Hudson County Land Development Regulations

FOR SMART GROWTH & SUSTAINABLE DEVELOPMENT

Hudson County, New Jersey
June 2025

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Adopted by the Board of County Commissioners
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Prepared and Administered by the Hudson County Planning Board

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Executive Summary

The Hudson County Land Development Regulations establishes standards for site plans and subdivision applications to the County Planning Board. Hudson County is an ever-changing landscape and these Land Development Regulations (LDR) shapes much of the County's built environment. Updating the County's LDR is necessary for realizing a better future and will act as model for the County's twelve municipalities while remaining "in sync" with their current standards. This document in part reflects an increased focus since the last LDR update in 2008 by Hudson County on resiliency and complete streets.

In 2012, Hudson County adopted a Complete Streets Policy and is now one of 135 communities state-wide to have embraced Complete Streets. As part of implementing the Policy, Section VII: Circulation and Roadway Design Standards of these regulations have been updated to better accomodate all users in the use of the latest and best design criteria.

A set of Street Typologies, identified using a combination of factors from the existing Functional Classification System as part of the Urban Transect, classify Hudson County roadways and identify the most appropriate design standards for each. These comprehensive Street Typology Guidelines address all aspects of creating vibrant, complete and high-performance streets. The guidelines promote the County's Complete Streets Policy by offering pedestrian accommodations and safety enhancements for all modes of transportation users, including people with disabilities and school children. As Hudson County residents already tend to be below the U.S and State average for car ownership rates, this set of regulations reinforces the promotion of multi-modal transportation opportunities for all income and age levels, and promotes walkability for many of its municipalities.

In 2012, Superstorm Sandy affected both residents of Hudson County and key infrastructure. This storm event and others like it has resulted in changes to state regulations, affecting many New Jersey communities. Section VIII: Stormwater Management Design Standards responds to these regulatory changes and further institutes a culture of resiliency for applicants within the County.

The Green Stormwater Infrastructure (GSI) regulations within Section VIII reflect post-Sandy construction standards, updated zoning ordinances, and allow applicants to consider utilizing FEMA building standards and the latest best management practices. Green Stormwater techniques such as rain gardens, swales, permeable pavers, rooftop gardens and others are detailed with design standards along with siting and maintenance guidance. The broad range of low impact techniques described are an effort to resolve environmental issues related to non-point source pollution, water quality and storage throughout all of Hudson County.

In addition to revising the requirements for land development, the update to the LDR also recognizes the effects of development on the transportation, housing and employment needs of low-income populations and minority populations, which reflects the Federal Highway Administration's (FHWA) Environmental Justice component.

According to the 2014 American Community Survey (ACS), 44% of the County's population consists of minorities which are defined by the FHWA as "Black or African American, Hispanic, Asian American, American Indian/Alaskan Native, and Native Hawaiian or Pacific Islander. At 53.9%, more than half of the County's labor force population is in poverty. The LDR considers the needs of low income and minority residents within the Hudson County **community.**

In areas where private developments are proposed, all residents will benefit from the public amenities which are provided by private developers as required by the LDR regulatory standards in streetscape improvements and safety. The threshold for the green technique requirement considers smaller projects and homeowners with reduced requirements. Different green techniques provide a range of affordable options that are applicable to homeowners that can eliminate contaminants into waterbodies.

The 2014 ACS 5-year Estimates indicates that 40.5% of workers in Hudson County use public transportation for commuting compared to just over 10% statewide. In addition, 8.8% of workers either walk or bicycle to work. Nearly one-third of households do not own a vehicle, and another 45.56% have access to only one car, indicating a need for a transportation system that provides mobility and accessibility for residents who travel by means other than the automobile. The LDR incorporates recommendations from the County's Complete Street Policy, which promotes the safety and accessibility of pedestrians and bicyclists throughout the County. In fact, one of the LDR's new requirements, the submission of a multi-modal impact report, prompts applicants to consider design elements and amenities for non-motorized transportation users, which has the greatest benefit in areas with low automobile usage and relatively higher rates of poverty.

Guidance for the development of these standards was provided through multiple Technical Advisory Committee (TAC) meetings with representatives of the County Planning, Engineering, Parks, Transportation Departments and Office of Emergency Management. Additional input was gathered from two public meetings, both accessible by public transportation, in which the general public, local developers, community groups, non-profits, and municipalities were targeted. The public meetings were advertised on the Division of Planning's website. An on-line survey gave additional comments from Hudson County residents and business owners who could not attend the meetings. The development of the update to the LDR was an inclusive process with representation reflecting the diverse Hudson County community. A Spanish speaker was available to translate at the public meetings for Spanish speakers in attendance.

The Project Team (Lead: H2M Associates, Inc.; Professional Services: Arterial, Stantec) consulted with a Technical Advisory Committee (TAC) as a local resource and included the membership of representatives from various local and regional entities including:

Hudson County Division of Planning
County Department of Roads & Public Property
Hudson County Engineering
Hudson County Parks Division
New Jersey Sports and Exposition Authority (NJSEA)
North Jersey Transportation Planning Authority (NJTPA)
Hudson County Transit Management Agency (Hudson TMA)
New Jersey Department of Transportation (NJDOT)
The Port Authority of New York and New Jersey (PANYNJ)
The 12 Hudson County Municipalities

Hudson County's expressed priorities of Resiliency and Complete Streets are also present in all Engaging and Strengthening Hudson County Initiative documents including the County Parks Master Plan, the 5-Year Comprehensive Economic Developments Strategy "CEDS" Plan, the County Capital Improvement Plan and the Hudson County Master Plan.

Table of Contents

Section I: Administration

A. Short Title

This Resolution shall be known and may be cited as: "The Hudson County Land Development Regulations," hereafter sometimes referred to as the "Regulations" or the "Land Development Regulations."

B. Authority

This Resolution is adopted pursuant to the County Planning Act, N.J.S.A. 40:27-1 et seq., as amended and supplemented.

C. Purpose

The purpose of these Regulations is to:

1. Provide the rules, regulations and standards for the subdivision, development and redevelopment of land affecting County roads or drainage facilities and to guide the design of development of land affecting County roads in Hudson County.

2. Ensure that land development within the County proceeds in accordance with, and is consistent with, the goals and objectives of the Hudson County Master Plan and other adopted County plans.

3. Allow land development that is compatible and harmonious with the existing, planned and contemplated infrastructure base of the County.

4. Institute standards for assessing developers for a proportionate share of the cost of County improvements located outside of a given development which must be made to accommodate the increased traffic or runoff which would be generated as a result of the development.

5. Mitigate adverse traffic and drainage impacts from proposed development on roads, drainage facilities, buildings and lands owned and/or maintained by the county.

6. Facilitate pedestrian and/or bicycle traffic along county roads.

7. Create and/or maintain aesthetically pleasing landscapes along county roads.

8. Ensure that development and redevelopment occurring under the County's jurisdiction minimizes any adverse impacts to the physical and living environment and is developed with the long-term goal of energy and natural resource conservation and environmental sustainability.

9. Achieve maximum coordination between the applicants' professionals, the local municipality and the county development review staff.

10. Provide Design Standards that municipalities within Hudson County can incorporate into their Zoning and Development Ordinances, and which are intended to encourage the attractive, sustainable and smart growth development of land within Hudson County (Appendix H).

11. Provide for the coordinated review of development projects involving various other State and County agencies which have regulatory responsibilities pursuant to the requirements of the following:

    a. Flood Hazard Area Control Act (N.J.S.A. 58:16A)

    b. Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 et seq.)

    c. Solid Waste Management Act (N.J.S.A. 13:1E-1 et seq.)

    d. Storm Water Management Act (P.L. 1981, C. 32 N.J.S.A. 40:55D-1 et seq.)

    e. Freshwater Wetlands Protection Act of 1987 (N.J.S.A. 13:9B-1 et seq.)

    f. Wetlands Act of 1970 (N.J.S.A. 13:19A)

    g. Realty Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-37)

    h. State Highway Access Management Act (N.J.S.A. 27:7-1 et seq.)

    i. County Roads and Highways (N.J.S.A. 27:16-31)

    j. Municipal Land Use Law (N.J.S.A. 40:55-1 et seq.)

    k. Water Quality Planning Act (N.J.S.A. 58:11A-1 et

seq.)

l. Waterfront Development Law (N.J.S.A. 12:5-3)

m. Coastal Area Facility Review Act – CAFRA (N.J.S.A. 13:19)

n. Tidelands Act (N.J.S.A. 12:3)

o. NJ Pollution Control Act (N.J.S.A. 58:10A)

p. Hackensack Meadowlands Reclamation and Development Act (N.J.S.A. 13:17)

q. The Americans with Disabilities Act (42 U.S.C. §12101, et seq.)

r. New Jersey Map Filing Law (N.J.S.A 46:23-9.8 et seq.)

s. New Jersey Uniform Construction Code (N.J.A.C. 5:23-2.15)

t. Residential Site Improvement Standards (N.J.A.C. 5:21)

u. Fair Housing Act (N.J.S.A 52:27D-301 et seq.)

v. New Jersey Public Records Law (N.J.S.A 47:1A-1 et seq.)

w. New Jersey Open Public Meetings Act (N.J.S.A 10:4-6 et seq.)

12. To promote the public health, safety, convenience and general welfare of the citizens of Hudson County.

D. Approving Agency

The approving provisions of this Resolution shall be administered by the Hudson County Planning Board in accordance with the County Planning Act (N.J.S.A. 40:27-1 et. seq. as amended and supplemented).

Except as where provided herein, the Hudson County Planning Board has retained full authority to review and approve all applications for subdivision and site plan approval over which it has jurisdiction, as provided in the County Planning Act.

The Hudson County Planning Board has, by the adoption of this Resolution, vested its power to review and approve site plan applicationss for telecommunications installations with the Hudson County Site Subdivision and Site Plan Review Committee, hereafter sometimes referred to as the "SPRC" and the County Planning Director.

The County Planning Board also has authorized the SPRC and Planning Director to issue a jurisdictional determination, upon an applicant's request, regarding the Board's authority to review and take action upon a proposed development in accordance with standards of the County Planning Act. Any person aggrieved by any action of the SPRC and Planning Director may file an appeal in writing to the County Planning Board within 10 days after the date of notice of the said action, in accordance with the procedures contained in N.J.S.A. 40:27-6.9.

Other than set forth in this subsection, the SPRC and the Planning Director function in an advisory capacity to the Planning Board, are responsible for reviewing the plans and supporting documents submitted in support of an application for development for consistency with the standards contained herein, and are to make recommendations to the Planning Board regarding proposed action on the application.

The County Planning Board, by resolution, vested its power to exempt subdivisions and site plans from County Planning Board approval with the Planning Director to the County Planning Board, or other designated alternate, when said subdivision or site plan meets the criteria for exemption as described in these Regulations.

E. Power to Amend and Modify

The rules, regulation, and standards herein set forth are designed to achieve minimum requirements for uniformity in the interest of the safety and general welfare of Hudson County, and the people of Hudson County, with due regard to the valid interest of the municipalities in the Hudson County.

The County Planning Board understands that occasions may take place when the literal enforcement of one or more of these rules, regulations, or standards may be onerous, impracticable or impossible to perform or cause unnecessary hardship. In accordance with N.J.S.A. 40:27-6. 2(e), this power and authority to waive, modify, or amend, shall be exercised to achieve substantial fairness to all parties concerned, and so long as such power shall not substantially or

materially prejudice the rights of other parties or interested persons.

F. Severability

If any section, subsection, paragraph, clause, phrase or provision of this Resolution should be adjudged invalid or held unconstitutional, such adjudication shall not affect the validity of the standards as a whole or any part or provision hereof other than the part so adjudged to be invalid or unconstitutional.

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Section II: Definitions

The term “shall” indicates a mandatory requirement and the term “may” indicates a permissive requirement.

Other terms and definitions not specifically listed herein shall be terms and definitions as generally accepted in Planning and/or Engineering usage or as used in the Model Subdivision and Site Plan Ordinance as promulgated by the Department of Community Affairs, Residential Site Improvement Standards (RSIS), Municipal Land Use Law (MLUL), or County Planning Act.

ABUT/ALONG: Those properties in part or in whole that have frontage on or border a County road.

ABUTTING COUNTY ROAD: Any existing or proposed County road shown on the adopted County Master Plan or official map which adjoins a lot or parcel of land submitted for approval under these Regulations.

ACCELERATION LANE: Added pavement width at an intersection or other point of access to a County road, designed to enable vehicles entering the roadway to attain a speed which will allow entering vehicles to merge safely with through traffic.

ACCESSIBLE PEDESTRIAN SIGNAL: A device that communicates information about pedestrian timing in non-visual format such as audible tones, verbal messages, and/or vibrating surfaces.

ADEQUATE PUBLIC FACILITIES: Facilities determined to be capable of supporting and servicing the physical area and designated intensity of the proposed site plan or subdivision by the Planning Board, based upon specific levels of service.

ADT (AVERAGE DAILY TRAFFIC): The number of vehicles per day that pass over a given point.

ADVERSE DRAINAGE CONDITION: Exists when due to the absence or inadequacy of drainage facilities or drainage easements of such size, design, location, construction or condition, in a drainageway leading to, along, or through a County road or County drainage structure within or exterior to a proposed site development or subdivision, one or more of the following adverse drainage conditions could result: flooding, erosion, silting, or other damaging effects to a County road or County drainage structure and/or damage to private property.

ADVERSE AFFECT: When vehicle traffic and/or stormwater drainage from a development that will travel or flow to, through, over, on, or along a county road, county drainage easement, county drainage structure, county drainage facility or buildings and lands owned or maintained by Hudson County, will cause the carrying capacity and/or safety of the county road, county drainage easement, county drainage structure, county drainage facility or buildings and lands owned or maintained by Hudson County to be diminished beyond the standards established in these Development Regulations.

AFFECT: When vehicle traffic and/or stormwater drainage from a development will travel or flow to, through, over, on, or along a county road, county drainage easement, county drainage structure, county drainage facility or buildings and lands owned or maintained by Hudson County.

AISLE: The traveled way by which cars enter and depart parking spaces.

ALLEY: A public or private street primarily designed to serve as secondary access to the side or rear of those properties whose principal frontage is on some other street.

APPLICANT: A developer submitting an application for development along a County Road or affecting traffic and drainage along a County Road.

APPLICATION FOR DEVELOPMENT: The application form and all accompanying documents required by these Regulations for approval of a subdivision plat or site plan.

APPROVING AUTHORITY: The County Planning Board or Site Plan and Subdivision Review Sub-Committee unless a different agency is designated by the Administrative Code or by resolution.

AQUIFER: A geologic stratum containing groundwater that can be withdrawn and used for human purposes.

ARTERIAL STREET: A higher-order, interregional road in the street hierarchy; conveys traffic between centers; should be excluded from residential areas. (See STREET HIERARCHY.)

AS-BUILT DRAWINGS: Plans that provide an accurate record of project conditions after construction has been completed. As-built plans should have concise details, which are determined by

accepted engineering/architectural plan standards.

AVERAGE DAILY TRAFFIC: means the number of vehicles per day that pass over a given point.

BARRIER CURB: A curb with vertical sides high enough to keep vehicles from crossing it. A Barrier curb is intended to prevent encroachments into oncoming traffic or construction zones. It can be used as a temporary safety device.

BELGIAN BLOCK CURB: also known as Granite block curb, means a curb constructed of rectangular-shaped stone or granite blocks, usually placed vertically in a concrete foundation.

BEST MANAGEMENT PRACTICES (BMPs): BMPs are used to control the generation and delivery of pollutants from the built environment to waterways, thereby reducing the amount of pollutants entering surface and ground waters. BMPs can be structural or non-structural.

BICYCLE LANE (BIKE LANE): A portion of a roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

BICYCLE PATH (BIKE PATH): A bikeway physically separated from motorized vehicular traffic by an open space or barrier, and either within the highway right-of-way or within an independent right-of-way or easement.

BIKEWAY: Any road, path or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

BOARD OF ADJUSTMENT, MUNICIPAL: The zoning board of adjustment established pursuant to N.J.S.A. 40:55D 69.

BOARD OR COUNTY PLANNING BOARD: A county planning board established by the county pursuant to R.S. 40:27-1 to exercise the duties set forth in such chapter, and means, in any county having adopted the provisions of the "Optional County Charter Law" (P.L. 1972, c. 154; C. 40:41A-1 et seq.), any department, division, board or agency established pursuant to the administrative code of such county to exercise such duties, but only to the degree and extent that the requirements specified in such chapter for county planning boards do not conflict with organization and structure of such department, division, agency or boards as set forth in the administrative code of such county.

BRIDGE: A structure having a clear span in excess of twenty (20) feet designed to convey vehicles and/or pedestrians over a water course, railroad, highway, or other obstacle or depression.

BUFFER: An area of existing natural vegetation or area created by the use of trees, shrubs, fences, berms, walls, open space, other landscaping, or a combination thereof, designed to physically separate or screen one use of property from another.

CAPITAL IMPROVEMENTS PROGRAM: A proposed schedule of all future projects listed in order of construction priority together with cost estimates and the anticipated means of financing each project.

CARTWAY: The actual road surface area from curbline to curbline, which may include travel lanes, parking lanes and deceleration and acceleration lanes. Where there are no curbs, the cartway is that portion between the edges of the paved or hard surface width.

CATCH BASIN: Curbside opening that collects rainwater from streets and serves as an entry point to the storm drain system.

CENTERLINE OFFSET OF ADJACENT INTERSECTIONS: The gap between the centerline of roads adjoining a common road from opposite or same sides.

CHANNEL: Any natural or man-made waterway or course through which a constant or intermittent flow of water is conveyed.

CHANNELIZATION: The straightening and deepening of channels, and/or the surfacing thereof to permit water to move rapidly or to redirect the flow of surface water.

CIRCULATION: Systems, structures and physical improvements for the movement of people, goods, water, air, sewage or power by such means as sidewalks, waterfront walkways, bikeways, streets, highways, railways, waterways, towers, airways, pipes and conduits, and the handling of people and goods by such means as activity centers, parks, terminals, stations, warehouses, and other storage buildings or transshipment points.

COMBINED SEWER: Sewers which receive and transport both stormwater and sanitary waste in a single pipe.

COMBINED SEWER OVERFLOW: The result of a combined sewer reaching capacity during a storm event and having to relieve the transmitted stormwater and sanitary waste above the sewer or receiving treatment plant's capacity into a natural body of water. This releases large amounts of untreated waste into the receiving body of water contributing to the degradation of the natural waterway.

COMMON OPEN SPACE: An open space area within or related to a site designated as a development, and designed and intended for the use or enjoyment of the residents and owners of the development. Common open space may contain such complementary structures and improvements as are necessary and appropriate for the use or enjoyment of residents and owners of the development.

COMPACTION: The increase in soil bulk density.

COMPLETE APPLICATION: An application for site plan or subdivision approval, which includes all of the information and accompanying documents, required by these Regulations for formal review.

COMPLETE STREETS: A means to provide safe and convenient access for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods and public transit users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options.

COMPLETE STREETS INFRASTRUCTURE: Any design feature that contributes to a safe, convenient, and comfortable travel experience for all users, which may include such features as sidewalks, bike lanes, tight curb radii, street trees, crosswalks, street furniture, stormwater management, and the like.

COMPLETE STREET POLICY: A transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

CONCEPT PLAN: A preliminary presentation and attendant documentation of a proposed subdivision or site plan or planned unit development of sufficient accuracy to be used for the purpose of discussion and classification.

CONDITIONALLY ACCEPTABLE: A development application is likely to be acceptable, provided that conditions specified in these regulations are satisfied.

CONSERVATION RESTRICTION: A restriction, easement, covenant, or condition, in any deed, will or other instrument, other than a lease, executed by or on behalf of the owner of the land, appropriate to retaining land or water areas predominantly in their natural state, scenic or open or wooded condition, or for conservation of soil or wildlife, or for outdoor recreation or park use, or for public access to tidal waterways and their shores, or as suitable habitat for fish or wildlife, to forbid or limit any or all of the following:

1. Construction or placing of buildings, roads, signs, billboards or other advertising, or other structures on or above the ground;

2. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste or unsightly or offensive materials;

3. Removal or destruction of trees, shrubs or other vegetation;

4. Excavation, dredging or removal of loam, peat, gravel, soil, rock or other mineral substance;

5. Surface use except for the purposes permitting the land or water area to remain predominantly in its natural condition;

6. Activities detrimental to drainage, flood control, water conservation, erosion control or soil conservation, or fish and wildlife habitat preservation; and

7. Other acts or uses detrimental to the retention of land or water areas according to the purposes of this chapter.

CONVENTIONAL DEVELOPMENT: Development other than planned development.

CONVEYANCE: The process of water moving from one place to another.

COUNTY CONSTRUCTION PERMIT: Any of the permits issued by Hudson County prior to initiating excavation affecting the integrity of pavements, curbs, drainage facilities and bridges along, adjacent to or affecting a county road.

COUNTY DRAINAGE FACILITY: (See DRAINAGE

FACILITY). Includes, but is not limited to, bridges, culverts, headwalls, curbs, gutters, inlets, catch basins, ditches, ground water recharge, detention, or retention basins, pipes, pumps, or related types of structural or non-structural facilities to provide for the conducting, detaining, treatment, or retaining of storm water and for which the County is responsible for construction, maintenance or proper functioning. Also included are County parklands.

COUNTY MASTER PLAN: A composite of the Master Plan for the physical development of the County, with the accompanying maps, plats, charts, and descriptive and explanatory matter as adopted pursuant to N.J.S.A. 40:27 2 by the Planning Board.

COUNTY PLANNING ACT: (N.J.S.A. 40:27-6.1 et seq.) New Jersey law establishing the powers of the County to create a county planning board of not less than five or more than nine members, who's responsibilities include adopting and enforcing a master plan for the physical development of the county. In addition, the Act provides the ability to review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section.

COUNTY PLANNING BOARD: A county planning board established by a county pursuant to N.J.S.A. 40:27-1 to exercise the duties set forth in such chapter, and means, in any county having adopted the provisions of the "Optional County Charter Law" (P.L.1972, c. 154; C. 40:41A-1 et seq.), any department, division, board or agency established pursuant to the administrative code of such county to exercise such duties, but only to the degree and extent that the requirements specified in such chapter for county planning boards do not conflict with the organization and structure of such department, division, agency or board as set forth in the administrative code of such county.

COUNTY PLANNING DIRECTOR: The Director of the Division of Planning.

COUNTY ROAD: Any road maintained by the Board of Chosen Freeholders of Hudson County.

COUNTY STREET TREE: a tree planted along the sidewalk, in a planting strip, in the public right-of-way adjacent to (or a specified distance from) the portion of the street reserved for vehicular traffic, and/or in sidewalks or planting strips adjacent to County owned property. This also includes trees planted in planting strips within the roadway right-of-way, i.e., islands, medians, pedestrian refuges.

COUNTY TREE: A tree located on land owned by the County, or which is located on a street, highway, public place, right-of-way (ROW), County easement, park, or parkway or within the sidewalk lines.

CULVERT: A closed or open conduit designed for the purpose of conveying an open channel watercourse under a road, highway, pedestrian walk, railroad embankment, or other type of overhead structure.

CURB: A vertical or sloping edge of a roadway, paved area, or parking area consisting of stone, concrete, or other improved boundary marking material. (See also BELGIAN BLOCK CURB, BARRIER CURB, MOUNTABLE CURB).

DAMS AND EMBANKMENTS: Artificial dikes, levees, or other barriers, with appurtenances, for the purpose of impounding or retaining water.

DAYS: Calendar days.

DECELERATION LANE: The lane or added pavement width at an intersection or other point of exit from a County road, designed to enable vehicles leaving the highway to make the necessary reduction in speed without interfering with the free movement of through traffic.

DEDICATION: An appropriation of land to some public use made by the owner and accepted for such use by, or on behalf of, the public.
DENSITY: The permitted number of dwelling units per gross acre of land to be developed.

DESIGN ENGINEER: A person professionally qualified and duly licensed to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design, and preparation of drawings and specifications.

DESIGN FLOOD: The design storm event required by NJDEP, as outlined in N.J.A.C. 7:13-3.2.

DESIGN GUIDELINES: Guidelines that provide a general framework for sound planning.

DESIGN STANDARDS: Standards that set forth specific improvement requirements.

DETENTION BASIN: A man made or natural stormwater surface or subsurface collector facility designed to collect storm water in order to impede its flow and to release the same gradually at a rate

determined by the appropriate regulatory agency.

