CHAPTER 7: MOBILITY-FRIENDLY POLICIES AND PRACTICES

In order for bicycling and walking to become comfortable and convenient transportation options, these modes must be fully integrated into everyday decisions: such as where new schools will be located, how residential communities will be designed, and how each roadway will be built, among many other decisions. It is far more cost effective to provide for bicycle and pedestrian mobility from the start, rather than to retrofit later.

Changing long-standing policies and practices, however, is no small task. In the past, bicycling and walking were often not included in the "mix" during land use and transportation planning and design. Policy changes will require more awareness of walking and bicycling issues on the part of elected officials, planning and code enforcement staff, developers, roadway designers, comprehensive planners, and many others. Policy changes should be discussed regionally to ensure the policies of one community are not undermined by conflicting policies next door.

This chapter gives an overview of the types of policies and practices that support increased levels of bicycling and walking. It is recommended that each jurisdiction in the Baltimore region conduct a more thorough local review of current local policies (land development codes, community and roadway design standards, maintenance policies) to identify specific changes for future adoption.[3]

COMPREHENSIVE LAND USE DECISIONS

Trip distance is central to the decision to walk or use a bicycle for any given trip. Bicycling and walking are therefore greatly impacted by local land use patterns. Segregated land uses increase the distance between origin and destination points, while mixed uses shorten distances and encourage walking. Similarly, the planning and design of large and small developments can either encourage walking by providing good pedestrian circulation and minimizing conflicts

[3] Also refer to the assessment of existing policies and practices contained in the Task 2 Report: Existing Conditions – available through the BMC's Regional Information Center.

between pedestrians and motor vehicles, or send the message that cars are the preferred mode to access the site.

Land use planning and site plan review are the responsibility of county and local governments in the Baltimore region. This section discusses how land use and site design can impact walking and bicycling and provides examples of policies and procedures that result in better designs.

CURRENT CODES IN THE BALTIMORE REGION: ARE THEY SUFFICIENT?

While the typical development code in the Baltimore region does not expressly discourage good mobility, the codes often do not sufficiently encourage or mandate it either. One of the most critical problems is that local codes usually give insufficient guidance to developers, designers and engineers as to how to accommodate bicycles and pedestrians. As a result, even quite recent developments in prime locations have not included facilities for pedestrians or bicyclists.

Codes and regulations need to be reviewed and amended where necessary to incorporate mobility-friendly requirements. Among the region's jurisdictions' codes and regulations there are some good examples of mobility-friendly requirements but none are sufficiently comprehensive in their coverage. Typically, they apply only to small parts of the jurisdiction or to certain types of development and do not cover the full range of considerations needed to create mobility friendly places.

Checklist for a Good Zoning Code

- ✓ Statements ensuring proper provisions for walking and bicycling are included in the legislative intent of the code.
- ✓ Code identifies acceptable growth areas and places specific restrictions and/or incentives for protecting environmentally and culturally significant resources.
- ✓ Code identifies a minimum percentage of mixed land uses required in each type of development.
- ✓ Code encourages a range of housing types within each development.
- ✓ Code requires development densities that are sufficiently high to support short trip distances and transit-oriented development (typically 9 to 11 units per acre).
- ✓ Mixed-use development is permitted by-right, rather than requiring special approvals.
- ✓ Code requires the provision of public spaces in key central areas of the community.

- ✓ Code identifies maximum number of parking spaces rather than minimums and provides incentives to developers to use creative solutions to reduce the number of parking spaces, such as shared parking lots.
- ✓ Code requires a specific number of bicycle parking spaces based either on the development type/size, or the number of auto parking spaces provided. Code provides specific guidance for the appropriate location of bicycle parking areas on site.
- ✓ Lot size, and setbacks and other dimensional requirements allow homes and businesses to be located close to the street and to each other, improving the function of the street as a pedestrian environment.

SMART GROWTH PRINCIPLES

Many strategies have been incorporated into Baltimore area zoning ordinances in recent years to promote more pedestrian-friendly communities. Some communities have completely restructured their zoning ordinances to permit mixed use developments with higher densities, increased densities in proximity to major destination points and transit lines, and traditional neighborhood developments. Local governments should continue to strengthen and enforce smart growth principles.

