



Training programs for adults and children can be expanded in the county.

Education

Construction of bicycle and pedestrian facilities needs to be complemented by programming strategies to assist people in making the transition to walking and/or bicycling, after having become accustomed to getting around by automobile for many years. Furthermore, everyone, including motorists, needs education about safe practices, rules of the road, and access to safety information.

Training Programs for Adults

The League of American Bicyclists (LAB) has developed a set of courses for children and adults covering safety skills, commuting, and motorist education, as well as a system of training and certifying instructors, who are then qualified to offer the training programs independently. In turn, these courses are often the model for programs offered by local and regional bicycling organizations, in adult education programs, and other settings. Education specific to bicycling includes safely sharing the road, traffic laws, proper roadway positioning, such as navigating intersections, and defensive bicycling.

The Community College of Baltimore County offers continuing education programs on walking and biking. Many of the county's senior centers offer programs and activities on walking including an annual fundraiser, a 5K run/walk. The Ateaze Senior Center in particular has an active "Cycling Seniors" affinity group offering a variety of rides at different levels of difficulty.

In the Baltimore region, the StreetSmart advertising program, sponsored by the Maryland Highway Safety Office and the Baltimore Metropolitan Council, delivers a variety of traffic safety messages through billboards, bus and transit advertisements, and television and radio spots to promote driver awareness, and safe walking and bicycling practices. As more area residents take up walking and bicycling, additional driver education and enforcement will become even more critical.

Training Programs for Children and Youth

According to the White House Task Force on Child Obesity, only 13% of students rode a bike or walked to school in 2009, compared to 44% in 1969. The percentage of students riding a school bus has also declined and more students report coming to school by personal vehicle. Parents cite many barriers as why they do not encourage or allow their children to walk or bike to school, referencing distance to school, traffic-related danger, weather, safety, fear of crime, as well as school policies that prohibit walking and biking to school.

The Maryland State Highway Administration (SHA) has developed a Pedestrian and Bicycle Safety Education Program for elementary school-aged children. In Baltimore County, the training is sponsored

by the Baltimore County Police Department. The program supports various curriculum and learning objectives (focused on health, wellness, and safety) and is divided into two sections, a pedestrian safety program for kindergarten through second grade students and a bicycle safety program for third through fifth grade students, teaching skills that are essential to developing a basic understanding of pedestrian and bicycle safety.

At the request of the school principal, the police department arranges for a certified instructor to train the teachers who will deliver the program to the students. The SHA supplies the educational materials (including bicycles) necessary to conduct the course.

This program has been introduced to elementary schools through the school system physical education department and subsequent in-service training. At this time, 16-18 of the county's 107 public elementary schools have participated. The police department has also provided training to youth groups and one of the county's senior centers. Thus far, private schools have not participated in the program.

A federal program is available to local nonprofit groups and government agencies to promote safety education for students in grades K-8. "Safe Routes to School" can provide funding for educational programs and infrastructure improvements. Each state has a Safe Routes to School coordinator who oversees the program. In Maryland, the program is managed by SHA's Highway Safety Office.

Education Programming Recommendations

1. Work with Baltimore County Public Schools to explore expanded pedestrian and bicycling safety education as a regular part of the curriculum at elementary, middle school and high school levels.
2. Offer pedestrian and bicycle safety and education programs through Recreation and Parks Councils, Senior Centers, health, and other organizations to children, youth and adults.
3. Ensure that education programs are made available to all demographic groups such as women, seniors, and ethnic groups.
4. Working with multiple partners, offer an annual sustainable transportation expo featuring pedestrian and bicycle educational materials and demonstrations.



Encouragement

Research on behavior and physical activity finds that typically, many sedentary people have attempted but failed to maintain physical activity programs. It generally takes eight weeks of regular physical activity before people are able to build new fitness routines, habits, and behaviors, thereby adopting new long-term positive health behaviors. It has been found that the number of people regularly engaging in physical activity can be significantly increased through moderate amounts of social support, including the organization of peer groups, encouragement by email or occasional phone calls, or meetings with fitness counselors.

By creating a network of support and encouragement programs, it is possible for people to be successful at adopting active transportation behaviors. Existing community and recreation organizations and programming can be leveraged to create this network, by replicating successful programming models and offering them through other organizations, reaching a variety of audiences across the county.



An important encouragement program that has gained momentum nationwide is the Walk (and Bicycle) to School program, targeted to elementary school children. A number of county elementary schools have large numbers of children walking to school. One example is Stoneleigh Elementary School in Towson, which has had a parent-initiated Walk to School program for about five years. Many of the 624 students enrolled at Stoneleigh do walk to school. Collectively, the students' school-based walking totals about 14,000 miles in an average year.



Encouragement programs such as community walks and group cycling rides can help motivate people to undertake regular walking and bicycling activities.

One of the barriers to expanding walk to school efforts concerns the supply of available crossing guards. School crossing guards are managed by the police department, not by the school system. Funds to pay school crossing guards come from the police department budget. Because it is part-time work (10 hours/week) for relatively low wages, the department has a difficult time keeping the 273 required positions filled. For each empty position, sworn police officers fill in, diverting officers from patrol and other duties.

There are a variety of other types of encouragement programs in addition to Walk to School. Many organizations sponsor fun runs, walks, and bicycle rides. The WalkArlington program in Arlington County, Virginia sponsors neighborhood and community walking tours—sometimes the tour guides are locally elected officials and other notable members of the community.

BikeArlington's annual bicycle ride through Arlington and Alexandria (now expanded to and including DC, with co-sponsorship from the city), and the Baltimore City group rides "Tour dem Parks" and "Tour de Port" rides are examples of community cycling events.

The “Sunday Streets” pilot in Baltimore City, which closed part of Roland Avenue for 5 hours on Sunday October 25th, 2009, treating the street as a “public park” for walking, biking, running, etc., is an example of a community event focused on promoting fitness, active transportation, and sustainability. In Baltimore County, a 3-mile stretch of Loch Raven Drive along the Loch Raven Reservoir is shut down to vehicular traffic to allow for runners, bicyclists, walkers and roller-bladers to enjoy the natural setting.

