

# Active Living and Biking: Tracing the Evolution of a Biking System in Arlington, Virginia

**Royce Hanson**

Montgomery County Planning Board

**Garry Young**

George Washington Institute of Public Policy

**Abstract** In Arlington, Virginia, a steady evolutionary change in biking policy during the last three decades has yielded some of the nation's best biking assets. It has a comprehensive, well-connected, highly integrated, well-mapped, and well-signed system of shared-use paved trails, bike lanes, bike routes, and other biking assets, such as workplace showers. Understanding the conditions that led to Arlington's current biking system can provide lessons in the strategy and tactics of active-living politics.

One potentially effective political strategy that was successful in Arlington is for activists to pressure elected officials to select professional managers who see bike-ways as crucial to the overall transportation system. Then it is important to formalize the government-citizen relationship through an advisory panel. Also, in Arlington, the incremental creation of biking assets helped create demand for more and better facilities. In turn, this created political support for expanding and upgrading. Finally, Arlington used potentially negative circumstances (e.g., the building of highway corridors, the introduction of the Metro) as opportunities to change the built environment in ways that have encouraged more active living.

When it came to biking in the early 1970s, Arlington County, Virginia, largely resembled the rest of the Washington, DC, area and other urban areas along the East Coast. Biking was a neighborhood-based activity for kids. Bike trails were not a major component of parks or recreational planning and programming. Bikeways were not part of transportation planning and development. Bike commuting was limited to a few daring riders, who were regarded as menaces by most drivers. A steady evolutionary change in Arlington's biking policy during the last three decades has

yielded some of the nation's best biking assets. It has a comprehensive, well-connected, highly integrated, well-mapped, and well-signed system of shared-use paved trails, bike lanes, bike routes, and other biking assets, such as workplace showers.<sup>1</sup> Recently the League of American Bicyclists designated Arlington County as one of thirteen bicycle-friendly communities (League of American Bicyclists 2003). In addition, a recent major study by the Virginia Department of Transportation (VDOT 2003) generally cites Arlington as having bikeways and connectivity superior to those in most other parts of Northern Virginia.<sup>2</sup>

In contrast, most other areas in the region lag behind. For example, Arlington and two neighboring counties—Fairfax County, Virginia, and Montgomery County, Maryland—share many attributes and the same probicycling interests (often the same groups and people) and have actively pursued improved bikeways in each county during the same period. Yet, today, Fairfax County's biking system is unmapped, sporadic, and lacks connectivity, and while Montgomery County has some very good biking assets, it lacks Arlington's level of connectivity and integration.

Understanding the conditions that led to Arlington's current biking system can provide lessons in the strategy and tactics of active-living politics.

## Literature and Methods

The literature on active living and the built environment is well understood and needs little elaboration here. Obesity and low physical activity are strongly linked (Catlin, Simoes, and Brownson 2003; U.S. Department of Health and Human Services 2001), and there is increasing evidence that

1. Our study largely ignores biking facilities, such as mountain-bike trails, some unpaved park trails, and velodromes, that are primarily recreational in nature. Different groups use terms differently. In this report, we use these terms as follows: "Biking assets" is a general term that includes bikeways and other resources that contribute to biking, including biking maps, signage, bike racks, bike lockers, showers for commuting bikers, and so forth. "Bikeways" include bike trails, bike routes, and bike lanes. "Bicycle trails" or "paths" are separated right-of-ways normally designated for nonmotorized shared use where cross-flows by motorists are minimized. A "bicycle lane" is a restricted right-of-way designated for the use of bicycles on which through travel by motor vehicles or pedestrians is not allowed but on which cross-flows by motorists may be allowed (e.g., to gain access to parking facilities or associated land use). A "bicycle route" is a shared right-of-way, which is usually designated as such by signs placed on vertical posts or stenciled on the pavement and which shares its through traffic right-of-way with motor vehicles or pedestrians.

2. Our study focuses on biking, but often, though clearly not always, biking and pedestrian interests coincide. It is thus not surprising that Arlington is also cited as a good community for walkers (McCaffrey 2005).

the built environment can inhibit or enhance activity levels among all age groups (Goldberg et al. 2007; Perdue, Gostin, and Stone 2003; Frank and Engelke 2001; Handy et al. 2002; Ewing et al. 2003; Humpel, Owen, and Leslie 2002). Bicycling has long been recognized as an activity with important health benefits (Pucher and Dijkstra 2003), and the provision of high-quality facilities substantially increases the use of biking for local travel and recreation (Ewing and Cervero 2001).

Arlington's biking system did not come about because of a single or even small set of initiatives. Rather the system evolved through a series of events. Likewise, the biking policy process in Arlington only vaguely resembles a linear stage-to-stage process. In developing the case study, we analyzed plans, regulations, budgets, administrative memoranda, maps, design and engineering specifications, photographs, and other documentary materials both to construct a time line of actions and to provide information on the content and effect of various policy tools. We interviewed a very wide range of people, including public officials and citizen activists, who were involved in the development and implementation of biking policies to provide information about the political process and insight into the factors that produced particular outcomes.

