

## V. GUIDELINES FOR DEVELOPMENT

In Montgomery County, protecting and improving the water quality and ecological health of the County's streams is a major planning goal. This goal is particularly important because the County is part of the Chesapeake Bay watershed. Preservation and clean-up of the Bay is a major State priority. Therefore, the environmental guidelines for development are largely based upon the principles of comprehensive watershed and stream valley management.

These guidelines have been developed with consideration of existing policies and practices in other jurisdictions to remain consistent with these other areas. Additionally, these guidelines attempt to consolidate and coordinate environmental site development issues that impact and are impacted by land use decisions. These guidelines are intended to promote and encourage interagency cooperation at the earliest planning stage possible.

The following guidelines will be applied to protect sensitive environmental features on development plans, as identified by the Natural Resources Inventory. They will be the basis for formulation of staff recommendations to the Planning Board.

### A. Stream Valley Protection

The slope classification system and stream buffer widths outlined in section III are the basis for the following recommended guidelines that address stream buffers (including hydraulically adjacent slopes, hydraulically remote slopes, and approved clearing and grading within these areas or that affects these areas). The guidelines are designed to provide greater protection, through use of stream buffers, for the more environmentally sensitive areas.

#### 1. Recommended Guidelines For Stream Buffers

- a) Streams, natural surface springs, and seeps will be maintained in a natural condition so that the existing hydraulic regimen and State water quality standards can be maintained.
- b) No buildings, structures, impervious surfaces, or activities requiring clearing or grading will be permitted in stream buffers, except for infrastructure uses, bikeways, and trails found to be necessary, unavoidable, and minimized by the Park and Planning Department environmental staff working closely with the utility or lead agency.
- c) Sediment and erosion control facilities are allowed as a temporary use in unforested areas of the stream buffer when DPS finds that performance of the overall site sediment control system will be measurably improved by placement of a facility at that location. At a minimum, grading must be at least 25 feet from the stream bank, outside wetlands and their State-defined buffer, and outside forest and associated critical root zone areas.
- d) Stormwater management (SWM) facilities are generally discouraged within stream buffers since, as a general rule, location of this permanent use within the buffer does not allow maximized accomplishment of all environmental management objectives for the stream buffer. However, maximum long-term effectiveness of SWM facilities is also an important

objective of an overall stream protection strategy, and must be considered together with the buffer objectives in siting decisions. As a general rule, minimized buffer intrusions are allowed for construction of suitable SWM facilities or non-erosive storm drain outfalls, and unavoidable and consolidated sanitary sewer connections.

A SWM facility may be allowed within the stream buffer area on a case-by-case basis. The following factors will be considered by DPS and M-NCPPC staff in the evaluation of which facilities or other Best Management Practices (BMPs) may be appropriate in the buffer:

- (1) Documented and measurable improvement in the effectiveness of the SWM control system if placed in the buffer
- (2) Minimization of encroachment into the buffer
- (3) Avoidance of existing sensitive areas (forest, wetlands and their State-designated buffers, floodplain, steep slopes, and habitat for rare, threatened, and endangered species with their associated protection buffers)
- (4) Extent to which the SWM facility or BMP design is consistent with the preferred use of the buffer (for example, preservation of existing forest and natural vegetation within part or all of the flood pool; naturally contoured and vegetated infiltration areas or filter strips; etc.)
- (5) Excessive grading caused by an uphill SWM location; and /or the reduction of numerous smaller less efficient structures outside the buffer
- (6) Existence of severely degraded conditions within the buffer area that could not be improved if the SWM facility is outside the buffer area
- (7) Presence of man-made structures (e.g., farm ponds) in the buffer area under pre-development conditions that can be converted to SWM use without excessive stream disturbance
- (8) Ability to provide full or partial compensation for the loss of buffer function from the disturbance and permanent absence of forested areas

M-NCPPC and DPS Water Resources staff will evaluate SWM alternatives that provide effective SWM in a manner closest to the preferred use of the buffer as a stable forested area. The two agencies will jointly determine where SWM facilities are appropriate in stream buffers. When a SWM facility is allowed in the buffer, an area that is of comparable or greater environmental benefit than that used for the SWM facility and not otherwise protected, may be required as a replacement buffer.

