5 (Center for Watershed Protection, 2000). Interestingly, dense growths of trees, both along greenways and throughout watersheds, pay dividends in other ways as well, reducing dust by as much as 100-fold and contributing to the decrease in home and business energy heating costs by as much as 25% (ibid.). Recent polling suggests a public preference for undeveloped open space and greenways also exists at Anchorage, with protection and expansion of urban natural open space as the topped ranked priorities for local parks and recreation services (Eppley Institute, 2003).

Business Grows Where Greenways Go

That open spaces positively impact the value of nearby individual properties seems obvious, but their presence and quality also has significant but widely underestimated effects upon the attractiveness and economic health of entire communities. The fact is, green space, and particularly greenways play a central role in attracting new homeowners and new businesses. A recent report published by the Trust for Public Land cites a number of studies that identify a growing demand by businesses for good 'quality of life'—including open space—as a basic attribute of the communities they select as sites for new or expanding businesses (Lerner and Poole, 1999). In one of these studies, small company owners cited access to recreation opportunities and urban open space as the highest priority in selecting new locations for their businesses. In another, a national survey of chief executive officers reported quality of life as the third most important reason for locating new business within a community, after only access to markets and skilled labor. In still another, pollsters from the Regional Plan Association and the Quinnipac College Polling Institute identified urban open space along with low crime as the two major elements crucial to a satisfactory 'quality of life'.

That cities recognize the economic value of that esoteric thing called 'quality of life' is revealed in the intensity with which they vie to be reported well in this regard in published comparisons of profiles of different communities. However, interestingly, the degree to which many of these same communities (and the analysts that assess and judge them) may be unaware of the critical role that urban greenways play in a community's economic health is implicit in the criteria that are applied to assess the 'quality of life' of these communities. For example in the calculation of its "5th Annual Quality of Life Quotient" published by Expansion Management Magazine, urban open space is not considered at all as a specific criteria (CNNmoney, 2004). Though this oversight is perhaps understandable given the primary focus of these analysts, it is an oversight that the data suggests the communities themselves cannot afford. As St. Mary's County, Maryland puts it, businesses that moved to the county because of tax incentives moved out at the end of the tax incentives; businesses that moved because of the quality of life stayed to become long-term residents and taxpayers (American Trails, 2003).

The plain fact is that, though simple attractiveness by itself may not be enough to justify community expenditures to expand and maintain urban open spaces, greenways still more than pay for themselves and in fact are absolutely essential to the healthy economic growth of a community. Urban green spaces are powerful attractors for new businesses and 'clean' industries that typically pay at higher wage levels. Business growth spurred by the presence and proximity of greenways is inevitably reflected in increased long-term tax revenues (without attendant increases in tax rates) as the result of a stronger sense of business community. A few examples illustrate this. As the result of development of a greenbelt through a Boulder, Colorado community, researchers state property value enhancements there can generate an additional \$500,000 annually in tax revenues (NPS, 1995). Business leaders in Chattanooga, Tennessee credit an eight-year doubling in jobs, a 127% increase in property valuation, and a 99% increase in tax revenues in large part to a vigorous community commitment to more and better connected urban open space and trails, including construction of an eight-mile downtown greenway (Lerner and Poole, 1999). The literature is full of economic success stories revolving around community greenway enhancement. The fact is, from San Francisco's Golden Gate Park to New York City's Central Park, urban open spaces have had a long history of being remarkably good investments, more than paying for themselves, both by attracting business to the community as a whole and in raising the value of adjacent properties. To succeed in an ever more competitive world market it's even more important for northern latitude communities—who must offset seasonal cold and arctic winter nights—to take advantage of the opportunity to promote the sense of community, both to businesses and to residents alike, that is offered by functional, integrated greenways.