### **Early Biking Policy in Arlington**

Prior to 1970, bicycling was not a major concern of policy makers in suburban Washington counties. At only twenty-six square miles, Arlington is one of the smallest counties in the nation and was the region's most densely populated suburb. It had been formed in 1847 by the retrocession of Virginia's original portion of the District of Columbia. Home of the Pentagon, Fort Myer, Arlington National Cemetery, and a variety of other federal buildings and facilities, Arlington housed a large contingent of the area's federal civilian and military workforce, many of whom commuted across the Potomac to the District of Columbia. Arlington's 1970 population was 174,284 and declined slightly during the 1980s before rebounding to 189,453 in 2000.

Arlington's development pattern in 1970 followed fairly standard pre- and post-World War II fashions—single-family subdivisions and enclaves of garden apartments lined major highway corridors, and low-density commercial strips were located along major thoroughfares. By 1970, Arlington was a fully urban, developed community. Consequently, new growth occurred primarily in the form of high-rise office and residential redevelopment in Rosslyn, across the Key Bridge from Washington,

and at Crystal City, constructed over an old railroad yard near National Airport.

Arlington was the first Virginia county to adopt the county-manager system of government. There are no municipalities within its borders. Because its county highway department existed prior to the creation of the predecessor of the state department of transportation, Arlington is one of only two Virginia counties that maintain their own roads, except for primary state, U.S., and interstate highways.

The five-member Arlington County Board is elected at large, and during the 1960s and 1970s, Arlingtonians for a Better County (ABC), a local party with no formal affiliation with the two major national parties, elected a majority of board members. Since Arlington's population contained a high proportion of U.S. civilian and military personnel, the ABC was critical to their effective civic engagement and ability to seek and hold local elective offices. Although ABC was officially nonpartisan and had some Republican members, its leaders were liberal Democrats. The Democratic and Republican parties often ran candidates in county races and occasionally elected county board members. A conservative, nonpartisan opposition party, the Arlington Independent Movement (AIM) tended to be more successful than the Democratic and Republican parties, and like the ABC's board members, AIM officials were committed to the county-manager system. In a civic culture deeply influenced by the practices and values of the federal civil service, elected board members tended to be attentive to the concerns of citizens and deferential to their professional administrators, expecting them to initiate as well as implement policy. The county was regarded as an outpost of liberalism in a state dominated by Senator Harry Byrd's ultraconservative, segregationist machine.

In 1970 Arlington had only 4.3 miles of unpaved hiker-biker trail in Four Mile Run Park, built for recreational use in 1968. In 1973 the National Park Service constructed the Mount Vernon Trail along Arlington's eastern border south to George Washington's home in Fairfax County. The trail ultimately included connections to the Fourteenth Street and Theodore Roosevelt bridges in Arlington. Otherwise, Arlington offered little in the way of formal biking assets in the early 1970s.

### **The Politics of Biking Policy in Arlington**

Several factors converged in the early 1970s to cause some Washington-area officials, especially in Arlington, to take an interest in biking facilities. National initiatives by the U.S. Department of Transportation empha-

sized multimodal transportation. The 1972 Federal Aid Highway Act, for the first time, authorized some funding for bike facilities. In 1973, the first energy crisis produced a spike in gasoline prices and long lines at filling stations, furthering interest in alternative forms of commuting to work.

Several planned communities in the area — notably Reston, Virginia, Columbia, Maryland, and Montgomery Village, Maryland — placed greater emphasis on walking and biking in local transportation. Interest in biking also rose with advances in bike technology and the popularity of ten-speed bikes. In 1972, the Washington Area Bicyclists Association (WABA) was formed and began to build an area-wide membership. It organized a series of biking events and began to lobby the Washington Metropolitan Area Transit Authority, Congress, local governments, and the National Park Service for better biking facilities (Gessel 1987).

The area had been through a period of tumultuous debate over proposed freeway facilities. Most of these proposals had been defeated, but some major roadways remained under active consideration and litigation. Construction was beginning on the Metrorail system, which was expected to profoundly affect both commuting patterns in the region and development in the vicinity of many of the stations.

The Washington Metropolitan Area Transit Authority was planning two Metro lines through Arlington — the Blue Line, headed south through the Pentagon and Washington National Airport before exiting Arlington for Alexandria and southern Fairfax County, and the Orange Line, headed west through Rosslyn and exiting at Arlington's northwestern boundary. (A third line — the Yellow Line — now services Arlington, although it uses many of the same stations as the Blue Line.) Developers had already produced new, intensive development at proposed Metro stations in the Arlington neighborhoods of Crystal City and Rosslyn, and county planners were preparing plans for development or redevelopment of areas served by other transit-station areas on both lines.

In addition, plans were under way to create an interstate highway traveling eastbound from western Virginia through Arlington into the District of Columbia. Interstate 66 proved extremely controversial in the county (indeed, its presence and potential expansion remains controversial there today). The combination of the new highway and Metro ultimately meant that Arlington was destined to be one of the most transportation-intensive places in America. As we will show, this opened windows of opportunity for developing an effective, integrated biking system.