- e) Small amounts of clearing and grading for other purposes within the stream buffer (such as paving for bikeways) may be recommended for approval by staff on a case-by-case basis so long as the modification is consistent with a comprehensive approach to protecting areas that are critical to preserving or enhancing streams, wetlands, and their ecosystems. The applicant shall provide rationale for stream buffer modifications addressing at a minimum the factors below. The extent to which the proposal meets all the following factors will form the basis

for staff recommendations.

- (1) Reasonable alternatives for avoidance of the buffer are not available.
- (2) Encroachment into the buffer has been minimized.
- (3) Existing sensitive areas have been avoided (forest, wetlands and their state designated buffers, floodplain, steep slopes, and habitat for rare, threatened, and endangered species and their associated protection buffers).
- (4) The proposed use is consistent with the preferred use of the buffer (e.g., pervious areas such as tieouts to existing grades, slope stabilizing BMPs, etc.).
- (5) The plan design provides compensation for the loss of buffer function.

In reviewing buffer compensation proposals, staff will consider such options as buffer averaging, enhanced forestation, bioengineering practices, and other environmentally beneficial techniques. Buffer averaging provides environmentally-comparable on-site area outside the delineated stream buffer in exchange for the allowance of encroachment elsewhere in the delineated buffer. The concept of enhanced forestation (as described in detail in Chapter V, section C) goes beyond the county legal requirements for forest conservation to enhance existing riparian forest or to accelerate the creation of healthy mature forest in afforestation/reforestation areas.

- f) Only unavoidable road and utility crossings will be permitted in the stream buffer when it is clearly demonstrated that no feasible alternatives exist, and every effort is made to locate road alignment and/or utilities to create the least disturbance to existing vegetation, grade, wetlands, trout spawning areas in Use III watersheds, etc.

Where feasible, utility easements must be set back a minimum of 50 feet from all stream banks *or* outside wetlands and their State-defined buffers, whichever provides more protection. In-stream placement of sediment control devices, stream crossings, and channel modifications must be avoided whenever possible.

Multiple utility, bikeway, and trail rights-of-way within the buffer should be consolidated to minimize buffer disturbance. Reduced or overlapping right-of-way and utility easements should be used where feasible.

- g) Deposition or stockpiling of any material such as excavated rock, topsoil, stumps and shrubs, grass clippings, and building material within the designated stream buffer is strongly discouraged. Activities such as composting or topsoil stockpiling that are necessary to restore an area within a utility easement or temporary sediment control area may be approved on a case-by-case basis prior to approval of the plan when no other alternative is available. These same activities may be approved by MCDPS, in consultation with Park and Planning Department staff, after approval of the plan and prior to issuing the sediment control permits.
- h) Septic fields are prohibited within 25 feet of slopes greater than 25 percent (MCDPS Health Regulation).

- i) Septic fields and reserve fields must be set back to keep the septic field outside the stream buffer. Current County regulations requiring septic field setbacks from streams, steep slopes, water supply reservoirs, etc., must also be met.
- j) No sewage disposal system may be located within 300 feet of the normal high water level of a water supply reservoir, or within 200 feet of the banks of any stream that feeds therein (MCDPS Health Regulation).

## **2. Recommended Guidelines For Steep Slopes Outside the Stream Buffers (Hydraulically Remote)**

- a) Septic fields and reserve fields are prohibited on slopes greater than 25 percent (MDE and County regulations).
- b) To the extent possible, hydraulically remote steep slope areas should be incorporated into the site's open space and/or remain undisturbed. However, development of these areas may be approved on a case-by-case basis, where the developer can demonstrate that safety, County road standards, storm drainage/stormwater management, erosion and sediment control, engineering, tree preservation, soil stabilization, design, and planning issues are satisfactorily addressed.