Smart growth favors revitalization of older communities and new, compact mixed-use communities in locally designated growth areas. Mixed-use design encourages bicycling and walking by improving access to destinations for people who cannot or do not wish to drive. The regions' comprehensive plans generally do a good job of delineating growth areas and rural areas and some plans encourage mixed use, but more needs to be done. Plans need to adopt the principles of "smart neighborhoods", and incorporate policies that will facilitate their development. Smart neighborhoods exhibit all of the following characteristics:

- Mix of uses, including residential, commercial, employment/office, civic, and open space
- Range of housing types
- Compact design
- Open spaces integral to the community
- For infill development, the new neighborhood should be an extension of the fabric and character of the existing community.
- Requirements that developers include pedestrian accommodations early in the site planning process, so that local planners can coordinate with other planned transportation improvements.

- Requirements for interconnected subdivision street design that include enhanced connectivity between adjacent residential, commercial and institutional developments.
- Requirements for commercial developments that require the placement of parking in the rear of the lot, and direct access to the front of the building from sidewalks and nearby transit connections. Requirements for commercial developments have also included specific design recommendations for pedestrian connections between buildings on-site and adjacent properties.
- The code should pay particular emphasis on mobility around schools, commercial areas, parks, employment centers, transit stations, and bus stops.

  (Portions taken from Maryland Department of Planning, Smart Neighborhoods, draft March 2001.)

SITE PLANNING AND DESIGN

Integrating pedestrians and bicyclists into site development is critical. Too often in the Baltimore region, site development is oriented toward creating easy and convenient access for motor vehicles, often to the detriment of all other alternative modes of travel. To fully integrate pedestrians and bicyclists into the transportation system, all building sites should be designed for their safety, convenience and comfort.

A first step in creating a pedestrian and bicycle-friendly site is to assure that their needs are considered throughout the site planning and design process. Site design should not only accommodate access on foot and by bicycle, but also include design elements that can actually encourage people to use alternative modes of transportation. The following list identifies some of the key elements of mobility-friendly design:

- Delineated walkways through parking lots
- Connections to neighborhoods and surrounding areas via sidewalks and bikeways
- Easy to identify building entrances and building frontages located along the street rather than across parking lots
- Convenient and safe access to transit and adjacent sidewalks – development is oriented towards transit stops and most convenient pedestrian/bicycle access points, rather than the most convenient points for auto access.
- Alignment of walkways for convenient and reduced travel distances

- Accessible routes of travel to and from the site, as well as throughout the site
- No barriers (walls, ditches, landscaping or roads without safe crossings) to pedestrian and bicycle travel between buildings on site and adjacent to the site.

DRIVEWAYS AND ACCESS

Access onto private property can be built as conventional driveways, or with designs that resemble street intersections. For pedestrian and bicycle safety and comfort, the conventional driveway type is preferred, for the following reasons:

- Motorists must drive more slowly when turning into the driveway.
- The right of way is clearly established, as motorists cross a sidewalk.

Where an intersection-style driveway is used (such as to implement a "right-in, right-out" policy), the following techniques can be used to alleviate the above concerns:

- The street surface material should not carry across the driveway - rather, the sidewalk should carry across the driveway, preferably at sidewalk height, so motorists know they are entering a pedestrian area.
- The radius of the curb should be kept as small as possible.
- Driveway widths should be the minimum needed for entering and exiting vehicles.

Where the volume of turning vehicles is high, right-turn channelization should be considered, to remove slower turning vehicles from the traffic flow, allowing them to stop for pedestrians.

STREET DESIGN

In jurisdictions in the Baltimore region, street design is a function of the subdivision ordinance and roadway design manuals. Local subdivision ordinances therefore address many issues that effect pedestrian and bicycle mobility, including:

- **General Street Design**

  The code should encourage narrower streets that are designed to reduce running speeds to an acceptable level, rather than providing a design that encourages drivers to regularly exceed the speed limit. Principles of traffic calming should be employed from the outset of roadway design. Reduced curve radii at street corners is an important aspect of this – wide curve radii encourage fast turning speeds by motorists, reducing pedestrian safety at intersections. Alley design principals should be included in all local street design codes, improved sidewalk and street lighting standards (which meet ADAAG guidelines), and requirements for street trees in specified districts.