### Getting Biking on the Arlington Agenda

The genesis of Arlington's biking system preceded organized local political demand for bike facilities in the county. Although there were some bicyclists and biking club members active in the county, there had been no major effort on their part or on that of health or recreation activists for an extensive bike system. Bike commuters were few and not organized. Bike trails were not a major component of parks or recreational planning and programming.

Bicycling reached the policy agenda in Arlington when two government officials recognized an opportunity to make a substantial change in transportation policy and became policy entrepreneurs. Arlington County Transportation Department director H. S. "Hank" Hulme remembers meeting with county manager Bert Johnson early in 1972 to discuss a number of emerging transportation issues. The implementation of Metro was imminent, and county planners were thinking about how to plan for the system's potential redevelopment of the county's transit corridors. The construction of I-66 would divide neighborhoods, change county traffic patterns, and induce more through traffic from Fairfax and Loudoun counties.

Although discussions of highways and transit were still in their early stages in 1972, Johnson wanted to use these events as an opportunity to broaden Arlington's approach to mobility in a county that was being transformed from a first-tier suburb into a part of the region's urban core, consistent with its history as part of the original District of Columbia. Both Johnson and Hulme recognized that big changes were on the horizon in transportation policy. The creation of the U.S. Department of Transportation would increase pressure on the states for more comprehensive and balanced approaches that used different modes of transportation. A former county board member, Alan Dean, had, as a senior Bureau of the Budget official, played a central role in creating the new department and had become its assistant secretary for administration. He also remained an influential civic leader in shaping the views of Arlington County Board members. Recognizing the confluence of these factors, Johnson told Hulme that he should be thinking about a full range of mobility measures—addressing not just automobile and Metro traffic, but also bike and pedestrian traffic—to serve county commuters and other travelers.

Johnson had no specific solution in mind. That was to be Hulme's job. The transportation director was handed a virtually blank slate and told, in effect, to be the policy entrepreneur for a multimodal transportation system. Hulme's first action was to reassign some of his transportation

engineers to a planning section to develop a multimodal system, of which sidewalks, bike trails, and bike lanes would be one component, providing opportunities for people to walk and bike to Metro and to work.

Thus, the planning and production of biking facilities were initiated not as a discrete issue to be addressed as demand for recreational trails appeared but as a component of a reframed county transportation policy that shifted from almost exclusive reliance on automobile travel to multimodal approaches designed to reduce or at least slow the growth of automobile usage (Kingdon 1995). In the process, Hulme reframed bicycling as a transportation mode serving commuters as well as recreational bikers. He also institutionalized concern for it as a basic element of the county's transportation system, which would be regularly addressed through the bureaucratic routines of planning and capital budget requests. Thus, bicycle facilities were made the mandate of transportation planners rather than the exclusive domain of park planners. Given Arlington's unified managerial system, in which all agencies reported to the county manager, clear and unambiguous priorities could be established and projects could be programmed, subject only to the decisions of the county board.

### Building the Arlington Biking System

Hulme's transportation department moved quickly. It completed the county's first commuter bikeway in 1973—a 1.2-mile connection to the Spout Run Parkway, providing access to the new office and high-rise residential complex in Rosslyn. As Hulme's staff worked on the biking component of county transportation strategy, they drew on the county's participatory civic culture, seeking advice from local bike enthusiasts, some of whom were members of the newly formed WABA. Initially, the advice from bikers was informal, starting with feedback from cyclists whom Hulme happened to know personally.

In 1973, Johnson and Hulme asked the county board to establish an eleven-member Bicycle Advisory Committee to provide a formal voice for citizens in the planning, design, and construction of bike trails, parking, and street access. The committee also offered advice on development of the first comprehensive Master Bikeway Plan, produced in 1974 with substantial public participation.

The Master Bikeway Plan was amended in 1977 to include projects that were completed during that period. The revised plan contained details about the existing facilities and listed those that had been approved for construction and those planned for the future. The committee was also

helpful in the development of design standards for bikeways and lanes and the designation of bike routes.

The advisory committee became an effective advocate for the expansion of the system and the improvement of its quality and served as a key policy instrument in building a core constituency for biking in Arlington. Biking had an institutional base, both in the government and in the public. As a consequence of continuing consultation with both bikers and neighborhood associations, there has been little public opposition to augmentation of the system. Routes or facilities that have encountered strong opposition have either been dropped or modified to meet objections. The advisory committee has also been helpful in reconciling the interests of commuter and recreational bikers and in sustaining the support of the county board for trails and lanes. Committee members have also proved effective in sustaining support for bike facilities by county board members, who are regularly invited to join in riding trails and routes to familiarize them with the system and learn from riders about its use for commuting and recreation. As a consequence of the committee's work in building community support, there have always been at least three votes on the county board for construction and maintenance of bike facilities. Thus, the committee provided a self-replicating political stream within the county's governance system for advocacy, protection, and expansion of the system. That major facilities, such as the Custis and the Washington and Old Dominion trails, are extensive and, with connections to the National Park Service trails, can serve both commuter and recreational purposes has also made conflicts over resource allocations avoidable.

