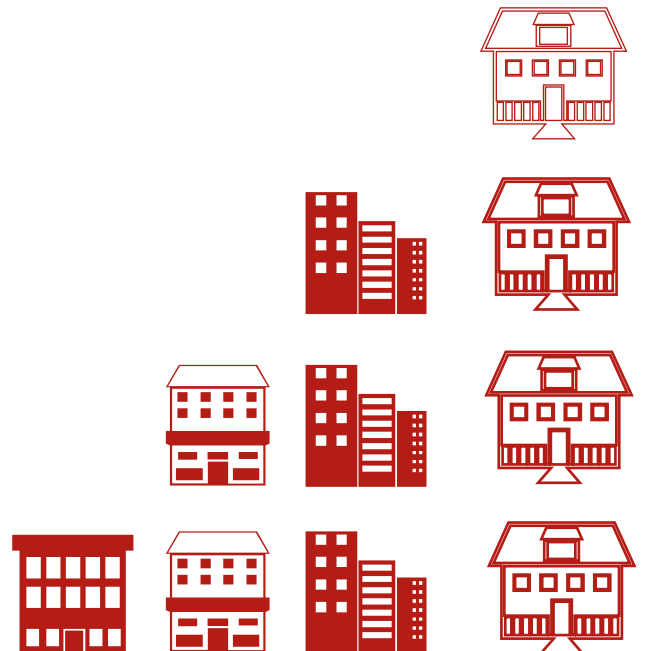


PART FIVE: Appendices

Procedural Sequence Chart—TDOZ/TDDP

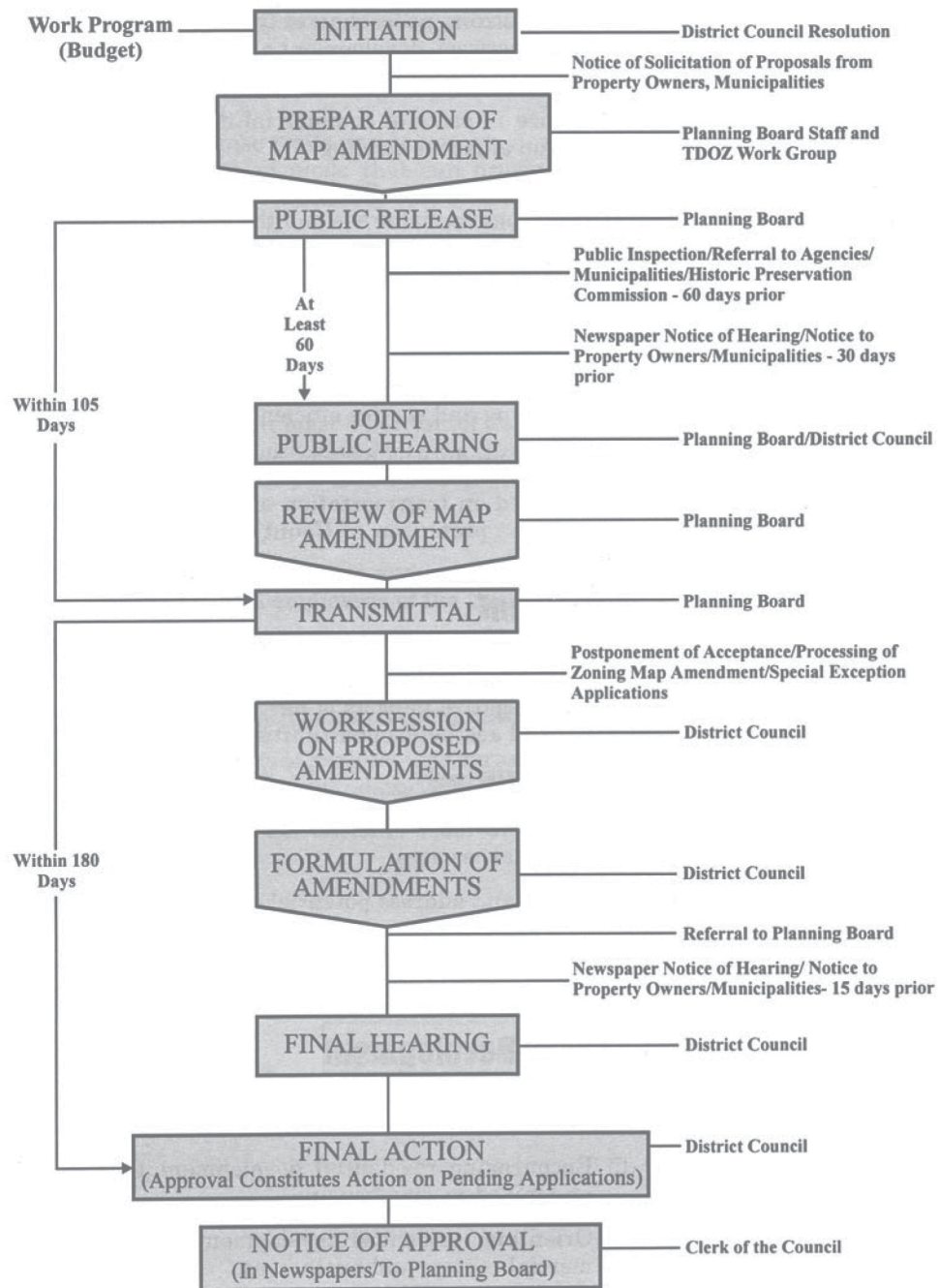
Low Impact Development Design Guidelines