## **3. Recommended Guidelines for Approved Clearing and Grading in Stream Buffers and Hydraulically Remote Slopes**

- a) All clearing and grading activities must adhere to the most recent Maryland State standards and specifications. Furthermore, it is strongly recommended that phased clearing and grading be used whenever feasible. In sensitive watershed areas (Use III/III-P, IV/IV-P, and high quality I/I-P streams), phased clearing and grading may be required for plan approval by Park and Planning Department staff in consultation with MCDPS. Close coordination shall be maintained by M-NCPPC staff with the Washington Suburban Sanitary Commission (WSSC) to reduce potential additional disturbance from water and sewer line construction. All disturbed areas should be revegetated as soon as possible as required by the *Maryland Standards and Specifications for Sediment and Erosion Control*. Emphasis should be placed on reforestation of disturbed areas. In many instances, disturbed areas may need replenishment of topsoil before successful reforestation or revegetation can be implemented. Areas without suitable existing vegetated buffers (e.g., cultivation) should be stabilized or seeded prior to grading activity.
- b) Stormwater management concept plans that address water quantity and quality must be approved by MCDPS unless a waiver is granted. These plans should incorporate effective best management practices and respect natural stream channels, existing aquatic life, and stream habitat.
- c) The location, design and construction of new development and transportation facilities will be carefully reviewed to avoid introduction of toxic materials into stream systems.
- d) In instances where a master plan or County-wide program identifies a need for water quality or other monitoring, the Park and Planning staff may recommend stream monitoring to

evaluate impacts of development proposals on the environment. In instances where the Planning Board makes stream monitoring a condition of plan approval, the monitoring will be conducted by the applicant with the guidance and oversight of the M-NCPPC, in consultation with the Department of Environmental Protection, to assure efficient, consistent and comprehensive stream monitoring efforts. Recommended monitoring protocols will follow the sampling procedures developed by the County Biological Monitoring Work Group as presented in the *Montgomery County Water Quality Monitoring Program Stream Monitoring Protocols* (available from MCDEP).

## **B. Wetland and Floodplain Protection**

### **1. Wetlands**

The wetland guidelines are based on the Maryland Nontidal Wetlands Protection Act. It is the goal of the State's program to attain no net overall loss in nontidal wetland acreage and function and to strive for a net resource gain in nontidal wetlands over present conditions. In support of this goal, the following wetland guidelines will be followed during review of plans:

- a) Wetlands will be regulated in accordance with State (Code of Maryland Regulations {COMAR} 08.05.04) and Federal Nontidal Wetlands Regulations (Secs. 401 & 404 of the Clean Water Act).
- b) A minimum buffer width of 25 feet will be established around nontidal wetland areas. The buffer will be expanded up to 100 feet around wetlands of special State concern and around wetlands with adjacent areas containing steep slopes or highly erodible soils as described in Table 2 (page 12). When a wetland buffer extends beyond the stream buffer that would be required according to Table 1 (page 8) of these guidelines, the stream buffer will be expanded to the wetland buffer line. For example, see Figures 4 and 5. Additional buffers may be required in Special Protection Areas (see Chapter V for details).
- c) The Park and Planning Department evaluates proposed wetland impacts under the federal and State avoidance guidelines that are listed in order of preference as follows:
  - (1) Avoiding the wetland impact altogether by not taking a certain action or parts of an action
  - (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation
  - (3) Rectifying the impacts by repairing, rehabilitating, or restoring the affected environment
  - (4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
  - (5) Compensating for the impact by replacing or providing substitute resources or environments