Arlington developers never mounted significant opposition to the creation of bikeways. Arlington was a fully developed urban county by the 1970s. This meant that, in general, developers played a far less prominent or, at least, a different role in Arlington than in, for example, the less-developed Montgomery and Fairfax counties. Contemporary large-scale development in Arlington occurs through the occasional redevelopment of areas into dense mixed-use neighborhoods, such as Ballston and Clarendon, clustered around a Metro stop. Integrating bikeways into these mixed-use neighborhoods proved relatively easy.<sup>3</sup>

Crucially, the high levels of opposition to different aspects of the biking system have never materialized in Arlington. As we have noted, neigh-

3. The fully developed nature of Arlington meant that bikeways had to be integrated into the preexisting system of roadways, neighborhoods, and parks. Bikeway plans could not be part of new development with, for example, the construction of roadways appropriately designed for the inclusion of bicycles.



neighborhood opposition and divergent interests between commuter and recreational bicyclists have generally been avoided by the inclusive nature of the biking policy process in Arlington and the willingness of Arlington leadership to drop or modify proposals that have sparked dissent. For example, a recent proposal to create a biking and pedestrian bridge spanning Spout Run generated heated neighborhood opposition. While the bridge would connect several different trails, some local residents feared the bridge would attract crowds, congestion, and perhaps crime to the county's quiet northeastern sector (Jenkins 2003). Because of the opposition, county leaders have not pushed the project. In explaining the county's perspective on biking projects, the current county bike coordinator, Charles Denney, noted, "First, we need to hear from the community. If they support it, we'll then make a decision whether to move forward" (ibid.).

In other Washington-area counties, such as Fairfax and Montgomery, biker interests have often found themselves at odds with other groups, such as walkers, hikers, and horseback riding enthusiasts, that could potentially ally with them. In Arlington, these interests never split (although, to be clear, horseback riding is a nonissue in urban Arlington). Also, as we have also noted, in contrast to elsewhere, developer interests in Arlington have, at worst, taken a neutral stance to the biking system. Finally, Arlington biker interests have avoided alienating environmental interests. For obvious reasons, environmental and biking interests often coincide, but there can be severe differences over increasing road width and paving sections near streambeds. In Montgomery County, for example, differences over these issues have dramatically affected biking politics. This sort of split has never emerged in Arlington largely because the county avoided expanding roads or paving streambeds to create its biking system.

In many respects, 1977 was the year bicycling achieved high salience and a permanent and prominent place on the Arlington transportation agenda. Because plans for I-66 conflicted with the U.S. Department of Transportation's environmental impact statement, Secretary of Transportation William Coleman rejected the initial 1974 plan for the highway. A new four-lane, restricted design was proposed. As approved by Coleman in 1977, the revised project included a number of features designed to reduce or ameliorate environmental effects. These included a depressed roadway, a tunnel through Rosslyn, a right-of-way for Metro's Orange Line together with a transfer of part of Virginia's federal highway funds to help with construction of the line. Most critically for our purposes, the design included a landscaped and lighted bike trail for the four-mile length of the

highway through Arlington. The resulting Custis Trail was less a response to demand than the provision of an environmental and recreational benefit to offset the impact of the new highway on the county's park system. But it provided a connection to the forty-five-mile Washington and Old Dominion Trail that was being built in an abandoned railroad right-of-way by the Northern Virginia Regional Park Authority, thus providing a major commuter route that could connect with Washington and Alexandria. Its popularity for both commuting and recreation further enhanced support for bicycling and bike facilities in Arlington.

Hulme appointed a staff member to oversee the maintenance of the growing trail system and to work directly with bike proponents. The job eventually became county bike coordinator, with responsibilities for planning, administration, advocacy, programming, and community and inter-agency relations for the biking system. The office has become the focal point of biking promotion. It organizes special events, such as Bike to Work Day and Arlington Community Bike Ride; publishes and distributes five thousand bike system maps annually; and works with schools on bike facilities, safety education, and information on safe routes for biking to schools. Together with the advisory committee, the staff position further institutionalized the county's commitment to biking and provided mutual reinforcement with the advisory committee.

Bike trails were regularly included in Arlington's capital budgets, and Hulme and his successor have followed a strategy of incremental development, adding mileage as funding has allowed and building trails at less-than-optimal standards to get them in place. One of Hulme's practices was to keep adding to the system, even in tight budget years. Trails were sometimes initially built six feet wide, in order to provide more mileage with limited funds, and then expanded to a standard width of eight feet when they were due for repair or replacement in later years. Other trails were laid out and given a crushed-gravel surface, then programmed for hard surfaces in later years. The operating philosophy was to do something, then come back later when funds were available and do it right. Bike trails were added to storm-sewer projects and other public-works projects in which they could be constructed at low marginal cost.