DEVELOPER: The legal or beneficial owner or owners of a lot or of any land proposed to be included in a proposed development, including the holder of an option or contract to purchase, or any other person having enforceable proprietary interest in such land.

DEVELOPMENT: The division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any building or other structure, or of any mining excavation or landfill; and any use or change in the use of any building, or other structure, or land, or extension of use of land.

DEVELOPMENT AGREEMENT: A contract negotiated between the Planning Board and the developer setting forth the rights, duties and obligations of both parties with regard to a particular development.

DEVELOPMENT, CONVENTIONAL: Development other than planned development.

DEVELOPMENT PLAN, GENERAL: A comprehensive plan for the development of a planned development, as provided in the Municipal Land Use Law.

DEVELOPMENT, PLANNED: Unit development, planned unit residential development, residential cluster, planned commercial development, or planned industrial development.

DEVELOPMENT, PLANNED UNIT RESIDENTIAL: An area with a specified minimum contiguous acreage of five acres or more to be developed as a single entity according to a plan, containing one or more residential clusters, which may include appropriate commercial or public or quasi-public uses, all primarily for the benefit of the residential development.

DEVELOPMENT REGULATION: A subdivision or site plan review resolution or ordinance, a zoning ordinance, official map ordinance or other municipal, county or state regulation of the use and development of land, adopted pursuant to the Municipal Land Use Law, or county or state enabling legislation.

DISCOURAGED: A proposed development application is likely to be rejected or denied as the Planning Board, County Engineer or Planning Staff has determined that such development should not meet land use regulations and standards. In cases where the Board considers the proposed use to be in the public interest despite its discouraged status, the Board may permit the use provided that mitigating or compensating measures can be taken so that there is a net gain in quality and quantity of traffic or stormwater run-off affecting county roads or drainage facilities.

DISTURBANCE: the addition of impervious surface (e.g. pavement); exposure or movement of soil or bedrock (e.g. grading, excavation); or clearing, cutting, or removing vegetation.

DIVIDED STREET: A street having an island or other barrier separating opposing moving lanes.

DOWNTOWN AVENUE: A Downtown Avenue is a vibrant mixed-use corridor, lined with retail and restaurants that attract people from the region. These streets are generally 2-4 travel lanes on-street parking on both sides. Ample sidewalks should be provided to allow for pedestrian circulation, shopping and outdoor dining. Since Downtown Avenues generally service users that may not be from the neighborhood, clear and comprehensive pedestrian and vehicular wayfinding is essential.

DRAINAGE: The removal of surface water or ground water from land by drains, grading, green infrastructure or other means. This includes control of runoff during and after construction or development to minimize erosion and sedimentation to assure the adequacy of existing and proposed culverts and bridges, to induce water recharge into the ground where practical, to lessen nonpoint pollution, to maintain the integrity of street channels for their biological functions as well as for drainage, and the means necessary for water, supply preservation or prevention or alleviation of flooding.

DRAINAGE AREA: A geographic area within which stormwater runoff, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

DRAINAGE FACILITY: Any component of the drainage system. (See DRAINAGE SYSTEM).

DRAINAGE RIGHT-OF-WAY or Drainage Easement: The land required for the installation or maintenance of stormwater systems or drainage swales, ditches, and streams or the area required along a stream or water course in order to preserve the channel and provide maintenance and to allow for the free flow of storm water therein to safeguard the public against flood damage.

DRAINAGE SYSTEM: Natural and man-made components that contain, convey, absorb, store, treat, or dispose of surface water runoff or ground water. Street trees and their root systems and other green infrastructure mechanisms are an integral component of the County's drainage and stormwater management system.

DRIVEWAY: A defined paved or unpaved surface used for ingress or egress of vehicles, and allowing access from a street to a building or other structure or facility. A driveway is not a road, street, boulevard, highway or parkway.

DWELLING UNIT: A house, townhouse, apartment, cooperative, condominium, cabana, hotel or motel room, a patient/client room in a hospital, nursing home or other residential institution, mobile home, campsite for a tent or recreational vehicle, floating home or any habitable structure of similar size and potential environmental impact.

EASEMENT: A right-of-way granted, but not dedicated for limited use of private land for a public or a quasi-public purpose and within which the owner of the property shall not erect any permanent structures.

EASEMENT FOR COUNTY ROAD PURPOSES: An easement to the County for the purpose of installation of utilities, construction, reconstruction, widening, or improving a County road and the construction, reconstruction or alteration of facilities and traffic control devices.

EDGE DEFINITION: As it pertains to streets, a way of identifying the traveled way from the nontraveled way, such as by the use of railings, bollards, wheel stops, or edge plantings.

EMERGENCY SPILLWAY: A supplemental spillway whose function is to pass the design storm flows in the event the principal spillway fails to operate as designed or is blocked.

ENCOURAGED: A proposed development application is acceptable and is a use, by its purpose, location, design, and effect, that the Board, County Engineer and Planning Staff has determined should be fostered and supported.

ENCROACHMENT: Any obstruction or illegal or unauthorized intrusion in a delineated floodway, right-of-way, or on adjacent land.

EROSION: The detachment and movement of soil or rock fragments by water, wind, ice, and gravity.

ESCROW: A deed, bond, money, or piece of property delivered to a third person to be delivered by him to the grantee only upon fulfillment of a condition.

EXEMPT SUBDIVISION: See SUBDIVISION.

FACILITIES, COUNTY: Structures, buildings, or land owned or operated by Hudson County.

FENCE: An artificially constructed barrier of wood, masonry, stone, wire, metal or any other manufactured material or combination of materials.

FINAL APPROVAL: The official action of the planning board taken on a preliminarily approved major subdivision or site plan, after all conditions, engineering plans and other requirements have been completed or fulfilled and the required improvements have been installed or guarantees properly posted for their completion, or approval conditioned upon the posting of such guarantees.

FINAL PLAT: The final map of all or a portion of a subdivision meeting all of the standards and regulations of these Regulations and meeting all of the conditions established by the Planning Board which is presented for final approval.

FLOOD PLAIN: That area of land adjacent to a brook, stream, river or other waterway that becomes covered with water when the flow of the waterway overtops its banks.

FLOOR AREA RATIO (FAR): The relationship between the amount of useable floor area permitted in a building (or buildings) and the area of the lot on which the building stands. It is obtained by dividing the gross floor area of a building by the total area of the lot.

FRANCHISE: A limited and revocable authorization, right or permission granted by the Board of Chosen Freeholders to encroach or occupy county property or a portion of the county right-of-way. A metes and bounds description and survey signed and sealed by a licensed land surveyor is required.

FRONTAGE: See LOT FRONTAGE.

GABION: A shore protection structure that is comprised of wire mesh basket(s) or mattress(es) filled with rock and used in multiples as a structural unit installed to withstand the forces of waves and currents. A gabion is not a "bulkhead" or a "revetment" as defined elsewhere in this section.

GOVERNING BODY: The County Executive and the Board of Chosen Freeholders.

GRADE: The inclination of a sloping surface, usually expressed in percentage (%) terms.

GRADED AREA: As it pertains to streets, land adjacent and parallel to the cartway within the right-of-way, which must be flattened or leveled to the same width and cross-slope as a sidewalk, if a sidewalk had been required at that location.

GRANITE BLOCK CURB: Also known as Belgian block curb, means a curb constructed of rectangular-shaped stone or granite blocks, usually placed vertically in a concrete foundation.

GREEN STORMWATER INFRASTRUCTURE ("GSI") - An adaptable term used to describe an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. As a general principle, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspiration, cleanse, and/or recycle stormwater runoff. When used as components of a stormwater management system, Green Infrastructure practices such as green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these technologies can simultaneously help improve air quality, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits.

GROUND COVER: Low growing plants or sod that in time form a dense mat covering the area in which they are planted preventing soil from being blown or washed away and the growth of unwanted plants.

GUIDE RAIL: A safety barrier designed to protect motor vehicles from hazardous areas.

GUTTER: A shallow channel usually set along a curb or the pavement edge of a road for purposes of catching and carrying off runoff water.

HABITABLE STRUCTURE: A structure that is able to receive a certificate of occupancy from the municipal construction code official, or can be demonstrated to have been legally occupied as a dwelling unit for the most recent five years.

HISTORIC SITE: An historic site registered on a Federal, State or Municipal registry or in the process of such registration.

HISTORIC ZONE: One or more historic sites and intervening or surrounding property significantly affecting or affected by the quality and character of the historic site or sites.

HYDROLOGIC RESPONSE: The properties, distribution, and circulation of water.

ILLICIT DISCHARGES: Discharges of non-stormwater to the storm drainage system. Examples are discharges from internal floor drains, appliances, industrial processes, sinks, and toilets that are connected to the nearby storm drainage system. These discharges should be going to the sanitary sewer system, a holding tank, an on-site process water treatment system, or a septic system.

IMPERVIOUS COVER: Any structure, surface, or improvement that reduces and/or prevents absorption of stormwater into land. Porous paving, paver blocks, gravel, crushed stone, crushed shell, elevated structures (including boardwalks), and other similar structures, surfaces, or improvements are considered impervious cover. Grass, lawns, or any other vegetation are not considered impervious cover.

IMPERVIOUS SURFACE: A surface that has been compacted or covered with a layer of material so that it is highly resistant to infiltration by water.

IMPROVED PUBLIC STREET: For subdivision purposes or site plan, any street which complies in width and construction with County standards.

IMPROVEMENT: Any man made, immovable item which becomes a part of, is placed upon, or is affixed to, real estate.

INDUSTRIAL AVENUE: Industrial Avenues have wide lanes, large turning radii and other characteristics that allow trucks to safely access industrial uses. These roadways are often located in large, open areas of land and are lined with surface parking lots and low-rise warehouses and industrial buildings. Pedestrian and bicycle access in these areas are very limited. In many cases, these roads are located within wetlands or environmentally sensitive areas such as the Meadowlands.

INFILTRATION: The process by which water seeps into the soil dependant on soil permeability.

INTENSITY OF DEVELOPMENT: The classification of development based on the number of dwelling

units per gross acre of land served by a particular street, excluding the acreage of dedicated common open space or other areas restricted from future development.

INVERT: Elevation to the inside bottom of the pipe.

ISLAND: In street design, a raised area, usually curbed, placed to guide traffic, separate lanes, or used for landscaping, signing, or lighting.

LAND: Real property including improvements and fixtures on, above, or below the surface.

LEED: Leadership in Energy and Environmental Design.

LOT: A designated parcel, tract or area of land established by plat or otherwise as permitted by law and to be separately used, sold, developed or built upon as a unit.

LOT AREA: The size of a lot measured within the lot lines and expressed in terms of acres or square feet.

LOT FRONTAGE: That portion of a lot extending along a street line.

LOW IMPACT DEVELOPMENT (LID): A comprehensive stormwater management and site-design technique. Within the LID framework, the goal of any construction project is to design a hydrologically functional site that mimics predevelopment conditions. This is achieved by using design techniques that infiltrate, filter, evaporate, and store runoff close to its source. Rather than rely on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small, cost-effective landscape features located on-site. LID is a versatile approach that can be applied to new development, urban retrofits, and revitalization projects. This design approach incorporates strategic planning with micro-management techniques to achieve environmental protection goals while still allowing for development or infrastructure rehabilitation to occur.

MAIN: In any system of continuous piping, the principal artery of the system to which branches may be connected.

MAIN STREET: The Main Street is a 2-4 lane vibrant street that is the heart of the community. Often lined with residential, retail and commercial uses, the Main Street provides residents with a walkable environment where they can socialize, have access to transit and shop for their day-today needs. The streets tend to have moderate vehicular traffic, high pedestrian traffic and relatively high parking turnover.

MAINTENANCE BOND: Any security that is acceptable to the governing body to assure the maintenance of approved installations by developers for a period of two (2) years after release of developer's performance guarantee with respect to such improvements.

MAINTENANCE GUARANTEE: Any security which may be accepted by the County for the maintenance of any improvements required by the County Planning Act and these regulations, including but not limited to surety bonds, letters of credit under the circumstances specified in N.J.S.A. 40:27-6, and cash.

MAINTENANCE PLAN: A reference document describing the maintenance of a building, vehicle, road, machine or system and the process of keeping it in good condition by regularly checking it and repairing it when necessary.

MAJOR COLLECTOR: The highest order of residential street (See STREET HIERARCHY). Conducts and distributes traffic between lower-order residential streets and higher-order streets (arterials and expressways).

MAJOR DEVELOPMENT: New development that will ultimately result in the disturbance of one or more acres of land, or increase impervious surfaces by one-quarter acre (or 10,890 square feet) or more, per N.J.A.C. 7:8. Disturbance for the purpose of these regulations is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.

MANHOLE: An inspection chamber whose dimensions allow easy entry and exit and working room for the person inside.

MARGINAL ACCESS STREET: A service street that runs parallel to a higher order street which, for purposes of safety, provides access to abutting properties and separation from through traffic. It may be designed as a residential access street or subcollector as anticipated daily traffic dictates.

MASTER PLAN: A composite of one or more written or graphic proposals for the development of the County, as set forth and adopted by the Board of Chosen Freeholders pursuant to N.J.S.A. 40:27-2 et seq.

MEDIAN: That portion of a divided highway

separating the traveled ways of traffic proceeding in opposite directions.

MINOR COLLECTOR: Middle order of residential street (See STREET HIERARCHY). Provides frontage for access to lots, and carries traffic to and from adjoining residential access streets.

MIXED URBAN BOULEVARD: A broad street similar in character to the Residential Boulevard except that the land-use and character has changed and evolved over time. This has left these corridors with a variety of uses, ranging from residential to industrial that may or may not be compatible with one another. These corridors require an additional level of attention since there is a need to establish visual continuity while addressing the specific needs of the varying uses.

MIXED USE: Two or more different uses, one of which is residential.

MIXED USE AVENUE: Corridors that have a variety of uses but do not have the character, synergy of uses or density associated with other mixed-use street typologies such as Downtown Avenues or Main Streets. Common characteristics found in Mixed-Use Avenues may include gaps in street wall, uses that are generally not compatible or vehicular oriented commercial or residential uses.

MLUL: Municipal Land Use Law N.J.S.A. 40:55D 1 et seq.

MOUNTABLE CURB: Curbs designed so that errant vehicles can cross them readily without further loss of vehicular control. They are low with flat slopping faces. They are used to discourage vehicles from crossing medians or islands at or near intersections.

MOVING LANE: Any traffic lane where traffic movement is the primary, if not sole, function.

MULCH: A layer of wood chips, dry leaves, straw, hay, plastic, or other materials placed on the surface of the soil around plants to retain moisture, prevent weeds from growing, hold the soil in place, and aid plant growth.

MULTIFAMILY DEVELOPMENT: A development other than one- or two-family detached dwellings where the dwellings are arranged so that there are more than two units attached, regardless of the presence of lot lines.

MULTI-MODAL IMPACT REPORT (MMIR): Measures the movement of people rather than vehicles. The intent of the report is to recognize that not everybody drives and that different modes can be more resource efficient for different types of trips. From this perspective, the transportation network is most efficient when users are able to select the most appropriate mode for each trip, such as walking and cycling for local errands, public transit and ridesharing for travel on major corridors, and automobile travel when it is truly most efficient overall. The Report should integrate and identify transportation and land use planning data to identify in the transportation network such as areas with poor walking and cycling conditions, and constraints to public transit access. The MMIR should address planning and design practices that help create corridors, neighborhoods and regions with diverse transportation options, including convenient, comfortable and affordable alternatives to automobile travel.

MUNICIPALITY: Any city, borough, town, township, or village.

MUTCD: Manual on Uniform Traffic Control Devices.

NEIGHBORHOOD STREET: A local residential street that is typically one lane when one-way or two travel lanes when two-way. In both cases, on-street parking is located on both sides of the street. These streets are predominantly residential in character but often have convenience retail located on-street corners. Neighborhood Streets should be safe and inviting for pedestrians and bicyclists while allowing vehicles to travel at lower speeds.

NEW BUILDING LOT: Any lot being created by a subdivision upon which one or more principal buildings or structures could be erected under the provisions of the Municipal Zoning Ordinance in the municipality in which said lot is located.

NONSTRUCTURAL MANAGEMENT PRACTICES: Those controls of stormwater runoff and nonpoint source pollution that are not structural in nature, such as landscaping techniques, source controls, zoning, setbacks, buffers, or clustering.

OFFICIAL COUNTY MAP: The map, with changes and additions thereto, adopted and established, from time to time, by resolution of the Board of Chosen Freeholders of the County pursuant to N.J.S.A. 40:27-5.

OFF-SITE: Located outside the lot lines of the lot in question but within the property (of which the lot is a part) which is the subject of a development application or contiguous portion of a street or right-of-way.

OFF-STREET PARKING SPACE: A temporary storage area for a motor vehicle that is directly accessible to an access aisle, and that is not located on a dedicated street right-of-way.

OFF-TRACT: Not located on the property which is the subject of a development application, nor on a contiguous portion of street or right-of-way.

ON-SITE: Located on the lot in question.

ON-STREET PARKING SPACE: A temporary storage area for a motor vehicle which is located on a dedicated street right-of-way.

ON-TRACT: Located on the property which is the subject of the development application, or on a contiguous portion of a street or right-of-way.

OPEN SPACE: Any parcel or area of land or water essentially unimproved and set aside, dedicated, designated or reserved for public or private use or enjoyment of owners and occupants of land adjoining or neighboring such open space; provided that such areas may be improved with only those buildings, structures, streets, and off-street parking and other improvements that are designed to be incidental to the natural openness of the land.

OUTFALL: The point where runoff discharges from a storm sewer pipe, ditch, or other conveyance to a receiving body of water.

OWNER: Any individual, firm, association, syndicate, co partnership, or corporation having sufficient proprietary interest in the land sought to be subdivided to commence and maintain proceedings to subdivide the same under a Municipal Subdivision ordinance and these Regulations.

PARKING LANE: A lane usually set on the sides of streets, designed to provide on-street parking for vehicular traffic.

PARKING LOOP: A private street with perpendicular parking.

PARKING LOT: A ground-level, generally open area that provides storage for motor vehicles that may provide access to dwelling units and which has aisles that carry traffic with destination or origin in the lot itself.

PARKING SPACE: An area provided for the parking of a motor vehicle.

PAVEMENT: A surface created to facilitate passage of people and/or vehicles, usually constructed of brick, stone, concrete or asphalt.

PAVEMENT, IMPERVIOUS: A hard surface area that either prevents or retards the entry of water into the soil mantle as occurs under natural conditions (prior to development), and from which water runs off at an increased rate of flow or in increased volumes. Common impervious surfaces include but are not limited to rooftops, walkways, patios, driveways, parking lots, storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled or macadam surfaces means a surface that has been compacted or covered with a layer of material so that it is highly resistant to infiltration by water.

PAVEMENT, PERVIOUS: A permeable surface that readily transmits fluids into the underlying base material. The pavement may be permeable concrete, permeable asphalt, or manufactured systems including but not limited to: interlocking brick, permeable pavers with clean stone base or a combination of sand and brick lattice.

PEAK FLOW RATE: The peak flow rate associated with an infrequent (typically 5 to 25 year) storm event.

PEDESTRIAN GENERATOR: A development which will realize high facility usage by persons arriving on foot.

PERC TEST (Percolation Test): A test designed to determine the ability of the ground to absorb water; and used in determining the suitability of a soil for drainage or for the use of a septic system.

PERFORMANCE GUARANTEE: Any security which may be accepted by the County including but not limited to surety bonds, letters of credit under the circumstances specified in N.J.S.A. 40:27-6 et seq., and cash. Approval of a site plan or final approval of a subdivision may be made contingent upon a performance guarantee for required improvements.

PERVIOUS SURFACE: Any surface that permits full or partial portion of surface water to be absorbed.

PLANNING BOARD: The County Planning Board established pursuant to N.J.S.A. 40:27 1 et seq., and the Hudson County Administrative Code Article 6, Section 4.

PLAT: A map or maps of a subdivision or a site plan.

POLLUTANT: Any dredged spoil, solid waste,

incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and non-hazardous pollutants.

PRE-APPLICATION CONFERENCE: An initial meeting between developers and county representatives which affords developers the opportunity to present their proposals informally.

PRELIMINARY APPROVAL: The conferring of certain rights prior to final approval after specific elements of a development plan have been agreed upon by the planning board and the applicant.

PRELIMINARY FLOOR PLANS AND ELEVATIONS: Architectural drawings prepared during early and introductory stages of the design of a project illustrating in a schematic form its scope, scale, and relationship to its site and immediate environs.

PRELIMINARY PLAT: The preliminary map indicating the proposed layout of the subdivision showing or being accompanied by all of the required information.

PROWAG: Public Rights-of-Way Accessibility Guidelines.

PUBLIC DRAINAGE WAY: The land reserved or dedicated for the installation of storm water sewers or drainage ditches, or required along a natural stream or watercourse for preserving the biological as well as drainage function of the channel and providing for the flow of water to safeguard the public against flood damage, sedimentation and erosion and to assure the adequacy of existing and proposed culverts and bridges, to induce water recharge into the ground where practical, and to lessen nonpoint pollution.

PUBLIC OPEN SPACE: An open space area conveyed or otherwise dedicated to a municipality, municipal agency, board of education, state or county agency, or other public body for recreational or conservation uses.

QUORUM: The majority of the full authorized membership of the County Planning Board.

RATIONAL METHOD: A method of runoff calculation.

RECHARGE: The flow to groundwater from the infiltration of surface and stormwater runoff.

REPORTING PERIOD: The 30 day period in which the County Planning Board shall have to submit a report on a site plan or subdivision plat to the municipality involved. The reporting period commences with the receipt of all information required by these Regulations and the Division of Planning. A letter to the municipal approving authority from the County Planning Board, indicating a need for additional information, plan changes, or compliance with standards, shall be considered as notice to municipal authorities and fulfill the reporting requirement. In the event that additional information or clarification is required, an additional 30 day reporting period will commence upon receipt of the required information, response to inquiry, or revised site plan or subdivision plat.

RESIDENTIAL ACCESS STREET: The lowest order of residential street (See STREET HIERARCHY). Provides frontage for access to private lots, and carries traffic having destination or origin on the street itself. Designed to carry traffic at slowest speed. Traffic volumes should not exceed 250 ADT at any point of traffic concentration. The maximum number of housing units should front on this class of street.

RESIDENTIAL BOULEVARD: A Residential Boulevard is a broad street that traverses a predominantly residential neighborhood. The street has grand, aesthetically appealing character offering wide sidewalks, full street tree canopy, on-street parking and ample lanes for vehicles. Often times, the uses within a boulevard will be separated by landscaped medians, which calm traffic, buffer the adjacent residences and reduce the scale of the street.

RESUBDIVISION: Shall mean (1) the further division or relocation of lot lines of any lot or lots within a subdivision previously made and approved or recorded according to law; or (2) the alteration of any streets or the establishment of any new streets within any subdivision previously made and approved or recorded according to law, but not does not include conveyances so as to combine existing lots by deed or other instrument.

RETAINING WALL: A structure erected between lands of different elevation to protect structures and/or to prevent the washing down or erosion of earth from the upper slope level.

RETENTION: The process of collecting and holding surface and storm water runoff with no surface outflow.

RETENTION BASIN: A pond, pool or basin used for permanent storage of water runoff.

RETROFIT: The modification of an existing development with or without an existing stormwater management system through the construction and/or enhancement of a manufactured (i.e. a Vortechs System) or natural BMP (best management practice) designed to improve water quality.

REVETMENT: A sloped shore protection structure consisting of a facing made of stone, placed on a bank, bluff, or shoreline to withstand the forces of waves and currents. A revetment is not a "gabion" or "bulkhead" as defined elsewhere in this section.

RIGHT-OF-WAY: A strip of land occupied or intended to be occupied by a street, crosswalk, railroad, road, electric transmission line, gas pipeline, water main, sanitary or storm sewer main, shade trees or for another special use.

RSIS: RESIDENTIAL SITE IMPROVEMENT STANDARDS – N.J.A.C. Title 5, Chapter 21.

RUNOFF: Water originating from rainfall and other precipitation that ultimately flows into drainage facilities, rivers, streams, springs, seeps, ponds, lakes, and wetlands as well as shallow groundwater.

RUNOFF COEFFICIENT: The percentage of rainfall volume that will become runoff.

SCENIC BOULEVARD: A 2-4 lane road that passes through and/or connects scenic swaths of open space, parks or view-sheds. Scenic Bouleavrds are generally abutted by landscape and open space with few street-fronting uses. However, in some areas street fronting uses may line one-side of the street. Scenic Boulevards provide a scenic and enjoyable ride for drivers and cyclists.