Some parks and trails units such as the Heritage Rail Trail in York County, Pennsylvania, have organized “trail ambassador” programs to engage volunteers to assist park visitors with information and serve as “eyes” and “ears” on multi-user trails, and some ambassadors are trained and certified to perform repairs and provide first aid services. The Washington Area Bicycle Association and the Chicago Bicycle Federation, among others, have volunteer ambassadors who provide mentoring and advice for taking up bicycle commuting.

Some regional shopping centers offer indoor walking and fitness opportunities, at various times, including some times when the center might not be normally open. Many worksite employee assistance and commuting programs also provide assistance to employees considering alternative ways of commuting to work.

Bike sharing is a program that allows people to try out bicycling without having to make the investment in buying a bicycle. Bicycle sharing systems provide low cost access to bicycles, to support short, local trips, making for easier connections between transportation modes and to reduce the use of automobiles for short trips. Typically, systems are funded through a variety of means including institutional support and sponsorships, as well as membership fees.

Systems are best deployed in areas where activity centers are linked and there is a high level of residential and/or employment density. In the county, places like Towson, Owings Mills, White Marsh, and Catonsville-UBMC, may have conditions favorable to bicycle sharing.



Bicycle sharing programs allow people to try out cycling without having to purchase a bicycle.

Encouragement Programming Recommendations

1. Work with community organizations, Recreation and Parks Councils, Senior Centers, and other stakeholders to organize walk and bicycle rides in neighborhoods, parks, and trails as a way for people to explore their communities and to experiment with active transportation.
2. Develop cross-community walking-bicycling events, covering areas larger than neighborhoods.
3. Consider organizing park and trail events around National Trails Day (first Saturday in June). More than 100 people



Holding and publicizing events such as International Walk to School Day or an organized cycle race can raise interest in walking and bicycling.

regularly participate in National Trails Day events at Patapsco Valley State Park. Events can be used to generate publicity and fundraising for Baltimore County trails efforts.

4. Develop ambassador programs to deliver programming that supports walking and bicycling. Ambassadors, mentors, and buddies can assist people in moving along a ladder of active transportation, from experimentation to regular walking and riding.
5. Work with local schools and PTAs to provide walk to school/ bike to school programs. Consider providing support to events and programs organized around international walk to school day during the first week of October.
6. Investigate alternates to address the need for additional school crossing guards, including grant funding and parent volunteers.
7. Work with campuses and business organizations so that they can support sustainable transportation by providing walking and bicycling encouragement programs to their staff and students.
8. Work with local gyms and fitness facilities to develop reduced-cost memberships for bicycle commuters by providing showers, lockers, and secured bicycle parking.
9. Encourage major employment centers in the county to participate in Bike to Work programs, including the regional Bike to Work Day. Currently, Towson is the only location in the county for Bike to Work Day participants.
10. Explore providing a college-based bicycle shop linked to a campus-based recreation center as a kind of combined bicycle station, providing showers, lockers, secured parking, and repair facilities for bicyclists.



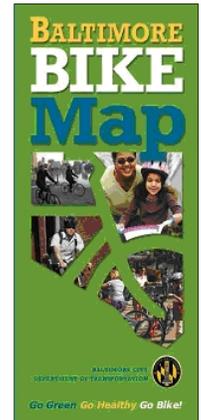
A Bike to Work Day rally is held at the Towson Courthouse Plaza every year during Clean Commute Month.

12. Provide an information system for college students (and faculty and staff) on sustainable transportation options, with material available in the college library, student union, student bookstores, and other key facilities on campuses. (E.g., the Portland State University Library, University of Washington Student Bookstore have extensive kiosks with local transit information.)
13. Encourage employer participation in the Bicycle Benefits (www.bicyclebenefits.com) program, which provides incentives and rewards to cyclists participating in commuting programs, as well as federal transit/bicycle assistance programs such as the \$20/month benefit authorized by the Federal Bicycle Commuter Act.

Communications and Media

It is important to create a comprehensive program for the production and delivery of information promoting active transportation. In large part this can be accomplished through the sharing of information products already being produced such as the *Bicycle Commuter Resource Guide* and the *Employer Guide to Bicycle Commuting* published by the Baltimore Metropolitan Council, *Safe Bicycling in Maryland* published by MDOT, and the Maryland State Bicycle Map.

In addition to printed or digital media, signage plays an important function in improving the bicycling experience. Effective signage heightens drivers' awareness of cyclists and promotes safety and offers information on direction and services, while at the same time promoting bicycling and encouraging people to take up cycling, and can serve as an identity and branding system for bicycling related programming. It can also identify points of interest by listing relevant activity centers, civic assets, and points along specific routes, as well as service locations such as rest areas and bicycle repair facilities.



Communications Recommendations

1. Identify quality pedestrian and bicycle education materials and work to make them available within local education programs, on the web and as budget permits, in printed formats.
2. Work with Baltimore Metropolitan Council, MTA and other organizations to coordinate the production and distribution of information promoting active transportation. This could include the development of a regional tool for trip planning for walking and bicycling.



Maps of bicycle routes and facilities provide helpful information to cyclists, when made available at convenient locations such as transit stops.

3. Develop an outreach program to represent walking and bicycling programs at community events.
4. Provide county-wide maps of bicycle and walking facilities. Maps could list bicycle shops, information about safe walking and bicycling, and other information. Neighborhood and area maps can be created for areas with high potential for walking and bicycling and for Walk to School programs.
5. Work with tourism organizations to deliver bicycling maps and tour information. List bicycle tours online and produce printed maps/guides.



6. Public communications programs used to promote pedestrian, bicyclist, and driver safety (such as “Street Smart”) could be broadened to include messages promoting walking and bicycling. Municipal vehicles, bus shelters, etc. can be used to advertise walking and bicycling. Public libraries, parks, recreation centers, schools, and other public facilities are places where these materials can be distributed.