The Greenway Money Machine

In addition to contributing to enhancement of tax revenues through business growth and increased property valuation, urban open spaces also contribute to a community's economic well being through related retail sales. Though economic spin-off from retail sales related to use of urban open spaces is generated from all types of these facilities, the economic value of urban trails and natural open spaces is particularly strong. This is in part a reflection of nationwide urban residents' preference for urban trails and greenway corridors over more developed open space recreational facilities. One poll of Canadian homeowners showed a two to three times more positive response to opportunity for access to greenways than to parks and playgrounds. (Quayle and Hamilton, 1999). In this poll, trail activities (walking, jogging, and bicycling) just edged out access to the corridor's greenview as the two highest use priorities for the greenway. In another poll by the National Association of Realtors and the National Association of Home Builders, neighborhood trails were the second-most preferred amenity cited by homebuyers looking for a new home (Rails to Trails Conservancy, 2003).

A recent poll in Anchorage revealed similar preferences for open spaces and trails facilities over more conventional park settings (Eppley Institute, 2003). In this poll, trail activities—bicycling, walking, and skiing—were reported as the top ranked uses of all

Anchorage park facilities. In fact, trail activities occupied the top eight most important recreational opportunities identified by the polled residents. Of these eight, opportunities for recreation along streams and lakes and natural undeveloped areas were the three most important identified by poll respondents, and is in line with findings in a nationwide Harvard-sponsored poll (Magat, et. al., 2000) that showed that citizens strongly favor trails and greenways adjacent to or along water bodies. Anchorage residents also showed a strong preference for trail connections to local neighborhoods and for minimally developed neighborhood parks or natural open space. These findings are similar to other national studies that have shown that most trail users live closest to those trail systems that they visit the most (Lindsey, 1998; Lindsey and Przybylski, 1998). At Anchorage, though, with its mountainous peninsular topography and hundreds of small streams (characteristics common to many northern latitude communities), these findings suggest an unusual (but not yet fully realized) opportunity for establishment of a network of publicly well-received multiple-use greenway corridors.

National data also show that urban trail systems are generally well received and used heavily by residents and visitors alike, with well developed and linked urban trails in larger communities reporting use that can exceed a million visitors annually (NPS, 1995; Lerner and Poole, 1999; Lindsey and Przybylski, 1998). Trail use counts at Anchorage demonstrate that popularity of urban trails remains constant for cold climate communities as well. Sample summer counts of normal (non-holiday or event) trail use in 2002 and 2003 at five Anchorage trunk trail locations reported average daily use ranging from about 350 to over 600, with the count data suggesting that most sites averaged about 500 visits per day with a peak daily use often exceeding 1000 (MOA, 2003). With over 175 snow free trail days this data alone suggests that almost every major Anchorage trail hosts more than 100,000 users every summer. Counts taken at the same sites under non-event conditions at the end of January averaged between 70 and 230 users per day, for as many as 40,000 trail excursions per winter at each site. The trail count data is limited and is likely an under-estimate—data sets were very limited and no special events counts were made (an annual visitor count at just one popular MOA trailhead park alone reported over 300,000 visitors in 2001). In fact regularly scheduled and special events organized around Anchorage's existing trail systems are common including both winter and summer trail events, sled dog races and winter carnivals, local, national and collegiate cross country ski races, and a panoply of local and national running and bicycling events. Many of these events are heavily attended. The Anchorage Fur Rendezvous, a winter carnival held regularly in February, is estimated to draw over 60% of the State's population and is host to State, national and international dog mushers, and ski and other race competitions. The Iditarod Trail Sled Dog Race is another international sled dog event that is started out of Anchorage and routed through the city along its urban trails. Anchorage trails also play a central role in many special one time events including frequent national ski races and most recently the 2001 Winter Special Olympics, when the Anchorage trails system was host to over 2400 winter athletes.