SCREEN: A structure or planting consisting of fencing, berms, and/or evergreen trees or shrubs providing a continuous view obstruction within a site or property.

SEDIMENT: Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

SEDIMENTATION: The deposit of soil that has been transported from its site of origin by water, ice, wind, gravity, or other natural means as a product of erosion.

SEPTIC SYSTEM: An underground system with a septic tank used for decomposition of domestic wastes.

SEPTIC TANK: A water tight receptacle that receives the discharge of sewage.

SETBACK: The distance between the street right-of-way line and the front line of a building or any projection thereof, excluding uncovered steps.

SEWAGE DISPOSAL SYSTEM: A sanitary sewerage disposal/treatment system consisting of but not limited to disposal pipes, septic tank, distribution box disposal fields/beds or trenches which disposes or treats sewage from a single residential or commercial unit.

SEWER: Any pipe conduit used to collect and carry away sewage or storm water runoff from the generating source to treatment plants or receiving streams.

SHADE TREE: A tree in a public place, street, special easement, or right-of-way adjoining a street.

SHEET FLOW: The portion of precipitation that moves initially as overland flow in very shallow depths before eventually reaching a stream channel.

SHOULDER: The graded part of the right-of-way that lies between the edge of the main pavement (main traveled way) and the curbline for the accommodation of stopped vehicles, for emergency use and for lateral support of base and surface courses.

SIDEWALK (AREA): An improved path for pedestrian use outside of the cartway consisting of four zones: the Edge Zone, the Amenity Zone, the Through Zone and the Frontage Zone.

SIGHT TRIANGLE: A triangular shaped, portion of land established at street intersections in which nothing is erected, placed, planted, or allowed to grow in such manner as to limit or obstruct the sight distance of motorists entering or leaving the intersection.

SILTATION BASIN: A temporary facility, designed in accordance with the standards of these Regulations, to collect silt and eroded soil resulting from grading

the area of a subdivision, for the purpose of limiting the deposit of silt and eroded soil in streams and brooks.

SITE: The lot or lots upon which a proposed development is to be constructed.

SITE IMPROVEMENTS: Any construction work on, or improvement in connection with, residential development limited to streets, roads, parking facilities, sidewalks, drainage structures, and utilities.

SITE PLAN: A development plan of an existing lot or plot or a subdivided lot on which is shown (1) the existing and proposed conditions of the lot, including but not necessarily limited to topography, vegetation, drainage, flood plains, marshes and waterways; (2) the location of all existing and proposed buildings, drives, parking spaces, walkways, means of ingress and egress, drainage facilities, utility services, landscaping, structures; signs, lighting and screening devices; and (3) any other information that may be reasonably required in order to make an informed determination pursuant to these Regulations. Such plan shall be at the scale specified by the Hudson County Division of Planning.

SITE PLAN APPLICATION: An official application form required by Hudson County for the review and/or approval of site plans, including preliminary and final applications for Minor and Major site plans. This application, available at the Division of Planning Office, states the requirements needed before review can begin, time limit of application and related fees.

SITE PLAN REVIEW Committee (SPRC) TEAM: A team of County specialists which meets weekly to review submitted site plans in accordance with the standards and criteria established by Freeholder resolution. This team may be comprised of representatives from the Division of Planning, the Department of Public Resources, the County Planning Board, the attorney to the County Planning Board, and other County specialists, and shall make recommendations to the Planning Board's Subdivision and Site Plan Committee.

SITE PLAN, MAJOR OR MINOR: Site plan classified as major or minor by appropriate municipal authority pursuant to the applicable ordinance or resolution.

SKETCH PLAT: Rough layout of a proposed land development of sufficient detail, clarity, and accuracy to be used for discussion prior to submission of a preliminary plat.

SLOPE: The inclination of a surface, usually expressed in percentage terms or feet per foot.
SLOPE, AVERAGE: The average slope of an area expressed in percentage terms or feet per foot.

SOIL: All unconsolidated mineral and organic material of any origin.

SOIL EROSION: The gradual alteration of soil by crustal movement or by processes of weathering, transportation, and sedimentation.

STABILIZATION: As it pertains to streets, the ability of a surface to resist deformation from imposed loads. Stabilization can be accomplished by adequate thicknesses of asphalt base and surface course, dense graded aggregates, cement-treated soil aggregates, or concrete or precast masonry units set on a base course.

STABILIZED BASE COURSE (BITUMINOUS): Asphalt concrete material consisting of soil aggregate and bituminous material uniformly mixed and placed on a previously prepared surface or SUBGRADE.

STANDARDS OF PERFORMANCE: Standards (1) adopted by resolution pursuant to N.J.S.A. 40:27-1 et seq. regulating traffic, drainage, stormwater run-off, noise levels, glare, earthborne or sonic vibrations, heat, electronic or atomic radiation, noxious odors, toxic matters, explosive and inflammable matters, smoke and airborne particles, waste discharge, screening of unsightly objects or conditions and such other similar matters as may be reasonably required by the county or (2) required by applicable federal or State laws or municipal ordinances.

STEEP SLOPES: Any slope equal to or greater than 20 percent as measured over any minimum run of 10 feet. Steep slopes are determined based on contour intervals of two feet or less.

STORMWATER: Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities or conveyed by snow removal equipment.

STORMWATER DETENTION: A provision for storage of storm water runoff and the controlled release of such runoff during and after a flood or storm.

STORMWATER MANAGEMENT BASIN: An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that

is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT FACILITY: A facility which receives, stores, conveys, or discharges stormwater runoff and is designed in accordance with all applicable local, county, and State regulations. A stormwater management facility may be a retention or detention basin; infiltration structure; grassed swale; filter fabric; rip-rap channel; stormwater outfall and/or other green infrastructure BMP.

STORMWATER MANAGEMENT MEASURE: Any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

STORMWATER POLLUTION: Water from rain, irrigation, garden hoses or other activities that picks up pollutants (cigarette butts, trash, automotive fluids, used oil, paint, fertilizers and pesticides, lawn and garden clippings and pet waste) from streets, parking lots, driveways and yards and carries them through the storm drain system and directly or indirectly to a bay, canal, creek, marsh, or river.

STORMWATER RETENTION: A provision for the permanent storage of a fixed volume of water.

STORMWATER RUNOFF: Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

STREET: Any paved, stone or stabilized road, route or path used as an, avenue, boulevard, parkway, road, viaduct, lane, freeway, drive or other roadway which is an existing State, County or municipal roadway, or a street or a way shown upon a plat heretofore approved pursuant to law. This includes but is not limited to: the land between the right-of-way (ROW) or Access Easement lines as displayed on the tax maps, whether improved or unimproved, and may be comprised of pavement, shoulders, gutters, sidewalks, parking areas, and other areas within the ROW lines.

STREET FURNITURE: Man made, above ground items that are usually found in street rights of way, including, but not limited to, benches, kiosks, plants, canopies, shelters and phone booths.

STREET HARDWARE: The mechanical and utility systems within a street right-of-way such as hydrants, manhole covers, traffic lights and signs, utility poles and lines, parking meters and the like.

STREET HIERARCHY: The conceptual arrangement of streets based upon function. A hierarchical approach to street design classifies streets according to function, from high traffic arterial roads down to streets whose function is residential access. Systematizing street design into a road hierarchy promotes safety, efficient land use, and residential quality (See RSIS 5:21-4.1).

STREET, LOOP: A street that has as its only ingress and egress at two points on the same street.

STREET TYPOLOGY: The conceptual arrangement of streets based upon character, context and urban design elements necessary for a well-balanced complete street.

STUB STREET: A portion of a street for which an extension has been proposed or approved. May be permitted when development is phased over a period of time, but only if the street in its entirety has been approved in the preliminary plan.

SUBDIVIDER: Any individual, firm, association, syndicate, co partnership, corporation, trust or any other legal entity commencing proceedings, under the provisions of a Municipal Subdivision Ordinance and these Regulations to effect a subdivision of land for himself or for another. (Also see DEVELOPER).

SUBDIVISION: The division of a lot, tract, or parcel of land into two or more lots, tracts, parcels or other divisions of land for the purpose of sale or development. The following shall not be considered subdivisions within the meaning of these Regulations, if no new streets are created (1) divisions of property by testamentary or intestate provisions, (2) divisions of property upon court order, including but not limited to judgements of foreclosure, (3) consolidation of existing lots by deed or other recorded instrument and (4) the conveyance of one or more adjoining lots, tracts, or parcels of land, owned by the same person or persons, and all of which are found and certified by the administrative official to conform to the requirements of County development regulations, and are shown and designated as separate lots, tracts, or parcels on the tax map or atlas of the municipality. The term subdivision shall also include the term “resubdivision” as defined in the MLUL.

SUBDIVISION APPLICATION: Hudson County’s application for review and/or approval of Subdivision,

including preliminary and final applications for Minor and Major subdivisions. This application, available at the Division of Planning office, states the requirements needed before review can begin time limit of application and related fees.

SUBDIVISION AND SITE PLAN REVIEW COMMITTEE (SPRC): A committee appointed by the chairperson of the planning board for the purpose of reviewing, commenting, and making recommendations with respect to subdivision and site plan applications and having the power to approve minor site plans and subdivisions.

SUBDIVISION, MAJOR OR MINOR: Subdivision classified as major or minor by the appropriate municipal authority pursuant to the applicable municipal ordinance.

SUBGRADE: The prepared surface upon which pavements and shoulders are constructed.

SURFACE COURSE: The placement of the asphalt concrete material on a previously prepared base course or STABILIZED BASE COURSE.

SWALE: A shallow drainage conveyance with relatively gentle side slopes, generally with flow depths less than one foot.

TELECOMMUNICATIONS EQUIPMENT: Any antenna, cables, wires, utility poles, used to transmit, receive, distribute, or provide telecommunications services.

TOPSOIL: A fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic material used to top dress road banks roads and gardens. Usually the upper layer of soil material to a depth of six inches which is usually darker and richer than the subsoil.

TRAFFIC CALMING: Various design features and strategies intended to reduce vehicle traffic speeds and volumes on a particular roadway.

TRAVELED WAY: The portion of a cartway used for vehicular travel.

TRIBUTARY DRAINAGE AREA: Geographic areas both on and off a project's subject property and undisturbed areas within which stormwater runoff, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

TRIP: A single or one way vehicle movement to or from a property or study area. "Trips" can be added together to calculate the total number of vehicles expected to enter and leave a specific land use or site over a designated period of time.

UNSANCTIONED TREE REMOVAL: To kill or cause irreparable damage that leads to the decline and/or death of a tree. This includes, but is not limited to, excessive pruning, application of substances that are toxic to the tree, accidental impact from vehicular damage, over-mulching or improper mulching, and improper grading and/or soil compaction within the critical root radius around the base of the tree that leads to the decline and/or death of a tree. Removal does not include responsible pruning and maintenance of a tree, or the application of treatments intended to manage invasive species.

USGBC: United States Green Building Council.

USGS: United States Geological Survey.

UTILITY AREA: A flexible space within the right-of-way designated for the installation of utility lines and facilities.

VARIANCE: Permission to depart from the literal requirements of zoning ordinances, pursuant to Subsection b. of N.J.S.A. 40:55D-40 and Subsections c. and d. of N.J.S.A. 40:55D-70.

WATER COURSE: Any natural swale, stream, brook, or river which is the natural course of storm or running water through which water flows ordinarily and frequently but not necessarily continuously. This definition includes water courses that have been artificially realigned or improved.

WATERFRONT WALKWAY: A walkway located along any tidally flowed waterway which conforms with the walkway standards and guidelines established by the New Jersey Department of Environmental Protection pursuant to N.J.A.C. 7:7E-8.11 et seq.

WATERSHED: A geographic area in which water, sediments, and dissolved materials drain to a common outlet, typically a point on a larger stream, a lake, an underlying aquifer, an estuary, or an ocean. A watershed is also sometimes referred to as the "drainage basin" of the receiving waterbody.

WET POND: (See RETENTION BASIN).

ZONE, AMENITY: Area of the streetside and sidewalk that provides a buffer between pedestrians and vehicles, which contains landscaping, public street furniture, transit stops, public signage, utilities,

etc.

ZONE, EDGE: Area between the face of curb and the amenity zone within the sidewalk area that provides the minimum necessary separation between objects and activities in the streetside and vehicles in the cartway.

ZONE, FRONTAGE: Distance between the through zone and the building front or private property line within the sidewalk area that is used to buffer pedestrians from window shoppers, doorways, etc. It may contain private street furniture, private signage, merchandise displays, street cafes, etc.

ZONE, THROUGH: Walking zone within the sidewalk area that must remain clear, both horizontally and vertically, for the movement of pedestrians.

Section III: Applicability

A. Subdivisions

1. Review.

   All subdivisions of land within Hudson County shall be submitted to the County Planning Board for review.

   All subdivision applications shall be reviewed by location as related to County roads and drainage structures so that the Planning Board may either exempt those plats unrelated to County responsibilities, or review the minor subdivision plat in accordance with these Regulations.

2. Approval.

   The following subdivisions shall require approval from the Hudson County Planning Board as set forth and limited in N.J.S.A. 40:27-6.2:

   a. Subdivisions that abut either a county road or a county drainage facility.

   b. Subdivisions that will cause storm water to drain either directly or indirectly to a county road, or through any drainage way, structure, pipe, culvert or facility for which the county is responsible for the construction, maintenance or proper functioning.

   c. Subdivisions that will affect the safety and efficiency of a county road or drainage facility through an increase in traffic or stormwater drainage.

   d. Subdivisions that will affect buildings and/or lands owned or maintained by Hudson County through an increase in traffic or stormwater drainage.

B. Site Plans

1. Approval Required.

   All site plan applications shall be submitted to the County Planning Board for its review and approval, as set forth and limited in N.J.S.A. 40:27-6.6, for any development located along a County road or roads or which affects County drainage facilities. “Development” is defined as follows:

   a. The construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or other structure.

   Any use or change in the use of any building or other structure, or land or extension of use of land. Site plan applications are defined as follows:

   a. Commercial or industrial development or redevelopment.

   b. Multi-family residential structures containing five (5) or more units.

   c. Any other land development/redevelopment requiring off-street parking.

   d. Any development that will result in the disturbance of more than one acre of land, or will increase impervious surface area by one-quarter acre or more.

   e. Any development causing an increase in traffic affecting County roads.

   f. Any installation or construction of telecommunications facilities or equipment on existing buildings.

   g. Installation or construction of utility poles for telecommunications purposes.

   h. Non-exclusive right-of-way access within the County’s premises for the installation of telecommunications utility poles

2. Exemptions.

   a. Development on land not along a County road that include less than a combined total of one (1) acre of existing and proposed impervious surface is exempt from County site plan review.

   b. Development of a single family home is exempt from County site plan review, as long as no driveway or other curb cut into the County roadway is a part of the development.

C. Other Jurisdiction

1. The County Planning Board shall be notified by the person giving notice of the hearing of any public hearing concerning the granting of a variance by a zoning board of adjustment or establishing or amending an official county map involving property within 200 feet of an adjoining municipality or adjoining county road.

2. Each municipal clerk shall notify the County Planning Board of the introduction of any revision or amendment to the municipal planning or zoning ordinance on file with the County Planning Board pursuant to N.J.S.A. 40:27-6.10 affecting land adjoining county roads or other county land or lands lying within 200 feet of a municipal boundary, or proposed facilities or public lands.

3. The County Planning Board shall receive and review applications for use of the County ROW for installation of telecommunications utility poles.

Section IV: Application Submission Procedures

A. Pre-Application

1. Pre-Application Conference.

A prospective applicant may request an informal conference with staff of the Hudson County Planning Board or the Subdivision and Site Plan Review Committee prior to submitting a formal application and detailed plans.

a. Purpose.

The purpose of a pre-application conference is to:

i. Advise the applicant of the substantive, administrative and procedural requirements of these Regulations;

ii. Advise the applicant of any detailed analyses and information that may be necessary for a formal review;

iii. Advise the applicant of applicable design standards and potential requirements pertaining to traffic and drainage improvements to county roads, county drainage facilities and county owned or maintained buildings and lands;

iv. Advise the applicant of pending capital improvements and any public sources of information that may affect the project.

v. Review and discuss the general design of the project.

vi. Provide for an exchange of information regarding the proposed development plan and the applicable elements of the County Master Plan and other development requirements;

vii. Advise applicant of concerns regarding development impacts on unique and environmentally sensitive areas.

viii. Expedite application processing and development plan review.

ix. Coordinate requirements with local and state officials where applicable.

b. Fees.

The applicant shall not be required to pay a fee for the pre-application conference.

c. Required Items.

Applicants seeking a pre-application conference shall submit the required items as provided for in the Application Check List (Appendix C) fifteen (15) days before the concept plan meeting.

d. Review.

If requested and paid for by the applicant, a brief written summary of the pre-application conference shall be provided within fifteen (15) working days after the final meeting. The Hudson County Subdivision and Site Plan Review Committee shall not be bound by any recommendations and/or advisory comments made at the pre-application conference.

2. Pre-Application Concept Plan.

In addition to or as an alternative to the pre-application conference, the Planning Board or Subdivision and Site Plan Committee may grant informal review of a concept plan for a development which an applicant intends to prepare and submit an application for development.

a. Purpose.

The purpose of the concept plan is to provide the Planning Board or Subdivision and Site Plan committee input in the formative stages of subdivision and site plan design.

b. Fees.

See the Application and Fee Schedule in Appendix B.

c. Required Items.

Applicants seeking concept plan informal review shall submit the required items and information listed in the Application Checklist (Appendix C) within fifteen (15) days before the concept plan meeting.

d. Review.

A brief written summary of the concept plan review shall be provided within fifteen (15) working days after the final meeting.

The Hudson County Subdivision and Site Plan Review Committee shall not be bound by any recommendations and/or advisory comments made during review of the concept plan, nor shall the applicant be bound by any concept plan for which review is requested.

B. Filing of Application

Subdivision and site plan applications, and telecommunications access applications shall be submitted to the County Planning Board by the applicant or the appropriate municipal approving authority. The application will not be determined to be formally filed until it is considered "complete" in accordance with these Regulations.

1. Required items to be submitted.

The following documents shall be submitted with all site plan or subdivision applications:

a. Two (2) copies of the Hudson County Subdivision and Site Plan Review Application form completed in its entirety, with original signatures (Appendix B).

b. The appropriate application and escrow review fees (Appendix B).

c. Two (2) legible prints of the plan set (subdivision plats, subdivision plan sets or site plan sets, as applicable) signed and sealed by a licensed architect, engineer or professional land surveyor. All subdivision plats and site plans shall be filed in accordance with the provisions of the New Jersey "Map Filing Law," P.L. 1960, c.141 (C.46:23-9.9 et seq.).

d. A completed Hudson County Development Review Checklist for Subdivisions and Site Plans, signed and sealed by the licensed professional that completed the checklist (Appendix C).

e. A completed Low Impact Development Checklist signed and sealed by the licensed professional that completed the checklist (Appendix D).

f. Digital submission either to the County email address or by CD as indicated on the Application (Appendix E);

g. Other items as may be required such as:

i. A Traffic Impact Report (Appendix F)

ii. A Multi-Modal Impact Report

iii. A Stormwater Management Plan

iv. An Urban Runoff Mitigation Plan

v. A survey from a licensed surveyor indicating the location of any utility poles, underground public utility, cable, water, and sewer drainage in the County's right-of-way

vi. If the applicant proposes to temporarily or permanently remove any streets, facilities, or obstructions, they shall provide descriptions and plans

C. Determination of Completeness

An application will not be determined to be formally complete until the appropriate fee and number of drawings, county application forms and other required information shall have been submitted in accordance with these Regulations. The time period for action on application will not commence until the Planning Board or its authorized committee or designee has deemed the application complete.

In the event the Board, committee, or designee does not certify the application to be complete within 30 days of the date of its submission, the application shall be deemed complete upon the expiration of the 30 day period for purposes of commencing the applicable time period.

D. Corrections and Additional Information

The Planning Board or Subdivision and Site Plan Review Committee may subsequently require correction of any information found to be in error or any revisions to and/or submission of additional information to be added to the accompanying studies, analyses and documents, as are reasonably necessary to make an informed decision on the application for development.

If the applicant fails to submit the items required for completeness within 90 days from the date of notification of the items that must be submitted, the incomplete application package will be voided and discarded.

E. Revisions

To prevent administrative delays with application revisions, the applicant is required to submit a cover letter for each revision that describes how each planning or engineering condition is being met in the revision, and explain which page or sheet each revision is shown.

F. Waivers from Submission Requirements

1. The applicant may submit a written request for a waiver of one or more submission requirements with supporting reasons. Waiver requests shall include a narrative statement from a licensed professional planner, engineer, surveyor or architect as appropriate indicating the reasons for deviation from the standard.

2. When acting upon applications for site plan or subdivision approval, the County Planning Board shall have the power to grant exceptions from submission requirements for site plan or subdivision approval as may be reasonable and within the general purpose and intent of the provisions of these Regulations, if the literal enforcement of one or more provisions is impracticable or will exact undue hardship because of peculiar conditions pertaining to the land in question.

3. The Board or its authorized committee shall grant or deny the request within 30 days of the date of its submission.

G. Appeals of Completeness

The applicant may appeal the administrative official's determination of completeness of an application first to the planning board, then to the governing body. The Board, which has jurisdiction to the appeal, shall have 30 days after the receipt of a written request to schedule a public hearing at which time the board will determine if the application is complete. The board shall affirm, modify, or reverse the decision concerning completeness.

H. Application Review Fees

1. Application fees shall be charged for review of subdivision and site plans submitted to the County Planning Board. Payment shall be made by the applicant to the Planning Board at the time of submission. The omission of payment shall be cause for the Planning Board to deem the application incomplete.

2. Application fees shall be submitted in accordance with the "Fee Schedule" in Appendix B of these Regulations, or subsequent revisions adopted by resolution of the Chosen Freeholders.

3. Subdivision plats or site plans received by the Planning Board more than one year after reception of a prior submission will be subject to full payment in accordance with the above schedule.

4. Subdivisions and site plans submitted by federal, state, county and municipal governments, churches (places of worship), and hospitals, and other secular non-profit institutions are not subject to payment of review fees. However, supplicants may be required to submit escrow deposits.

I. Waiver of Site Plan Application

1. The County Planning Board may waive requirements for site plan approval where no extensive construction or improvements are sought.

2. Where there is a change in use as determined by the municipal authority or a change as categorized by the SIC code (Standard Industrial Classification) or NAICS (North American Industry Classification System), county planning board approval may be required.

3. A waiver may be approved only upon a resolution by the county planning board finding that the project or use will not affect existing drainage, circulation or other considerations of the site plan approval, and that the existing facilities do not require upgraded or additional site improvements.

J. Jurisdictional Determination

A prospective applicant may request a determination of whether the County Planning Board has jurisdiction over a proposed development.

1. Jurisdictional Determination.

   Applicants seeking a jurisdictional determination shall submit a request describing the proposed development, along with one (1) copy of the subdivision plat or site plans filed with the municipal planning or zoning board, a completed copy of the Development Review Checklist contained in Appendix C; and an application fee of $100.00, credited towards the fee for any full review required.

2. Review.

   The subdivision and Site Plan Review Committee and County Planning Director shall review the submission and issue a jurisdictional determination. The jurisdictional determination shall state the reasons for determination and shall either state that the Count Planning Board has no interest in the proposed development or instruct the applicant to file a full application for subdivision or site plan approval.

Section V: Application Review & Approval Procedures

A. General Provisions for Subdivision and Site Plan Review and Approval

1. Subdivisions

   a. Subdivision Application.

   Each subdivision application shall be submitted to the County Planning Board by the applicant or municipal authority prior to the issuance of an approval by the municipal approving authority.

   The municipal approving authority shall either defer taking final action on a subdivision application until receipt of the County Planning Board report thereon, or condition any approval that it grants upon timely receipt of a favorable report on the application from the County Planning Board.

   b. Revisions.

   All plats of subsequent revisions, including sketch plats, preliminary plats or final plats shall be submitted to the County Planning Board by the applicant or appropriate approving authority for review and/or approval by the County Planning Board.

2. Site Plans

   a. Site Plan Application.

      The municipal or other local agency or individual with authority to approve the site plan or issue a building permit shall defer any application requiring County approval until the same has been submitted to and approved by the County Planning Board.

      Site plan applications shall be submitted to the County Planning Board by the applicant or municipal authority prior to the issuance of a municipal zoning or building permit.

   b. Revisions.