- d) Wetlands and their associated buffer areas must be maintained in their natural condition unless the proposed disturbance is for a project determined to be necessary and unavoidable for the public good, such as:
- (1) Road crossings, water and sewer lines, and storm drain outfalls for which no alternative exists
  - (2) Stormwater management facilities, when it can be demonstrated that upland areas are infeasible or would severely limit the performance/ effectiveness of the facility (see section A.1.d on page 18)
  - (3) Park projects for wildlife and habitat enhancement
  - (4) Wetland enhancement projects
  - (5) Bikeways and trails, when it can be demonstrated that a satisfactory connection cannot be made otherwise
- e) Proposed alterations to areas designated as wetlands must be reviewed and approved by MDE, DNR, and the U.S. Army Corps of Engineers (U.S. ACOE), as appropriate, prior to commencement of any alteration activities. Park and Planning staff may recommend deferral of final approval of development plans pending the permit decision for disturbance of wetlands of extraordinary quality or environmental sensitivity. These include:
- (1) Nontidal wetlands with threatened or endangered species or species in need of protection
  - (2) Nontidal wetlands of special State concern

It is strongly recommended that conceptual approval of such alteration be received from these agencies prior to development of a site plan required by Section 59-D-3.

## **2. Floodplains**

Floodplain guidelines are based on existing State and County regulations that govern development activities in these areas.

- a) No building/structure will be permitted within the 100-year ultimate floodplain or its associated 25 foot Building Restriction Line (BRL), except as permitted in Chapter 19 of the County Code.
- b) Per Section 50-32 of the Subdivision Regulations, the Planning Board must restrict subdivision for development of any property that lies within the 100-year ultimate floodplain.
- c) Any construction on platted lots that proposes building within the 100-year ultimate floodplain or its associated 25 foot building restriction line will be governed according to the regulations set forth in the sections of the County Code that relate to floodplain districts. A person must not engage in any land-disturbing activity within the floodplain district or within 25 feet of any boundary of the district unless MCDPS issues a floodplain district permit or exemption from the permit requirement.

- d) The extent of floodplains, must be delineated on the record plat, to ensure that the public and affected homeowners are informed, and must include metes and bounds description for the floodplain boundaries.
- e) When the floodplain extends beyond the stream buffer that would be required according to Table 1 in these guidelines, the stream buffer will be expanded to include the floodplain. For example, see Figure 5.

## **C. Forest and Tree Conservation**

The requirements for forest and tree conservation are contained in the Montgomery County Forest Conservation Law. A Forest Conservation Plan is required as part of the preliminary/site plan and special exception and mandatory referral applications. Guidelines for determining priority areas and details for submission of Forest Conservation Plans are included in the most recent version of *Trees: Approved Technical Manual*.

## **D. Unsafe and Unsuitable Land Protection**

### **1. Management Strategies**

Development on highly erodible soils and other unsafe and unsuitable lands should be carefully managed to avoid erosion problems and sediment transport to streams and storm sewer systems. Plans showing development on highly erodible soils will be required to propose management strategies in the following order of priority:

- a) Avoidance and minimization of disturbance, including expansion of stream buffer
- b) Environmentally sensitive site design
- c) Reforestation/afforestation and vegetative stabilization
- d) Best management practices including expansion of stream buffer and cluster design
- e) Innovative and stringent use of sediment and erosion control measures

Development should avoid areas of the site that contain soils with severe limitations. In some cases, development may be prohibited or restricted in these areas as a condition of plan approval. Restrictions can include the requirement for implementation of engineered solutions, the use of building restriction lines, restriction of housing types (such as prohibiting basements), and relocation or deletion of lots.

### **2. Geotechnical Reports**

When no other options exist and development on problem soils cannot be avoided, a geotechnical report, prepared by a certified geotechnical engineer, may be required. This report will describe the soils limitations and the engineering measures necessary to protect against potential development hazards and impacts, as required by MCDPS, the lead agency for problem soils. When staff is convinced that suitable measures have been identified that will mitigate the soils constraints over the long-term, development will be allowed. An agreement between the builder/developer of the property and the M-NCPPC will be required to ensure that development occurs according to the

recommendations of the report.