Across the United States trail-related events like these have been shown to be huge boons to local economies in terms of related sales and tax revenues. Large-scale

urban greenways have been shown to be capable of directly infusing millions of dollars and hundreds of jobs to local economies at a robust benefit-to-cost ratio as a result of sales spin-off from trail use and related activities (Lerner and Poole, 1999). As for the Anchorage trails systems, benefits are often related to both special events and to regular use by residents. In an example of the former, one researcher estimated that hosting the U.S. National Cross Country Skiing Championships in 1991 brought almost \$1.2 million to the local Anchorage economy (Hill and Noble, 1991). However many studies across the nation have also addressed economic impacts related specifically to regular use of urban trails. Lindsey and Przybylski (1998) summarize a number of these studies, and report a range in single use expenditures ranging from \$.46 to as much as \$200. However, in one Minnesota study that focused on local urban trail users (those who traveled less than 25 miles to a trail head) expenditures ranged from \$0.61 to \$2.68 per day. Expenditures are generally larger for more extended trail excursions, with one typical study reporting a daily expenditure of \$25.14 for trip-related expenses. Another study of activity along a trail in Ohio reports similar daily expenditures of about \$13.54 per visit but adds that each person spends an additional estimated \$277 annually for equipment and accessories for use on trail excursions (Rails to Trails Conservancy 2003).

Communities often benefit from expenditures made by visitors traveling from outside the community. A dramatic example is offered by considering just a single trail use—bird watching. In its 2001 survey of bird watching the U.S. Fish and Wildlife Service (FWS) estimates that 22% of the United States population spends time watching birds (U.S.FWS, 2002). The FWS conservatively defines a bird watcher as someone that takes a trip to observe birds or observes closely from their backyard. The FWS estimates that all U.S. birders spent \$32 billion on bird watching in 2001, for a net economic value of \$35 per day for each state resident birder and a whopping \$134 per day for each non-resident birder. What this single trail use can mean to local economies can be illustrated by looking at the special case of Anchorage. Alaska ranks higher than the national average of number of bird-watchers as a percent of the total State population at 36%, but almost half (49%) of these watchers are non-residents. What this means is that for every two birders that are encouraged to use Anchorage trails, one is a non-resident bringing in \$134 per day on average in outside money to the local economy.

Expanding this model of trails as an economic engine to the many other trail uses, particularly winter uses, can be conceptually considered by reviewing winter air visitor statistics for Anchorage. A recent study done by the McDowell Group, Inc for the Anchorage Convention and Visitors Bureau (McDowell Group, 2000) estimated the total Anchorage winter air visitor volume for the winter of 1999-2000 at 443,000, of which about half were 'out-of-State' and half were State residents. (These numbers pale when compared to the summer volume of visitors—in the summer of 1998, 1 million people visited Alaska, with 60% passing through Anchorage (Eppley Institute for Parks and Public Lands, 2003)). For the McDowell Group 1999-2000 poll, the average expenditures per visitor was estimated to range from about \$250 to over \$500 with most spending less than 3 days in Anchorage. The average age of the visitors was 43.5

years but the age distribution was skewed, with 82% of visitors younger than 55. Most were relatively affluent, with 72% having household incomes greater than \$50,000 and most with some college education. These demographics closely match those that have been shown in studies across the United States to be characteristic of the most enthusiastic of trail users. Of all the 1999-2000 winter air visitors to Anchorage, 46%, or about 205,000, were visiting friends and relative, on vacation, or on business and pleasure. In other words these particular visitors were “looking for something to do”—in short, a perfect market opportunity. However, McDowell Group’s poll reported that cross country skiing, sledding, snow machining, dog sledding and other potentially trail-related activities accounted for less than 4% of the activities that our visitors participated in—and a whopping 49% reported participating in no activities at all! Clearly these data suggest abundant opportunity exists for incorporation of trails into the economic engines of winter cities, including Anchorage.