Crime Prevention through Environmental Design Guidelines



Appendix A

Procedural Sequence Chart—TDOZ/TDDP



Low Impact Development Design Guidelines

Leadership in Energy and Environmental Design (LEED) Certification Program

Low-Impact Development (LID) is a construction method that allows new development to minimize environmental impact and includes techniques such as green roofs, extensive landscaping, bioswales, and other creative uses of open space. It is an approach that combines naturally functioning site plans with pollution prevention measures in an effort to compensate for land development impacts to hydrology and water quality. Prince George's County, Maryland is a national leader in the area of LID; therefore, this plan recognizes and strongly recommends consideration and use of the approaches referenced here and in the following publications:

- ♦ Low-Impact Development Design Strategies: An Integrated Design Approach (2001), Prince George's County, MD, Department of Environmental Resources, Programs and Planning Division; and
- ♦ Low-Impact Development Hydrologic Analysis (2001), Prince George's County, MD, Department of Environmental Resources, Programs and Planning Division, January 2002.

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings (see www.usgbc.org). LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state-of-the-art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training, and practical resources.

M-NCPPC and the Prince George's County Department of Environmental Resources strongly urge prospective developers of sites within the Capitol Heights TDOZ to incorporate LID techniques into their designs. Developers are also encouraged to seek basic LEED certification for their projects (higher levels of certification are available and are encouraged).



LEED building plaque.



Example of a rain garden.

Appendix B

Low Impact Development (LID) Design Guidelines

General Design Guidelines

Intent

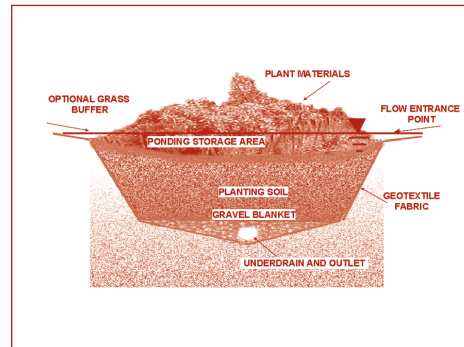
To promote the use of low impact development (LID) technologies and minimize adverse environmental impacts on the Northwest Branch stream valley.

1. LID proposals shall be regulated and approved by the Department of Environmental Resources. Suitable LID techniques within the TDOZ are bioretention systems and green roofs.
2. Bioretention systems should include the following elements subject to the approval of the Prince George's County Department of Environmental Resources:
 - ✦ Ponding storage area
 - ✦ Plant material
 - ✦ Ground cover layer
 - ✦ Inlet and (underground) outlet controls
 - ✦ Planting soil
 - ✦ Maintenance plan
 - ✦ In situ soil
- a. Depending on design requirements, a pretreatment area may be included in an approved bioretention system.
- b. Bioretention ponding areas should not exceed a six-inch depth.

Reference



Example of an intensive green roof system—parking garage in Bethesda, Maryland.