## **E. Danger Reach/Dam Break**

It is the policy of the Department of Permitting Services and the Planning Board to prohibit all dwelling units inside the area potentially inundated by the Dam Break Flood (Danger Reach). In order to ensure that a minimal risk is posed to public well-being and property, the following techniques are employed where appropriate:

- Use of zoning options that require adequate open space for protection of the danger reach
- Use of cluster provisions in the Zoning Ordinance
- Recommending park dedication, park acquisition, and conservation easements
- Applying regulatory review policies to minimize flood risk

To ensure that the public is informed as to the existence of a dam and its potential to break, the danger reach area will be delineated on the record plat, with reference elevations at critical locations.

## **F. Threatened and Endangered Species and Species in Need of Conservation**

When a rare, threatened or endangered species, a species in need of conservation, or a watchlist species (as designated by the Maryland Natural Heritage Program, Department of Natural Resources) is identified on a development site, the applicant must protect these areas unless an alternate plan is approved by the State and/or M-NCPPC. This includes the applicant identifying any critical habitats necessary to sustain these species that may be affected by development, establishing appropriate buffers, and devising programs for their long-term protection, in conjunction with the Maryland Department of Natural Resources. Initial identification of significant species on a subject property can be obtained from the Natural Heritage Program of DNR (see section III.H, page 16, for details).

## **G. Site Imperviousness Considerations**

Minimizing imperviousness to levels consistent with achievement of zoning densities is one of the best methods for assuring protection of water resources. Evidence clearly indicates a causal relationship between the overall level of watershed imperviousness, water quality, and the health of the aquatic community within the receiving stream.

There are two different levels of control on the amount of impervious area: (1) the County Council mandated imperviousness limits, or caps, that function as a regulatory requirement, and (2) the implementation of general policy contained in master plans, functional master plans, and the water & sewer systems plan that calls for reduced imperviousness in the plan's land use policies and objectives.

## 1. Impervious Limited (Capped) Areas

Caps specifying maximum levels of imperviousness on a particular property can only be applied after Council approval of such caps as part of an approved and adopted area master plan, watershed plan, Comprehensive Water Supply and Sewerage System Plan, or Council resolution designating a Special Protection Area. Compliance with caps must be documented and enforced during the plan review process. As of October 1999, the following areas outside Special Protection Areas are subject to imperviousness limits. Exact locations are specified in the appropriate master or functional plan.

- a) Kingsview Village Analysis Area Two (KI-2) and Neelsville Village Analysis Area One (NE-1) in Little Seneca Creek in Germantown

Overall, development in these master plan analysis areas should not result in more than 20 percent total impervious surface.

- b) Patuxent Primary Management Area (PMA)

Overall imperviousness within the PMA transition area of a development site should not exceed 10 percent. If a higher imperviousness is desirable in the transition area to maintain community character, achieve compatibility and/or accomplish master plan goals, imperviousness may be averaged over the entire site (i.e., not to exceed 10 percent on the entire site).

## 2. Minimizing Imperviousness Levels Outside Impervious Limited Areas

In SPAs and planning areas where adopted policy documents suggest minimized imperviousness, development on a site should be designed to reduce impervious surfaces wherever possible. In addition to the applicant's site design efforts, implementation agencies and utilities should consider all options for minimizing impervious surfaces, particularly where sensitive water resources have been identified for special protection.

Examples of techniques to minimize imperviousness and enhance groundwater recharge are shown below. These techniques can be used in areas with imperviousness caps or any other area of the County where reduced imperviousness is desirable. This list is not intended to be comprehensive; see the resources in footnote 1 for additional techniques<sup>1</sup>.

- a) Reduce parking imperviousness by limiting parking spaces to the extent possible, using angled parking and smaller parking stalls, or sharing use of parking areas among nearby land uses.
- b) Leave necessary overflow parking spaces unpaved.
- c) Utilize natural or informal paths and walkways when such are necessary in the stream buffer.

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<sup>1</sup> *Site Planning for Urban Stream Protection*, Metropolitan Washington Council of Governments, December 1995.

*Imperviousness Surface Reduction Study*, City of Olympia, WA, 1994.