   All site plans containing subsequent revisions, including preliminary site plans or final site plans, shall be submitted to the County Planning Board by the applicant or appropriate approving authority for review and/or approval by the County Planning Board.

3. Municipal Action

   a. The municipal approving authority shall not issue final approval to a subdivision or site plan requiring Hudson County Planning Board approval until said subdivision or site plan has received final Hudson County Planning Board approval.

   b. The municipal agency or official authorized to issue building permits shall not issue such permits for structures resulting from a subdivision or site plan requiring Hudson County Planning Board approval until said subdivision or site plan has received final Hudson County Planning Board approval.

   c. The municipal agency or official authorized to issue a Certificate of Occupancy shall not issue such permit until “A Letter of Compliance” has been submitted by the Hudson County Planning Board, stating that the conditions of the resolutions have been met.

4. Revisions of a Previously Approved Site Plan or Subdivision

   a. Requirement for Revisions.

   Any proposal that involves revisions in a site plan or subdivision previously approved by the County Planning Board shall require submission of a complete site plan or subdivision application and payment of fees in accordance with the requirements of these Regulations. A new submission shall be required if a proposed revision involves:

      i. A 10% or greater variation of the size of the approved building footprint size.

      ii. A 10% or greater variation in amount of approved impervious surface.

      iii. Any changes to site ingress or egress.

      iv. Any changes to a County roadway.

      v. Any other proposed change where additional review may be required as determined at the

discretion of the County Board or County Engineer.

b. Exceptions.

Where the following minor revisions are proposed, no fees need to be paid, although three (3) copies of the site plan or subdivision plan, which incorporate the changes, and a cover letter explaining what changes have been made and why, shall be submitted. Minor changes shall be defined as changes to an approved plan that do not exceed the above listed "Requirements for Revisions."

i. Where minor changes in the site plan or subdivision are requested by the municipal approving authority.

ii. Where there are only minor changes in the site plan or subdivision proposed by the applicant, which do not involve any significant changes in the layout of the site as determined by the County Subdivision and Site Plan Review Committee.

iii. Where revisions in the site plan or subdivision only involve additional information required as a condition of a previous approval or where revisions in the site plan or subdivision are in accordance with a site plan or subdivision being approved in stages.

B. Review Time Period

1. Within thirty (30) days of receipt of a complete application, the County shall either approve the site plan or subdivision if all requirements are met subject to conditions as may be required, or deny the site plan or subdivision, stating reasons for disapproval.

2. If the Hudson County Planning Board fails to report to the Municipal agency within thirty (30) days of the receipt of any application for site plan or subdivision approval, any such site plan or subdivision application shall be deemed to have been approved by the County Planning Board unless an extension is requested and granted.

3. An extension may be granted for an additional thirty (30) day period upon mutual agreement between the County Planning Board and the Municipal approving authority, with the approval of the developer.

C. Notification of Action

The County Planning Board shall notify the local approving authority in writing of its action on the proposed subdivision or site plan. A copy of such action shall be forwarded to the applicant or his or her designated agent.

The report and any subsequent resolution shall set forth all conditions required for County approval, and if disapproved, all reasons for disapproval.

D. Recording of Subdivision Plats

No subdivision plat or minor subdivision deed, if the minor subdivision is to be recorded by deed only, shall be recorded by the Hudson County Registrar unless it bears the certification of approval or review and exemption of the Hudson County Subdivision and Site Plan Review Committee, or other designated alternate, when said subdivision or site plan meets the criteria for exemption as described in these Regulations.

All minor or final major subdivision plats submitted to the Hudson County Planning Board for signing must be prepared in accordance with the New Jersey Map Filing Law (NJAC 46:23-9).

E. Alterations

When approval is granted, no changes or alterations shall be made in any portion of the approved plan over which the County Planning Board has approval power without approval of said change by the County Planning Board or its designee.

Deviations that substantially revise the approved plan shall require the approval of the Planning Board. In the event it becomes necessary to deviate from the approved plan do to site conditions which first appear during construction and which would affect a County road or County drainage facility, the applicant shall notify and obtain the approval of the County Engineer before such deviation.

F. Appeals

1. Appeals of determination concerning subdivision and site plan applications may be made by applicants in writing to the Planning Board within ten (10) days after the date of notice by certified mail of such action, and pursuant to the provision of N.J.S.A. 40:27-6.9. Any person aggrieved by the action of the Planning Board in regard to subdivision review and approval or site plan review and approval may file an appeal in writing to the Board of Chosen Freeholders within ten (10) days after the date of notice by certified mail of said action.

2. The Planning Board or Board of Chosen Freeholders shall consider such an appeal at a regular or special public meeting within forty-five (45) days from the date of its filing.

3. Notice of said hearing shall be made by certified mail at least ten (10) days prior to the hearing to the applicant and to such of the following officials as deemed appropriate for each specified case: The Municipal Clerk, Municipal Planning Board or Board of Adjustment, Building Inspector, Zoning Officer, and the County Planning Board.

4. The Board to which the appeal is taken shall render a decision within thirty (30) days from the date of the hearing.

G. Construction without a Permit

No building shall be erected along the right-of-way of any County roadway unless approved by the Hudson County Planning Board and a permit is issued by the County Engineer.

Whoever shall construct or begin the construction of such a building without a permit shall forfeit and pay a penalty of not more than one hundred dollars ($100.00) for each day that work on such structure continues. Hudson County may bring the action to enjoin such construction and may also recover the penalty by a civil action in any court of competent jurisdiction. A $100.00 per day fine shall commence from the date the notice is brought by the County Planning Board or its duly authorized representative. The County Planning Board or its duly authorized shall issue a “Notice of Violation” to the municipal construction code official and copy shall be sent by certified mail to the property owner.

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Section VI: Approval Conditions

A. General

At such time that the Planning Board gives its final approval, any unfulfilled requirements of the Planning Board shall be considered conditions of that approval. The applicant shall be required to comply with these conditions within the time frames specified in these Regulations or as specified by the Planning Board when final approval is granted.

B. Deeds and Easements

1. Required deeds of dedication, deeds of rights-of-way and deeds of easement shall be submitted to the County Planning Board for review and approval after Planning Board approval of the development application, but prior to the issuance of a road opening permit or municipal building permit, and prior to the recording of such legal documents at the County Register's Office.

2. The deeds shall be prepared in a form approved by the Attorney for the Board and shall bear all necessary signatures prior to recording. The County Planning Board will forward a copy of the deed to the County Engineer's office for review and approval of the easement description. The County Planning Board will file the approved and executed deed with the County recording officer.

3. Consent to use the County ROW area in Hudson County shall be granted to the applicant by a License Agreement, to be submitted to the County Planning Board and Board of Chosen Freeholders for review and approval.

C. Proportionate Share Contributions and Payments in Lieu

1. The developer shall submit any required payments in lieu of required drainage easements, payments in lieu of required County roads or drainage improvements or payments for a proportionate share of the cost of future installation of County drainage or traffic facilities.

2. In cases where a County road is scheduled for improvements under the County's capital budget or improvements program, which would result in a change in alignment or profile of the road and would adversely affect the improvements undertaken in connection with the subdivision or site plan, the County Planning Board may require the applicant to contribute monies in lieu of all or part of the improvements required for the proposed development. The payments shall be calculated by the County Engineer and based on the standards and specifications for improvements contained in these Regulations.

3. Private developers undertaking development projects within the Transportation Planning District of the New Jersey Meadowlands District (as established by the Hackensack Meadowlands Transportation Planning Act, June 2005) may be assessed impact fees by the New Jersey Sports and Exposition Authority (NJSEA) to finance identified transportation improvements. The County maintains the right to assess impact fees for impacts created outside the boundaries of the NJSEA. The County Planning Board, in all cases, however, may still require specific conditions of approval.

4. All payments in lieu of improvements shall be in the form of certified checks made payable to the "County of Hudson."

D. Performance Guarantees, Maintenance Bonds and Other Payments

1. Prior to final approval of a subdivision or site plan, the developer shall have installed the improvements specified in granting approval and posted any maintenance guarantees required by the County Planning Board, or shall have posted adequate performance guarantees to assure the installation of required improvements.

2. All performance and maintenance guarantees shall be in the form approved by the Department of Finance, the attorney for Board, and shall be in an amount established by the Division of Planning.

3. In cases where improvements to or those affecting County roads or drainage facilities are covered by performance and/or maintenance guarantees made to the municipality, the County shall not require any additional bonds or guarantees for the same improvements, providing said improvements are to

be installed in accordance with County standards and specifications and provided further that the County is named co-obligee on said bond or guarantee. A copy of bonds or guarantees required by the municipality for improvements to or affecting County roads or drainage facilities shall be submitted to the County Planning Board with itemized specifications of the required improvements.

4. At the request of the applicant, performance and/or maintenance guarantees may be established by subdivision and site plan sections and approvals granted accordingly, if upon findings of the County Planning Director based upon the recommendation of the County Engineer, the incremental development of the subdivision or site plan will not adversely affect a County road or drainage facility.

5. When the County Engineer determines that off-tract improvements are necessary, the developer of any subdivision or site plan on a County road shall be required to provide a performance guarantee, cash payment, performance bond, or maintenance bond to Hudson County. The amount of the bond shall be determined by the County Engineer for the installation and maintenance of said improvements.

E. Posting of Performance Bonds after Two (2) Years

If a performance guarantee has not been posted with the County Planning Board within two (2) years of establishing an amount or if the installation of the required improvements has not commenced within two (2) years of the posting of a performance guarantee for required improvements, the amount of said performance guarantee may be recalculated by the County Engineer's office in order to reflect current material and construction costs.

F. Release of Performance Guarantees

1. The County Engineer or his or her representative shall inspect all improvements required by the County Planning Board for which a performance guarantee has been posted. The County Engineer shall certify whether or not the improvements have been satisfactorily constructed and that any required maintenance bond has been posted.

2. The County Engineer shall forward a copy of his or her certification to the County Planning Board for transmittal to the governing body with a recommendation for release of the performance guarantee.

3. The governing body at its next regular meeting after the receipt of the recommendation for release of the performance guarantee from the County Planning Board shall act on the recommendation.

G. Release of Maintenance Bond

1. The County Engineer or his or her representative shall inspect all County facilities covered by a maintenance bond thirty (30) days prior to the expiration of the bond. The County Engineer shall certify whether or not the facilities are in satisfactory condition.

2. The County Engineer shall forward a copy of his or her certification to the County Planning Board for transmittal to the governing body with a recommendation for release of the maintenance bond.

3. The governing body at its next regular meeting after the receipt of the recommendation for release of the maintenance bond from the County Planning Board shall act on the recommendation.

H. Developer Agreements

1. A Developer agreement shall be required when one or more of the following conditions exists as determined by the County Planning Board in consultation with the County Engineer:

   a. Improvements to County facilities are to be provided which differ from the adopted Standards.

   b. Monetary contributions are required in lieu of construction improvements.

   c. Pro rata, off-tract improvement obligations are determined.

   d. Multiple developers jointly fund and/or construct improvements.

   e. Improvement obligations are reallocated to address immediate, higher priority needs.

2. The Planning Board shall coordinate the activities involved in negotiating, drafting, finalizing and

approving development agreements by the Board of Chosen Freeholders within the land development review process. These activities may include:

a. Review by the Subdivision and Site Plan Review Committee.

b. Coordination of municipal review when applicable.

c. Recording of agreements.

d. Depositing contribution payments and fees into dedicated accounts.

3. Provisions contained within the development agreement shall include the following general categories according to the requirements upon which an agreement is based:

a. Parties to the Agreement and Site Demarcation.

b. Objectives and Responsibilities

c. Construction of Improvements

d. Pro Rata and In Lieu Contributions

e. Easements and Dedications

f. Permits and Approvals

g. Reporting Mechanisms

h. Assignment and Transfer

i. Duration

j. Other terms and Conditions

k. Construction Phasing

4. Such agreement shall be retained until all improvements have been completed to the satisfaction of the County Engineering Division and the County Planning Board.

5. In instances when the provisions of these Regulations allow or require a cash contribution to the County to cover a share of the cost of all improvement, the approval of a subdivision or site plan shall be further conditioned on the receipt of such contributions in the form of a certified check made out to the Treasurer of Hudson County, and deposited in an account reserved for such improvements.

I. Road Opening Permit

1. Prior to the start of construction of improvements in or along a county road, the developer of his or her agents shall obtain a road opening and/or curb cut permit from the County Engineer's office and comply with all the requirements of the County Engineer's Office except that no additional performance guarantee will be required for work covered under bonds required by the County Planning Board. When applicable, the application for a Curb Cut Permit must be accompanied by proof of the County Planning Board's approval. This shall not be construed in any way exempting a project from any performance bond requirements of the County Engineer's Office.

2. For each road opening permit, the applicant shall submit:

a. A detailed a description of project for which the road opening permit is needed;

b. Project plans and specifications;

c. A description and plans, if available, of any future stages or phases of the proposed development project.

J. Municipal Communication

Municipalities/Applicants are encouraged to notify the County of any local road-opening permit application or application for development, prior to municipal approval of such permit or application, which will have an impact on areas under County jurisdiction. Areas under County jurisdiction include, but are not limited to, a nearby intersection, right-of-way, drainage way, drainage facility, or utility lines.

K. Notification Prior to Developer Action

A developer shall not take any action which would affect County facilities prior to a pre-construction meeting and the submission of a written construction schedule to the Office of the County Engineer, and shall obtain any permits and post any fees or bonds with County Planning Board or County Engineer that shall be required.

L. Pre-Construction Requirements

It is unlawful for any person, partnership, association or corporation to excavate in a right-of-way or facility under the jurisdiction of Hudson County for any purpose without first satisfying all relevant requirements presented in these Regulations. Any person, partnership, association or corporation that violates this provision shall be subject to the requisite fines and penalties.

No construction is to commence on improvements under County jurisdiction until the following items have been satisfied:

1. County Planning Board approval of the project, which includes submittal of all contributions, performance guarantees and inspection fees.

2. Final construction plans, stamped with approval by the County Engineer's Office, have been provided to the contractor and are on file with the County Planning Board and County Engineer's Office.

3. Acceptance has been received from the County Engineer's Office on all relevant engineering reports, supporting information, shop drawings and other related documents as deemed necessary by the County Engineer's Office and County Planning Board.

4. A detour/traffic control plan has been approved by all necessary County, municipal and police offices.

5. A preconstruction meeting has been held with the County Engineer's Office, the contractor, utility companies, municipal officials, local police or other appropriate officials. During this meeting, the contractor shall provide the County with written notification of the date at which construction will commence the construction schedule, the insurance certificate, emergency telephone numbers and any other relevant information deemed necessary by the County Engineer. Other construction-related items such as the traffic control plan, coordination of inspection and laboratory work, relocation of utilities, etc., are to be finalized at the preconstruction meeting which is to be held at least one week prior to the anticipated commencement of construction.

6. A Road Opening Permit has been obtained.

M. Construction Requirements

1. Inspections.

   The inspection of construction under County jurisdiction will be performed by the County Engineering Division and/or a consulting engineering firm as determined by the County Engineer. All phases of construction work must be coordinated with the County inspector. It is the contractor's responsibility to notify the inspector a minimum of 72 hours in advance of any work, particularly if the work requires samples to be taken for laboratory testing.
   If the County inspector determines that an unsafe condition exists during the course of construction, the contractor will be directed to take immediate action to correct the problem. If the contractor fails to correct the problem in a reasonable amount of time, the County will take the necessary action to resolve the problem. Expenses incurred to correct the problem shall be paid by the applicant.

2. Laboratory Testing

   Laboratory testing will be performed for various construction procedures as deemed necessary by the County Engineer. The cost for laboratory tests is considered to be part of the inspection fee and will be deducted from the partially-refundable inspection accounts.

3. Material Certifications

   Material certifications are to be provided to the County Engineer's Office as requested by the site inspector and/or County Engineering staff.

N. Post-Construction Requirements

1. As-built drawings.

   "As-built drawings" are to be submitted to the County Engineer after the construction work under County jurisdiction has been completed. The drawings/plans are to be submitted in hard copy/mylar sheets and in digital (Computer Aided Drafting files (CAD) or AutoCAD compatible) format acceptable to the County Engineer.

2. Final Inspection/Punch List.

   The County will perform the final inspection of the improvements constructed under the County's jurisdiction after as-built plans and a written request for final inspection are received. The County Planning Board application number for the project and the road opening permit number must be included with the written request.

   After the final inspection has been performed, a punch list will be prepared that itemizes any items that have not been satisfactorily completed. Performance guarantees will not be released

   until all punch list items have been satisfactorily addressed.

   After the punch list is completed and presented to the contractor/developer, the items outlined on the punch list must be completed. The contractor is responsible for notifying the County at least 72 hours prior to commencing work on the punch list items.

   The punch list items shall be satisfactorily corrected within sixty (60) days from the date the list is issued. If the improvements are not adequately completed in the required time frame, the County will initiate the necessary actions to complete the work; this may include drawing down on the performance guarantee.

   In cases where potential safety hazards exist as a result of the unresolved punch list items, the County may take immediate action to resolve the problem at the discretion of the County Engineer, and at the expense of the applicant.

O. Noncompliance with Conditions of Approval

Failure to submit and comply with any of the conditions of subdivision or site plan approval subsequent to the receipt of Municipal final approval or a building permit shall be grounds for:

1. Refusal of the County Engineer's Office, at the request of the Planning Board, to issue a road opening, access opening, or curb cut permit for a site development.

2. A request of the County Planning Board to the local approval authority or building official to revoke or withhold the local building permit and/or certificate of occupancy for said development.

3. Forfeiture of any performance bond or other payment guarantees required by the County to cover the costs of improvements specified in that portion of the site plan over which the County has control.

4. Appropriate court action initiated by the Board or governing body upon notification of the violation by the County Planning Board.

5. Where it has been determined by the County Engineer or Planning Board that the applicant has not complied with all Conditions of Approval, the Planning Board may revoke the applicant's curb cut permit or any other permit granted. The County Planning Board reserves the right to use performance bonds posted by the applicant to pay for the cost of implementing the required improvements.

P. Appropriate court action initiated by the Hudson County Planning Board

A written Notice of Noncompliance shall be forwarded by Certified Mail to the local approving authority, local building official and the applicant, requesting compliance with the conditions of subdivision or site plan approval within a period of time of not less than five (5) business days from the date such noncompliance is determined.

Q. Stop Work Order

If the construction of a structure or building is being undertaken contrary to the provisions of the regulations, or other applicable laws or ordinances, the enforcing agency may issue a stop construction order in writing which shall state the reasons for such order and the conditions under which construction may be resumed and which shall be given to the owner or the holder of the construction permit or to the person performing the construction. If the person doing the construction is not known, or cannot be located with reasonable effort, the notice may be delivered to the person in charge of, or apparently in charge of, the construction.

R. Applicant Liability

The applicant of a subdivision or site plan shall assume full responsibility and liability during construction and until release of the performance

or maintenance guarantee for any improvements required by the County Planning Board.

S. Standards and Criteria for Adjusting or Waiving Requirements

1. The County Planning Board may waive or adjust the right-of-way width requirements where, in such areas as developed commercial districts or heavily built up residential neighborhoods, buildings, walls or other structures have been constructed within the proposed right-of-way prior to the enactment of these Regulations to a point where their alteration or removal would be impractical.

2. The rules, regulations and standards set forth herein are designed as minimum requirements for the safety and welfare, of the people of the County. However, if an applicant can demonstrate that, with reference to his subdivision or site plan, the literal enforcement of one or more of said rules, regulations or standards will exact an undue hardship, the Planning Board may permit such variance or variances as may be reasonable and within said general purposes.

Section VII: Circulation and Roadway Design Standards

The roadways throughout Hudson County serve multiple purposes. Hudson County roads are regional transportation corridors moving goods and providing access to jobs and education; they are utility corridors powering our cities and towns; they are 'Main Streets' where communities come together and socialize. Most importantly, the Hudson County roadway system is the fabric that weaves this county together.

The Circulation and Roadway Standards section presents design and construction standards, general policies and improvement requirements that ensure the development of highly functional, well-balanced Complete Streets.

A. Overview

Complete Streets

Hudson County adopted a Complete Streets Policy in 2012 to ensure that its streets are designed and developed to safely accommodate all people that use them. A Complete Street, as defined in the policy, is a means to provide safe and convenient access for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods and public transit users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options.

All development that occurs on Hudson County roads should consider the goals of the Complete Streets Policy and take whatever steps are feasible to reasonably advance these goals. The Circulation and Roadway Standards were developed to guide and, in some cases, require various improvements that advance this policy.

Functional Class and Road Typologies

The functional classification of a roadway defines its role in a roadway network, such as if it is meant for regional transportation, or intended for shorter trips. The functional class should be used to determine aspects such as the continuity of the road, the type of trips it aims to serve, the purpose and length of trips accommodated, the level of access to the road (i.e. driveways or intersections), and whether freight and public transit are appropriate for the road. Since many of the roadways in Hudson County predate the implementation of the functional classification system, they often do not fit neatly into a single category and may have many differences over the length of the road.

One of the disadvantages to using the functional class to control the design of a road is that it does not take into account the character of the community that the road is passing through, such as the adjacent land uses, types of users, etc. For this reason, County roads are also classified by Road Typology. The Road Typology is used to determine the appropriate street design based on the surrounding context. These Road Typologies fall into three broad classifications based on the Thoroughfare Types identified in the Institute of Transportation Engineer's (ITE) "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach."

» Boulevards

Walkable, 35 mph or less thoroughfares designed to carry both through and local traffic, pedestrians and bicyclists. Boulevards are typically longer corridors with four or more lanes. Boulevards may be a high-ridership public transit corridor, and are primary routes for goods movement and emergency response vehicles.

» Avenues

Walkable, 25 to 35 mph thoroughfare, generally shorter in length than boulevards, serving access to abutting land. Avenues serve as primary pedestrian and bicycle routes and may serve local public transit routes. Avenues do not exceed 4 lanes, but are typically 2 lanes, and access to land is a primary function. Goods movement is typically limited to local routes and deliveries. Some avenues feature a raised landscaped median.

» Streets

Walkable, low speed (25 mph or less) thoroughfares primarily serving abutting land. A street is designed to (1) connect residential neighborhoods with each other, (2) connect neighborhoods with commercial and other districts and (3) connect local streets to arterials. Streets may serve as the main street of commercial or mixed-use sectors and emphasize curb parking. Goods movement is restricted to local deliveries only.

The three categories are then divided into eight specific typologies that address adjacent land use, user types and other context related influences. The Road Typologies are explained further in sub-Section C. Table VII-1 shows the relationship between functional class and the street typologies in Hudson County.

Table VII-1: Relationship between Functional Class and Road Typologies

	Residential Boulevard	Mixed Urban Boulevard	Scenic Boulevard	Downtown Avenue	Mixed Use Avenue	Industrial Avenue	Main Street	Neighborhood Street
Principal Arterial	■	■	■	■				
Minor Arterial	■	■	■	■	■	■	■	
Collector	■	■	■	■	■	■	■	■
Local								■

Relationship To Other Plans

The Residential Site Improvement Standards (N.J.A.C. 5:21) regulate certain aspects of roadway design and parking requirements. To the extent possible, the County Design Standards are intended to conform with the Residential Site Improvement Standards (RSIS). If there is a conflict between these design standards and the RSIS for a residential site plan or subdivision application, the RSIS shall take precedence except in instances when the applicant is able to obtain a waiver or when a municipality is exempt.