*Cross section of typical bioretention swale.
Source: Stream Corridor Restoration: Principles, Processes, and Practices—Federal Interagency Stream Restoration Working Group (1998).*

Low Impact Development (LID) Design Guidelines

- c. Inlet and outlet flows for bioretention areas should not exceed 0.5 feet per second.
 - d. The minimum depth of planting soil in bioretention areas should be four feet.
 - e. Soil mixtures in bioretention areas should include sand, loamy sand, and sandy loam, with clay content not exceeding ten percent.
 - f. Plant materials used in bioretention areas should include a minimum of three species of plant.
 - g. An underdrain system should be required for all in situ soil filtering areas with an infiltration rate less than 0.5 inches per hour.
3. Green roof systems should include the following elements subject to approval of the Prince George's County Department of Environmental Resources:
 - ✦ Waterproof membrane
 - ✦ Filter mat
 - ✦ Root barrier
 - ✦ Growing media
 - ✦ Insulation layer
 - ✦ Plant materials
 - ✦ Waterproof membrane (shall be installed new in the case of a retrofit to an existing building)
 - a. Approved extensive green roofs should be designed to exert a maximum structural bearing load of 35 pounds per square foot when fully saturated.
 - b. Approved intensive green roofs should be designed to exert a maximum structural bearing load of 200 pounds per square foot when fully saturated.
 - c. Approved green roofs should be pitched at no more than 4.37:12 (equivalent to a 20 degree slope).
 - d. All approved green roofs should be designed to be accessible for maintenance purposes.



*Example of on-street bioretention areas—
Portland, Oregon.*



*Example of an Extensive Green Roof System—
Montgomery Business Park/Maryland Department
of the Environment, Baltimore, Maryland.*

Appendix C

Crime Prevention through Environmental Design Guidelines

Security relates to those aspects of a community's built environment that promote both the perception and the reality of personal and public safety. Secure communities are attractive places that encourage the continuous and active use of public and private space by residents, workers, and visitors. Such active use provides constant informal surveillance – “eyes on the street” – and helps to reduce or eliminate opportunities for crime.

Crime Prevention Through Environmental Design (CPTED) is a design methodology that focuses on reducing opportunities for crime, mitigating fear of crime, and improving quality of life. Through the design and management of the physical environment (building uses, residential and commercial areas, etc.) and an increase in public safety and education, CPTED programs have been shown to increase community security. Four basic principles of CPTED should be considered during site planning and design: territoriality, natural surveillance, access control, and place making.

1. **Territoriality** involves designing physical attributes that express ownership, such as fencing, signage, landscaping, and pavement treatments. Physical elements can extend an area of territorial influence and potential offenders perceive that area as undesirable. A well maintained home, building or community creates a sense of ownership, which helps to deter criminals.

Provide clear border definition of controlled space. There are several ways this can be achieved including fences, plantings, lawn, tactile surfaces etc. These types of boundaries allow people to recognize that they are transitioning from public to private space. Creating a sense of ownership or defensible space is encouraged to deter undesired behavior.

Provide clearly marked transitional zones. Identify public, semi-public, semi-private and private spaces. Controlled space must be demarcated in order to move users through the environment.

Design building and site to encourage interaction. This will provide opportunities for the community to become more familiar with their environment and help build a sense of ownership.

Clearly identify buildings, open space, and major circulation paths (bike path, crosswalks, etc.). Use signage

and markers that are easily observed from the street. This will identify areas and their programmed uses.

2. **Natural Surveillance** is the placement of physical features, activities, and people in such a way as to maximize visibility. A potential criminal is less likely to attempt a crime if he or she is at risk of being observed. At the same time, we are likely to feel safer when we can see others and be seen by others.

Use physical features, activities, and people in ways that maximize the ability to see. This will help discourage undesired behavior. The use of vegetation heights, street furniture, and building layout can help increase eyes on the activities.

Design security zones that respond to the building and site relationships. The focus is on creating natural surveillance solutions from the street to the building façade. These zones can be distinguished as:

Zone 1- Building Interior. Layout of floor plan should encourage active uses towards windows to encourage more eyes on the street.

Zone 2- Building Perimeter. Access points and windows should be oriented toward the street and major pedestrian circulation.

Zone 3- Building Yard. Raised planters, plinth wall or fences provide security barrier in the building yard.

Zone 4- Sidewalk. Trees, planters, and other streetscape elements are used to promote active pedestrian zones.

Zone 5- Curb Lane. This zone can be designed for on-street parking or drop-offs/pick-up area to encourage active street zones.