- d) Exercise cluster options and/or maximize use of higher density unit types.
- e) Preserve areas with highest infiltration capacity for potential use as an infiltration facility or natural recharge area.
- f) Implement shared driveways, structured parking, multi-story and/or multi-use office/commercial/community buildings where feasible.
- g) Use narrower street and/or sidewalk sections. Provide sidewalks only on one side of the street.
- h) Construct higher buildings with smaller footprints.
- i) Use cul-de-sac donuts or culs-de-sac with reduced radii.
- j) Use swales instead of curb and gutter, and guide runoff toward pervious areas.
- k) Where higher levels of imperviousness are necessary and unavoidable, use measures that increase infiltration & reduce adverse effects of imperviousness, such as disconnecting impervious areas, reducing setbacks to shorten driveways, or more reforestation between impervious areas and water bodies.

### **3. Review of Proposed Individual Zoning Map Amendments, Special Exceptions, and Mandatory Referrals**

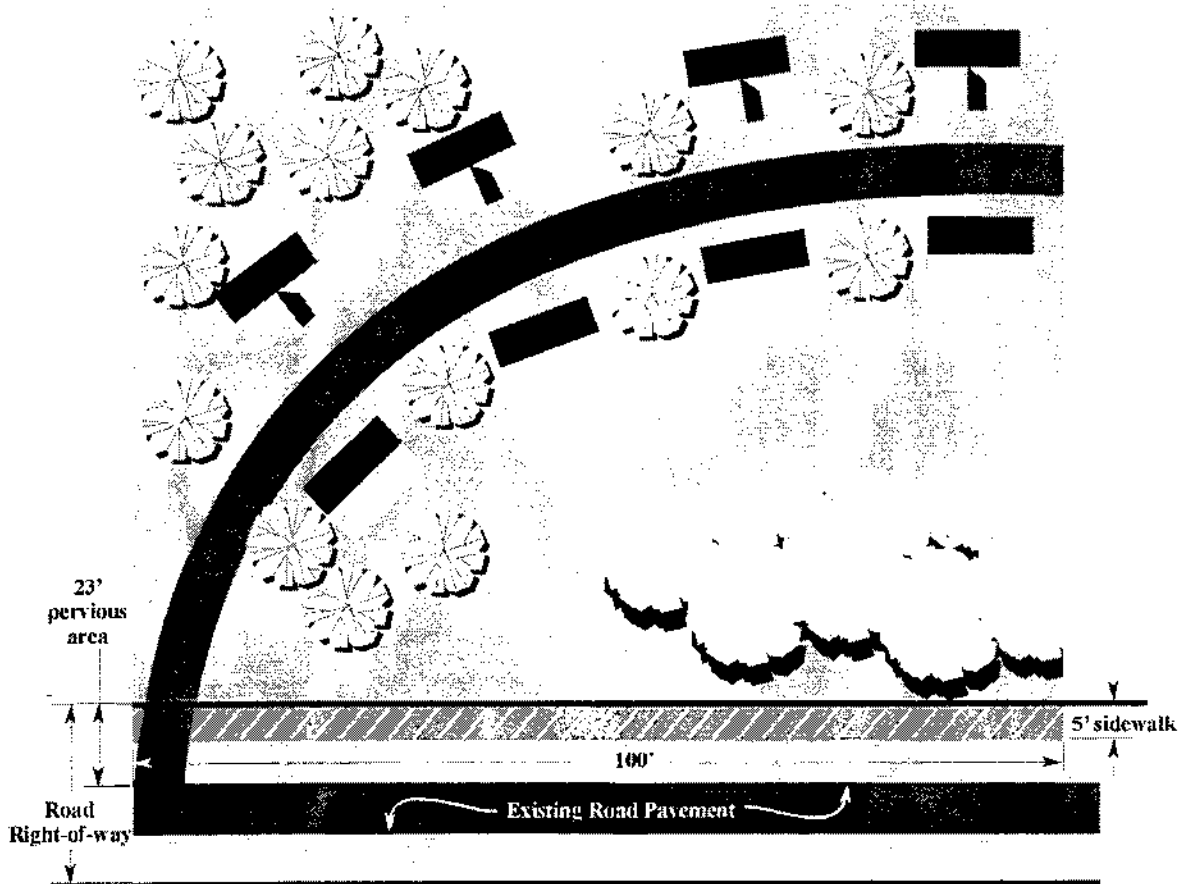
The increase in intensity or imperviousness associated with a proposed land use change is a factor that may be considered in the environmental review of the above referenced processes for changing land use. The resulting effects on the receiving stream and watershed will be identified and evaluated for pertinence to the findings necessary for grant of the land use change (e.g., consistency with master plan, detriment to use and enjoyment of surrounding properties, adverse effect on health and general welfare, etc.)