B. General Conditions

General Policies

1. All development subject to County approval shall provide for adequate roads, road improvements, intersections, driveways, bridges, culverts and other off-site and off-tract improvements required by the County Planning Board in accordance with these Standards, the Official County Map, and the County Engineer necessary for the safe and efficient movement of traffic.
2. The County Planning Board shall require developments to include on or off-tract physical improvements to ensure that all roadways are developed as safe, well-balanced, Complete Streets. Improvements may include any or all elements identified in Sections D-H of these standards as well as additional rights-of-way as needed to accommodate these improvements.
3. Off-tract improvements will be required by the County Planning Board to remediate any degradation of service or impact to public safety resulting from a proposed development or subdivision that affects a County road or drainage facility. The applicant will be required to contribute their fair share of the cost of such improvements.
4. Whenever blasting is proposed for a project, a blasting report shall be submitted, in accordance with NJ DOT standards, to the County Engineer for review prior to the commencement of any construction operations.
5. The proposed streets and walkways interior to the development shall be designed to provide optimal, well-balanced pedestrian, bicycle and vehicular circulation for the development and for any existing streets, roads and walkways, which may adjoin the development or may be constructed in the future.
6. The general development pattern and main entrance of a development shall be oriented towards the street. Pedestrian access, circulation and safety should be a foremost consideration over automobile traffic.
7. All development shall conform to road and traffic-related improvements which appear in the County Master Plan, Official County Map and other County plans. The development shall also consider all existing local and regional plans for the surrounding community.
8. Where permitted based on traffic volumes, appropriate speed control and traffic calming measures shall be incorporated where vehicular traffic is regularly traveling at speeds above the posted speed limit.
9. All proposed development within the County shall be designed to improve pedestrian, bicycle and vehicular circulation above and beyond the existing condition.
10. When requesting vehicular access to a site from a County Road, the applicant must demonstrate that access is not feasible from another, non-county road.
11. The applicant shall wherever possible consider implementation of ride-sharing programs, improved access to public transportation and bicycle share programs in order to minimize vehicular traffic impacts.
12. The applicant shall wherever possible consider the installation of bicycle racks or other bicycle storage facilities on site, for use by residents, employees, or the general public.
13. Where applicable, all development shall comply with the requirements to install Electric Vehicle

Supply/Service Equipment (EVSE) and Make-Ready parking spaces in accordance with P.L. 2021, c. 171, and the Model Ordinance posted by the NJ Department of Community Affairs.

In addition to these requirements, applicants are encouraged to consider the installation of one or more marked designated Electric Vehicle (EV) parking spaces and related code compliant charging infrastructure, for resident, employee, or public use, within the site for all developments. Applicants are encouraged to, at a minimum, install conduits and upgrade electrical panels to allow future installation of charging infrastructure. Electric Vehicle spaces should be located in convenient locations as an incentive to promote electric vehicle use.

14. The applicant shall wherever possible use construction techniques that are designed to be environmentally sustainable and which promote the conservation of energy. Such techniques and methods include but are not limited to renewable materials, porous pavement, reductions in impervious areas (vegetated islands etc.), green infrastructure techniques, dark sky friendly street lighting, solar power, and high-efficiency LED lighting.
15. Design or road improvements shall be in accordance with these Standards supplemented and modified as needed by the County Planning Board on the advice of the County Engineer.
16. All proposed ROW improvements, wherever feasible, shall adhere to the goals and objectives in the County's Vision Zero Action Plan. All proposed safety countermeasure techniques and designs must be reviewed by the Division of Planning and approved by the County Engineer.

Traffic Impact Report

Applicants are required to submit a Traffic Impact Report in accordance with the requirements set forth in Appendix F. A Traffic Impact Report shall be required for any proposed development that will generate in excess of 10 vehicle trips during the weekday, morning, evening or Saturday peak hour using the latest "Institute of Transportation (ITE) Engineering Trip Generation Rates", or as otherwise required by the County Engineer. The Traffic Impact Report will determine the necessity and extent to which road and traffic improvements will be required.

In addition, Traffic Impact Reports for all sites located within areas studied by a Road Safety Audit, areas within 1/4 mile of a PATH stop, light rail stop, Journal Square Bus Terminal and other possible bus depots/ hubs at the County's discretion shall include a Multi-Modal Impact Report. The goal of the Traffic Impact Report is to determine the locations of increased pedestrian circulation and the associated likelihood of increased vehicular/pedestrian collisions. Should the report determine that there is an increased likelihood of pedestrian/vehicular collisions, then appropriate mitigation measures should be recommended.

Level of Service

Any development that causes a location on a roadway to operate in excess of capacity Level E for vehicles is discouraged. However, vehicular level of service should not be the only metric used to determine the traffic impact. For instance, if a development reduces the motor vehicle level of service, but improves conditions for pedestrians, transit, and/or bicyclists, a motor vehicle level of service in excess of capacity Level E may be acceptable, at the discretion of the Planning Board and the County Engineer. If there are no improvements for other modes to offset the impact to the motor vehicle level of service, a developer may address traffic problems resulting from the development by incorporating design modification or by contributing to the cost of off-site traffic improvements.

C. Street Typologies

Streets throughout the county should be designed to reflect the unique characteristics of the surrounding context or neighborhood. This approach to street design will supplement the Functional Classification defined by the state. The functional classification addresses the character and volume of vehicular traffic while the Street Typologies will address the character, context and urban design elements necessary for a well-balanced Complete Street. Every County roadway has been designated one of the following Street Typologies and is indicated on the County Road Typology Map:

1. Residential Boulevard
2. Mixed Urban Boulevard
3. Scenic Boulevard
4. Downtown Avenue
5. Mixed Use Avenue
6. Industrial Avenue
7. Main Street
8. Neighborhood Street

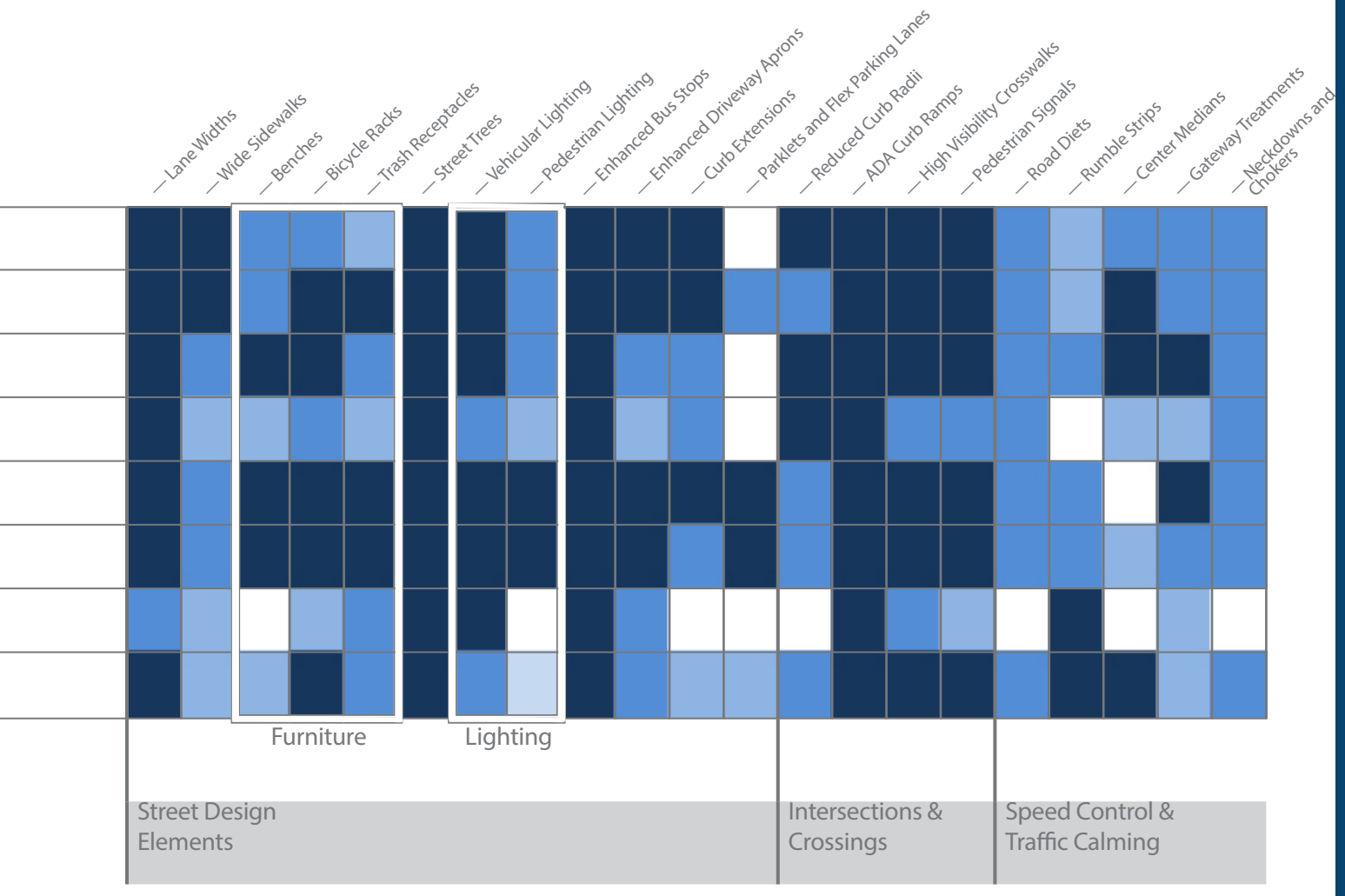

N
W
E
S
0
0.5
1
2 Miles
County Road Typology
Street Typology
Downtown Avenue
Downtown Avenue (One-Way)
Industrial Avenue
Main Street
Mixed Urban Boulevard
Mixed-Use Avenue
Neighborhood Street
Neighborhood Street (One-Way)
Residential Boulevard
Scenic Boulevard
Produced by
Hudson County
Division of Planning

Street Typologies

Design Considerations

Each street typology requires different design considerations based on the use and context of a particular street segment. For example, an Industrial Avenue that accommodates primarily truck traffic and commuters walking or biking to work should not have the same design considerations as a Main Street that is used for shopping, walking and socializing. The following chart identifies each of the potential design elements and the consideration that this element should be given within each street typology.

- Residential Boulevard
- Mixed Urban Boulevard
- Main Street
- Neighborhood Street
- Downtown Avenue
- Mixed Use Avenue
- Industrial Avenue
- Scenic Boulevard



Legend

- Strong Consideration
- Moderate Consideration
- Low Consideration
- Not Recommended

John F. Kennedy Blvd, Bayonne, NJ

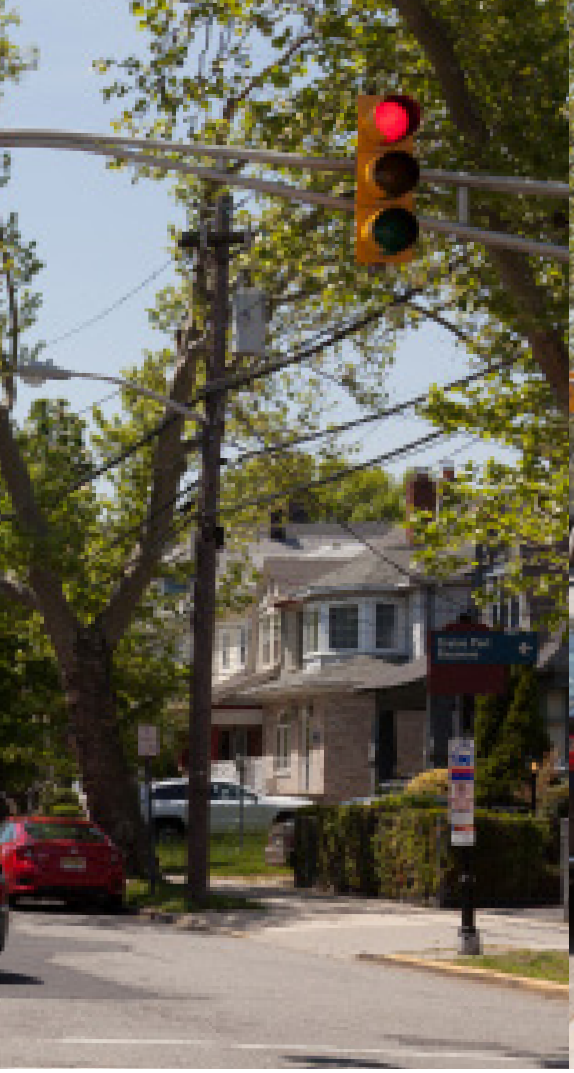
Street Typologies

1. Residential Boulevard

EXAMPLES

- Kennedy Boulevard from North Street to 37th Street – Bayonne
- County Road Extension New County Road to Brianna Lane – Secaucus

A Residential Boulevard is a broad street that traverses a predominantly residential neighborhood. The boulevard has grand, aesthetically appealing character offering wide sidewalks, full street tree canopy, on-street parking and ample lanes for vehicles. Often times, the uses within a boulevard will be separated by landscaped medians, which calm traffic, buffer the adjacent residences and reduce the scale of the street.



John F. Kennedy Blvd, Bayonne, NJ

PRIMARY FUNCTION

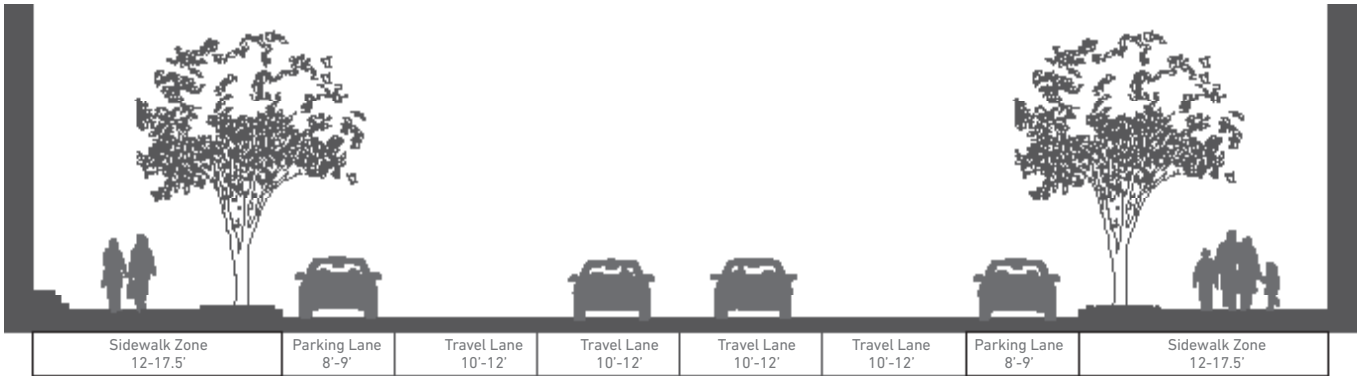
» Balance the need to move high traffic volumes while minimizing impacts on adjacent residences.

» Create a neighborhood center and activity hub for socializing, exercising and accessing transit.

KEY CHARACTERISTICS & ELEMENTS

» Wide sidewalks and planting strip
» Significant street tree canopy
» Medians, landscaped
» Vehicular and Pedestrian Scale lighting
» High visibility crosswalks
» Pocket parks for socializing

TYPICAL ROADWAY SECTION



Street Typologies

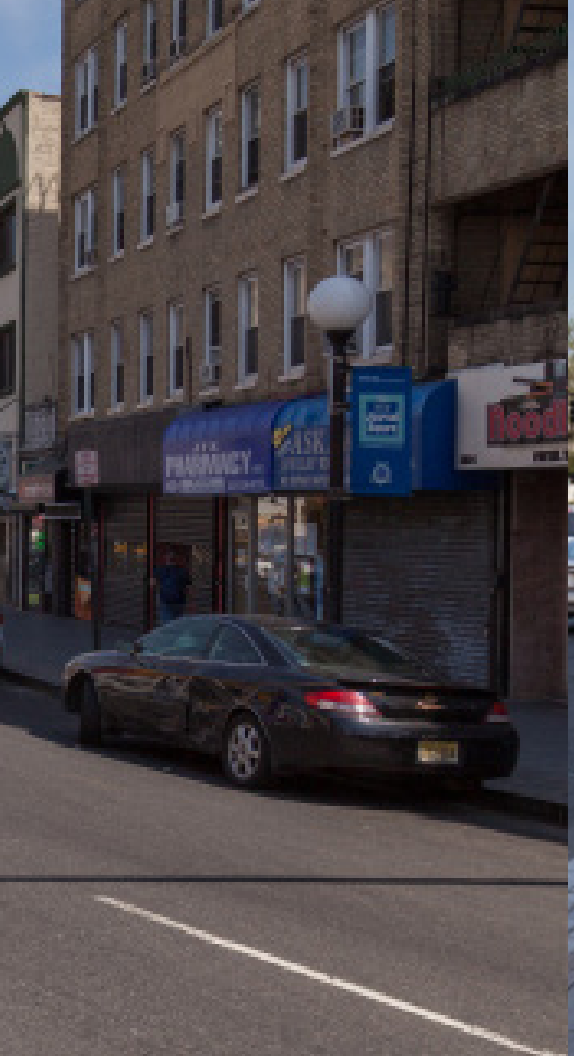
2. Mixed Urban Boulevard

EXAMPLES

— Kennedy Boulevard between 63rd Street and Seaview Avenue – Jersey City

— Kennedy Boulevard between 16th Street and 89thStreet–NorthBergen

The Mixed Urban Boulevard is a broad thoroughfare similar in character to the Residential Boulevard except that the land-use and character is more varied. This has left these corridors with a variety of uses, ranging from residential to industrial, that may or may not be compatible with one another. These corridors require an additional level of attention since there is a need to establish visual continuity while addressing the specific needs of the varying uses.



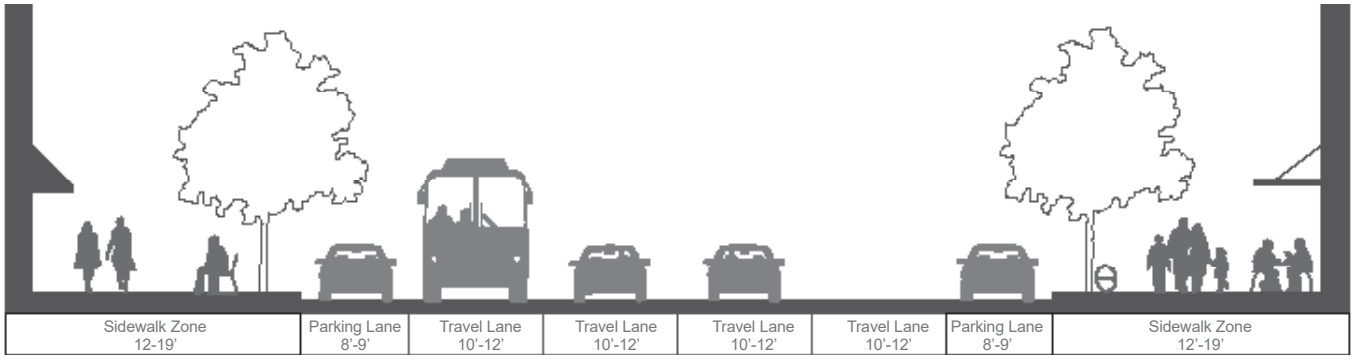
PRIMARY FUNCTION

- Balance the need to move high traffic volumes with those of the adjacent land uses.
- Create a comfortable and aesthetically pleasing driver and pedestrian experience.

KEY CHARACTERISTICS

- Sidewalk zone treatment and amenities may vary based on land-use
- Significant street tree canopy
- Medians, landscaped or programmed
- Vehicular and Pedestrian Scale lighting
- High visibility crosswalks
- Pocket parks for socializing, gathering and/or programming

TYPICAL ROADWAY SECTION



Passaic Ave, Kearny, NJ

Street Typologies

3. Scenic Boulevard

EXAMPLES

- Boulevard East – West New York, North Bergen
- Passaic Avenue from Bergen Avenue to Ross Lane – Kearny
- Manhattan Avenue – Union City

A Scenic Boulevard is a 2-4 lane road that passes through and/or connects scenic swaths of open space, parks or view-sheds. Scenic Boulevards are generally abutted by landscape and open space with few street-fronting uses. However, in some areas street fronting uses may line one-side of the street. Scenic Boulevards provide a picturesque and enjoyable ride for drivers and cyclists.

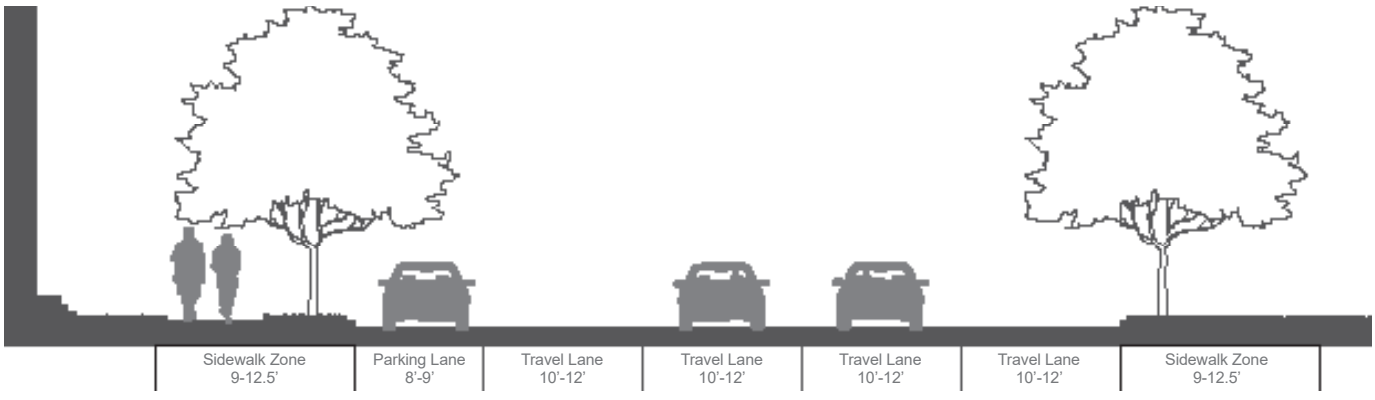
PRIMARY FUNCTION

» A scenic and enjoyable vehicular connection between or through open space, parks or view sheds.

KEY CHARACTERISTICS

» Sidewalks vary; near public parks or residential, ample sidewalks should be provided, while sidewalks may not be necessary along areas that are serving as a vehicular connection
» Natural, diverse landscape and shade trees
» Curvilinear alignment
» Natural materials such as stone, cobbles, etc. for curbs, sidewalks and/or roadway
» Vehicular Lighting; and Pedestrian Scale lighting where appropriate
» High visibility crosswalks
» Pocket parks for resting and escaping the elements

TYPICAL ROADWAY SECTION



14th Street, Hoboken, NJ

Street Typologies

4. Downtown Avenue

EXAMPLES

— 14th Street between Bloomfield Street and Sinatra Drive – Hoboken

— Hudson Street between 3rd Street and Observer Highway - Hoboken

A Downtown Avenue is a vibrant mixed-use corridor, lined with retail and restaurants that attract people from the region. These streets are generally two travel lanes with on-street parking on both sides. Ample sidewalks should be provided to allow for pedestrian circulation, shopping and outdoor dining. Since Downtown Avenues generally service users that may not be from the neighborhood, clear and comprehensive pedestrian and vehicular wayfinding is essential.

14th Street, Hoboken, NJ

PRIMARY FUNCTION

» To promote a vibrant and economically viable Central Business District.

» To create a safe and enjoyable environment for residents and visitors.

KEY CHARACTERISTICS

» Wide sidewalk zone with ample amenity zone, room for shopping and outdoor dining/cafes

» Ample seating areas should be located throughout the amenity zone

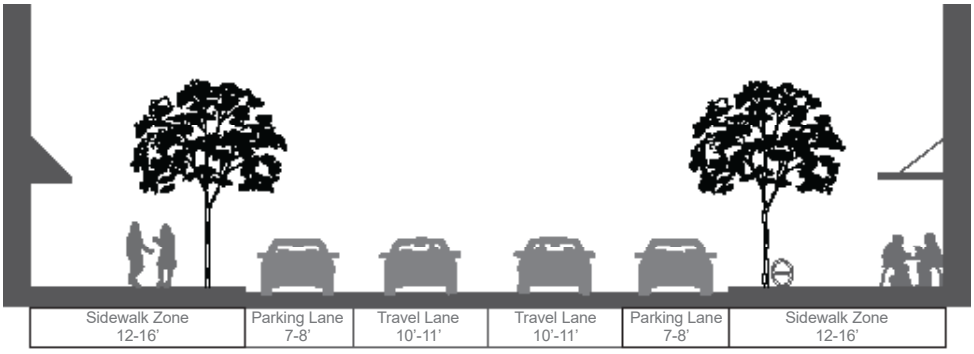
» Consistent, medium street trees with special care taken to minimize visual obstruction of storefront signs

» Pedestrian and Vehicular Lighting

» High visibility and/or decorative textured crosswalks

» Pocket parks for socializing

TYPICAL ROADWAY SECTION



Newark Street, Hoboken, NJ

Street Typologies

5. Mixed Use Avenue

EXAMPLES

- Newark Street between Jefferson St and Bloomfield Street – Hoboken
- Paterson Plank Road between Flanagan Way and Riverview Court- Secaucus

Mixed Use Avenues are corridors that have a variety of uses but do not have the character, synergy of uses or density associated with other mixed-use street typologies such as Downtown Avenues or Main Streets. Common characteristics found in Mixed Use Avenues may include gaps in street wall, uses that are generally not compatible or vehicular oriented commercial or residential uses.