  Short block lengths, sidewalks, and bikeways should be required. In commercial areas, the code should require multiple pedestrian crossing opportunities.

  As described in the Strategies for Implementation in Chapter 5, targets for Bicycle Level of Service (LOS) should be established in each jurisdiction, a similar approach to the LOS standards set for motor vehicles. The code should require that appropriate facilities be provided to meet these standards. As discussed in the Conceptual Corridor Plans, in any given location the target LOS may be achieved in several different ways.

- **Cul-de-sacs**
  Cul-de-sacs should be discouraged. Where they are permitted, they should be limited in length, and require pedestrian and bicycle connections through to adjacent streets at the end of the cul-de-sac.

- **Bicycle Parking**
  Bicycle parking should be required in all types of developments, as well as in parking garages. The code should specify the type and number of parking spaces (often based on the type of development or number of auto parking spaces provided), and where the spaces should be located (in close proximity to the entrance, covered, and well-lit for access at night).

- **Sidewalk Location**
  Building and extending sidewalks can sometimes be controversial; property owners can be concerned about need, maintenance issues, and the potential for attracting strangers to neighborhoods. Jurisdiction's plans need to clearly state where pedestrian access should always be provided (see chart on next page). In other areas, jurisdictions should develop and adopt policies for retrofit in existing communities. Implementing sidewalks should ***not*** hinge on the approval of adjacent property owners – residents are often concerned

about maintenance issues, and may oppose sidewalks to the detriment of the rest of the community.

GUIDELINES FOR NEW SIDEWALK INSTALLATION

ROADWAY CLASSIFICATION & LAND USE	SIDEWALK REQUIREMENTS	FUTURE PHASING
Highway (rural)	None. Min. 5′ shoulders required.	Secure/preserve ROW for future sidewalks that may be needed if schools, bus stops, etc. are added.
Highway (rural/suburban - less than 1 d.u. / acre)	One side may be adequate. Min. of 5′ shoulders required.	Secure/preserve ROW for future sidewalks. Second side may be needed if schools, bus stops, etc. are added
Suburban Highway (1 to 4 d.u. / acre)	Both sides preferred. One side required.	Second side required if density becomes greater than 4 d.u. / acre.
Major Arterial (residential)	Both sides required.	
Collector and Minor Arterial (residential)	Both sides required.	
Local Street (Residential - less than 1 d.u. / acre)	One side may be adequate. Min. of 5′ shoulders required.	Secure/preserve ROW for future sidewalks. Second side may be needed if schools, bus stops, etc. are added
Local Street (Residential -1 to 4 d.u. / acre)	Both sides preferred. One side required.	Second side required if density becomes greater than 4 d.u. / acre or if schools, bus stops, etc. are added
Local Street (Residential - more than 4 d.u. / acre)	Both sides required.	
All Streets (commercial areas)	Both sides required.	
All Streets (industrial areas)	Both sides preferred. One side required.	

(Taken from *Draft Priorities and Guidelines for Providing Places for Pedestrians to Walk Along Streets and Highways*, August 2000, Federal Highway Administration)

- **Sidewalk Design**
  All aspects of sidewalk design should be specified in the code, including minimum required clear zone (5 feet), distances intersection/street corner design that encourages short crossing, requirements for barriers/separation between the sidewalk and the roadway (landscape buffers, street trees), improved sidewalk lighting standards, and other topics. Benches and street furniture should be required. A good reference for this type of guidance is Portland, OR's Pedestrian Design Guidelines (http://www.trans.ci.portland.or.us/Engineering_And_Development/Pedestrian_Program/ PedDesignGuide/DesignGuide.PDF).

DESIGN MANUALS IN THE BALTIMORE REGION

Design manuals set forth procedures, standards, and criteria that are used by planners, engineers, and other design professionals in preparing designs and construction documents. None of the Baltimore region's design manuals comprehensively incorporate pedestrian and bicycle friendly design; some require exceptions or waivers to develop bicycle facilities.