Unfortunately, the reason Anchorage (and other winter cities) often miss these economic opportunities may be for the most fundamental of all reasons: lack of a deep understanding of, or commitment to, the fundamental economic importance of greenways, open spaces and trails as features integrated across the whole structure of the community. National data shows that residents want to have closer neighborhood connections to regional trail systems and natural open spaces. A recent poll reporting Anchorage residents’ desire for more neighborhood connections to area trails (Eppley Institute, 2003) suggests that current trail use volume may in part be limited by local access limitations and discontinuity in the existing Anchorage regional trail system. In the same sense the Anchorage trails systems is at best only poorly integrated with local cultural and commercial centers and facilities. Abundant case studies show that trails and greenway systems designed systematically and explicitly to connect residential communities to commercial and cultural centers through greenways and open spaces are economic bonanzas to the community as a whole (Lerner and Poole, 1999; Lindsey and Przybylski, 1998; NPS, 1995). These expressly integrated greenways conserve valuable natural resources for multiple uses, increase the value of adjacent properties and the attractiveness of the entire community, and powerfully connect the community’s residential, commercial, cultural and recreational elements. Certainly these possibilities can be made real for Anchorage, and many other winter cities, as well, where many of these often younger communities still have access to surrounding undeveloped and natural open space and to unusual winter—and summer—landscapes attractive to visitors and residents alike.

Are We There Yet? Lessons For Winter Cities

While the need to pay attention to our natural systems is not a new idea, the information presented in this analysis compellingly directs us to pay more attention to the natural systems in which our communities are located as fundamental elements of our community livability and economic health.

Because greenways are preferred by community members as well as individuals and businesses whose interest we want to attract, it is in our best interest to recognize this, and to develop and promote the resources we have to offer. This is particularly

important for winter cities where cold temperatures and darkness are prevailing concerns three to five months of the year. Anchorage Mayor Mark Begich, in a discussion about attracting transportation business into Anchorage, stated, "There is a perception that you can't do a lot in this community. Getting over that hurdle is always a challenge, but our visitor industry brings in thousands of people from around the world. And once they are here, it's easy to sell them based on our assets" (National League of Cities, 2003). We need to promote our assets in ways people will recognize them. Clearly, quality of life ratings fail to accomplish this or to attract solid, long-term growth interests since businesses motivated by financial incentives alone tend to be short-term community investors.

Anchorage and other winter cities have a tremendous opportunity to realize a stronger economy through trails and greenbelts. Well maintained systems not only prevent unnecessary flooding, icing and infrastructure costs, they also provide, by virtue of their simple but broad-reaching appeal, big economic gains.

To achieve these economic gains we need to:

- ✓ **Inventory the Value of Greenway Resources.** Establish a complete inventory of existing greenbelts, factors they influence and services they provide - along their entire lengths. Along with this, identify areas where greenbelt systems are missing or lacking in service.
- ✓ **Evaluate Real Economic Benefits.** Define the services provided by greenbelts - flood and erosion control, property value enhancement, and community and visitor attraction - in terms of real dollars for residents and businesses.
- ✓ **Build an Integrated, Visionary Plan.** Invite businesses and community members to help explore ways to establish and improve real connections between residents, visitors, and commercial and cultural centers through trails. Create an integrated plan that energetically links existing and proposed greenbelt areas with city centers while maintaining connections and functions throughout the whole greenway system.
- ✓ **Share the Vision.** Sell decision makers on the over-arching value of the greenbelt vision and demonstrate through economic benefit assessments how it will positively affect the community. Provide leadership and education for cost-paying community members. Share information about the benefits and costs of greenbelt development for individuals and the entire community.

Residents have demonstrated their preferences for parks, trails, and open space improvements and, given clear cost-benefit information, will support thoughtful greenbelt development. Community leaders in all winter cities can lead with a vision to:

Develop town-centers as community gathering places tightly linked by greenbelts and trail systems providing direct walk-able connections between homes, greenways and retail (restaurants and shops) facilities.

Apply area wide integrated approaches to all types of development projects. In Anchorage the planned redevelopment of our park strip – in parallel with its downtown city center, inlet access, and desirable homes, and its location between two important stream corridors with premier fishing, bird watching, and trail recreation resources is an excellent opportunity for thoughtful re-development to enhance and better connect these resources and to provide the community and visitor industry welcome access to exceptional city and greenbelt resources.

