

Chapter 10 – Bicycle & Pedestrian Facilities

Bicycling and walking are often overlooked as serious travel options in the United States. In older U.S. cities as well as in Europe and other parts of the world, these modes constitute a very important part of the transportation system. In the modern, suburban environment that characterizes most U.S. metropolitan areas, however, these modes seem out of scale and out of place. Distances between residences and activities are discouraging to pedestrians and bikers in this environment; further, these distance barriers are magnified by environmental design factors that either prevent direct paths, or that put pedestrians or bikers in conflict with vehicular traffic. Hence, biking and walking seem inappropriate to the environment, and therefore are typically not given great weight in transportation planning or policy schemes.

The essence of Travel Demand Management (TDM) is one of managing the overall transportation system to its highest efficiency by drawing upon all travel options to the extent that they can contribute and creating a balanced environment where there are numerous options available. In this regard, there may be more potential to bicycling and walking than might appear at first glance, both in a direct and in a complementary relationship. To clarify, there are three important ways in which bike and walk modes might be pushed into greater service in transportation management programs:

- As Primary Modes: more people could use biking or walking as a primary mode instead of driving, if given appropriate opportunity and encouragement.
- As Feeder Mode: bicycling and walking can be an effective media for connecting transit (or ridesharing) modes for longer trips, again if given appropriate opportunity and encouragement.
- For Circulation: the degree to which a destination site or activity center allows convenient circulation impacts travelers' decision on how to reach the site in the first place (i.e., whether they are dependent on a private vehicle to ensure mobility once at the site).

Even with the great limitations presented by the built environment, it is reasonable to conclude that rates of biking and walking, particularly for non-recreational purposes, are considerably less than their potential. If greater advantage could be taken of the situations where biking or walking are legitimate alternatives, even at marginal rates beyond current levels, impacts on traffic levels and air quality could be considerable.

Implementation Issues

Stimulating higher rates of bicycle and walking modes has benefits as part of an overall transportation management strategy. This strategy is inherently cost effective from a public investment point of view, and would have favorable impacts upon air quality challenges that are facing the Richmond area. These limitations notwithstanding, there are a number of technical and policy actions which can be taken to maximize the benefits which can be offered by these modes. The following are offered as recommendations toward ways to accomplish the implementation of the more effective strategies:

- Proactively consider the potential bicycle/pedestrian link when planning for transportation programs needs.

Bicycle and pedestrian initiatives have typically been pushed by interest groups, rather than evolving as part of a rational, comprehensive planning process that sees biking and walking as an integral link to the overall transportation system. These linkages apply not only connections between residential areas and activity centers, but where these modes are carefully considered in relation to regional transit systems and in the design of activity centers themselves, so that they can support access and circulation by modes other than just private vehicles. The requirements of the Clean Air Act Amendments (CAAA) of 1990 and special funding sources (Congestion Management Air Quality, or CMAQ) under the Transportation Equity Act of the 21st Century (TEA-21), may well provide the impetus to broaden the consideration of these non-motorized modes in local planning and programming.

- Direct scarce resources toward settings with the greatest payoff.

The research results tell us that certain factors help explain where bicycle and walking initiatives are likely to be of greatest benefit. These include settings where travel distances are relatively short between residential areas and key trip attractors, areas where there are high concentrations of people under 40 (such as university communities), and where there already exists compatible infrastructure which can be modified into appropriate facilities. Areas where auto travel is difficult because of localized congestion or parking facilities are crowded and expensive also represent good potential, so long as the congestion does not present a safety threat to bike or pedestrian travel.

- Place emphasis on conventional facilities.

Despite the intellectual appeal of bicycle and walking facilities that double as recreational trails, evidence suggests that less exotic options such as sidewalks and bike lanes along arterials are probably just as or more effective and may cost much less. For utilitarian travel like commuting, would-be bike/walk patrons are more likely to be interested in an efficient, direct path with acceptable safety levels, than one which is isolated and attractive but that does not go where they want it to go. Nevertheless, if park trails and bike paths are in existence or are planned, their recreational use may well lead to spillover to greater levels of utilitarian travel.

- Consider linkages which promote continuity.

In many urban areas where systems of bike trails, paths, or walkways exist, they may fall short in that there are significant gaps in the network by which activities are connected. For example, a regional system of bike paths/trails may simply not be connected to particular sectors of the metropolitan area because of missing links or absence of coverage in the given area. Similarly, pedestrian paths may be blocked or truncated, or made circuitous by natural or man-made obstacles. This continuity can be improved through careful planning and identification of obstacles.