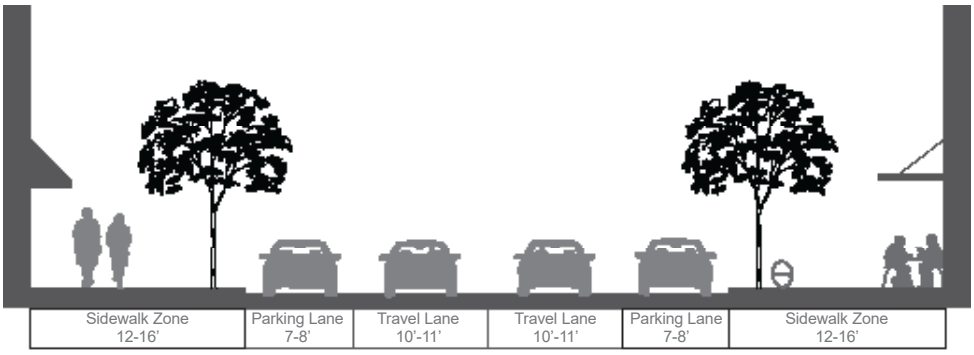
PRIMARY FUNCTION

» Provide vehicular and pedestrian access to the adjacent land uses

KEY CHARACTERISTICS

» Sidewalk zone treatment and amenities may vary based on land-use
» Street trees
» Vehicular Lighting; Pedestrian Scale may be introduced in areas that generate higher pedestrian volumes such as street fronting retail
» Standard and High visibility crosswalks as appropriate

TYPICAL ROADWAY SECTION



Harrison Ave, Kearny, NJ

Street Typologies

6. Industrial Avenue

EXAMPLES

— Fish House Road – Kearny

— Secaucus Road – North Bergen

Industrial Avenues have wide lanes, large turning radii and other characteristics that allow trucks to safely access industrial uses. These streets are often located in large, open areas of land and are lined with surface parking lots and low-rise warehouses and industrial buildings. Pedestrian and bicycle access in these areas are very limited. In many cases, these roads are located within wetlands or environmentally sensitive areas such as the Meadowlands.

Harrison Ave, Kearny, NJ

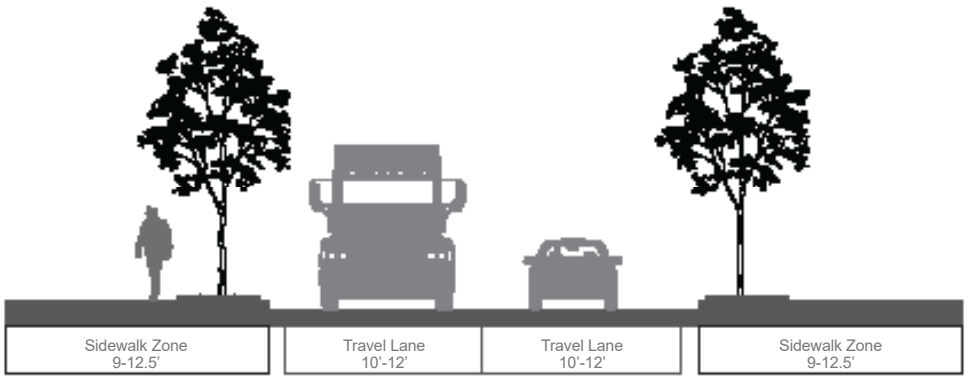
PRIMARY FUNCTION

» To provide truck access to industrial uses

KEY CHARACTERISTICS

» Limited sidewalks primarily for walking commuters
» Street trees should be provided but should be located a safe distance from the curb line so that the canopy is clear from the heavy truck traffic.
» Vehicular Lighting for safe truck access
» Standard crosswalks if needed
» Enhanced bus stops should be provided for safe and comfortable commuter access
» Bicycle parking should be provided at key locations for commuters

TYPICAL ROADWAY SECTION



1st Street, Hoboken, NJ

Street Typologies

7. Main Street

EXAMPLES

- Willow Avenue–Hoboken
- Paterson Plank Road between Central Avenue and 7th Street – North Bergen

The Main Street is a vibrant street that is the heart of the community. Often lined with residential, retail and commercial uses, Main Streets provide residents with a walkable environment where they can socialize, have access to transit and shop for their day-to-day needs. The streets tend to have 1-2 travel lanes, moderate vehicular traffic, high pedestrian traffic and relatively high parking turnover.

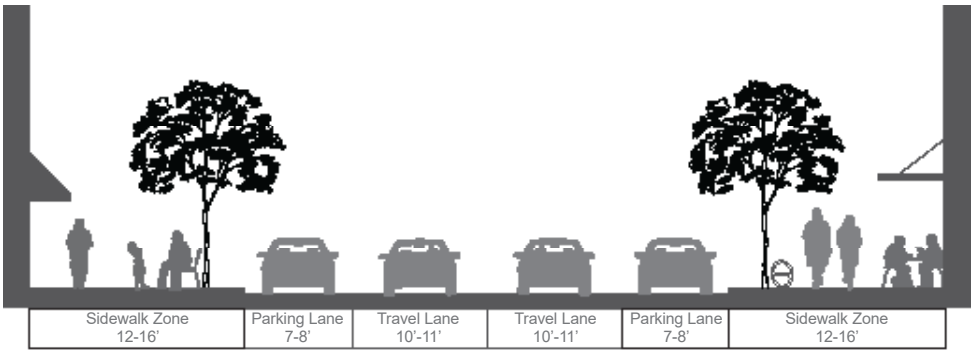
PRIMARY FUNCTION

» Provide neighborhood residents with easy and safe access to social services and events, transit access and shopping for day-to-day needs.

KEY CHARACTERISTICS

» Ample, comfortable sidewalk zones with seating and space for outdoor cafes (where appropriate)
» Consistent, medium street trees. Care should be taken to minimize obstructing visibility of storefront signs
» Pedestrian Scale lighting
» High visibility crosswalks
» Pocket parks for socializing, gathering and/or programming as appropriate

TYPICAL ROADWAY SECTION



Park Ave, Hoboken, NJ

Street Typologies

8. Neighborhood Street

EXAMPLES

- Park Avenue – Hoboken
- Hackensack Plank Road between Gregory Avenue and Hudson Avenue – Weehawken

A Neighborhood Street is a local residential street that is typically one lane (when one-way) or two travel lanes (when two-way). In both cases, on-street parking is typically located on both sides of the street. These streets are predominantly residential in character but often have convenience retail located on street corners. Neighborhood streets should be safe and inviting for pedestrians and bicyclists while restricting vehicles to lower travel speeds.

Park Ave, Hoboken, NJ

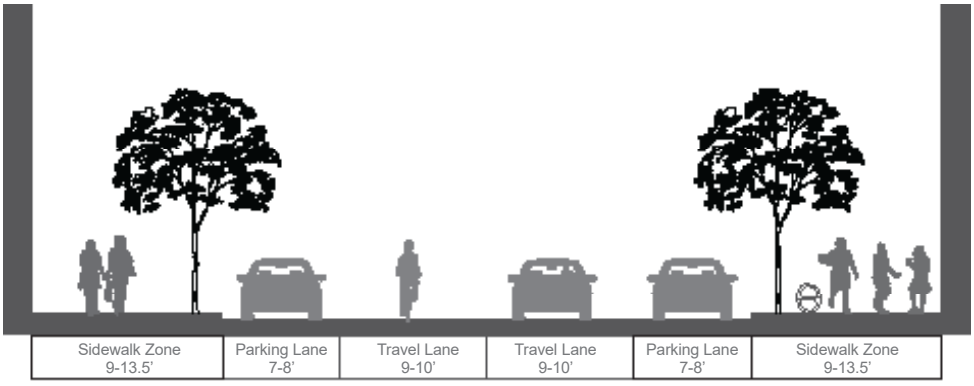
PRIMARY FUNCTION

» To provide residents with safe and inviting pedestrian and bicycle access to neighbors, schools and convenience retail.

KEY CHARACTERISTICS

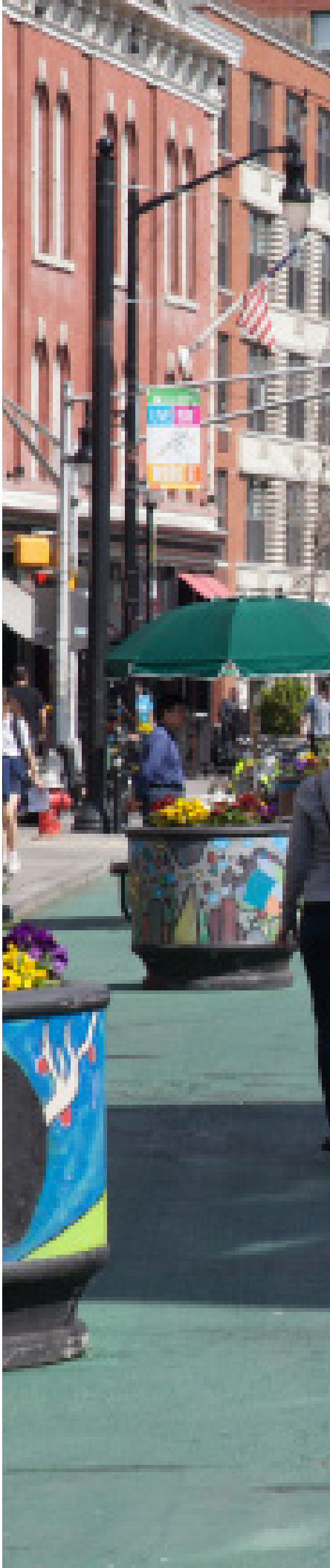
» Ample, comfortable sidewalks with planting strip or tree pits
» Limited seating where convenience retail is located
» Consistent, medium street trees
» Vehicular Lighting; Pedestrian Scale lighting should also be considered where appropriate
» Standard crosswalks; High visibility crosswalks at high volume intersections or locations where conflicts may occur
» Pocket parks for socializing

TYPICAL ROADWAY SECTION



D. General Design Standards

The following section outlines a set of design standards that apply to all Hudson County Roads.




Grove

General Design Standards

1. General

a. The purpose of proper street design is to create a functional and attractive development, to minimize adverse impacts, to foster public transit and pedestrian linkages and to eliminate unnecessary development cost.

b. The existing street system should be preserved and utilized for all development where practical and consistent with the circulation plan of the Hudson County Master Plan or Official Map.

c. Residential and non-residential developments that involve new streets shall as far as practical, connect with the existing street system, especially if the existing streets are for similar land uses.

d. The design of roadway improvements shall be in accordance with the most current edition of the American Association of State Highway and Transportation Officials (AASHTO) “A Policy on Geometric Design of Highways and Streets,” New Jersey Department of Transportation (NJDOT) standards, the Institute of Transportation Engineers (ITE), and the design standards contained herein. Construction details shall follow the New Jersey Department of Transportation construction detail sheets, or as specified by these regulations.

2. Street Right-of-Way

a. The right-of-way shall be measured from lot line to lot line and shall be sufficiently wide to contain the cartway, curbs, shoulders, sidewalks, graded areas, utilities, planting strip and shade trees.

b. The right-of-way should vary according to the street typology and should be sensitive to the intensity of development. The ratio of building height to right-of-way width should be considered. According to the Institute of Transportation Engineer’s (ITE) “Designing Walkable Urban Thoroughfares: A Context Sensitive Approach,” building height to thoroughfare width ratios between 1:2 to 1:3 are typically the most comfortable for pedestrians. The ratio should not exceed 1:4 in an urban setting. Street trees can also be used to create a similar sense of enclosure, if existing buildings are setback too far from the road.

c. Right-of-way width should reflect future development as indicated by the County Master Plan.

d. Alternatives to the required right-of-way widths may be considered, such as those presented in the Institute of Traffic Engineers (ITE) Context Sensitive Solutions.

e. The right-of-way width of a new street that is a continuation of an existing street shall in no case be continued at a width less than the existing street.

3. Cartway Width

a. Cartway width for each street classification shall be determined by parking and curbing requirements that are based on the intensity of development served by that street.

b. Cartway width also shall consider possible limitation imposed by sight distances, climate, terrain and maintenance needs.

c. Additional cartway width may be required for streets which are part of a designated bike route as indicated in the County Master Plan to make them consistent with the AASHTO Guidelines for Bicycle-Compatible streets.

4. Roadway Widening

a. The County road frontage shall not be widened unless the development application involves any of the following, in which case it may be widened:

   i. Residential subdivisions and site plans of densities equal to or greater than two (2) units per acre.

   ii. Commercial, industrial and other nonresidential subdivision and site plan applications.

   iii. The installation of a bikeway route, either as a dedicated bike lane or by increasing the travel lane width or shoulder width to accommodate bike traffic, in accordance with the bikeway standards in these Standards.

b. Where road widening is required, such widening shall be designed in accordance with the requirements specified in these Regulations, or as directed by the Planning Board.

c. Notwithstanding the above, a development may be required to make road improvements with respect to drainage, street intersections, driveway connections and traffic circulation as determined by the County Engineer and in accordance with other Sections of these Standards.

d. The alignment of road widening improvements shall conform to the County road improvement plans (where such plans exist) and the recommendations of the County Engineer, if in the judgment of the Planning Board such realignment will not impose an undue hardship on the applicant and other affected property owners.

e. The Planning Board may modify and waive the roadway widening standards in consideration of the following:

   i. Where the pavement width and curb have been established by previous road improvements.

   ii. Where an existing site is proposed for redevelopment, and the Planning Board has determined that the proposed changes will have little or no affect upon the County road and drainage systems.

i. Where single-family residential lots are proposed using reverse frontage and no driveways or streets will connect to the County road.

ii. Where a redevelopment plan or other plan has been adopted by the municipality with specific standards and widths of roadways and rights-of-way.

5. Street Grade

a. The minimum street grade for all streets is 0.5 percent; however, 0.75 percent should be used where topographic conditions permit.

b. Maximum street grade should vary according to road hierarchy, with flatter grades required for roads with higher Average Daily Traffic (See Table VII-2).

Table VII-2: Street Grade, Curve and Intersection Design Criteria

d.	LOCAL	COLLECTOR	
Minimum Grade	0.50%	0.50%	0.50%
Maximum Grade	12%	10%	8% / 6%
Maximum Grade of Secondary Street within 50' of Intersection*	5%	5%	5% / 2%
Minimum Centerline Radius	100'	150'	300' / 500'
Minimum tangent length between reverse curves	50'	100'	150' / 300'

6. Speed Change Lanes

a. A speed change lane is an auxiliary lane for the acceleration or deceleration of vehicles entering or leaving the through traffic lane. Speed change lanes may be required where certain development roads and driveways are proposed to intersect County roads.

b. Construction of speed-change lanes by the developer shall be at the direction of the County Engineer. Factors governing this determination shall include but not be limited to current and anticipated traffic volume and design speed on the County road and anticipated character and volume of traffic on the development street or driveway.

c. Where pavement widening and curbing are required, the additional width of pavement may be acceptable as serving the purpose of speed change lanes.

d. Where full width speed change lanes are required their dimensional design shall comply with current AASHTO and NJDOT Standards and Details.

7. Left-turn lanes, jughandles and Overpasses

The construction of and/or the conveyance of land to the County for left turn lanes, jughandles and overpasses may be required by the Planning Board, under one or more of the following circumstances:

a. Where a Master Plan, Official Map or engineering plan for the improvement of a County road exists, which shows the proposed location of jughandles and/or overpasses.

b. Where a development is proposed that provides 200 or more parking spaces on the site and the projected traffic flow warrants such a need for left turns.

c. When a development is proposed that provides peak hour traffic in excess of 150 vehicle trips. A trip is defined as a single or one-every-vehicle movement with the origin or destination inside the study site.

d. Where the sight distance is below that required by the standards in these regulations.

e. Where the existing level of service is Level "D", as described in the Highway Capacity Manual, published by the Highway Research Board, during the time period when the County road would be utilized by drivers entering and leaving the development.

8. Pavement

a. Street pavement thickness shall vary by usage/ street hierarchy, sub-grade properties, and pavement type.

b. Pavement design standards for all County roads shall conform to the specifications in RSIS (N.J.A.C. 5:21-4.19). The County Engineer reserves the right to request that pavement design standards be in accordance with current NJDOT Standards and be used on all County roads dependent on the quantity of the proposed Pavement. Pavement construction requirements shall be in accordance with Figure VII-1, and may be varied at the discretion of the County Engineer.

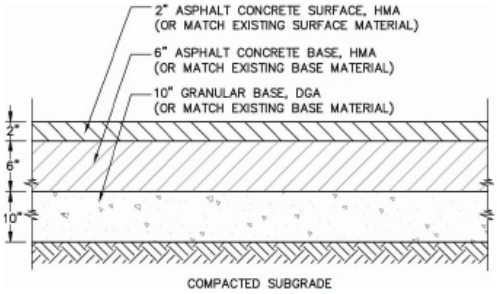


Figure VII-1: Pavement Detail

c. New pavement shall match the existing pavement surface, unless otherwise advised by the County Engineer.

d. Long-life pavements, which generally result in lower life-cycle costs and less impact on the environment, are recommended for pavement that is reconstructed or built new.

e. Shoulder Paving. Each land development requiring County approval shall install paving in the area between the edge of existing pavement and newly constructed curbing along the entire property frontage of the County road in accordance with RSIS (N.J.A.C. 5:21-4.19).

9. Curbing

a. Curbing shall be required for drainage purposes, safety and the delineation and protection of the pavement edge on all County roads.

b. Each land development shall install curbs along the entire property frontage of the County road.

c. Curbs should be constructed according to current NJDOT Standards and Details and should comply with the American Disabilities Act (ADA) standards.

d. The alignment and grade of curbing is to be determined by that established or existing in the area and subject to approval by the County Engineer.

e. Before construction, a County curb construction permit will be required.

f. The County will determine the type and material of all curbing on County Roads to accommodate the aesthetics and the drainage required.

10. Utility Poles

The presence of new or relocated utility poles in the right-of-way shall be avoided where feasible. Underground installation shall replace overhead lines within the limits of the site frontage along the County right-of-way.

11. Traffic Signals

a. Where a subdivision or site plan is expected to generate an increase in the amount of traffic, or create a traffic safety hazard on any County road, which would warrant the installation of a traffic signal, the Hudson County Engineer may recommend that the land developer prepare plans, specifications, and construct a traffic signal to facilitate traffic generated by the proposed development.

b. The County may also require the Developer to provide a fair share contribution for the improvement to any County roadway facility or drainage facility that will be adversely affected by the proposed development.

c. Where it is determined at the time of the review of the land development that a traffic signal may be warranted in the near future, the land developer may be required to post a performance guarantee to cover the cost of

designing and constructing the traffic signal. This performance guarantee shall be separate from other performance guarantees posted by the developer and shall remain in effect for five (5) years from the date of the first occupancy within the land development.

d. If and when the traffic signal becomes necessary during this five (5) year period, the land developer shall prepare plans, specifications, and construct the traffic signal.

e. In all cases, no traffic signal shall be installed unless it meets the warrants as specified in the Manual on Uniform Traffic Control Devices (MUTCD) or due to hazardous and safety reasons.

f. The Hudson County Engineer may permit the relocation of existing County owned traffic signals and electrically illuminated signs provided an equally satisfactory and adequate site can be provided which is approved by the County. This also applies to pull boxes, conduits, cabinets and other constituent parts of traffic signals and electrical sign installations.

12. Guide Rail

Guide rails shall be provided and designed in accordance with current NJDOT Standards and Details.

13. Signs

a. General

i. The developer shall provide all signage required by the Municipality, County and NJDOT in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

ii. The location of a sign in a County right-of-way will require County approval.

iii. For any proposed sign in the County right-of-way, the developer shall coordinate with the County Engineering Department to get the required forms to be filled and submitted. All signage in the County right-of-way shall be included in the County's comprehensive signage inventory.

iv. All signs shall comply with the applicable provisions of the MUTCD, Uniform Construction Code and shall be maintained in good structural condition.

v. Signs should be coordinated with other street amenities to unify areas with a distinct identity.

vi. Pedestrian oriented signs, including projecting signs, banners, and awnings, are encouraged.

b. Directional, Regulatory and Advisory Signs

i. To facilitate the safe and efficient movement of traffic into and out of a site, the County may as a condition of the site plan or subdivision approval require the installation of specified directional, regulatory or advisory signs or pavement markings at designated locations.

ii. All proposed signing must conform to the current edition of the MUTCD for size, legend and placement.

c. Advertising Signs

i. No advertising sign, device or marking may be designed to be erected on or overhang a County roadway without County approval.

ii. Advertising signs which revolve, move, flash, give the illusion of movement or resemble official traffic control devices shall be prohibited within 25 feet of the right-of-way line or any other location that would adversely impact the safe operation of a motor vehicle or cause confusion to pedestrians or bicyclists.

14. Off-Street Parking and Loading Areas

a. Design of off-street parking areas

i. Off-street parking areas shall be designed to prevent the maneuvering of vehicles into or out of parking spaces within the right-of-way of a County road. Off-street parking areas shall be so designed to permit all vehicles

to turn around on the site in order to prevent the necessity of any vehicle backing into a County road from such site.

ii. No required off-street parking space including adjacent parking access lanes or maneuvering space shall be located within the existing or proposed right-of-way of the County road.

b. Parking Standards

i. For residential projects, parking should be provided in accordance with New Jersey RSIS Standards (NJAC 5:21-4.14 through 4.16). Adequate on-site parking for the purpose of avoiding unreasonable traffic movements is encouraged. An excess of on-site parking which would create a traffic impact on County roads is discouraged.

ii. For non-residential projects, parking shall be provided in accordance with recommended ITE or municipal established standards.

iii. Handicapped parking shall be provided in accordance with ADA Standards.

iv. Opportunities for shared parking and other parking mitigation strategies should be considered.

v. Bicycle parking racks shall be provided for multifamily, non-residential and mixed-use development projects. The racks shall accommodate bicycles at a ratio of one (1) bicycle space for every ten (10) vehicular parking spaces provided.

c. Interior landscaping of parking lots

i. For parking areas designed to accommodate 20 or more vehicles, a minimum of 10 percent of the parking surface area shall be planted as landscaped island areas.

ii. Landscaped islands shall be developed and reasonably distributed throughout the parking surface area so as to provide visual, stormwater and climatic relief from broad expanses of pavement in accordance with the following standards:

(a) Within the landscaped islands, there shall be provided one major shade tree for the first 20 parking spaces and one additional shade tree for every 10 additional parking spaces, provided there is no impairment to the visibility of motorists or pedestrians. Each tree, at the time of installation, having a clear trunk height of at least 6 feet and a minimum caliper of 2.5 inches, which should be measured at the diameter at breast height (DBH) 4.5 feet from the ground.

(b) Shrubs or low, spreading plant materials may be planted within the required landscaped islands provided there is no impairment to the visibility of motorists or pedestrians.

i. For the purpose of this Section, the area of a parking lot shall be the total vehicular surface area including circulation aisles.

ii. The total parking surface area for such calculation shall not include parking area in a parking garage other than the top level.

d. Off-street Loading Spaces and Areas

No part or any off-street truck loading or unloading space shall be located within the right-of-way of the County road including the sidewalk area and shall be screened from public view.

Off-street truck loading and unloading spaces shall be located and designed to permit any truck to maneuver from a driveway into and out of such space without encroaching upon any portion of a County road existing or proposed right-of-way including the sidewalk area.

e. Customer Service Area

Any site plan that provides temporary, stopping space or maneuvering space for vehicles of customers or patrons seeking service at a roadside business establishment (such as a roadside grocery stand, filling station, drive in bank, etc.) shall be located so that the stopping or maneuvering space is at least ten (10) feet back of the existing, or where applicable, future right-of-way line, of the County road.

15. Right-of-Way Encroachments

No development which adjoins or includes a County road or roads shall be designed to permit any of the following uses within the County road right-of-way: conduct of private business without County approval; erection of buildings, permanent or temporary; sales of merchandising displays; vehicular parking areas; servicing of vehicles; service equipment and appurtenances thereto; fencing of any kind, to include living and artificial or fabricated types; walls of timber, stone, concrete, metal or other materials; signs of all types, excepting traffic and regulatory and street signs; shrubberies and horticultural materials, excepting trees designated to remain or to be planted as a requirement under these regulations.