Hulme worked closely with state highway officials in marking bike lanes and providing signage on state highways, for which the county provided the funding and labor. The National Park Service permitted the county to build trails and connections across federal parkland to connect with its linear trail system along the George Washington and Mount Vernon parkways. The only resistance came from the Department of Defense,

which would not permit public-access trails across Fort Myer or a bikeway to the Pentagon.<sup>4</sup>

The opening of Arlington's Metro stations increased public interest and support for multimodal transportation. The Washington Metro Area Transit Authority has cooperated with Arlington by providing both bike lockers and racks at four stations and racks at three others. (Security and space limitations prevented the placement of bike parking at four stations: Arlington Cemetery, Pentagon, and Crystal City on the Blue/Yellow lines and Court House on the Orange Line.) Metro also permits riders to bring bikes onto trains in off-peak hours, and bicycles can also be loaded onto Metrobuses.

In 1982, the completion of the 8.5-mile Custis Trail, adjacent to I-66, and its connection to the Washington and Old Dominion Trail and the National Park Service trails along the Potomac River raised the visibility of the Arlington system, as it received national and regional awards for its design and usefulness. Biking and bike facilities had become a key component of Arlington development and civic life. The advisory committee and other WABA members had a substantial role in designing the I-66 bike trail, which includes center striping and lighting as well as bicycle-accessible bridges to connect the bikeway with communities on the opposite side of the freeway. The Virginia Department of Highways took many of WABA's suggestions, including widening certain parts of the trail and eliminating dangerous grades and curves. The Virginia committee of WABA also won improvements to the Mount Vernon bike trail and influenced the design of the Washington and Old Dominion Trail, which crosses several jurisdictions.

The significance of biking received official recognition in the 1986 Master Plan of Transportation, which replaced the 1974 bikeway plan and included sections laying out principles for five modes of travel: street, transit, paratransit, bike, and pedestrian systems. The plan integrated these modes and provided the design for a highly connected system for each mode of travel. The advisory committee and WABA were key participants in the development of the biking sections of the plan, providing useful advice on routing, standards for different parts of the system, and support for its adoption and legitimacy among both serious and casual commuting and recreational cyclists.

4. Ironically, since Arlington was forced to build its biking system around Fort Myer and the Pentagon, the system was largely unaffected by toughened security measures taken in the wake of the September 11, 2001, attacks.

The master plan is a critical foundation tool of Arlington's biking policy. It established the conceptual and legal base for the development of other policy tools that promote biking. In the 1980s, Arlington planners and the county board adopted an "urban village" strategy for managing county growth. This strategy largely depended on the redevelopment of eight areas served by Metro stations. Subdivision, site-plan, building, and parking regulations were revised to encourage bicycle commuting. New office and commercial buildings were required to provide indoor bike parking, employee locker rooms, and showers. Apartment buildings were required to provide covered visitor parking for bikes. Under site plan regulations, specific conditions were negotiated for each project, but automobile parking requirements could be reduced in locations close to transit and might be further reduced if bicycle facilities were provided. Some businesses were allowed to have fewer spaces for bikes if they were unlikely to generate high levels of bike traffic.

In 1994, the county amended the transportation master plan to include an addition of twenty-four miles of new bike trails and lanes at a cost of \$7.3 million. Most of the trail system was constructed, but only two miles of bike lanes had been marked by the end of the decade. A 2001 amendment to the master plan was developed after transportation staff and the advisory committee conducted a street-by-street analysis of opportunities for bike lanes on all of the county's arterial roads. This amendment proposed adding twenty-three miles of bike lanes at a cost of \$250,000 over five years. These lanes would be a restricted right-of-way for cyclists, denoted by white lane markers placed toward the right of the existing street. For the most part, they did not require major modifications in the physical structure of the streets—in other words, widening was not necessary. An earlier draft of the amendment had been reviewed by the county's Neighborhood Conservation Advisory Commission, the Arlington Civic Federation, and local civic associations affected by the placement of proposed bicycle lanes. All strongly approved of the overall proposal, despite opposition to one segment, which was subsequently dropped from the final plan. The plans were approved with no public objections by the transportation and planning commissions.<sup>5</sup> These bike lanes were recently finished, essentially completing the basic network.

The Arlington system currently includes thirty-six miles of paved,

5. Our interviews with local biking advocates revealed some disagreement within the biking community over the value and safety of bike lanes, although this disagreement was not expressed in the hearings. Dahmus (2005) provides an overview of some of the reasons why some bikers dislike bike lanes.

shared-use trails; twenty miles of bicycle lanes; and fifty miles of signed bike routes. More than four hundred bicycle racks have been installed in county parks and commercial areas. These facilities represent an investment of more than \$16 million. Arlington is the only local jurisdiction that provides a stipend to employees who bike or walk to work. The 2001 master plan amendment also established a goal of increasing the percentage of people who use bicycles as a means of transportation.