Signage programs are extremely important in providing directions to destinations, and for making people (both cyclists and motorists) aware of the locations they can reach by bike.

7. Develop and install a wayfinding signage program to provide information on routes, including directions, distance, transportation connections, and points of interests, while also serving as identity and branding system that promotes and markets bicycling as an active transportation mode. A means of contact (phone number, webpage URL) should be printed on the signs so that people can report problems or get more information.
8. Consider the development of a specific request and information webpage that allows pedestrians and bicyclists to ask questions and send requests for maintenance needs, suggestions for locations for bicycle rack installations, etc. BMC has a similar feature with regard to requests for bicycling and walking facilities.
9. Develop a coordinated program with MTA to create a sustainable transportation kiosk information program. Existing kiosks that provide information on transit could be expanded to provide information on walking and biking. The kiosk system could also be expanded to include additional locations.

Economic and Business Development

The close proximity of walking and bicycling facilities, and in particular, shared use paths, offers an incentive to employees to use them before and after work, or during lunch, leading to a healthier

workforce. It makes the area an attractive and vibrant place to locate a business to the benefit of the whole community.

Local business organizations can also be encouraged to participate as “Friends of the Path” to help with construction or maintenance costs, and by sponsoring special events. The Owings Mills Roundtable provides a model in their willingness to participate in a public/private partnership with the county for the development of sites along the recently constructed Red Run Stream Valley Trail with benches and other amenities.

In addition to the economic benefits resulting from the location of bicycling and walking facilities within employment areas, bicycling can be a potentially significant component of retail business and tourism development strategies. Many Maryland counties promote bicycle-based tourism, publishing brochures with multiple routes covering various destinations and attractions. Carroll County, Caroline County, and Talbot County, among others, have such programs. A number of counties on the Delmarva Peninsula have created the “Great Delmarva Bicycle Trail” as a tourism effort, providing information on long-distance routes that link places across Delaware, Maryland, and Virginia.

An economic impact study of the Northern Central Railroad trail in Baltimore County, conducted in 1994, found that 264 jobs statewide are supported by the more than \$3.3 million of goods and services purchased in association with trail activities. The most recent study of the economic impact of the Heritage Rail Trail in York County, Pennsylvania (this trail connects to the NCR Trail), found that trail users spent an average of \$367/year on bicycle-related merchandise and accommodations as part of their trip.



Bicycle touring can bring revenue into the county, and promote economic development in the form of bicycle shops, food service and accommodations.

Business Promotion Recommendations

1. Partner with the Owings Mills Roundtable and other business groups to develop and implement programs and facilities for walking and bicycling targeted to employees.
2. Assist the strengthening and development of bicycle shops and rental programs as an economic and business development initiative, by providing focused technical assistance and funding as part of existing business support programs.
3. Conduct a bike retailer roundtable to identify opportunities to increase bicycling. Retailers have an interest in improving the bicycling environment. Seek opportunities to collaborate on common goals that encourage bicycling.
4. Work with bicycle shops other entities to develop a commuter bicycling accessories kiosk program.

5. Support bicycle tourism efforts where practical. For example, it is possible to convert vacant restaurants and large buildings in Franklintown into bed & breakfasts and other facilities supporting tourism related to the Gwynns Falls Trail and bicycling in the Baltimore region.
6. Consider developing Bike Tours/Bike Racing in the county (perhaps in conjunction with Baltimore City and Carroll County, which actively promotes bicycle-based tourism and tours) as an economic development and promotional venture. One example is the Philadelphia International Bicycle Race centered on the Manayunk neighborhood. This one-day, 156 mile race draws thousands of visitors to the city.

Enforcement and Traffic Safety

Creating a safe environment for walking and bicycling depends not only how facilities are designed, but also on how they are used. Traffic safety enforcement, coupled with engineering, education, and encouragement, is integral to traffic safety.

Enforcement efforts should be built upon community partnerships and education, and encourage safe and lawful travel by strategically targeting high-risk behavior and locations. Balancing traffic enforcement with safety education and encouragement efforts will improve road safety for pedestrians, bicyclists, and motorists.

Through accident data compiled by the traffic analysis personnel of the Baltimore County Police Department, as well as from the Maryland Highway Safety Office, priorities for additional traffic enforcement are set. An analysis that determines the primary factors contributing to pedestrian and bicycle crashes could lead to other types of engineering or education countermeasures. For example, an area experiencing a high rate of accidents may be due in part to the physical design of the roadway. Funding and capital improvement projects can be prioritized to address problematic situations.

Unfortunately, the analysis is hampered by the lack of timely crash data. Crash reports are submitted to the Maryland State Police, who compile and tabulate the data for the entire state. The data the county police department receives from the state is 18 months behind. There are currently plans to automate the process, which will improve the timeliness of the data, but it will likely be at least two years before this is complete.

Police officers are more likely to enforce laws they understand and acknowledge. All police officers should be trained on:

- Rules of the road for bicyclists
- Types of illegal motorist behaviors that endanger bicyclists
- Dangerous types of bicycling behaviors
- Common causes of bicycle crashes
- Importance of reporting bicycle crashes
- Importance of investigating serious bicycle crash sites
- Best ways to prevent bicycle theft
- Advantages to policing by bicycle
- Transportation, health, and environmental benefits of bicycling



As the amount of pedestrian and bicycling activity increases in Baltimore County, it will be important for police officers to become more familiar with relevant laws.

The Federal Highway Administration publishes two volumes, *Pedsafe: Pedestrian Safety Guide and Countermeasure Selection System* and *Bikesafe: Bicycle Countermeasure Selection System*, which provide solutions in response to common types of accidents, accompanied by software tools.



Enforcement activities include ticketing violators, keeping records of pedestrian and cyclist-involved accidents, and initiating programs or roadway improvements to improve safety for all users of the road.