1. If an owner or tenant proposes temporary placement of tables and chairs, fences, and other ancillary property, on the County right of way, the applicant shall work with the County to obtain a Temporary License Agreement. The applicant shall indicate the proposed Personalty and placement in their site plan to be reviewed by the County Engineer and the Hudson County Division of Planning.

   In the event that the applicant is the tenant of the property, and not the owner of the property, the tenant shall provide proof that the owner of the property consents to the use and application for a Temporary License Agreement with Hudson County.

   a. The applicant shall ensure that said Personalty shall not be permanently affixed to the County right of way. Said Personalty shall be moveable, and securely stored off the County right of way when not in use.

   b. The applicant shall maintain, at their sole cost, the area that is subject to the Temporary License Agreement. In the event that it is required that the County and/or any public agency or public utility remove the sidewalk area, then the applicant shall remove all Personalty at their own cost.

   c. The placement of said Personalty shall not damage, impede, or otherwise affect the County right of way and the public's use thereof.

2. If an owner or tenant proposes temporary placement of ancillary property, for the purpose of the outdoor serving of food and drink adjacent to their site, the applicant shall work with the County to obtain a Temporary License Agreement in compliance with Section VII, 15.1 of the Hudson County Land Development Regulations.

16. Right-of-Way (ROW) Dedication

No development which adjoins or includes a County road or roads shall be designed to permit any of the following uses within the County road right-of-way: conduct of private business; erection of buildings, permanent or temporary; sales of merchandising displays; vehicular parking areas; servicing of vehicles; service equipment and appurtenances thereto; fencing of any kind, to include living and artificial or fabricated types; walls of timber, stone, concrete, metal or other materials; signs of all types, excepting traffic and regulatory and street signs; shrubberies and horticultural materials, excepting trees designated to remain or to be planted as a requirement under these regulations.

a. The requirements for existing and proposed County roads for rights-of way shall conform to the classification of County roads contained in the adopted County Master Plan or Official Map.

b. The developer must dedicate a minimum of ten (10) feet outside the proposed curb or ROW required by the county for any future potential proposed widening or roadway improvements.

c. All proposed developments that adjoin or include existing County roads that do not conform to the right-of-way widths as shown on the adopted County Master Plan or Official Map, shall dedicate the required additional right-of-way width for the entire frontage along one or both sides the County road or roads. If a development is on one side only, one-half (1/2) of the required extra width shall be dedicated, measured from the existing center line of the road.

d. Where any road classified as an arterial or collector road intersects with an arterial or a collector road in the adopted County Master plan or Official County Map, the right-of-way

dedication shall be increased an additional 12 feet along the development frontage or frontages on both roads for a distance of 250 feet from the intersection of the centerline of the roads.

e. The construction of and/or the conveyance of land to the County for left turn lanes, jughandles, and overpasses to a development may be required by the Planning Board.

f. Where by reason of special or unusual conditions or to conform to the adopted Master Plan or official map, the total additional right-of-way is to be secured from just one side of a County road, only one-half (1/2) of the required additional right-of-way shall be dedicated by the development as a condition of approval of the development. The development shall reserve the remaining area of right-of-way for future acquisition and shall so designate the area on the development maps. All building setbacks shall be measured and shown from the limits of the future right-of-way line.

g. The final subdivision plat (which is to be filed with the County Register), minor subdivision plat, or site plan shall bear the notation "Dedicated to Hudson County for Road Purposes" which shall further be defined by metes and bounds. In addition, the developer shall show concrete monuments to be set on the new right-of-way line at the tract corners and points of curvature.

h. The developer shall furnish the Planning Board with a bargain and sale type deed, drawn to Hudson County, a Municipal Corporation and shall include a metes and bounds description which corresponds to the dedicated area as shown on the subdivision plat, or site plan as the case might be.

i. The deed description shall include:

    i. A beginning point referenced to a tax map lot and block, a prior deed or filed map, and the nearest street intersection.

    ii. Square footage or acreage of the dedicated area.

    iii. A reference to the subdivision plat or site plan as the case may be stating the title, municipality, date and last revision, and the name and address of the surveyor/engineer.

17. Other Easements

j. In addition to the easements required under these regulations, other easements including but not limited to construction easements, slope easements, guiderail easements and traffic signal maintenance easements shall be required as necessary to construct and maintain improvements to County roads, County drainage structures, County drainage systems and County drainage facilities associated with the development.

k. The developer shall be responsible for the acquisition of any off-site easements and rights-of-way that are necessary to construct improvements to County roads, County drainage structures, County drainage systems and County drainage facilities that are required in conjunction with approval of the development.

l. The developer shall be required to attempt to acquire said off-site easements and rights-of-way by making reasonable offers to the affected property owners. If the developer is unsuccessful in his/her attempts to acquire the necessary easements and rights-of-way, proper documentation of same must be provided.

m. The county engineer on behalf of the Hudson County Planning Board, may recommend to the Board of Chosen Freeholders that the county undertake the acquisition of the required easements and rights-of-way. The developer shall reimburse the county to cover all of the cost associated with the acquisition including but not limited to property parcel maps in accordance with county parcel map details, property appraisals, legal fees, filing fees and the cost of the properties acquired.

18. Waterfront Walkways

a. All proposed development along any tidally flowed waterway shall provide a 30 foot right-of-way and a 16 foot ADA-accessible walkway in accordance with NJ DEP's Coastal Zone

Management regulations and guidelines, pursuant to NJAC 7:7E-8.11a et-seq.

b. All proposed development along any tidally flowed waterway shall provide ADA-accessible perpendicular access to the waterfront in accordance with NJ DEP's Coastal Zone Management regulations and guidelines, pursuant to NJAC 7:7E-8.11b et-seq.

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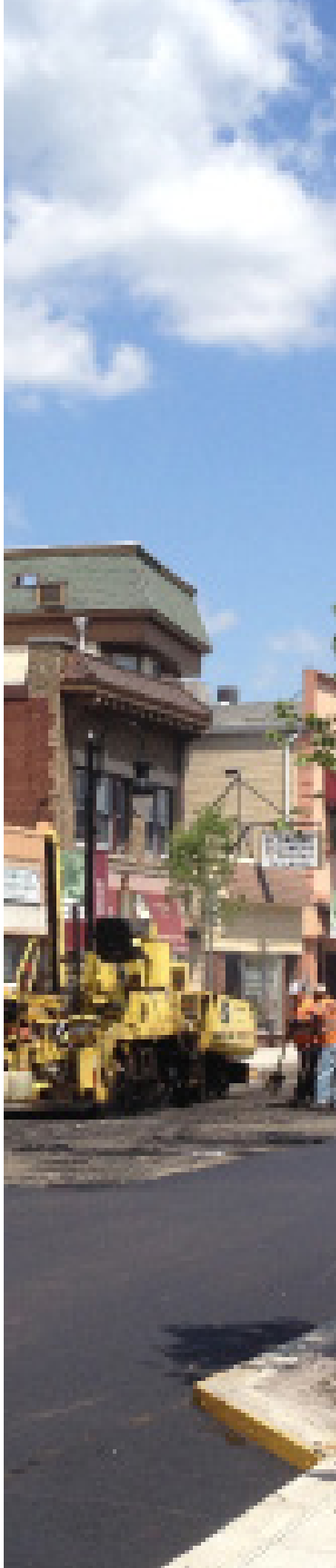
E. Street Design Elements

Hudson County roadways are comprised of a series of elements that make the roads functional and enjoyable for all users. This section identifies these elements and provides guidance and requirements as to how these elements are implemented.




Broad Street, Bloomfield, NJ


Broad Street, Bloomfield, NJ

Street Design Elements

Lane Widths

Street width determines the allocation of lanes for motorist, buses, trucks, bikes and/or parked cars. Lane widths take into account the assemblage of a given street delineating space to serve all needs, including travel lanes, safety islands, bike lanes, and side walks. Lane widths of ten (10) feet are appropriate in urban areas and have a positive impact on a street's safety without negatively impacting traffic operations.

APPLICATION

Lane widths should be determined based on a variety of factors, such as the target speed of the street, the type of vehicles using the street, the available right-of-way, and the type and configuration of lanes on the street. The narrowest appropriate travel lane width should be used.

DESIGN GUIDELINES

1. Travel Lanes: The travel lane widths in Table VII-3 should be used unless one of the following conditions justify a wider lane.

Table VII-3: Travel Lanes

Functional Class	Width	Max. Lanes
Principal Arterial	10-12'	4
Minor Arterial	10-12'	2
Collector	10-11'	2
Local	9-10'	2

   a. Design Vehicle: If larger vehicles will be using the street frequently, on an Industrial Avenue or a Boulevard with a public transit route, for instance, a wider lane should be used as needed. Travel lanes for public transit should typically be eleven (11) feet wide, with extra room provided if needed for buses to negotiate bus stops and right turns. If there are two lanes

in the same direction, the outside lane should be wider, if necessary, than the inside lane.

b. If bicycle lanes or parking lanes are adjacent to the outside lane, consider widening the travel lane if the design vehicle or target speed justify additional separation between lanes. Providing a striped buffer is preferable in order to keep the lane visually narrow and keep vehicle speeds down.

2. Parking Lanes: In addition to providing space to store a vehicle, parking lanes can provide a buffer between moving traffic and the sidewalk, which makes the space more comfortable for people to walk or socialize. Parking lanes can also be used to provide a physical barrier between moving vehicles and bicycle infrastructure on Boulevards with higher traffic volumes and speeds. Parking lanes should be provided based on the following conditions:

Table VII-4: Parking Lanes		
Functional Class	Width	Sides
Arterial	8-9’	Both
Collector	7-8’	Both
Local	7-8’	At least one

a. On-street parking is prohibited on roads with a speed limit greater than 35 mph.

b. On-street parking on Scenic Boulevards may be removed from sections of the Boulevards fronting parkland at the discretion of the County Engineer.

c. On-street parking on Industrial Avenues is discouraged unless the adjacent land use warrants it. If parking is provided, it should be restricted in advance of intersections in order to avoid impeding truck turning.

3. Bicycle Lanes: Refer to Section H. ‘Bicycle Facilities’ of this document for guidance on bicycle lane widths.

Street Design Elements

Sidewalks

Sidewalks provide safe and accessible pedestrian circulation along County Roadways. Sidewalks should be appropriately sized depending on factors such as road typology, usage, location and adjacent land use, among other factors. Sidewalks create a comfortable space for pedestrians of all ages and abilities to walk, socialize and gather and are generally comprised of four zones:

1. Edge Zone
2. Amenity Zone
3. Through Zone
4. Frontage Zone (where applicable)

APPLICATION

At the discretion of the County Board or Engineer, each land development application subject to County approval shall provide a sidewalk within the County road right-of-way.

DESIGN GUIDELINES

a. The sidewalk is the area between the edge of the cartway and the right-of-way, typically used for non-vehicular travel. It consists of the following four zones:

   i. Edge Zone: The area between the face of curb and the amenity zone that provides the minimum necessary separation between objects and activities in the streetside and vehicles in the cartway.

   ii. Amenity Zone: The area of the streetside that provides a buffer between pedestrians and vehicles, which contains landscaping, public street furniture, transit stops, public signage, utilities, etc.

   iii. Through Zone: The walking zone that must remain clear, both horizontally and vertically, for the movement of pedestrians.

   iv. Frontage Zone: The distance between the


Jersey City, NJ


Kearny, NJ

through zone and the building front or private property line that is used to buffer pedestrians from window shoppers, doorways, etc. It may contain private street furniture, private signage, merchandise displays, street cafes, etc.

b. Sidewalk Dimensions: Refer to Table VII-5.

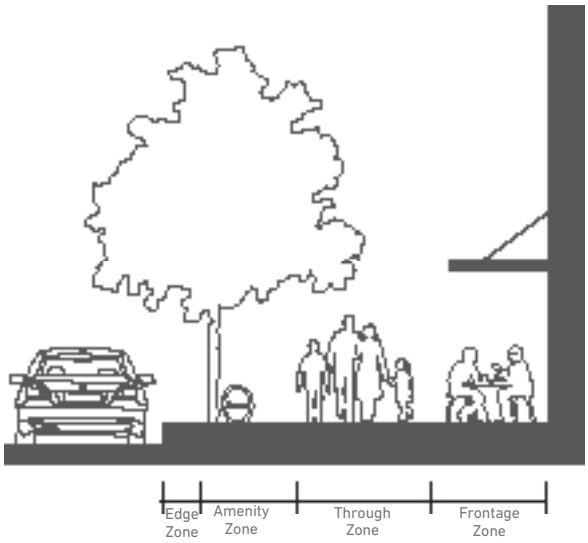


Figure VII-2: Sidewalk Zones

c. Areas of Respite: Areas for pedetsrians to gather, rest and escape the elements should be provided at reasonable intervals along the sidewalks based on Roadway Typology. At a minimum, these areas should offer seating and shade and may be provided either in the amenity zone, within adjecent public property or within a Temporary Sidewalk Extension.

d. Sidewalk Placement

i. Sidewalks shall be placed in the right-of-way, roughly parallel to the street unless an exception is granted to preserve natural features or to provide visual interest.

ii. In certain instances, sidewalks may be located away from the road system in order to create a more pedestrian friendly circulation system by connecting dwelling units, parking areas, recreational areas and other on-site areas.

iii. Sidewalk easements of ten (10) feet may be required by the Board through the center of blocks more than 600 feet long.

Table VII-5: Recommended Sidewalk and Zone Dimensions					
	Sidewalk				
Typology	Total Width	Edge	Amenity	Through	Frontage
Mixed Urban Boulevard	19' (recommended) 12' (constrained)	1.5 feet 2.5 feet at diagonal parking	7' (trees in tree pits)	8 feet	0 feet along lawn and ground cover 1 foot along low walls, fences and hedges 1.5 feet along facades, tall walls and fences 2.5 feet along commercial storefronts
Residential Boulevard	17.5' (recommended) 9' (constrained)		8' (landscape strip w/ trees and grasses or groundcover)	8 feet	
Main Street Downtown Avenue Mixed Use Avenue	16' (recommended) 12' (constrained)		6 feet (trees in tree pits)	6 feet	
Neighborhood Street	13.5' (recommended) 9' (constrained)		6 feet (landscape strip w/ trees and grasses or groundcover)	6 feet	
Industrial Avenue Scenic Boulevard	12.5' (recommended) 9' (constrained)		5 feet (landscape strip w/ trees and grasses or groundcover	6 feet	

iv. Where the setback of buildings from the roadway exceeds 20 feet, sidewalk placement is encouraged that takes the most direct and shortest route between building entrances on-site, existing sidewalks, and street or driveway crosswalks. Sidewalk connectivity between adjacent sites is encouraged.

e. Sidewalk Construction Specifications

i. Sidewalks shall be constructed in accordance with the most current standards and specifications of the New Jersey Department of Transportation (NJDOT) and Public Rights-of-Way Accessibility Guidelines (PROWAG).

ii. Decorative paving, such as brick, may be required if used on adjacent or surrounding sidewalks to create visual continuity.

iii. Green Stormwater Infrastructure (GSI) management practices are encouraged in the sidewalk where appropriate. Refer to the Section VIII:Stormwater Management Design Standards of these Regulations for more detail.


Witherspoon Street, Princeton, NJ


Broad Street, Bloomfield, NJ

Street Design Elements

Temporary Sidewalk Extensions

Temporary Sidewalk Extensions (TSE) convert curbside parking spaces into public seating platforms or semi-private pop-up cafes. TSE's are typically placed where narrow or congested sidewalks prevent the installation of traditional sidewalk cafes or public open space. There are two types of TSE's:

1. Parklet: A public TSE designed as a space for residents and visitors to relax and enjoy the atmosphere around them.
2. Pop-up Cafe: A semi-private TSE designed to accommodate sidewalk café tables for patrons of the supporting establishment in front of which it is located. The TSE occupied by the café becomes open to the public when not in use by the establishment.

APPLICATION

TSE's may be proposed in areas where additional sidewalk space is desired but cannot be accommodated due to technical or budgetary constraints. Temporary Curb Extensions may be proposed by applicants but will be approved at the sole discretion of the County Engineering Department.

DESIGN GUIDELINES

a. Dimensions: A TSE should occupy a minimum of one (1) parallel parking space (approximately 9' x 23') and maximum of two (2) consecutive spaces (approximately 9' x 46'). The width of the platform should not extend further than six feet from the curb line. Curb stops should be located 3' from either end of the TSE platform.

b. Location: TSE's should be located away from intersections or crosswalks a proper distance to avoid obstructing visibility of pedestrians. Siting of TSE's should also avoid obstructing any underground utility access, valves, manholes or fire hydrants.

c. Design: Parklets should have vertical elements, such as flexible delineators, to make them visible to traffic and may include railings, planters, or seating to buffer the edge along the travel lane. The transition between the curb and the parklet structure should be flush, and the parklet should be ADA accessible.


Credit: Landscape Forms


Credit: Marshalls PLC

Street Design Elements

Furniture

Street furniture creates a comfortable setting for pedestrians. When properly placed, street furniture will foster social interaction by creating spaces for sitting, resting, eating and interacting with neighbors. The type and design of street furniture should be selected to express the unique character of the community.

APPLICATION

The placement of street furniture in the County right-of-way shall be encouraged in areas with high pedestrian activity. The type, location, style, color and design is subject to county review and approval.

DESIGN GUIDELINES

a. The proposed street furniture shall be found by the Board to be functionally and aesthetically appropriate to its location.
b. Since much street furniture is functional in nature, it should be located where needed. Benches should be placed at street corners, in plazas, or where people congregate; bollards should be placed where desired to prevent vehicle access while still allowing access for pedestrians and cyclists; bus shelters should be required at major intersections or where there is heavy bus usage; bike racks should be located at schools, in shopping areas, and at playgrounds; kiosks, drinking fountains, game tables, and notice boards might be located in public plazas, in parks, or in other recreational areas.
c. The street furniture shall be found by the Board to be consistent with the architectural style of surrounding buildings and of other previously approved street furniture, and shall be of a color and design approved by the Board.
d. Items selected should be functional. For example, benches should have backs, especially where

they will be used by the elderly; trash receptacles should have openings large enough for trash to be deposited easily; planters should be wide enough to allow for root growth, etc.

e. The street furniture shall be appropriately affixed or of sufficient weight to preclude its accidental rearrangement by persons, vehicles or natural forces.

f. Items should be durable. Street furniture must be designed to withstand the effects of the elements, including sun expansion-contraction, wind stress, moisture, and in some cases, salt spray, frost, or ice.

g. The placement of street furniture shall not impede pedestrian access to, from and through the area unless the purpose of such placement is to direct or redirect pedestrian access in an appropriate manner.

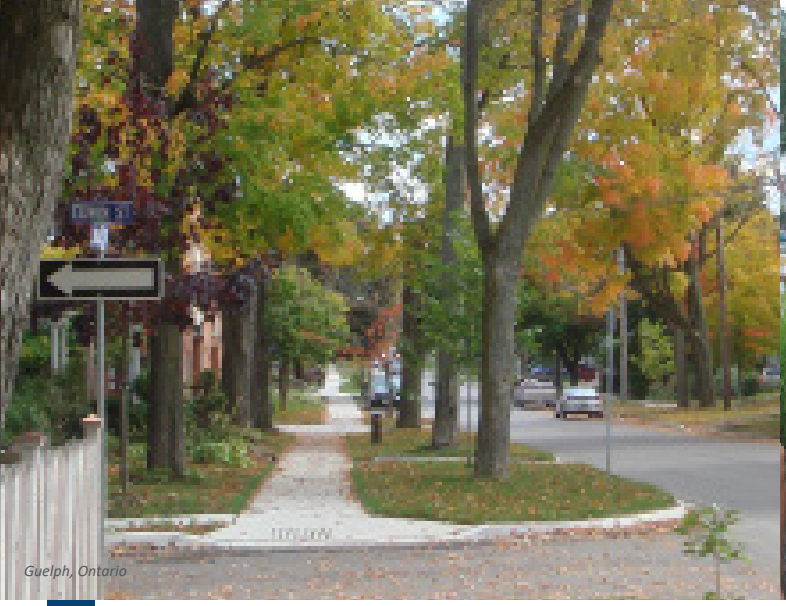
h. In selection of items, long-term cost should be considered - a higher initial expense may be good economics if it yields longer life with less maintenance. To simplify maintenance, street furniture components such as lighting globes, signposts and blanks, bench slats, bolts, and stains and paint colors should be standardized.

i. Street furniture shall not obstruct sight lines at any intersection.

j. Street furniture shall not be utilized as signage or to display signage.

k. Street furniture for bicyclists, such as bike racks and bike shelters, is encouraged in areas of high bicycle use, and may be required at the discretion of the County Engineer.

l. Street amenities should be located in a zone along or near the curb as a barrier to automobile traffic, especially lighting, parking meters, street trees, trash receptacles, news racks and heavy planters.


Guelph, Ontario


Hunstville, Ontario

Street Design Elements

Planting Strip

A planting strip is a continuous open landscaped area located between the curb and sidewalks. Planting strips reduce impervious area, improve the growing conditions for shade trees and create a buffer between pedestrians and vehicles. Planting strips are best suited for non-commercial, low-density residential areas where pedestrian traffic is limited and homeowners will be inclined to maintain this strip.

APPLICATION

Planting strips should be installed on all low density residential streets and select high-density residential streets where:

DESIGN GUIDELINES

a. Along residential streets, a landscaped planting strip should be provided in between the sidewalk and the curb.
b. Along non-residential streets, a landscaped planting strip may be required where such exists on adjacent sites, or where required by the County Planning Board.
c. Continuous planting strips should be as wide as feasible with a minimum width of 4 feet.
d. Landscaping in the planting strip may include plant materials such as trees, shrubs, ground covers, perennials and annuals and are the responsibility of the property owner whose frontage is along the strip.
e. All street tree planting and landscaping shall comply with the Hudson County Community Forestry Plan.
f. Planting strips may be used for green storm water management. Refer to the Suggested Green Stormwater Management Practices section of these regulations.

g. Plant materials shall be planted so as not to interfere with utilities, roadways, sidewalks, sight easements or site lighting.

h. The use of special landscape treatment, including paving, is recommended to give areas distinctive accents and a unique identity.

i. Green stormwater management practices are encouraged in the planting strip where appropriate. Refer to Section VIII: Stormwater Management Design Standards of these regulations for more detail.

j. Maintenance of the planting strip, which shall extend to the curb, is the responsibility of the developer or owner of the site.


5th Street, Union City, NJ


John F. Kennedy Blvd, Bayonne, NJ

Street Design Elements

Street Trees

Street trees provide a number of environmental, economic and social benefits to County streets. Studies have shown that trees encourage social interaction, calm traffic, offer habitat for birds and insects and can reduce up to 90% of the sun's energy from reaching the pavement below. But most importantly, street trees can help define the character of the neighborhoods that they line.

APPLICATION

Street trees shall be provided along all roadways. The following design guidelines are standard to trees planted in all development projects requiring County approvals and/or along or near a County Road right-of-way such that by their proximity are reasonably expected to impact the County road right-of-way or infrastructure after reaching maturity.

DESIGN GUIDELINES

a. All street tree planting requirements shall comply with the Hudson County Community Forestry Plan and in accordance with the Ordinance Establishing the Division of Planning's Role and Responsibility in Assisting the Department of Parks, which acts as the Hudson County Shade Tree Commission per the County Code.

b. In the event of existing County trees or County street trees, development must comply with the Ordinance Establishing the Division of Planning's Role and Responsibility in Assisting the Department of Parks, which acts as the Hudson County Shade Tree Commission per the Hudson County Code. This includes avoiding unsanctioned tree removal or damage to existing County Street Trees as outlined in the ordinance.

c. We recommend submitting the latitude and longitude of each County Street Tree, location, along with the specifications on the tree species, DBH, and tree pit type and dimensions.

New York, NY

Chicago, IL

Street Design Elements

Public Transit Stops

Public transit stops work in combination with other tools to enhance pedestrian safety and accessibility. Public transit stops should be located at the far side of intersection, when possible, to maximize pedestrian safety. They may include benches, refuse receptacles, shelters, lighting, bicycle racks, bus schedules, maps and other information. They should be visible, providing clear sight between the bus operators and transit riders.