We can apply strategies that embrace the opportunities provided by green spaces, or we can settle for less at a much higher cost. Winter cities have more to offer than many people realize, and we can determine we will be more than just the parking lot and transportation hub for visitors desiring to experience our wilderness. We can have the vision that develops a stronger green space market for sightseeing, trail activities, and wildlife viewing and attracts visitors for longer stays, provides a better winter city lifestyle, and sells people based on our assets.

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Selected References

American Forests. 2000. *Urban Ecosystems Analysis* [online]. Available from the World Wide Web: < <http://www.americanforests.org/resources/rea/>>

American Trails. March 2003. *Economic Benefits of Greenways: Summary of Findings* [online]. Available from the World Wide Web: <<http://www.americantrails.org/resources/economics/GreenwaySumEcon.html>>

Anchorage Economic Development Corporation. 2004. *Target Industries: Tourism* [online] Available from the World Wide Web: <http://www.aedcweb.com/content/front_page>

Blaha, David W., Christopher May, Richard Horner, and Mary Dolan. 2002. *The Effectiveness of Storm Water Management and Riparian Buffers in Mitigating the Effects of Urbanization on Streams* in Proceedings, Water Environment Federation Watershed 2002 Conference, Fort Lauderdale, Florida.

Booth, Derek B. September 2000. *Forest Cover, Impervious-Surface Area, and the Mitigation of Urbanization Impacts in King County, Washington*. Center for Urban Water Resources Management. University of Washington, Seattle, Washington.

Brown, Ronald E. January 2004. *personal communication*. Property Appraisal Division. Municipality of Anchorage. Anchorage, Alaska.

Center for Urban Forest Research. July 2003. *Is All Your Rain Going Down The Drain?* USDA Forest Service, Davis, CA. Available from the World Wide Web: <<http://cufr.ucdavis.edu/newsletter.asp>>

Center for Watershed Protection. 2000. *The Economics of Watershed Protection*. Article 30 in 'The Practice of Watershed Protection'. Ellicott City, MD.

CNNmoney. 2004. *Money Magazine's Hottest Towns* [online]. Available from the World Wide Web: <http://money.cnn.com/best/bplive/cities_table/>

Eppley Institute for Parks and Public Lands. October 2003. *State of Anchorage Bowl Parks, Natural Open Space and Recreation Facilities—Draft Report*. Indiana University, Bloomington, Indiana. Prepared for Planning Department, Municipality of Anchorage, Anchorage, Alaska.

Federal Emergency Management Agency. August 2002. *National Flood Insurance Program: Program Description*. Washington D.C.

Foti, Ross. October 2003. *The Rise of Restoration*. PM Network, Vol. 17, No. 10, p28-

Hill, Pershing J., and Sean T. Noble. 1991. *The Economic Impact of Amateur Sports in Alaska*. Institute of Social and Economic Research, University of Alaska, Anchorage. Anchorage, Alaska.

Leopold, Luna B. 1968. *Hydrology for Urban Land Planning—a Guidebook on the Hydrologic Effects of Urban Land Use*. Geological Survey Circular 554. U.S. Geological Survey, Washington, D.C.

Lerner, Steve and William Poole. 1999. *The Economic Benefits of Park and Open Space*. The Trust for Public Land. Available from the World Wide Web: <http://www.tpl.org/tier3_cdl.cfm?content_item_id=1145&folder_id=727>

Lindsey, Greg. June 1998. *A Note on the Use of Urban Greenways*. Center for Urban Policy and the Environment – Indiana University School of Public and Environmental Affairs. Indianapolis, Indiana. Available from the World Wide Web: <http://www.urbancenter.iupui.edu/pub_list.htm>