Enforcement Recommendations

1. Develop a coordinated accident analysis program designed to identify and correct problems that may lead to a disproportionate number of pedestrian and/or bicycling accidents. Participants could include the Traffic Analysis and Traffic Enforcement personnel from the police department, as well as other county and state agencies as appropriate.
2. Continue to increase enforcement activities at locations experiencing a disproportionately high number of pedestrian and/or bicycle crashes and injuries. Targeting enforcement at locations with more accidents is an effective use of limited enforcement resources.
3. Continue through enforcement activities to target those behaviors, including those of motorists as well as pedestrians and bicyclists, determined to be the greatest threats to pedestrian and bicyclist safety, such as mid-block crossing by pedestrians.
4. Develop continuing education opportunities for police officers on specific enforcement issues. Reach police officers in inexpensive and effective ways, such as screening videos at roll call and distributing Action Alerts, memorandums to police officers on specific enforcement issues.



Evaluation and Planning (Implementation)

The fifth “E” of pedestrian and bicycle planning—evaluation and planning, concerns the systems that communities have in place to evaluate current programs and plan for the future. For Baltimore County, which is just at the beginning of initiating a comprehensive pedestrian and bicycle program with the adoption of its first county-wide plan, the fifth “E” covers the process of implementing the engineering, education, encouragement and enforcement recommendations of this plan, and as well as instituting a mechanism for evaluation and planning for future improvements.

Implementation of the Baltimore County Pedestrian and Bicycle Access Plan is dependent upon a comprehensive program of activities which include inter-agency coordination, capital and operational funding, amendments to existing ordinances and guidelines, adjustments to the development approval process, and the development or re-focussing of education, safety, and promotional programs.

An Active Transportation Policy

According to a recent federal survey, one-quarter of all walking trips take place on roads without sidewalks or shoulders, and bike lanes are available for only about 5 percent of bicycle trips. Likely, this has resulted from design standards which, over the past 50 years as the interstate highway system and suburban road networks have been constructed, have prioritized the movement of motor vehicles, with an unbalanced transportation system as the result. Over the past 15 years, multi-modal roadway design philosophies have been evolving to better balance the speed and comfort demands of motor vehicles with both the needs of pedestrians, bicyclists, transit riders, and other users, and with demands and desires on the part of communities for roadways that fit more closely with land use context.

“Complete Streets” and “Context Sensitive Design” are design philosophies that have the same intent. Each promotes design values to rebalance the significance and role of streets within our communities so that they serve the needs of all transportation users. The concept is simple—each time a road is built or reconstructed, provide quality service for all transportation modes and types of users, in a manner that is sensitive and appropriate to the environment around it.

Homes and neighborhoods, schools, shopping, employment centers, recreation areas and other destinations should be connected by a

A Complete Street policy would provide an appropriate level of accommodation and design for pedestrian, bicycle, transit and motor vehicle facilities in every county road improvement.



network of Complete Streets, including facilities for walking, bicycling and transit. Ingredients of a Complete Street are dependent on context and may include sidewalks, bike lanes, wide paved shoulders, special bus lanes, comfortable and accessible transit stops, and accommodations making it easier to cross the street, etc.

Recently, the county has taken several steps toward improving the quality of the pedestrian and bicycling environment. The county's Master Plan 2020, adopted in October 2010, provides a framework for the development of walkable and bikeable communities. The county Public Works Design Manual includes updated standards for pedestrian and bicycle facilities, and stresses a Context Sensitive Design approach. In February 2011, the Baltimore County Council enacted the creation of a Pedestrian and Bicycle Advisory Committee composed of citizens and stakeholders to work with county agencies in the development of a comprehensive pedestrian and bicycle program.

Policies, Management and Oversight

In order to ensure that pedestrian and bicycling improvements and programs can be delivered in an efficient and coordinated fashion, the following organizational support activities are proposed:

1. Along with the adoption of this plan by the Baltimore County Planning Board and the County Council, it is recommended that the council pass a resolution confirming the adoption of a Complete Streets policy to reinforce the county Public Works Design Manual. The resolution would set guiding principles and practices to be considered in transportation, parks, schools, and other capital projects and land use planning, so as to encourage walking, bicycling and transit use while promoting safe operations for all users.

2. Using existing staff resources, create an inter-agency bicycle and pedestrian work group to work with the Pedestrian and Bicycle Advisory Committee, overseeing the engineering, maintenance, programming and outreach efforts of the plan. The work group would coordinate activities of the Departments of Public Works, Planning, Recreation and Parks, Environmental Protection and Sustainability, Aging, and other appropriate agencies, including interaction with the Baltimore County Public Schools on walk and bike to school matters, and the Police Department on traffic safety education and enforcement.
3. Designate the chair of the inter-agency work group as the lead, or coordinator, of bicycle and pedestrian matters for Baltimore County, or alternatively, seek funding for a Bicycle and Pedestrian Coordinator through the federal Unified Planning Work Program administered by the Baltimore Metropolitan Council. A new bicycle/pedestrian coordinator position is dependent on obtaining grant funds that fully cover all expenses related to the position.
4. Through the joint participation of the advisory committee and inter-agency work group, prepare and maintain a six-year pedestrian and bicycle project implementation and funding plan for consideration during the annual review of the county's Capital Improvement Program. As part of this process, incorporate improvements into related CIP projects to the maximum extent feasible, maximize opportunities to tap non-county funding sources, and work with local community groups and adjoining property owners to fine tune project design. Timing of project implementation will depend on the availability of public funding.
5. Develop a standardized transportation protocol and checklist for walking, bicycling, and transit for use by appropriate government agencies in the evaluation of road projects and development proposals. Incorporate the standard checklist into the existing development review process to ensure that developers are not subject to an additional level of review.
6. Modify the process for creating community plans to include a "sustainable transportation" element as a standard section, covering walking, bicycling, and transit. This element should cover programming opportunities as well as facility recommendations. The community planning process provides an opportunity to further refine the recommendations of this plan.
7. Prepare amendments to the Baltimore County Zoning Regulations to require bicycle parking and other necessary accommodations.