- Think in terms of packages of actions.

Empirical evidence suggests that no one strategy looms as paramount in the decision to bike or walk. Obviously, safety is an issue, as is having a secure place to park one's bicycle if biking is the mode, or having a place to shower and change at the end of a long and strenuous trip, or in extreme weather. It appears more practical and promising if strategies to enhance biking and walking are not done piecemeal, but as part of a carefully-thought-through program of actions where each of the major impediments/barriers is diminished in some way.

- Consider the linkage with transit.

While higher percentages of commuters using biking or walking for their primary mode to work can offer significant benefits, their potential for addressing congestion and improving air quality may be greater if bicycling and walking are given higher attention as supporting modes by connecting with transit for longer trips. This means careful thought and design of transit stations, to be able to attract substantial numbers of users from local neighborhoods by walking or biking, rather than cars. It also means working within the local planning process to promote linkages between transit and the community, via path/sidewalk connections as well as avoiding conflicts with traffic. It also requires attention to inter-system connections, meaning secure bike rack/locker areas for cyclists, and shelters and adequate lighting for pedestrians.

- Seek private sector involvement and support.

Developers play an important role in the potential for bike/pedestrian use in the design of buildings and subdivisions, in terms of the location of buildings relative to streets, other buildings, services, and transit. Development review procedures can and have been used successfully to force higher design standards in regards to incorporation of bike/pedestrian/transit usage. Similarly, employers can be encouraged to increase attention to bike/walk use through provision of bike facilities and showers and changing facilities.

- Consider financial encouragement.

While cost, per se, is not shown by surveys as a major reason why individuals bike or walk to work, these surveys are generally measuring reaction to the status quo regarding relative costs among modes, and suggest that persons who bike/walk do so for entirely different reasons. However, substantial changes in the relationships among modes in terms of cost, such as what might come about through introductions of either incentives or driving disincentives (charging for formerly free parking) would be reasoned by most travel analysts to have a significant effect on the attractiveness of walking or biking, assuming that it is a physically reasonable option.

- Provide marketing and education

Assuming strategies can be implemented which materially enhance the environment for biking or walking, then it will be important to notify the public of the changes and their potential benefit from seeking use of the options. These efforts should be monitored and evaluated, with collection of appropriate data to determine the effectiveness of particular technical, policy or marketing and informational approaches for future planning and programming efforts.

In the long-term, the ultimate potential of biking and walking depends on major alterations to current development trends, planning procedures, funding programs, and preferences which are conditioned on current experience. Until these more fundamental changes occur, the measures listed above should dramatically increase the use and contribution available from these neglected, time-honored modes of travel.

Bicycle Planning in the Richmond Region

In 2000, the MPO agreed to serve as a model for VDOT to draft a regional bicycle and pedestrian plan. Although a Study Advisory Committee was established in November 2000, work on the plan did not proceed until October 2002 due to extended contract negotiations. The Plan is currently at a draft document stage. Work should be completed by the end of 2004. This plan considers the above implementation issues and is in the process of developing a program that can be implemented at both the regional and local levels.

The MPO's Study Advisory Committee established the following goals for the *Richmond Region Bicycle and Pedestrian Plan*:

- Increase the overall number of people who regularly bicycle and/or walk in the Richmond region.
- Increase public awareness of bicycling and walking as viable modes of transportation.
- Promote rights and responsibilities of pedestrians, bicyclists, and motorists in a shared transportation network. Improve safety and enforcement.
- Ensure that bicycle and pedestrian accommodations are considered in a balanced approach to planning and funding transportation improvements.
- Create additional physical activity opportunities in our community, increasing physical and mental wellness and improving air quality for all.
- Provide improved opportunity and access for walking and bicycling to all residents.
- Encourage the design, finance, and construction of transportation facilities which provide safe, secure, and efficient linkages for bicyclists and pedestrians throughout the Richmond region.
- Stimulate local economies by providing safe and efficient bicycle and pedestrian connectivity between businesses, tourism, and recreation destinations.
- Encourage safe riding and walking practices on roads, byways, and trails in the Richmond region.
- Promote the development of seamless transitions for all bicycle and pedestrian facilities which cross jurisdictional boundaries (i.e., city, county, or town).

Locations of most of the region's existing and planned bicycle routes are shown on Map 10-1. Following is a progress report of bicycle and pedestrian related planning, design, and implementation efforts as reported to the regional bicycle and pedestrian plan study advisory committee in the *Existing Conditions Technical Memorandum, Revised Draft*, May 22, 2003 prepared by Toole Design Group and Kimley-Horn and Associates.