Lindsey, Greg, and Michael Przybylski. June 1998. *Economic Considerations in Planning Urban Greenways: A Brief Review*. Center for Urban Policy and the Environment – Indiana University School of Public and Environmental Affairs. Indianapolis, Indiana. Available from the World Wide Web: <http://www.urbancenter.iupui.edu/pub_list.htm>

Magat, Wesley A., Joel Huber, and W. Kip Viscusi. August 2000. *An Iterative Choice Approach to Valuing Clean Lakes, Rivers, and Streams*. Harvard Law School, Cambridge, MA. Available from the World Wide Web: The Harvard John M. Olin Discussion Paper Series, <http://www.law.harvard.edu/programs/olin_center/>

McDowell Group, Inc. September 2000. *Anchorage Air Winter Season 1999-2000 Visitor Study*. Anchorage Convention and Visitors Bureau. Anchorage, Alaska.

McDonald, Lisa A., and Grace M. Johns. June 1999. *Integrating Social Benefit Cost Accounting into Watershed Restoration and Protection Programs*. Journal of the American Water Resources Association, Vol. 35, No. 3, p579-592.

Municipality of Anchorage (MOA). April 2003. *Parks Update News Release* [online]. Planning Department. Anchorage, Alaska. Available from the World Wide Web: <http://www.muni.org/Planning/news_ParkRecs.cfm>

MOA. 2003. *Unpublished trail count data*. Traffic Department. Anchorage, Alaska.

MOA. October 2003. *Anchorage Watershed Catalog Series: Chester Creek-Draft*. WMS Document No. APg03004. Watershed Management Services Division. Anchorage, Alaska.

MOA. December 2000. *Anchorage Watershed Characterization in Open Space Planning*. WMS Document No. Apr00010. Watershed Management Services Division. Anchorage, Alaska.

The National League of Cities. 2003. *Anchorage, Great Falls Vie to Become Distribution Hubs* [online]. Available from the World Wide Web: <http://www.nlc.org/nlc_org/site/newsroom/nations_cities_weekly/display.cfm?id=60D0452F-7C17-4C5F-9725F45EDB5E3909>

National Park Service (NPS). 1995. *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors: A Resource Book*. Fourth Edition. Rivers, Trails and Conservations Assistance Program. Available from the World Wide Web: <http://www.nps.gov/ncrc/programs/rtca/helpfultools/ht_publications.html>

Prqybylski, Michael and Greg Lindsey. June, 1998. *Economic Evaluation of Major Urban Greenway Projects*. Center for Urban Policy and the Environment – Indiana University School of Public and Environmental Affairs. Indianapolis, Indiana. Available from the World Wide Web: <http://www.urbancenter.iupui.edu/pub_list.htm>

Quayle, Moura, and Stan Hamilton. April, 1999. *Corridors of Green and Gold: Impact of Riparian Suburban Greenways on Property Values*. University of British Columbia: Faculties of Agriculture Sciences and Commerce and Business Administration.

Prepared for Fraser River Action Plan, Department of Fisheries and Oceans,
Vancouver, B.C.

Rails to Trails Conservancy. 2003. *Economic Benefits of Trails and Greenways*.
Washington, D.C. Available from the World Wide Web:
<<http://www.railtrails.org/benefits/revitalization/econimpact.asp>>

Tobin, Graham A. and Burrell E. Montz. 1997. *The Impacts of a Second Catastrophic
Flood on Property Values in Linda and Olivehurst, California*. Natural Hazards Center,
University of Colorado, Boulder, CO.

United States Environmental Protection Agency (U.S.EPA), Office of Wetlands, Oceans
and Watersheds. September 1995. *Economic Benefits of Runoff Controls*. EPA 841-
S-95-002. Washington, D.C.

United States Fish and Wildlife Service (U.S.FWS). 2002. *Birding in the United States:
A Demographic and Economic Analysis*. Report 2001-1. Available from the World
Wide Web: <<http://fa.r9.fws.gov/surveys/surveys.html>>