A community walkability audit can be performed to analyze existing conditions and recommend improvements.

8. Revise the Baltimore County Code to address maintenance and liability issues concerning sidewalk easements.
9. Revise the Comprehensive Manual of Development Policies to directly address bicycle and pedestrian accommodations.
10. Develop and implement a policy requiring provision of bicycle parking at major county government buildings, schools, parks, recreation and community centers, libraries, senior centers, and health facilities, for both visitors and employees.
11. Review plans for the construction of county facilities for pedestrian and bicycle access, especially in siting decisions.
12. Design county overpasses, underpasses, interchanges, bridges and culverts to provide safe and convenient pedestrian and bicyclist accommodations.
13. Produce an annual report on the implementation status of the plan recommendations including facilities, education, encouragement, enforcement, planning, and management.
14. Evaluate and update the plan for pedestrian and bicycle access periodically.

Implementation of Construction Projects

The priorities shown in this plan are a general guide, and should be adjusted as opportunities and constraints occur. If the opportunity to incorporate an improvement occurs through a private development project or a public road improvement project, it should be undertaken regardless of its priority. At the very least, accommodations should be made to provide the right-of-way and/or space for the facility, and paving if appropriate.

As discussed above, it is recommended that implementation of this plan be guided by the Pedestrian and Bicycle Advisory Committee working with an inter-agency work group. The committee will have the ability to recommend adjustments to the types of facility improvements, funding sources and scheduling as appropriate to meet community needs and to take advantage of opportunities to combine projects. In their considerations, the committee should include the recommendations of adopted local area community plans that provide a further refinement of pedestrian and bicycle improvement needs.

Prior to the implementation of any projects, a detailed review of the proposal with the citizens affected by the improvement will be undertaken by Baltimore County staff and/or the Pedestrian and Bicycle Advisory Committee. Also, before the implementation of any on-street bicycle facility project, the Baltimore County Department of

Public Works and the Maryland State Highway Administration, as appropriate, will evaluate the project to ensure that impacts to motorized traffic capacity and safety are not of concern. If there is a concern, the project may be postponed until the situation can be remedied.

Specific Recommendations for Shared Use Paths

1. Seek grants to perform feasibility studies for shared use paths along stream valleys, develop plans and undertake construction.
2. To address concerns of various constituencies and the protection of natural resources and park facilities, it is recommended that Baltimore City DPW (Loch Raven Reservoir), the Maryland State DNR (Gunpowder Falls State Park), and the Baltimore County Department of Recreation and Parks (Cromwell Valley Park), join together in a combined planning process to produce a pedestrian/bicycle access (including mountain biking) management plan.
3. Working with local community groups, property owners and developers, produce management plans for proposed paths, covering security, maintenance and provision for transportational access during times when facilities may otherwise be closed. Encourage the formation of volunteer groups to assist with maintenance and security patrols.

Specific Recommendations for Pedestrian Facilities

1. Sidewalk improvements can be requested by citizens through the petition process. For cost efficiency, the county usually includes construction or upgrading of curb and gutter, storm drainage, and road resurfacing into the project. However, in locations where only sidewalk is needed, the county should consider the option of constructing the sidewalk alone. Conversely, where the county upgrades street surfaces, storm drainage or curb and gutter, the project should include sidewalk where it is lacking and adequate right-of-way exists.
2. Sidewalk improvements should be of high quality design in accordance with the county development standards to the extent possible by providing an adequate buffer area between the walk and roadway, and incorporating street trees.
3. To eliminate gaps in the sidewalk network on state roads, sidewalk retrofit projects in accordance with the programmatic requirements of this SHA program should be actively initiated.

Specific Recommendations for On-street Bicycle Facilities

1. Adopt and implement standards and practices for on-street bikeway maintenance, including snow removal as appropriate.
2. Incorporate accommodations for bicyclists into the design practices of the county Neighborhood Traffic Management Program (traffic calming).
3. Continue to replace storm sewer grates that pose safety hazards to bicyclists.
4. Further develop the concept of Signature Streets. Consider organizing a citizen design workshop to develop place-appropriate designs for individual roads/areas.
5. Work with MTA to provide supportive infrastructure at transit stops, including bike racks or lockers.
6. Develop a bicycling facilities mapping/database layer in GIS to map bicycle and pedestrian facilities for use in publications as well as to track implementation of the plan. Use an established set of common definitions and symbols so that the information can be shared with adjoining jurisdictions to create regional maps.
7. Explore the development and creation of a bicycle sharing program to serve various locations in Baltimore County.
8. Explore the development of bike stations. County defined growth areas and major employment centers would be likely areas to consider.
9. As a demonstration project, consider the inclusion of shower and changing facilities at major government facilities and centers, such as at the County Government Center in Towson.

Evaluation and Reporting

Setting specific achievement targets will foster the realization of pedestrian and bicycling improvements. At the end of each year, a report should be prepared by inter-agency plan implementation committee on the progress in achieving the improvements as recommended in the Pedestrian and Bicycle Access Plan. The report should be presented to the Bicycle and Pedestrian Advisory Committee and the Planning Board. Below is a set of proposed target measurements, although specific numeric targets are not yet established.