### **4. Guidelines for Calculating Impervious Areas Where Limits Apply**

The following items are recommended for inclusion in the calculation of impervious areas:

- a) All pavement, driveways, sidewalks and paved paths.
- b) Estimated building footprints. Use the most conservative (i.e., largest) estimates or average estimates for proposed buildings in the calculations. Each building permit or group of permits must demonstrate conformance with the established estimates by an engineer's certification.
- c) All gravel surfaces.
- d) Impervious surfaces of public improvements as required by other agencies such as DPWT and SHA along the project's roadway frontage, if contained within the watershed of interest. Examples include a new sidewalk or new turning lane along the project's frontage.

Figure 6. Sample Calculation of Impervious Areas (not to scale)



Sample Scenario

Subject Property: 10 acres  
 Proposed imperviousness: 0.99 acre within property boundaries  
 Required off-site improvements: Five foot wide sidewalk constructed in road right-of-way (ROW) adjacent to property

Impervious Surfaces

On-site: 0.99 acre = 43,290 s.f.  
 Off-site (sidewalk) 5' x 100' = 500 s.f.  
 Total 43,790 s.f.

Gross Tract Area

Property 10 acres = 435,600 s.f.  
 Part of road ROW 100' x 23' = 2,300 s.f.  
 (between edge of road pavement & property boundary)  
 Total 437,900 s.f.

Site Imperviousness for Proposed Subdivision

43,790 s.f./ 437,900 s.f. X 100% = 10%

For example, if a new sidewalk is required, the sidewalk area would be added to the project's total impervious area calculation, while the area between the project's boundary and the existing roadway edge would be added to the gross tract area to offset the increased impervious surface.

Sample calculation for illustrative purposes (see Figure 6):

- (1) 100 linear feet of five-foot wide sidewalk required by DPWT adds 500 square feet to the overall impervious area (100 linear feet x 5-foot sidewalk width = 500 square feet).
- (2) The county right-of-way for a typical master plan primary roadway (70' total ROW) contains an area 23 feet wide in pervious area on each side of the roadway. The gross tract area for purposes of impervious calculations is increased by 2300 square feet (100 linear feet of ROW with sidewalk x 23 feet of pervious area in the ROW = 2300 square feet).
- (3) Thus, 500 square feet would be added to the site impervious surface area and 2300 square feet added to the gross tract area for purposes of impervious calculation.

The subject property and all dedicated lands must be included in the gross tract area for purposes of imperviousness calculation. Where improvements are required within the ROW, the gross tract area may be increased to include pervious area in the ROW, as illustrated in (d) above.

On a case-by-case basis, the Planning Board may waive the inclusion of part or all off-site impervious surfaces in a project's imperviousness calculations. Staff may make recommendations to the Board based on waiver justification presented by the applicant. The justification must demonstrate that the off-site impervious surfaces will result in a large proportion of a project's total impervious surface and that compensating BMPs are provided for the off-site impervious surface to the satisfaction of DPS.

## **5. Consideration of Alternative Technologies**

Where variations are granted by the Planning Board to imperviousness caps for accomplishment of other public policy and planning objectives, use of extra BMPs and alternative technologies are encouraged to offset the incremental effect on the watershed.