As board and public support for bicycling has grown and the physical system has essentially been completed, new programming tools have been added. In 1990, the Department of Public Works established the Commuter Assistance Program (CAP) and assigned it responsibility for coordinating and directing various promotional activities for nonautomobile commuting. Operating “commuter stores” at the county’s busiest Metro stations, CAP provides commuting information and sells passes for various forms of public transportation. As it opened its third store, CAP added information on how bicycling, telecommuting, and ride sharing help the environment. In 1995, CAP added an Employer Services Program staffed by a full-time professional to market and implement employer-based transportation programs to area businesses. As this program also grew in popularity, CAP contracted with a private firm, Arlington Transportation Partners, to provide employer services designed to facilitate alternatives to automobile commuting. The program gives employers advice on providing bike parking, showers, and programs that provide a cash benefit to bikers in lieu of employer-provided parking, as well as organizing bike-to-work days. Arlington Transportation Partners also cooperates with WABA in promoting regional bike events. Another useful biking resource developed by the county is the Web site Bike Arlington ([www.bikearlington.com](http://www.bikearlington.com)), which features a variety of resources for bikers.

### **Some General Lessons for Producing Biking Systems**

The Arlington case offers some lessons for advocates of biking and other active-living components of urban development.

#### **It’s the Frame, Not the Picture**

During the 1970s, bicycling policy moved onto Arlington’s agenda. For Arlington, bicycle facilities began to be produced not in response to demand or to address a problem such as unsafe or inadequate bikeways.

For all practical purposes, there was no outcry from any substantial quarter for the provision of bicycle facilities. Rather, the provision of bikeways was a reframing of county transportation policy. Bikeways became a component of a new multimodal approach to meeting the general mobility needs of the county's residents. In that frame, bicycling was viewed primarily as a form of commuting for adults and students and secondarily as a recreational activity. It is significant that the first bikeway constructed in Arlington after the adoption of the new transportation strategy was a commuter link from a business center to a parkway. The initial bicycle advisory committee was built around bike commuters. Even the Custis Trail, which has attracted a large and avid number of recreational bicyclists, was framed less as a recreational facility than as a transportation feature, compensating for loss of traffic lanes on I-66 by producing a more environmentally friendly means of travel.

Gradually, as bicycling pedaled into Arlington's civic consciousness through the advocacy and public engagement of the advisory committee, the frame in which it was viewed subtly shifted. Careful work with community groups and schools in delineating bike routes along county streets broadened the constituency for bicycling. It had become a community amenity. As Arlington undertook the redevelopment of the areas around its Metro stations from nondescript automobile-oriented commercial strips into dense, pedestrian-oriented urban villages, the provision of bicycle facilities and linkages to the major bikeways such as Custis and Mount Vernon were seen as attractive features of urban living. As a tool of multimodal mobility, bicycle routes, racks, lockers, and showers for bike commuters in new offices became a means of reducing automobile traffic and parking. Finally, the increasing interest in and use of bikes reinforced the county's advocacy of biking, and the policy frame expanded to include commuting, recreation, urban design, and public health. As the physical system matured, more emphasis was placed on programs and the promotion of biking as a form of active living.

### Sustained Success Requires Institutionalization

Policy entrepreneurs are necessary but not sufficient for bike policy to succeed. Whether they are citizen advocates or public officials, policy entrepreneurs can open windows of opportunity, but sustained success requires institutionalization. In Arlington's case, virtually all the initial supporters of Arlington's biking system—Hulme, Johnson, and the original members of the citizen's advisory board—have since retired and have

been replaced by a new generation of supporters. Several local observers noted to us that support for biking has been maintained at the county-staff, county-council, and grassroots levels, despite the transition of personnel. Importantly, the presence in the government of a dedicated staff position to serve as an institutional advocate for bicycling facilities has been crucial to keeping biking on the government's decision agenda and to maintaining momentum in the development and use of facilities. The various people who have served as bike coordinators have acted as internal proponents of biking as issues have arisen for capital improvement projects involving the design of new development; growth of routes and linkages among bikeways serving communities, recreational riders, and commuters; and programs and events to build constituencies for biking. Coordinators were the key point staff in the creation of master plans for bikeways. The coordinators also provided (and still provide) a liaison between their agencies or bike advocacy groups and staffed advisory committees.

The bike coordinators have performed another essential function by building trust between the county government and advocacy organizations. This trust has facilitated an incremental strategy of facility development that permits some bikeways to be developed at less than optimal standards during lean budget years and then upgraded in later years when more funds are available. A close working relationship between advocates and advisory committees has also encouraged flexibility in the designation of routes along neighborhood streets, which are essential to a well-connected system. The result has been that Arlington has been able to steadily develop facilities, foster greater bike usage among a diverse set of riders, and build public confidence and support for both individual facilities and an integrated system.