1. ENGINEERING
 - a. Install/repair sidewalks (miles)
 - b. Install/sign/mark bike lanes and bike routes (miles of lanes/routes, number of signs)
 - c. Construct shared use paths (miles)
 - d. Install bike racks (number)
2. EDUCATION
 - a. Deliver the state pedestrian and bicycle training curriculum to all public elementary schools in Baltimore County (number of students trained)
 - b. Develop and deliver educational programs for middle schools and high schools (number of students trained)
 - c. Develop and deliver educational programs for adults (number of adults trained)
3. ENCOURAGEMENT
 - a. Increase the mode share of walking and bicycling as part of all trips. (5-year mode share percentage comparisons)
 - b. Directly engage pedestrians and cyclists in a variety of programs, with a focus on increasing the number of daily work, school, and shopping trips made on foot or by bicycle (number of programs and people participating)
 - c. Develop and deliver communication materials (amount of materials distributed; hits on webpage)
4. ENFORCEMENT/SAFETY
 - a. Conduct safety awareness programs for pedestrians, bicyclists and motorists (number of programs and people participating)
 - b. Reduce bike collision and pedestrian accident rate (annual comparison of accident rates; 5-year comparative analysis of accidents vs. change in number of trips)
5. EVALUATION/PLANNING
 - a. Establish benchmarks by which to measure progress.
 - b. Collect and report data on on-street bicycle and path usage.
 - c. Revise and update the county-wide plan periodically.

Funding Sources and Strategies

The creation of a more complete transportation system is a considerable public investment that will result in sustainable mobility and significantly improve the quality of life in Baltimore County.

Funding Sources

How quickly plan this plan can be implemented is largely contingent on the availability of funding. In the current economic climate, county funding for improvements is not available. Federal, state and private funding sources will be necessary.

1. *Federal funding.* Three federal programs, the Federal Transportation Enhancement Program, Congestion Mitigation and Air Quality Improvement Program, and the Transportation and Community System Preservation Program, could be significant sources of funding for sustainable transportation projects within Baltimore County. Other federal programs such as the Land and Water Conservation Fund and the National Recreational Trails Program can also be tapped for paths and recreation projects. The Maryland Highway Safety Program can be a source of funding for the development of new and innovative education and encouragement programs.

Each of these programs requires local matching funds, generally from 20% to 50% of the cost of the project. The match can be met with private funds, or in-kind donations.

2. *State funding.* In addition to their own planning efforts, state agencies endeavor to construct projects that are part of approved local and regional plans, although it can take many years to do so due to the large demand for projects across the state. Separately from federal programs which they also administer, the Maryland Department of Transportation has a variety of programs which fund bicycle and/or pedestrian improvements on state roads including the Retrofit Sidewalk Program, Community Enhancement and Safety, Streetscapes, Retrofit Bicycle Program, Bikeways Program, Bikeshare Program and the Primary/Secondary program. Baltimore County has been the recipient of many projects funded through these programs. The county should continue working with the Maryland Department of Transportation to have pedestrian and bicycle improvement projects that are eligible for state funding included in the Consolidated Transportation Program (CTP), which is the state's six-year capital budget for transportation projects.

The county should take an active role in seeking the 100% SHA funding available for sidewalk retrofit projects on state

roads within the plan area. The state requires that these projects must be locally initiated (by residents, community associations, the county government, etc.), with coordination of community participation by the Department of Public Works.

The county should also be active in requesting state funding for pedestrian and bicycle facility improvements through state bond bills by submitting requests for matching or non-matching funds during legislative sessions.

3. *Public/Private Partnerships.* The relationship that the county's Recreation and Parks Councils have with the county is a good example of partnerships. In county-owned recreation and park facilities, the programming offered is established, operated, funded, and delivered by the recreation councils, with the guidance and support of the Recreation and Parks Board and the Department of Recreation and Parks.

According to statistics maintained by the Department of Recreation and Parks, recreation and parks councils engaged over 76,000 volunteers who dedicated more than 1.7 million hours of service in FY 09. The councils raise approximately \$11-\$13 million annually to support public recreation programs.

Catonsville Rails to Trails (CRTT) is another good example of a public/private partnership. CRTT leases one trail from the Maryland Transit Administration which is open to the public and is developing another which it plans to turn over to the county.

NeighborSpace, a 501(c)(3) nonprofit land trust that receives some funding from the county, serves established neighborhoods in Baltimore County by acquiring land for small parks, gardens, and open space. This organization is a potential partner in creating shared use paths.

Public/private partnerships may be the best means of creating bicycle sharing systems and bicycle stations. Typically the operation of these systems can be covered through membership fees, rental fees, and other revenues, but the initial investment to create the system can't be fully recovered from operating revenues. By bringing together like-minded organizations such as health institutions, universities, large employers and business groups or foundations with county government through the local Revenue Authority or similar entity, such facilities can be created.

4. *Grant funding.* Nonprofit organizations working with the county in public/private partnerships are also eligible for grant funding from a variety of sources including state and federal programs and foundations. Catonsville Rails to Trails has received grants to construct and operate trails from individuals, businesses such as REI, and foundations.

Funding Strategies

A number of other strategies should be undertaken to facilitate the implementation of the plan, such as the following:

1. Design plans for county projects should be created before construction funding is available. If the county has an inventory of “shovel-ready” projects, it would be able to tap unanticipated funding sources, such as the federal American Recovery and Reconstruction Act of 2009 and the merit-based grants program known as TIGER (Transportation Investments Generating Economic Recovery).
2. Developers should provide the sidewalks, shared use paths, sidepaths and on-street bicycle facilities recommended in this plan as part of the development process in three situations:
 - (a) Where the property to be developed or an adjoining road right-of-way includes the area recommended for an improvement by this plan, or other adopted plan;
 - (b) Where the improvement is required by the county’s road standards; or
 - (c) Where the developer provides offsite pedestrian and/or bicycle improvements as part of a public benefit.

If a waiver of the facility should be granted, the land area to accommodate future facility construction should be reserved, pregraded and free from impediments such as street trees, fences, signs, utility appurtenances, etc., and with appropriate public access rights recorded. The project’s storm water management facilities should be designed to manage the impact of the future paved area.