Town of Ashland

- completed and adopted a town *Bicycle and Pedestrian Plan* (1998)
- recently adopted a comprehensive town plan which further expresses support for the analysis and recommendations developed in the *Bicycle and Pedestrian Plan*
- built a 0.7-mile section of a rail with trail facility (Railside Trail) and built short trail section on N. James Street.
- planned and partially funded section of Trolley Line Trail and supports further development of this trail corridor linking Ashland and Richmond.
- installed two short walking path segments: one on N. James Street and one on Hill-Carter Parkway Extension
- installed one 0.5-mile section of bike lane
- implemented orange flag crossing program
- developed brochures about local trails
- is the destination of a weekly bicycle tour organized by the Richmond Area Bicycling Association
- developed an off-road mountain biking trail at a Town park.
- hosted Dan Burden (Walkable Communities, Inc.) for a town *Walkability Audit*.

Charles City County

- identified four roadways in the county as greenways on a map in the comprehensive plan:
 - Route 5
 - Route 155
 - Route 106
 - Route 600
- VDOT's Route 5 Capital to Capital project (recently renamed Virginia Capital Trail) is the most significant bicycle/pedestrian activity in the County.
- has no dedicated bicycle facilities or shared use pathways, and few sidewalks.

Chesterfield County

- is implementing a bikeway master plan adopted in 1989. This master plan grew out of bikeway planning efforts dating back to 1975, and is incorporated into the county comprehensive plan.
- has constructed (or has under design) various bicycle facilities, including bike lanes and paved shoulders.
- has built a few small greenway trails, such as Chester Linear Park (a rail trail) and has plans to include trails as a part of other park development projects.

- is actively involved in making pedestrian improvements such as the Halloway Avenue, Route 60, and Walton Park sidewalk projects.
- has been successful in securing VDOT Transportation Enhancements funds and Virginia Recreational Trail funds for bicycle, pedestrian, and trail projects in the county
- has completed a number of sub-area studies calling for trails, such as the Riverfront Plan
- has a local greenway organization: Friends of Chesterfield Riverfront
- owns a portion of abandoned railroad in southeast Chesterfield
- identifies potential greenway corridors and calls for development of a greenway master plan in the park and recreation master plan.

Goochland County

- has done no dedicated bicycle or pedestrian planning.
- has no dedicated bicycle facilities or shared-use paths, and only a few sidewalks are present along select streets.
- has raised motor vehicle traffic connectivity issues in the area around the West Creek Development. Currently only four roads connect Goochland and Henrico: I-64, Route 250, Route 6 and Route 650. Limited access on I-64 and high traffic volumes on Route 250 and Route 6 seriously limit bicycle and pedestrian connectivity today, and conditions are likely to become worse in the future.

Hanover County

- completed a bikeway plan (not formally adopted); it identifies three specific opportunities for bicycle and pedestrian improvement:
 - Sub Area Plan for Kings Charter
 - Sub Area Plan for Route 54 Corridor
 - Recreational Bike Route Plan of Civil War Trails
- recently adopted a comprehensive plan that includes a map of potential bicycle facilities and calls for increasing the options available for bicycling and walking for transportation, designing new roads to accommodate bicycling and walking, and development of greenway trails
- has no existing greenway trails, but the park and recreation master plan identifies three potential greenway corridors:
 - Trolley Trail
 - Mattaponi Trail
 - Pamunkey Trail
- has no dedicated on-road bicycle facilities in existence; however 1.4 miles of striped bike lanes on Atlee Station Road are currently in design.

Henrico County

- has done no dedicated bicycle or pedestrian planning.
- has no dedicated bikeways.
- Includes the following in the update of the 2015 Park Master Plan:
 - projects a 2015 Bike Path Facility deficit of 56 miles

- projects a 2015 Walking Path Facility deficit of 44 miles
- does not retain references to trails listed in previous plan (see below)
- identified five potential greenway trails in the update of the 2005 Park Master Plan:
 - Tuckahoe Creek/Kanawha
 - Upham Brook
 - Highland Springs/Chickahominy
 - Almond Creek Basin
 - Four Mile Creek Basin

New Kent County

- identifies the following elements in a draft bicycle and pedestrian improvement map, prepared by County planning staff:
 - roads needing improved surface for bicycling
 - roads suggested for bike lanes or paved shoulders
 - potential off-road corridors
 - roads and areas that need attention to pedestrian accommodations.
 - potential intersections for roundabouts
- included bikeway and pedestrian elements in three formal sub-area plans:
 - West Area Plan
 - Route 33 Area Plan
 - Route 155/Providence Forge Area Plan
- has no dedicated bicycle facilities or shared use pathways, and few sidewalks.