### Citizen Advisory Committees Foster Legitimacy and Support for Biking

Citizen advisory committees are vital to the development of biking systems. They serve functions that the bike coordinator and official policy entrepreneurs cannot. If well designed, as the committee in Arlington was, committees can represent different kinds of bikers, fostering a comprehensive view of the needs of bicyclists and what a good system can provide. While a bike coordinator embedded in the bureaucracy provides expertise and continuity in planning, budgeting, and the use of regulatory processes to advance biking, an effective advisory committee can provide public legitimacy to bikeway initiatives by serving as liaison to a diverse

biker clientele, reconciling the interests of commuters and recreational riders, and working with neighborhoods to alleviate concerns about safety, privacy, or the environment. Finally, an advisory committee can do what a bureaucrat can do only at risk of discipline or termination: it can mobilize public support for projects and bring pressure to bear on elected officials to support both biking in general and specific projects. The presence of a strong and continuing committee in Arlington has been an important complement to the work of public officials and staff, particularly in laying out a system of connected routes through residential neighborhoods.

### Governance Structure Matters

Arlington has a relatively simple and unified governmental structure. All of its administrative agencies report to the county manager, and it has control of state roads in the county. Its governing board members are elected at large. Thus, the provision of all capital projects, administration of development regulations, and operation of marketing and promotional programs for biking have been under unified direction. With support for biking from the top of the management system and with endorsement by the county board, a coherent strategy could be developed and pursued. This governance structure is atypical in the Washington area. For example, Fairfax County, Virginia, has a similar administrative structure for county functions, but it lacks similar authority over its roads, thus dramatically complicating efforts to produce a comprehensive biking system. Plus, its board of supervisors is elected from single-member districts, with only the chair of the board elected at-large, which exacerbates not-in-my-backyard politics.

### The Policy Tools Employed Affect the Outcomes and Support for Biking

The principal policy tools identified in this study include master plans, capital improvement projects and plans, development regulations and incentives, and promotional programs:

*Master Plans.* Master plans had significant roles in the development of the Arlington system. They identify and map the major bikeways and lay out long-range goals for different types of facilities. Functional master plans for bicycling in Arlington have also developed a classification system for bikeways, design standards for those different classes, and criteria for selection of projects and their prioritization. The public participatory



process through which master plans are produced tends to build support for their recommendations and create expectations for their implementation. Both functional master plans of bikeways and master plans for specific areas can also contain language and/or graphics that can guide the administration of development regulations, such as zoning, subdivisions, and site plans. They are also important guides in the capital improvement process, often establishing priorities and timing for bikeways.

*Subdivision and Site Plan Regulations.* Although master plans are regarded as advisory in Virginia, they have great weight in the subdivision process. Arlington County includes in its regulatory procedures requirements for specific information on the provision of bike facilities, such as parking, trails or lanes, and lockers and showers in office buildings. Consistent with the county framing biking as a component of its multimodal transportation strategy, developers are expected to provide support for information services on alternatives to automobile commuting and to subsidize them in return for relaxation of structure- or surface-parking requirements. Thus, Arlington has provided incentives for partnerships with the private sector to promote biking, walking, and use of public transit.

*Mandatory Project Reviews.* Local planning and transportation agencies, as well as local governing boards, have opportunities to comment on federally funded projects through the environmental impact statement process. This process was used effectively by Arlington in its review of plans for I-66. While such comments are not binding on state or federal agencies, if they are used prudently, they can give local agencies and the public substantial influence on the design of a project so that it helps achieve master-plan objectives or, at the least, does not impair the achievement of those objectives. These tools provide, at best, a means of forcing consideration of bike facilities, which might otherwise not be included in state and federal planning. To a considerable extent, the effectiveness of these tools is enhanced if there is both a vigilant advocacy group engaged in the process and a bureaucrat in local government whose job it is to press the case for bike facilities at every opportunity and to work closely with external advocates of biking to enforce their well-informed, timely, and on-point participation.

### Being Urban Matters

One apparent reason why Arlington was more successful than other local suburban jurisdictions in building a biking system was its urban setting,

both in its density and its proximity to the urban core of the region. For Arlington residents, bicycle commuting to work both within the county and to the District of Columbia is easily accomplished. Moreover, most of the new development activity in the area has involved high-density projects, for which bike facilities create a minor, almost insignificant marginal cost to the developers, who provide a substantial bundle of amenities to attract business and residents to occupy their projects. Biking opportunities have improved developments' marketability and have offered economic incentives in the form of reduced parking requirements. Because the residential street system was already in place and mature, bike routes have been the only practicable means of producing a full system, and they have presented fewer threats to neighborhood tranquillity than widening roads to provide bike lanes.

### Conclusion

While increased biking among the populace is hardly a social panacea, biking does relieve some of our most critical transportation, environmental, and public health problems. Thus, policies directed toward increasing biking offer a partial solution to those problems. Most directly for our purposes, biking as a physical activity offers important health benefits, such as reduced obesity. As a form of transportation, especially for commuting, biking relieves traffic congestion, decreases air pollution, and reduces energy consumption.

However, biking does present its own physical dangers and difficulties. For many communities, especially urban and some suburban communities, these dangers and difficulties can be greatly reduced by the creation of a well-connected and integrated biking system. Because community resources are far from infinite, building a quality biking system requires taking scarce resources from other areas and can raise tax rates. Thus building a biking system usually leads to some amount of difficult political conflict.