A mobility friendly design manual integrates bicyclists and pedestrians as standard design users in all transportation projects including new roads and road improvement projects. This type of manual will include:

i) A references to policy guidance documents. These should include the AASHTO[4] Guide for the Development of Bicycle Facilities (1999), as well as references to special plans and studies, such as small area plans and this Regional Plan, that recommend specific bicycle and pedestrian facilities. The AASHTO Guide includes detailed criteria for shared use path design including width and clearance, design speed, horizontal alignment, grade, and sight distance.

ii) Bicycle Level of Service targets and typical sections for different types of bikeways. Roadway design manuals should allow for reduced lane widths and parking widths to slow motor vehicle traffic where appropriate and improve the level of service for pedestrians and bicycles.

iii) Adequate sidewalk width. The typical minimum required standard is four feet, which is too narrow for two people to pass each other; national guidelines recommend five feet as a minimum width.

iv) Sidewalk buffering to provide a higher comfort level for pedestrians. Many sidewalks are built immediately behind the curb, leaving little separation between the pedestrian and motor vehicle traffic. Planting

[4] AASHTO - American Association of State Highway and Transportation Officials

strips with street trees give pedestrians a higher level of comfort and security in the roadway environment. On street parking, shoulders and bicycle lanes can also be good buffers.

v) Pedestrian and bicycle crossing measures at intersections, circles, and mid-block crossings. Measures include high-visibility, safely designed crosswalks, careful lane markings for bicycles, pedestrian refuge islands, curb extensions, accessible curb ramps, functioning pedestrian signal heads, audible pedestrian signals for the visually impaired, and adequate crossing times. For high pedestrian mobility in commercial areas, crossings should be provided every 300 linear feet. Traffic signal loop sensors that can be triggered by bicycles should be included.

vi) Techniques to calm traffic and create a more comfortable pedestrian and bicycle environment. Howard County has a well-developed traffic-calming program. Anne Arundel County has adopted neighborhood traffic control guidelines, in response to the need to control speeding in residential areas.

PRACTICES IN THE BALTIMORE REGION

In spite of the increased level of awareness for bicycle and pedestrian issues, developments and capital projects are being built today with little or no attention to mobility. Retrofitting is often costly and complex. Mobility issues need to fully "institutionalized", made part of the review process at all levels, so that opportunities for improving mobility are seized during development. Development review checklists should include references to pedestrian and bicycle needs. One way that jurisdictions could facilitate this process is to identify a single point person responsible for reviewing development projects for pedestrian and bicycle mobility concerns. This would help ensure that mobility considerations get full consideration during the multiple layers of project review and decision making.

Proper maintenance of facilities is critical to creating a mobility friendly region. Local and state agency personnel will need some education as to the types and frequency of maintenance needed on bicycle and pedestrian facilities. The presence of shoulders is very important to people in deciding whether to ride, but in many places, shoulders are in poor condition, upswept of trash and debris. Best management practices could be developed from the model maintenance program recommended in Chapter 5. In several jurisdictions, sidewalk repair is the adjacent property owner's responsibility. A model maintenance program should explore whether, depending on the location, repair responsibility could be assigned to others. Snow removal along sidewalks should also be considered.

In Howard County for example, sidewalks even near schools can remain uncleaned for days after a snowstorm, making walking to school dangerous.

POLICIES AND PRACTICES RECOMMENDATIONS FOR BRTB MEMBER JURISDICTIONS

A key goal of this Plan was to identify specific policies at the local level which either help or hinder the development of bicycle and pedestrian-friendly communities. This was no easy task – there are often multiple reasons why bicycles and pedestrians aren't provided for, and the oversight rarely lies with a single misinformed policy. In fact, as one local official pointed out, she often faces resistance from citizens themselves when seeking to add sidewalks or bikeways to a local road project.

At a basic level, the Baltimore region lacks bicycle and pedestrian facilities because our reliance on automobiles has filtered through nearly every aspect of land use and transportation policy over the past 50 years. Local officials have already begun to introduce policy changes that support intermodal transportation, however more work is needed.