3. A program should be developed so that developers can pay a fee in lieu equal to the cost of constructing pedestrian or bicycle improvements when they are waived. The fee would be used to provide a future pedestrian or bicycle facility at the location, or to construct or improve similar facilities at another location in accordance with the county pedestrian and bicycle plan or other approved community plan. When a fee in lieu is paid, the amount should be designated for a specific improvement to allow facilities linking destinations to be completed in the shortest time frame possible.
4. Consideration should be given to allowing improvements recommended by this plan to serve as linear open spaces in accordance with county requirements for Local Open Space. This will allow for more efficient use of county and private financial resources, and will also provide an additional

incentive to developers to create a internal path network linking to other types of open space.

Appendices

A: Sample Survey: Walking and Biking in Western Baltimore County	88
B: Factors that Encourage/Discourage Walking and Bicycling	94

A: Sample Survey: Walking and Biking in Western Baltimore County

Name:

Address:

Zip code:

Email:

Gender Male Female

Age

Under 18 years 18-29

30-40 41-59

60+

Walking (on sidewalks)

1. Destination

Think of the primary place that you walk to, or would like to walk to. This should be a place where the pedestrian route is in need of some improvement. You can also consider trips made by other family members.

Destination: _____

2. How often do you walk?

Frequently

Seldom

Never

3. What is the primary purpose of your trip?

Exercise (e.g., jogging)

Recreational

To get to work

Shopping

Library/Other community facilities

To get to a bus/transit stop

Don't walk

Other _____

4. Would you walk more if pedestrian facilities were improved?

Yes

No

Prefer to drive

Not interested

Other _____

5. Problems with pavement conditions

Please identify problems that can be experienced while walking to reach these destinations.

No sidewalk, paths, or shoulders

Sidewalk not continuous (gaps)

Access by walking is restricted (gates, etc.)

- Limited buffer between walking area and the roadway
- Sidewalks/ramps broken or cracked
- Obstructions: poles, signs, dumpsters, etc.
- Obstructions: shrubbery, tree branches, etc.
- Inadequate lighting
- Lack of shade
- Puddles/inadequate drainage
- Walking surface too steep
- Drivers going in/out of driveways don't yield to pedestrians
- Other _____

6. Problems while crossing the street

- No crosswalk
- Crosswalk markings need to be repainted
- No curb ramps at intersection
- No pedestrian signal
- Traffic signals made pedestrians wait a long time or did not provide enough time to cross the street
- Road too wide to cross quickly and safely
- No medians/pedestrian islands
- Trees or plants blocked view of traffic
- Parked cars blocked view of traffic
- Puddles in crosswalk/at curb when it rains
- Other _____

7. Problems at bus stops and transit stations

- No sidewalk to get to the bus stop or station
- No "pad" to stand on while waiting for the bus
- No bench
- No bus shelter
- Bus shelter in need of repair
- No trash can (litter)
- Transit stop not maintained during inclement weather
- Do pedestrians entering/leaving buses conflict with cars, bicycles, or other pedestrians?
- Inadequate pavement markings
- Other _____

8. Problems with the walking environment

- High-speed vehicle traffic makes it feel unsafe
- Large vehicles (trucks, buses) make it feel unsafe
- Vehicles did not yield to people crossing the street
- Vehicles turning right conflict with people trying to cross the street
- Vehicles speeding to beat "red lights"
- Other _____

9. Solutions

Do you have other ideas for improvements such as street trees, wider sidewalks, crosswalks, decorative pavement, and other streetscape improvements that can create a better environment for walking? Please describe:

10. Other comments and suggestions:

Bicycling on streets

11. Destination

Think of the primary place that you bicycle to/would like to bicycle, using the road network. This should be a place where the route is in need of some improvement. You can also consider trips made by other family members.

Destination: _____

12. How often do you bicycle?

- Frequently
- Seldom
- Never

13. Describe your level of experience

- Advanced, confident rider, comfortable bicycling in most traffic situations
- Intermediate rider, sometimes uncomfortable in traffic situations
- Beginner, prefers to ride separated from cars, on paths, trails, or side streets
- Other _____
- Don't bicycle

14. What is the primary purpose of your trip?

- Exercise (e.g., jogging)
- Recreational
- To get to work
- Shopping
- Library/Other community facilities
- To get to a bus/transit stop
- Other _____

15. If you bicycle to get to work, what is the total round trip mileage: _____.

16. About how far are you willing to bicycle on a single trip?

- short (1 – 3 miles)
- medium (3 - 10 miles)
- long (10+ miles)

17. Would you bicycle more if facilities were improved?

- Yes
- No
- Prefer to drive

- Not interested
- Other _____

18. Physical problems encountered when cycling on-street

- Pavement rough/potholes etc.
- Bicycle lane or paved shoulder not continuous
- No space for bicyclists to ride safely
- Difficult/limited space to cross bridges or tunnels
- Debris on roadway (glass, litter, etc.)
- Dangerous drain grates, utility covers, metal plates etc.
- Slippery surfaces when wet (i.e., bridges, road markings, etc.)
- Puddles/inadequate drainage in roadway
- Branches/shrubbery in the roadway
- Railroad track crossings
- Inadequate lighting
- No bicycle rack at final destination
- Other _____

19. Traffic problems while cycling on-street

- Heavy traffic
- Fast traffic
- Many large vehicles (trucks, buses, etc.)
- Vehicles passed too close for comfort
- Other _____

20. Intersection problems while cycling on-street

- Difficult intersections to get through while riding
- Conflicts with vehicles making left turns across the roadway
- Conflicts with vehicles making right turns while riding through the intersection
- Other _____

21. Bicycle Parking

- No place to safely and securely lock my bicycle at my final destination

22. Solutions

What are the most important bikeway improvements that would encourage you to ride by making it safer or easier?