Zone 6- Street. Design appropriate lane widths to accommodate appropriate vehicle speed. This can be determined by the uses that are located at the edges of the street.

Improve sightlines: There should be clear views of surrounding areas. Design permeable barriers that do not restrict vision. Avoid features (tall vegetation, fences etc.) that block sightlines and major access points.

Lighting design must be incorporated into developments to ensure safety and security. Placement of lighting is critical

Crime Prevention through Environmental Design Guidelines

to pedestrian pathways, roads, and potential entrapment spaces.

Locate open spaces and recreational areas so they are visible. Formally designate gathering or congregating areas. These areas should be in locations that are well lit and encourage gathering opportunities that are within sightlines of residential and commercial activity.

Create a land-use and activity mix that promotes public safety. A variety of uses should be developed to encourage informal surveillance during the day and evening.

3. **Access Control** reduces the opportunity and accessibility for crime. The physical guidance of people coming and going from a space by the judicious placement of entrances, exits, fencing, landscaping and lighting denies a criminal's access to potential victims. Access control methods should be designed to create the perception of risk to potential offenders.

Overcome distance and isolation. Entrances and exits points to buildings and public uses (telephone, restroom, etc.) should be designed with increased convenience to major circulation patterns.

Place safe activities in unsafe locations. Safe activities serve as magnets for normal users and discourage undesirable activities.

Improve scheduling of space. Productive uses of spaces reduce the risk of attracting undesirable activities. Designed spaces and uses can improve productivity while increasing the control of behavior.

Discourage cut through paths and high-speed traffic. Design streets and pedestrian paths to control circulation patterns and reduce vehicular speed. Vegetation, paving elements and signs can help increase community safety.

Organize and promote community policing and surveillance. Organizing community watch programs and increased policing can reduce potential crime offenders. Pro-active involvement will reinforce the priority of safety.

4. **Place Making** is an approach to design and revitalization that carefully looks at community needs and interests to develop strategies to increase productivity, improve transportation circulation, and promote a vibrant community and quality of life. In addition to direct

community involvement, the following is essential to creating a "great space": uses and activities, comfort and image, access and linkage, sociability and maintenance. (Urban Design Collaborative, 2002)

Create places that are physically compact in design. Development of Place Making concepts lends itself to natural surveillance. Eyes on the street and connectivity can be achieved with special attention to building layout and circulation patterns.

Create centers of mixed-use developments near a variety of residential densities. This encourages more pedestrian travel and active areas near neighborhood. Design uses that create activity during day and night hours. Mixing commercial, retail, education and recreation with housing allows people to satisfy daily needs without having to travel far distances. These centers become a more lively and safe environment.

Create a multi-modal transportation network. Walkways, bicycle paths, and street connectivity encourages non-auto travel by offering alternative routes that connect to housing, employment, commercial services, schools, parks, and public transportation.

Design pedestrian-scaled environments. Development should be designed to the comfort and scale of people. Vegetation, street furniture, lighting and other elements can be used to enhance a pedestrian environment. These design features can also reinforce a community's identity and history.

Design facility maintenance into each development project and review maintenance programs on a routine basis. A successful component of Place Making is to insure that a program is implemented and is successfully managed beyond the design phase for future generations to enjoy.


Education and community involvement is critical in the success of a "great space." Outreach meetings should be integrated into the design process to develop analysis of users and potential solutions. Residents should form neighborhood committees to insure continued interest once the implementation strategies have been established.

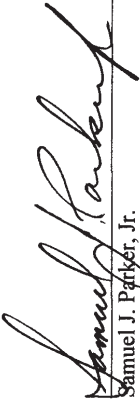
Source: National CPTED Association, Atlas Safety and Security Design, and Urban Design Collaborative


CERTIFICATE OF ADOPTION AND APPROVAL

This *Capitol Heights Approved Transit District Development Plan and Transit District Overlay Zoning Map Amendment* amends the 2002 *Prince George's County Approved General Plan*, the 1993 *Landover and Vicinity Approved Master Plan and Sectional Map Amendment*, and the 1986 *Suitland-District Heights and Vicinity Approved Master Plan and Sectional Map Amendment*. The Transit District Development Plan and Transit District Overlay Zoning Map Amendment were adopted by the Prince George's County Planning Board of The Maryland-National Capital Park and Planning Commission by Resolution No. 07-219 on December 6, 2007, and were approved by the Prince George's County Council by Resolution No. CR-66-2008 on July 1, 2008, after a duly advertised public hearing held on June 10, 2008.