In light of this, the following section provides specific actions each jurisdiction can take to support bicycling and walking. The recommendations are not comprehensive in scope or coverage; they are a starting point for each jurisdiction to consider based on the findings in the Task 2 Report: Existing Conditions. A more comprehensive review will be needed at the local level to build on these initial findings.

Anne Arundel County

Anne Arundel's General Development Plan (GDP) contains generally strong policies supporting pedestrian and bicycle mobility including calling for revisions to regulations to help improve pedestrian-bicycle connections between different uses. The County has made recent additions to its zoning code addressing pedestrian and bicycle-oriented site layout in commercial and industrial districts. Overall, however, the zoning and subdivision codes and the county's design manual are limited in their support of pedestrian and bicycle mobility. Through the omission of references to bicycle and pedestrian travel, adequate and safe facilities are often not provided.

Recommendations

1. Revise the Zoning Code to provide consistent requirements for pedestrian and bicycle mobility. In the current code the requirements differ from district to district. A single set of pedestrian and bicycle standards in the Site Plans section (Title 15) of the Zoning code would be one way to consolidate the requirements. Alternatively, and perhaps more effectively, all the design requirements could be consolidated in the Design Manual.
2. Cover the needs of pedestrians and bicyclists in the Design Manual. For example, the Manual should include bikeways or bicycle lanes in standard road sections, and remove the current policy discouraging bikeways on roads where the design speed exceeds 40 mph.
3. Improve the project design and review processes. For example, provide policy, regulatory and design guidance in the Code and in the Design Manual, and appoint a single point person or team responsible for reviewing public and private sector development projects for pedestrian and bicycle mobility concerns.
4. Revise internal review and input procedures to ensure mobility recommendations from the county's 16 Small Area Plans are incorporated into the Office of Planning and Zoning's and the Department of Public Works' project development, design and review.
5. Provide more detailed treatment on intersections in the Design Manual to accommodate the needs of all users and promote safety including pedestrian and bicycle crossing measures at intersections, circles, and high-visibility crosswalks.
6. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

Baltimore City

While the City's current draft Comprehensive Plan supports bicycle and pedestrian transportation, discusses the importance of greenways, etc., the City's zoning and subdivision regulations contain few references to pedestrian or bicycle circulation. Much detailed design is accomplished by the City's Site Plan Review Committee. However, the Committee lacks pedestrian and bicycle standards in local ordinances to assist its design review.

Recommendations

1. Develop design standards for pedestrian and bicycle facilities, which should be linked to the City's street classification system. Classifications of City

streets should be reviewed to ensure that they are designed with the appropriate accommodations.
2. Incorporate the above design standards into the City's subdivision and land development regulations, and into guidelines for the City's interagency Site Plan Review Committee.
3. Incorporate standards for on-road facilities for bicycles into the City's design regulations.
4. Integrate pedestrian and bicycle considerations into all stages of project planning, design, and development, including review and decision-making procedures of the Departments of Public Works and Planning.
5. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

Baltimore County

Baltimore County's Master Plan addresses bicycle and pedestrian travel in detail identifying many actions towards providing improving bicycle and pedestrian facilities. The Master Plan is the first in the region to address pedestrian standards for rural areas.

The county's development regulations contained in the Baltimore County Code provide general design standards and requirements for development in the county. The code authorizes the creation of development manuals to implement these general requirements. The county's *Comprehensive Manual of Development Policies (CMDP)* help clarify the zoning regulations and provide advisory guidelines for quality design. The Department of Public Works (DPW) has the authority to develop standards for pedestrian and bicycle paths as part of its design manual. The county's pedestrian standards are contained in the DPW Design Manual and in the county's Landscape Manual. Baltimore County has not implemented a bicycle path standard.

All development projects are required to provide sidewalks. The county has a waiver process, however, that has been widely used by developers to avoid constructing sidewalks.