Arlington, Virginia, offers one of the better overall biking systems in the United States, especially in the eastern half of the nation. In our study, we examined the reasons behind Arlington's success. In part, the Arlington system came about due to several natural advantages the county enjoyed, including its urban location and its independence from the state of Virginia's Department of Transportation. These natural advantages cannot be easily extended to other jurisdictions. Beyond the natural advantages,

however, are factors that lend themselves to being replicated elsewhere. The genesis for Arlington's biking system was not grassroots demand or pressure. Rather, its county leaders, especially professionals in the county government, saw biking as part of a solution to a general transportation problem and then worked to institutionalize biking. This does not mean that the key policy entrepreneur or entrepreneurs must come from government, but it does suggest that grassroots pressure will likely fail unless some key players in the government believe in the importance of biking to the overall transportation system. Thus, one potentially effective political strategy is for activists to pressure elected officials to select professional managers who see bikeways as crucial to the overall transportation system. Then it is important to formalize the government-citizen relationship through an advisory panel.

Another potentially replicable lesson from Arlington is the strategy of building a piece at a time, sometimes even at lower standards than desirable, to get components of a system into place and then upgrading later. Supporters of biking may dislike this approach because it seems like a bad compromise to accept minor improvements now for the promise of more later. (Likewise, various legal construction and liability standards can be a constraint.) Yet building a fully elaborated biking system is not normally politically practical. In Arlington, the incremental creation of biking assets helped create demand for more and better facilities. In turn, this created political support for expanding and upgrading.

Finally, Arlington took advantage of windows of opportunity in sometimes negative circumstances. The construction of I-66 was in many ways very bad for Arlington—for example, it split neighborhoods and divided the county in half north from south. Yet, it also led to the creation of the Custis Trail in part because county leaders took advantage of a window of opportunity. Similarly, the county saw the coming of Metro as a window of opportunity in which to integrate different modes of travel. Many communities frequently face similar major disruptions due to the creation or expansion of highways. In some cases, such disruptions may provide an opportunity to change the built environment in ways that encourage more active living.

## References

- Catlin, T., E. Simoes, and R. Brownson. 2003. Environmental and Policy Factors Associated with Overweight among Adults in Missouri. *American Journal of Health Promotion* 17 (4): 249–285.
- Dahmus, M. 2005. Pros and Cons of Bike Lanes. Michael Bluejay's BicycleUniverse. info. April 2. bicycleuniverse.info/transpo/bikelanes.html.
- Ewing, R., and R. Cervero. 2001. Travel and the Built Environment: A Synthesis. *Transportation Research Record* 1780:87–114.
- Ewing, R., T. Schmid, R. Killingsworth, A. Zlot, and S. Raudenbush. 2003. Relationship between Urban Sprawl and Physical Activity, Obesity, and Morbidity. *American Journal of Health Promotion* 18:47–57.
- Frank, L., and P. Engelke. 2001. The Built Environment and Human Activities Patterns: Exploring the Impacts of Urban Form on Public Health. *Journal of Planning Literature* 16:202–218.
- Gessel, M. 1987. WABA History. Washington Area Bicyclist Association. www.waba.org/about/history.php (November 21, 2007).
- Goldberg, D., L. Frank, B. McCann, J. Chapman, and S. Kavage. 2007. New Data for a New Era: A Summary of the SMARTRAQ Findings. January. www.act-trans.ubc.ca.
- Handy, S., M. Boarnet, R. Ewing, and R. Killingsworth. 2002. How the Built Environment Affects Physical Activity: Views from Urban Planning. *American Journal of Preventive Medicine* 23 (suppl. 2): 64–73.
- Humpal, N., N. Owen, and E. Leslie. 2002. Environmental Factors Associated with Adults' Participation in Physical Activity: A Review. *American Journal of Preventive Medicine* 22:188–199.
- Jenkins, C. 2003. Crossing Proposal Splits Members of Communities Near Spout Run. *Washington Post*, January 16.
- Kingdon, J. 1995. *Agendas, Alternatives, and Public Policies*. 2nd ed. New York: HarperCollins.
- League of American Bicyclists. 2003. League Names Arlington County a Bicycle-Friendly Community. Press release, November 12.
- McCaffrey, S. 2005. Survey: Arlington Tops in Nation for Walkers. *Arlington Sun-Gazette*, March 17.
- Perdue, W., L. Gostin, and L. Stone. 2003. Public Health and the Built Environment: Historical, Empirical, and Theoretical Foundations for an Expanded Role. *Journal of Law, Medicine, and Ethics* 31:557–567.
- Pucher, J., and L. Dijkstra. 2003. Promoting Safe Walking and Cycling to Improve Public Health: Lessons from the Netherlands and Germany. *American Journal of Public Health* 93:1509–1516.
- U.S. Department of Health and Human Services. 2001. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. Washington, DC: U.S. Government Printing Office.
- Virginia Department of Transportation (VDOT). 2003. *Northern Virginia Regional Bikeway and Trail Network Study*. Richmond, VA: VDOT.