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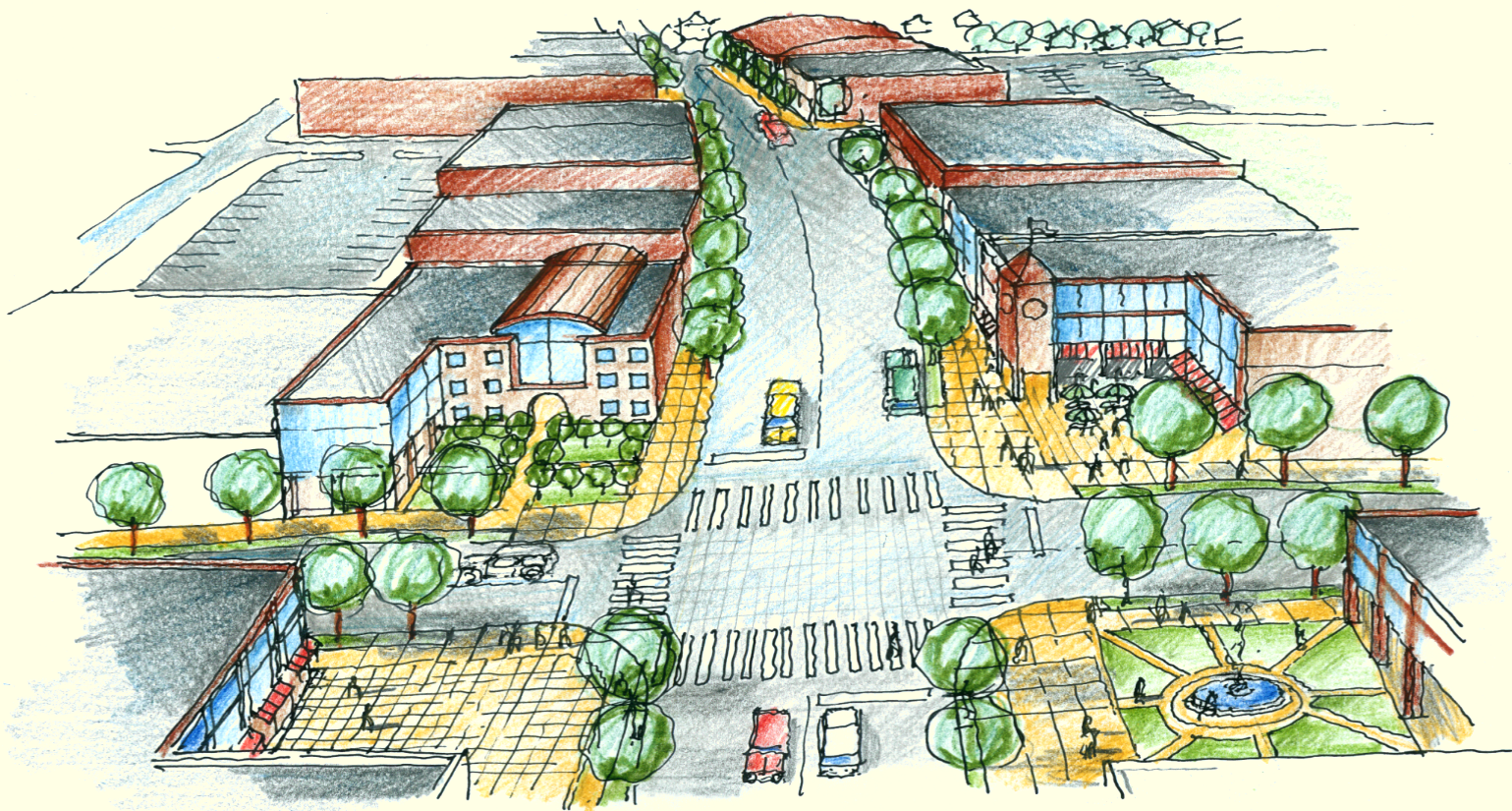
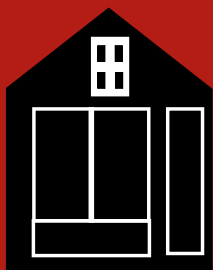
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