The Baltimore County Council recently amended the zoning regulations to include performance standards for the non-rural residential areas of the county. Among other things, these standards require new development to be more pedestrian and bicycle "friendly." The standards include:

1) providing pedestrian and bicycle access within the development and linkages to the surrounding community

2) creating visible and accessible open spaces to encourage pedestrian activity
3) reducing street widths and front yard setbacks to diminish the dominance of the automobile, and
4) planning more interconnected streets to increase accessibility for bikes and pedestrians as well as vehicles.

The planning office is currently working with other county agencies to re-write the residential sections of the CMDP as performance standards. (The other sections are to be re-written at a later date). As part of the project, revisions to the county's residential road standards, including pedestrian and bicycle facilities, will be studied.

Recommendations

1. Continue to develop design standards for pedestrian and bicycle facilities and incorporate them into the development regulations.
2. Tailor design standards to address typical conditions in different parts of the county, as envisioned in the Master Plan. The CMDP is organized by different development types (commercial, office, mixed use etc). The City of Portland, Oregon's separate guidelines for bicycles and for pedestrians would be a useful starting point for the County's urban areas.
3. Integrate pedestrian and bicycle considerations into all stages of project planning, design, and development, including review and decision-making procedures of the Departments of Public Works and Planning.
4. Designate a single point person or team responsible for reviewing public and private sector development projects for pedestrian and bicycle mobility concerns. Baltimore County is the most geographically diverse among the Region's jurisdictions and would benefit from consistent application of adopted standards.
6. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

Carroll County

Most of Carroll County is rural in nature. However, growth and development is planned to occur in and around the eight (8) incorporated towns within the County. It is these areas that much of the walking and bicycling in the County takes place. The County Master Plan and the small area comprehensive plans for each of the 8 planned growth areas support the provision of bikeways, sidewalks, and greenways. Each incorporated town holds responsibility for the provision of sidewalks within their corporate limits. While the County's plans address the need for sidewalks, bike paths, and greenways, the County currently

has few legal requirements for bike paths, sidewalks, or trails. As a result, development projects are often built with unsafe conditions for people on foot or bicycle (i.e., with no sidewalks, with wide intersections that are unsafe for pedestrians, with no shoulders or bike lanes, etc.) Low-density rural residential development is often isolated, being located many miles from the nearest school and shopping center.

Recommendations

1. Broaden the requirements for sidewalks within the planned growth areas. Currently, sidewalks are only required in business and industrial development when within walking distance of residential development. Also, sidewalks are only required on both sides of the street when within walking distance of a school, whereas parks or other uses are not cited.
2. Incorporate requirements for bicycle access into the Development Handbook, including standard cross sections for on-street bikeways and trails.
3. Adopt design guidelines to make subdivisions and site plans pedestrian and bicycle-friendly, especially in areas around the incorporated towns. Refer to Site Planning and Design recommendations in this chapter for general recommendations on mobility-friendly site planning.
4. Review the County's road standards and incorporate changes that ensure more pedestrian-friendly roadway design, as recommended in the County's 2000 Master Plan. Refer to Street Design recommendations in this chapter for general street design and a sidewalk placement and buffering recommendations. Intersections design standards should be carefully reviewed to improve pedestrian conditions by shortening crossing distances, providing pedestrian refuge island, providing hi-visibility crosswalk markings, and otherwise reducing conflicts.
5. Incorporate requirements for trails and greenways into the Development Handbook.
6. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

City of Annapolis

In comparison to the other member jurisdictions, the City of Annapolis offers a broad level of coverage of bicycle and pedestrian issues in its Comprehensive Plan. For example, Annapolis' Comprehensive Plan is the first in the region to address the transport of bicycles on transit vehicles and the provision of bicycle parking. As with other jurisdictions, however, the City's codes and regulations are not specific when it comes to the appropriate design of bicycle and pedestrian facilities, remaining vague on a number of critical issues such as

intersections and bike lane design. Most detailed design in the City is accomplished through a broad-ranging Site Design Plan Review code section.