- Marked bicycle lanes
- Continuous/wide shoulders
- Share the road signage/bicycle route signage
- Off-road paths
- Bicycle parking facilities (racks, etc.)
- Showers and lockers at work or school
- Other _____

23. This question is intentionally left blank

24. Other comments and suggestions:

Using off-road trails

25. Destination: _____

26. How often do you use this trail?

- 3-5 times/week
- 1-2 times/week
- A couple times/month
- Once/month
- A few times/year
- First time

27. What is your primary activity on the trail?

- Walking/Hiking
- Jogging/Runner
- Rollerblading
- Biking
- Walking pet
- Horseback riding
- Cross country skiing
- Other _____

28. Generally, when do you use the trail?

- Weekdays
- Weekends

29. At what time of day?

- Morning
- Midday
- Afternoon
- Evening

30. Do you use the trail?

- By yourself
- With family
- With friends
- As part of an organized group or outing (e.g., hiking or bicycling club)

31. On each visit, about how much time do you generally spend?

- Less than 30 minutes
- 30 minutes to 1 hour
- 1-2 hours
- More than 2 hours

32. Would you consider your use of the trail to be for ...?

- Recreation/Fitness
- Transportation (commuting, errands)
- Other _____

33. If you use the trail to bicycle to work, what is the total round trip mileage: _____.

34. Problems on off-road trails

- Conflicts with other users. Please describe: _____
- Uneven surface
- Trail poorly maintained
- Trail ended abruptly
- Trail didn't go where I wanted to go
- Trail intersected with roads that were difficult to cross
- Trail was crowded
- Trail was unsafe because of sharp turns
- Trail was isolated, didn't feel safe
- Risky downhill/hilly route
- Trail was poorly lighted
- Trail hard to get to
- No maps, signs, or markings to help me find my way
- Limited hours/other restrictions
- Other _____

35. How did you find out about the trail? (check all that apply)

- Word of mouth
- Roadside signage
- Driving past
- Newspaper
- Parks Department
- Bicycle shop
- Brochure/map/guide
- Tourism information/Visitor Center
- Internet website
- Other _____

36. Improvement suggestions

- More trails
- Extend trail
- Restrooms/water fountains
- More trailside facilities
- Shade/Trees
- Transit connections
- More parking
- Other _____

37. Other comments and suggestions:

B: Factors that Encourage/Discourage Walking and Bicycling

Encourage – Walking

- Safe, well-maintained infrastructure
- More complete environments for walking
- Prioritize crossing improvements
- More multi-user trails
- Make sure that there is a connected network of sidewalks on major roads
- Restroom access and other amenities
- Community efforts and programming to encourage people to walk (i.e., walking clubs)
- Emergency communications devices on trails
- Encourage walk to school programs
- Special programs that close roads in favor of walking and biking (i.e., Loch Raven Reservoir on weekends)
- More traffic calming initiatives
- Focus on making communities walkable
- Safer walkways and crosswalks around schools
- Highlight historical landmarks as destinations
- Sponsor walk/run events
- Lighting
- Better maintenance of the environment
- Better conditions at bus stops
- More police presence
- Walking trails around recreation and community centers
- Signage for destinations and on trails

Discourage – Walking

- Lack of sidewalks/gaps
- Deteriorated sidewalks in need of repair
- No buffers between pedestrians and cars
- Difficulty crossing intersections
- Heavy traffic – volume, speed, courtesy
- Overgrown vegetation
- Many places still don't have curb ramps
- Crosswalk signals still favor cars
- Many sidewalks are too narrow/need to be wider
- Snow removal does not include sidewalks
- Lack of sidewalk/road connections between neighborhoods make it hard to get places
- Need lighting at night in areas with transit stops, evening walking
- Crossing bridges and freeway ramps is difficult
- Need more crossing guards for walking to school
- Bicyclists on sidewalks can be a problem for pedestrians
- Pedestrian-car interaction at street crossings and driveways
- Tree root upthrust on sidewalks
- Sometimes bike racks encroach into walkways
- Grade issues/watershed/drainage/lack of right of way make building sidewalks difficult in some areas
- More roads ought to have medians and boulevards to make conditions better for walking
- Lack of public squares and destinations for walking
- Lack of amenities (trees, benches, etc.)

Encourage – Bicycling

- Safe, well-maintained infrastructure
- More bike trails
- Bike parking
- Bike sharing systems
- More bike lanes
- More connections and routes
- More signage and road markings
- Build community awareness
- Wider roads and shoulders
- Cleaner shoulders
- Less parking on streets, more bike lanes
- Connections to Baltimore City
- Restrooms and other facilities
- Incentives to get people started
- Awareness and education training and promotion
- Better access to town centers
- Maps in all forms (printed, online, phone applications)
- Bike hooks on light rail and subway cars
- More cyclists increases motorist awareness
- When repairing streets, create bike lanes at the same time
- Handrails at intersections
- Snow removal on trails
- Coordination across jurisdictions to create continuous facilities
- More protected bike parking overnight at transit stations
- Sponsor neighborhood bicycle events

Discourage – Bicycling

- No bike lanes/limited facilities
- Discontinuous shoulders
- High traffic volume
- Speeding traffic
- Drivers often show little respect for bicyclists
- Potholes
- Debris on the side of the road/sidewalk
- Slotted storm drains that catch bicycle wheels
- Narrow roads for biking
- Blind spots and hilly terrain
- Snow removal does not include road shoulders
- Distracted drivers
- Facilities don't connect
- Crossing roads when on trails
- Major highways are crossing barriers for bicyclists
- Few long distance connections for bicyclists
- Need signage
- Cars park in bike lanes
- Drivers don't know cyclists have rights to use the road
- No bicycle racks

Western Baltimore County Pedestrian and Bicycle Advisory Committee

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Barry Blank, Pikesville Greenspring Community Coalition

Jeffrey Budnitz, Ruxton-Riderwood-Lake Roland Improvement Association

Mary Concannon, Nutrition Extension Educator, University of Maryland Extension Baltimore County

Mary Davidson, Pedestrian and Bicycle Coordinator, Maryland State Highway Administration

Linda Forsyth, representing Senator Delores Kelley, Maryland State Senate

Bruce Galanter, Reisterstown Owings Mills Glyndon Coordinating Council (May-June)

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Terry Maxwell, Maryland Byways/Recreational Trails, Maryland State Highway Administration

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