Powhatan County

- has completed no dedicated bicycle or pedestrian planning.
- has installed Share the Road signs on Route 711 (Huguenot Trail); Judes Ferry Road (VA 614) from Huguenot Trail (VA 711) to Norwood Creek; and parts of Route 13 (Old Buckingham Road).
- has developed a draft map of roadways in the County that should be studied in the planning process. They are grouped as high priority and secondary priority routes.
- has developed Bike Tour Cue Sheets for a Powhatan County to Louisa County Ride.
- has no dedicated bicycle facilities or shared use pathways, and few sidewalks.

City of Richmond

- identifies current conditions and needs, and recommends the following improvements in the 1997 City Transportation Plan:
 - Eastern-Western transect (on road)
 - Northern-Southern transect (on road)
 - Greenway trails along the James River shorelines
 - A signed bike route system for the rest of the City
 - Improved commuter bike parking
- completed a map of existing and proposed facilities in 2001: City Bike Routes
- completed city-wide master plan (2000-2020):

- provides strong policy support for bicycling and walking
- identifies potential on-street bikeways in citywide and sub-area plans and maps
- built a number of pedestrian pathway facilities along and across the James River:
 - Canal Walk (bicycles are not allowed)
 - Belle Isle bridges (bicycle accessible)
 - various paths along the south shoreline of the James River: Pony Pastures, Flood Wall Trail, Reedy Creek (mostly bicycle accessible)
 - various access paths on the north shoreline (primarily pedestrian)
- has existing bike lane on Broad Rock Road (Route 10)
- built a few roadways with paved shoulders for bicycling, including the Robert E. Lee bridge and Jahnke Road and has additional projects in planning and design
- using paved shoulders and share the road signs on Riverside Drive
- spends about \$1 million annually on sidewalk repair and maintenance
- completed rehabilitation of the Main Street Station. It is the new Amtrak station for the city and is slated to become an intermodal urban hub. There is community interest in developing this station as a pedestrian hub, and ensuring that it is well linked, for bicyclists and pedestrians, to neighborhood walkways and greenways, as well as the James River waterfront.
- has developed formal planning documents for bicycle and pedestrian routes in Southampton, and the *Vision for the Boulevard* plan includes bikeways and walkways.

Bicycle Planning at the State Level

On April 23, 2003, Virginia Secretary of Transportation Clement set forth in a memorandum to VDOT Commissioner Shucet his policy goals relating to the integration of bicycle and pedestrian travel into the Virginia multi-modal transportation system. VDOT has started a comprehensive review of policies and procedures relating to bicycle and pedestrian accommodations. The result of this review will be a new policy to be submitted to the Commonwealth Transportation Board (CTB) that will guide VDOT's consideration of bicycling and walking in the planning, funding, design, construction, maintenance, and operation of Virginia's transportation network.

VDOT is revising its bicycling and pedestrian policies to include Secretary of Transportation Clement's goals, which are:

- Bicyclists, walkers, and other modes of non-motorized transportation should receive the same consideration as motorized transportation in the planning, design, construction and operation of Virginia's transportation network.
- Bike lanes, sidewalks, shared-use paths or other accommodations should be included in the design of all new highway and major reconstruction projects, unless special circumstances exist that prevent the inclusion of such accommodations or a local governing body has formally requested that bike lanes or other access not be included in a particular project.

- Access to the entire transportation system should be improved for bicyclists and pedestrians. Existing restrictions affecting bicycle and pedestrian access to existing highway facilities should be reviewed to achieve this goal.
- Current funding procedures for bicycle and pedestrian facilities, including design, construction, maintenance, and operations should be reviewed to ensure that these facilities are treated in the same fashion as highway projects. There should be no bias against bicycle or pedestrian facilities.
- VDOT should identify recommendations for amending any statutory provisions that either hinder the inclusion of bicycle or pedestrian accommodations in construction or prohibit the use of state or federal transportation funds for stand-alone bicycle or pedestrian construction projects. Again, there should be no bias against bicycle or pedestrian facilities.
- VDOT should ensure that all these activities are coordinated at the statewide and VDOT district levels, including the appointment of focused district advisory councils for pedestrian and bicycle issues.

Some of the proposed changes to policies and procedures will likely require the review of the Commonwealth Transportation Board (CTB) while others may be implemented by VDOT alone.

Map 10-1 Existing and Planned Bike Routes