Recommendations

1. Incorporate bicycle access comprehensively into the Site Design Plan review requirements of the Zoning Code (Section 21.98). For example, the only current requirement for bicycles is under pedestrian safety (21.98.050) which specifies that the pedestrian circulation plan for a site "shall be designed to minimize adverse effects of vehicular traffic upon sidewalks and bicycle paths".
2. Incorporate standards for on-road bikeways into the City's design requirements.
3. Adopt a comprehensive set of guidelines as a reference and guide for the myriad of design questions that come up when reviewing and developing facilities for pedestrians and cyclists. The City of Portland, Oregon's separate guidelines for bicycles and for pedestrians would be a useful starting point.
4. Require five-foot sidewalks on both sides of the street in new subdivisions pursuant to forthcoming national guidelines. The City's current standard is four feet, which is too narrow for two people to pass each other.
5. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

Howard County

Howard County's coverage of pedestrian and bicycle facilities in its plans, zoning, subdivision, and land development regulations is generally very good, but implementation is often lacking. The Design Manual for example, allows for on-road bikeways, but none have actually been built, and even quite recent developments in prime locations have been built without sidewalks.

Recommendations

1. Convene a session of relevant staff to determine how to safely incorporate bicycle facilities into roadway projects, as permitted in the county's Design Manual.
2. Develop standards in the Subdivision and Land Development Regulations to assist the Department of Planning and Zoning in determining how to address the needs of pedestrians and bicycles in all development projects (see examples in this chapter).
3. Adopt a comprehensive set of guidelines as a reference and guide for the myriad of design questions that come up when reviewing and developing

facilities for pedestrians and cyclists. The City of Portland, Oregon's separate guidelines for bicycles and for pedestrians would be a useful starting point.
4. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

Harford County

Harford County is a mostly rural county, and much of the walking and bicycling in the county takes place in its three incorporated towns. The County's Zoning Ordinance and Development Regulations have few references to walking or bicycling. The County's recent Edgewood Plan is a potential model for other automobile-dependent parts of the region. It proposes to reweave the physical fabric of Edgewood from its existing land use pattern into a network of pedestrian-, bicycle- and transit-friendly neighborhoods and "Main Streets".

Recommendations

1. Broaden the requirements for sidewalks. Currently, for example, sidewalks are required on both sides of streets where the average width of lots is less than 100-feet (Subdivision Regulations 4.28). Subdivisions with larger lots could benefit from sidewalks on both sides of streets. Also, the regulations do not include specific requirements for sidewalks in non-residential development – an omission that should be addressed.
2. Incorporate pedestrian and bicycle friendly design standards into Article VII of the Zoning Ordinance: Design Standards for Special Developments, which addresses uses such as shopping centers, housing for the elderly, and Flexible Design Development. Refer to Site Planning and Design recommendations in this Chapter for general recommendations on mobility-friendly site planning.
3. Adopt design guidelines to make residential subdivisions and developments pedestrian and bicycle-friendly, especially in areas around the incorporated towns. Refer to Site Planning and Design recommendations in this Chapter for general recommendations on mobility-friendly site planning.
4. Incorporate standards for on-road bikeways into the County's design regulations. For example, the "parkway" roadway type does mention bicycle travel, but the standard (Subdivision Regulations 7.02) would appear to require bike lane markings on one shoulder of two-way roads. This standard would encourage two-way bicycle and pedestrian traffic on one side of the road - a condition which violates national and state guidelines for bikeway design. Refer to Chapter 4 of this plan Engineering Solutions for guidance.
5. `on road design.`Allow for greater mixing of residential and commercial land uses. Article VII of the Zoning Ordinance permits Flexible Design

Development for Residential Districts, but permits a mix of residential unit types only.

6. Adopt a bicycle parking ordinance that addresses elements such as the required number of parking spaces (per development type), the proper location and design of bike parking, lighting requirements, and the provision of racks in parking garages and other indoor parking areas.

CONCLUSION

Policies and practices at the local level have an integral and fundamental effect on bicycling and walking. Many changes are needed to local development codes and roadway design manuals in the Baltimore region in order to improve conditions. Education will also be essential to increase awareness of bicycle and pedestrian needs among local code enforcers, roadway design engineers, elected officials, developers and a variety of other professionals who make decisions that affect pedestrians and bicyclists.