APPLICATION

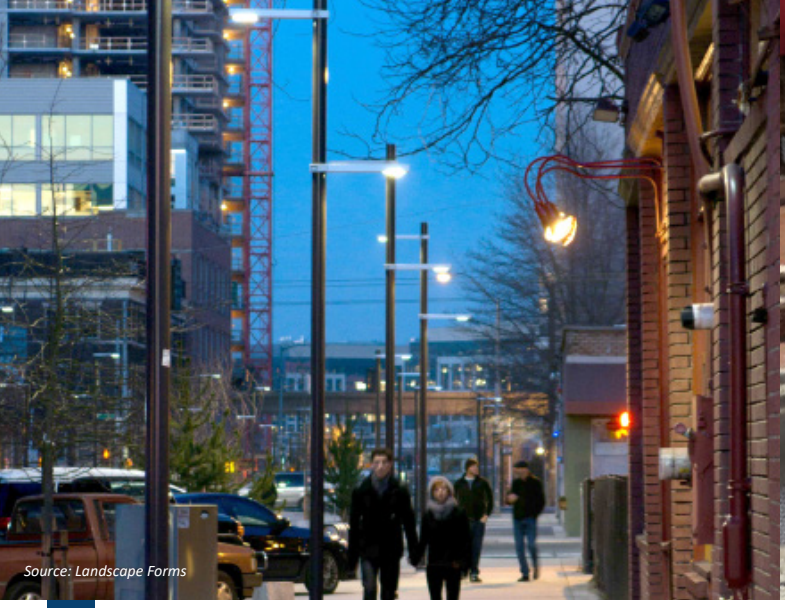
Provisions for bus shelters along the County road frontage contiguous with the proposed development site shall be required to accommodate existing and proposed bus or van services on the adjacent roadway.

DESIGN GUIDELINES

a. Sheltered bus stops shall be provided at major boarding points and spaced to minimize walking distances from building entrances.

b. Bus shelters shall be built in accordance with current NJDOT and NJ TRANSIT design specifications, and with appropriate amenities as specified by the County Engineer. Bus shelter amenities can include benches with back rests, attractive landscaping, trash and recycling containers with lids, information displays and guides, appropriate lighting and public telephones for emergency communication. Shelters should be provided to protect riders from the weather and to buffer them from abutting streets. A sidewalk surface shall be provided between the bus shelter and the buildings, if applicable.

c. Separate waiting places for public transit patrons shall be provided out of the walking path of pedestrian circulation.



Source: Landscape Forms

South Park Street, Montclair, NJ

Street Design Elements

Lighting

Lighting is a key element of the nighttime visual environment that allows pedestrians to move about safely and feel secure. Street lighting consist of vehicular and pedestrian lighting in the public right-of-way. Additionally, the poles and fixtures create a visual characteristic during the day time hours.

APPLICATION

Lighting is an important element of the nighttime experiences that allows pedestrians to move about safely and feel secure. Street lighting consists of vehicular and pedestrian-scale lighting in the public right-of-way. Additionally, the poles and fixtures contribute to the character of the streetscape and neighborhood.

DESIGN GUIDELINES

a. Lighting for roadways shall be provided in accordance with the foot-candle levels set forth by the municipality or NJDOT, and should take into consideration the roadway hierarchy, area classification, size and surface type. Where municipal requirements are not available, the standards recommended by the Illuminating Engineering Society (IES) should be used.
b. Sidewalks throughout commercial shopping areas should maintain an average of 1.0-1.5fc with a reasonable high/low differential.
c. The brightness of the roadway background, the glare from the luminaire and the reflected glare from pavement surface should be taken into consideration in determining adequate lighting.
d. High efficiency light fixtures, such as LED, should be used whenever possible.
e. Dark-sky friendly fixtures should be used whenever possible.

f. Fixtures should be spaced to meet design requirements without glare, light trespass or light pollution, and which avoid “blind spots” and dark areas. Reference NJDOT requirements and the Illuminating Engineering Society of North American for guidelines.
g. Pedestrian crossing areas, such as intersections and crosswalks, should be given additional consideration.
h. Lighting should illuminate storefronts, points of interest, and building facades.
i. Proposed lighting should be selected to be consistent with existing lighting styles, where appropriate.


Broad Street, Bloomfield, NJ


Springfield Ave, Irvington, NJ

Street Design Elements

Driveways

Driveways are an access constructed across a public right-of-way which connects a street, roadway, sidewalk or recreational trail to an adjacent property.

APPLICATION

The use of driveway should be minimized on County roads with denser land use patterns or higher traffic volumes, such as Boulevards, Downtown Avenues, or Main Streets. Driveways should be design to look like driveways, not like roadway intersections.

DESIGN GUIDELINES

a. Number of Driveways

i. Driveways should be limited on streets where significant pedestrian or bicyclist traffic is expected in order to minimize the chances of conflict or collision. The maximum number of driveways permitted from a site directly onto any County road shall be in accordance with the specifications below, except under conditions where the safety of the general public is impaired. Such conditions shall be determined and the number of permitted driveways specified by the County Planning Board upon receipt of advice of the County Traffic Engineer.

(a) Where lot frontage is 100 feet or less, one (1) driveway is permitted.

(b) Where lot frontage is 101 feet to 200, two (2) driveways are permitted.

(c) Where lot frontage is 200 feet or greater, the number of permitted driveways shall be specified by Planning Board upon advice of the County Engineer and Planning Director.

b. Location of Driveways

i. All entrance and exit driveways to a County road shall be located to afford maximum safety to pedestrian, bicycle and motor vehicle traffic on the County road.

ii. No entrance or exit driveway shall be located on the following portion of a County road: on a rotary; on a ramp of an interchange; or within thirty (30) feet of the beginning of any ramp or other portion of an interchange.

iii. Where two or more driveways connect a single site to any one County road, a minimum clear distance of thirty (30) feet shall separate the closer of any two such driveways.

iv. Where a site occupies a corner of two intersecting roads, no driveway entrance or exit shall be located within twenty-five (25) feet of the point of the curve of the exiting or proposed curb radius of the site.

v. Where a site occupies a corner of a signalized intersection, no driveway entrance or exit shall be located within 100 feet of the point of the curve of the existing or proposed curb radius of the site.

vi. Where feasible, no part of any driveway should be located within ten (10) feet of a side property line.

vii. Driveways shall be designed to permit all vehicles to turn around on the site in order to prevent vehicles from backing out on the County road.

viii. Access to a county road shall not be permitted if the site also abuts a municipal or adjacent driveway and access to the municipal road or adjacent driveway can be reasonably provided.

c. Sight Distance of Driveways

i. Whenever possible any exit driveway or driveway lane shall be so designed in profile and grading and shall be so located to permit the following minimum sight distance measured in each direction along the County road (See Table VII-6); the measurement shall be from a point at least ten (10) feet behind the edge of pavement and three and a half (3.5) feet above grade to a point four (4) feet above the center line of the roadway.

ii. The County Engineer reserves the right to require additional site distance based on existing conditions.

d. Driveway Dimensions

Table VII-6: Sight Distance	
Design Speed on County Road	Minimum Stopping Sight Distance (ft)
25 MPH	155
30 MPH	200
35 MPH	250
40 MPH	305
45 MPH	360
50 MPH	425
Source: NJDOT Design Manual- Roadway, 2004	

i. The dimensions of new driveways shall be designed to adequately accommodate the volume and character of vehicles anticipated to be attracted daily onto the land development for which a site plan is prepared. The required maximum and minimum dimensions for driveways are indicated in the following table. Driveways serving large volumes of traffic shall be permitted to utilize high to maximum dimensions. Driveways serving low daily traffic volumes shall be required to use low to minimum dimensions.

e. Geometric Designs

Table VII -7: Driveway Width (feet)		
	One-way	Two-way
Residential	10’ - 12’	12’ - 14’
Multi-family	12’ - 15’	18’ - 24’
Commercial	12’ - 15’	24’ - 36’
Industrial	15’ - 18’	30’ - 36’

i. Driveways that cross the sidewalk must be at the same level as the sidewalk. A minimum 5-foot wide clear pedestrian through zone

must be provided, with a cross slope no greater than 2%.

ii. The driveway apron should not extend past the amentiy zone of the sidewalk. If there is no amentiy zone, or the apron must extend past the amentiy zone, the width of the pedestrian through zone should be contunied behind the driveway apron.

iii. Curb returns should not be used for driveways which cross a sidewalk.

iv. Driveways will intersect the County road at a right angle (90 degrees) wherever possible, and in no case will be less than 60 degrees.

v. The dimensions of driveways shall be designed to adequately accommodate the volume and character of vehicles anticipated to be attracted daily onto the land development for which a site-plan is prepared.

vi. Driveways serving a large volume of daily traffic or traffic over 25 percent of which is truck traffic shall be permitted to utilize high to maximum dimensions. Driveways serving low daily traffic volumes or traffic less than 25 per cent of which is truck traffic shall be required to use low to minimum dimensions.

vii. The design of Commercial or Industrial driveways shall be approved in conjunction with a site plan application subject to the approval of the county engineer.

f. Driveway Materials

i. All driveway aprons and sidewalks within the County right-of-way shall be constructed of reinforced concrete and in accordance with current NJDOT Standards and Details.

ii. Sidewalks should be visually continuous across driveways to indicate pedestrians have the right-of-way.

iii. For all driveways, a depressed curb driveway shall be used. The height of such depressed curb shall be no more than one and a half (1 1/2) inches above the gutter grade.

1st Street & Bloomfield Street, Hoboken, NJ


1st Street & Bloomfield Street, Hoboken, NJ

Street Design Elements

Curb Extensions

A curb extension is an area of sidewalk that is widened into the parking lane to reduce crossing distances, slow turning vehicles, and improve pedestrian visibility. Curb extensions have multiple applications and may be segmented into various sub-categories, ranging from traffic calming to bus bulbs and mid-block crossings.

APPLICATION

Curb extensions may be considered at all corners or mid-block areas where additional sidewalk space is required, and a parking lane exists. Curb extensions may be used to accommodate additional pedestrian space.

DESIGN GUIDELINES

a. Curb extensions should not be used at intersections with a high volume of trucks or buses turning right onto narrow cross streets, or where there is a dedicated right turn lane adjacent to the curb.

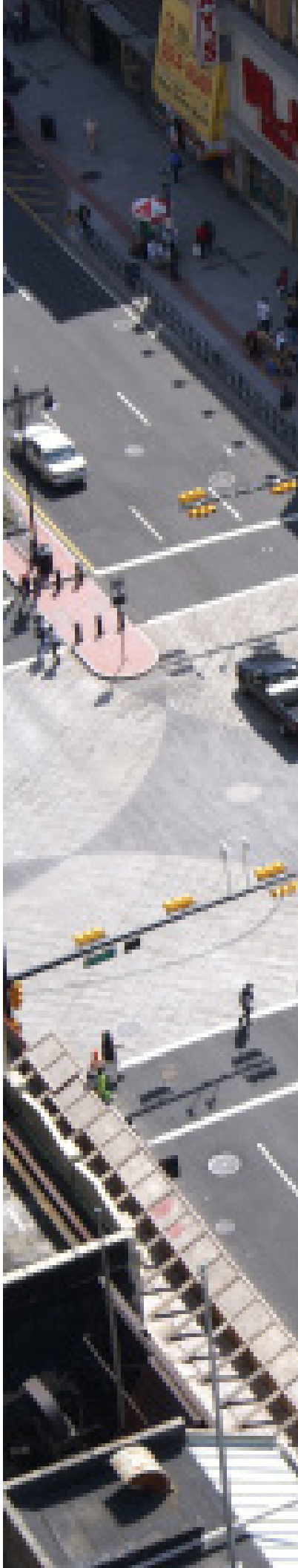
b. Where there is parallel parking, the width of the curb extension should be six (6) feet from the existing curb face. Where there is angled parking, the curb extension should be a within one (1) foot of the stall depth.

c. Where bicycle lanes are present, curb extensions must be outside the width of the bicycle lane.

d. Sidewalks, ramps, curb extensions and crosswalks should all align with no unnecessary meandering.

F. Intersections and Crossings

Intersections are the point along the road where pedestrians, bicyclists and vehicles cross paths. Therefore, intersections and crossings tend to have have the highest liklihood for conflicts. Intersections and Crossings are designed using elements that minimize the liklihood of conflicts or accidents while maximizing efficiency. The following section outlines a series of intersection and crossing design elements and the associated guidelines and requirements.



General Design Standards

1. General

a. All street intersections with a County road shall, given the physical constraints of the site, be located to afford maximum safety to the traveling public.

b. All street intersections with a County road shall be designed in accordance with current NJDOT, AASHTO and MUTCD Standards and Details.

2. Design of Street Intersections

a. Intersections shall be made at right angles, unless otherwise approved by the County Engineer. In no case should an intersection be less than 75 degrees.

b. Where there is an existing or proposed street intersection on the County road opposite the frontage of the development and where site conditions allow, the road servicing the development shall be located directly across from said existing or proposed road forming a 4-way intersection.

c. If the above 4-way intersection condition does not or cannot be applied, where site conditions allow, the proposed intersection with a County road shall be off-set with other proposed or existing intersections by a minimum distance of 250 feet.

d. The angle of the intersection shall be measured at the intersection of the centerline of the intersecting street with the centerline of the County road.

3. Grade

a. Intersections shall be designed with a flat grade wherever practical. A maximum grade of two percent (2%) should be maintained on streets connecting with a County road on the approaches to the intersection for at least 50 feet from the centerline of the County road.

4. Sight Triangles

a. Sight triangle easements shall be dedicated to the County by the developer at all existing and proposed road or street intersections with a county road and at driveways as determined to be necessary by the county traffic engineer.

b. In cases where the sight triangle easement extends beyond the property limits of the development, only that portion within the ownership or control of the developer is required.

c. Natural or man-made obstacles shall not be located within the sight triangle. Such sight easements shall assure that an unobstructed view of the County road is maintained through the specified triangular area. Traffic control devices and other man-made or natural objects may remain if it can be demonstrated that they do not obstruct the view of on-coming traffic.

d. Nothing shall be constructed, erected, placed, planted or allowed to grow in a manner as to obstruct vision along the county road from the road, street or driveway in accordance with current NJDOT Standards and Details.

e. In addition to the right-of-way widths required, sight triangle easements shall be provided as shown in Figure VII-3.

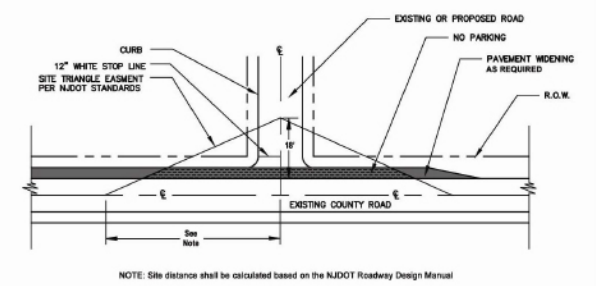


Figure VII-3: Triangle Detail


Ontario, Canada


Cincinatti, OH

Intersections and Crossings

Curb Radii

Curb radii impacts the operation and safety of an intersection. It is defined by two sidewalks on perpendicular streets that come together at a corner. Decreasing the size of the turning radii increases the pedestrian safety by shortening crossing distances, increasing pedestrian visibility and decreasing vehicle turning speed. In urban settings, smaller curb radii are preferred and actual curb radii exceeding 15 feet should be the exception.

APPLICATION

The smallest practical curb radius should be used to prioritize pedestrian safety by shortening distances and reducing turning speeds. Radii should not be based on turning requirements for infrequent large vehicles.

DESIGN GUIDELINES

a. Curb radii shall vary by street hierarchy and land use as shown below. The highest road classification at an intersection shall determine the curb return radii standard.

Table VII-8: Curb Radii	
Functional Class	Radii
Principal Arterial	15’
Minor Arterial	10’
Local	5’

b. Exceptions to the above radii may be granted at the discretion of the County Engineer if the effective turning radius is reduced, or any of the following conditions apply:

   i. Curb extensions are proposed or may be added in the future. Since curb extensions can reduce the effective turning radii, larger curb radii may be necessary.

   ii. Large vehicles constitute a high percentage of turning vehicles, and encroachment into

the opposing lane is not practical.

iii. There is no parking or bicycle lane present on the receiving thoroughfare, and the receiving lane is less than 12 feet.


Broad Street, Bloomfield, NJ


Cookman Ave, Asbury Park, NJ

Intersections and Crossings

Curb Ramps

Curb ramps are the sloping element of the sidewalk that transitions pedestrian from the sidewalk elevation to the roadway elevation. The transition allows for safe crossing and ADA-compliant accessibility.

APPLICATION

All corners and pedestrian crossing points shall be designed and constructed in compliance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Public Rights-of-Way Accessibility Guidelines (PROWAG).

DESIGN GUIDELINES

a. The County Engineering Department shall be notified of any corners that cannot be brought into compliance with ADAAG and PROWAG and an NJDOT ADA Technical Infeasibility Form shall be submitted by the applicant for review.

Glenridge Ave, Montclair, NJ


South Park Street, Montclair, NJ

Intersections and Crossings

Crosswalks

Crosswalks are used to identify where pedestrians should cross the road. Crosswalks are mostly identified by a change in the surface to designate the pedestrian right-of-way. They should be applied where pedestrian traffic is anticipated and encouraged. Curb extensions should be implemented where crossing distances would benefit from being shortened.

APPLICATION

Marked crosswalks should be provided where pedestrian traffic is anticipated and encouraged. Signalized intersections should always have marked crosswalks, and they should be typical on Boulevards and Avenues. They may not be necessary at unsignalized intersections on lower traffic volume and speeds thoroughfares such as Neighborhood Streets, but may be required at the discretion of the County Engineer.

DESIGN GUIDELINES

a. Crosswalks shall be planned, designed and installed to conform to the specifications in the Manual on Uniform Traffic Control Devices (MUTCD).
b. Crosswalks should be constructed with high visibility “ladder style” striping. Crosswalks may also be constructed with colored or textured pavers, or other material approved by the County Engineer.
c. All legs of signalized intersections must have marked crosswalks unless pedestrians are prohibited from the roadway or section thereof, or if there is no actual pedestrian access on either corner and no likelihood that access can be provided.


Millburn Ave, Millburn, NJ

Millburn Ave, Millburn, NJ

Intersections and Crossings

Pedestrian Signals

Pedestrian signals work in coordination with traffic signals to choreograph the timing allowed for a pedestrian to cross the roadway. Pedestrian signals give clear priority to pedestrians and regulate pedestrian movement during designated times.

APPLICATION

All signalized intersections should have pedestrian signals with countdown timers. Fixed-time signals are preferred, and pedestrian actuated signals should only be used in areas with demonstrated low pedestrian traffic. Adding accessible pedestrian signals should be an option.

DESIGN GUIDELINES

a. Detectable pedestrian warning systems shall be provided in accordance with MUTCD requirements. Pedestrian countdown signals and call buttons must also be provided.

b. Accessible Pedestrian Signals (APS) shall be provided in accordance with PROWAG and ADA standards.

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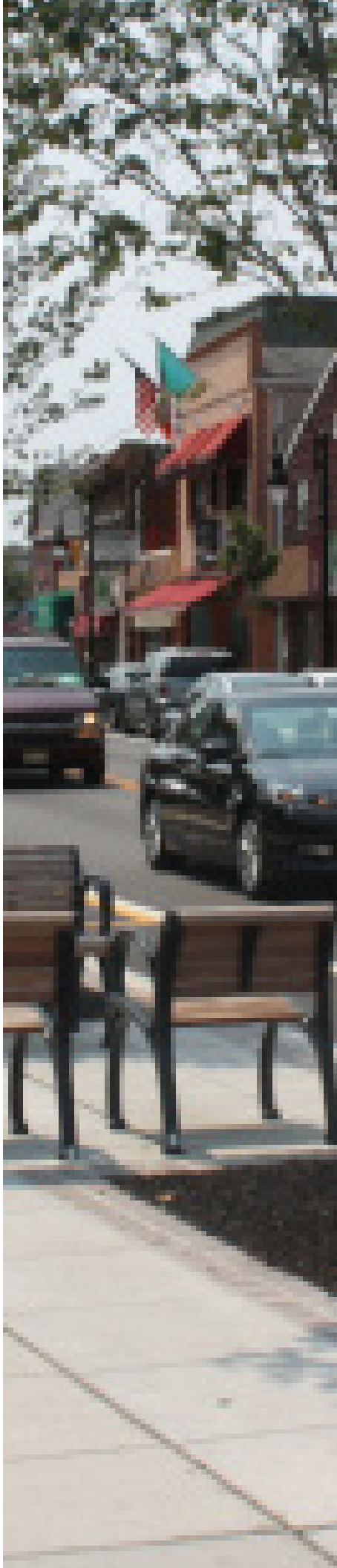
G. Speed Control and Traffic Calming

The geometry and design of a road can influence the speed at which vehicles comfortably travel. In many cases, this comfortable speed exceeds the posted speed limit, creating an unsafe condition for pedestrians and drivers. In these cases, Speed Control and Traffic Calming measure may be consider as a means to encourage drivers to travel at or below the posted speed limits. This section outlines a series of potential traffic calming solutions.



Speed Control and Traffic Calming

General Design Standards

a. The Planning Board may require installation of traffic control measures at driveways, intersections or other locations depending on the need as determined by the County Engineer and based upon the Traffic Impact Report.
b. All traffic control measures shall be provided by the applicant and shall conform to the Manual on Uniform Traffic Control Devices, the New Jersey Department of Transportation, and the specifications of the County Engineer.
c. Traffic control measures in residential, environmentally sensitive and historic zones will be designed to take into consideration the character of the area.


Mt. Prospect Ave., Newark, NJ

Mt. Prospect Ave., Newark, NJ

Speed Control and Traffic Calming

Road Diets

Road diets, also known as a road reconfiguration, refer to a reduction in the amount of space allocated to motor vehicles on a street by eliminating travel lanes or reducing lane widths. This reduction allows the roadway space to be reallocated for other uses such as bike lanes, pedestrian crossing islands, or sidewalks.

APPLICATION

Road diets should be considered when a development requires a change in land use, or will create a significant shift in travel mode. When the existing lane width or number of lanes is no longer compatible with the adjacent land use or travel modes, a reduction in the lane width or the number of lanes should be considered, as well as adding bicycle facilities.

DESIGN GUIDELINES

a. Road diets will typically result in reduced lanes widths.
b. Traffic calming elements, such as curb extensions or center medians, and bicycle infrastructure should be considered.
c. Raised center medians are preferred over two-way center turn lanes, as they have the lowest accident risk.


Bloomfield Ave, Newark, NJ


Newark, NJ

Speed Control and Traffic Calming

Transverse Rumble Markings

Transverse rumble markings are intermittent, narrow, areas of rough-textured or slightly raised or depressed surface that extend across the travel lanes. They are used as a device to alert drivers of an unexpected change in the roadway conditions. The noise and vibration produce by the strips alert drivers of an upcoming changes or cautions.

APPLICATION

Transverse Rumble Markings should be used in areas where a driver would need to be alerted to a unexpected change in conditions. Examples could include an upcoming lane reduction due to a road diet, a mid-block crossing, or a change alignment due to curb extensions or a center median.

DESIGN GUIDELINES

a. Transverse rumble strips should only be used at locations where conventional methods will not work, such as warning signs. Over use will reduce their effectiveness.
b. Rumble strips should not be used in any bicycle lane or cycle track. Additionally, a minimum clear path of four (4) feet should be provided for bicyclists anywhere rumble strips are used.
c. Rumble strips are discouraged in residential areas, or anywhere else the noise created by them could be detrimental, such as hospitals or schools.
d. Design should comply with standards in section 15.3.4 of the current version of the NJ DOT Roadway Design Manual.


Davis Ave, Harrison, NJ


South Park Street, Montclair, NJ

Speed Control and Traffic Calming

Center Median

A center median is the portion of the roadway that separates opposing directions of the roadway or local travel lanes. They are usually raised, protected areas that reduce pedestrian exposure and contain pedestrian safety features and traffic control devices. Additionally, they can contain landscaping and stormwater management.

APPLICATION

Center medians should be considered mainly on Boulevards, but could be applicable on Avenues as well if the cartway or right-of-way width exists.

DESIGN GUIDELINES

a. Medians can be either raised or flush, depending on the conditions of the road, but a raised curb is typically preferred. If a raised curb would hinder turning movements for larger vehicles, a flush median, or one with mountable curbs could be considered. Flush or mountable curb medians should not have landscaping unless a curb is provided for the landscaped area.

b. Where pedestrian refuge is provided, the median width should be a minimum of six (6) feet, but preferably 8-10 feet. Without a pedestrian refuge, but with landscaping, the minimum width should be four (4) feet. A center median with no landscaping or pedestrian refuge can be as narrow as two (2) feet.

c. Generally, a center median should not exceed 18 feet. 16-18 feet on Boulevards is appropriate if a left turn lane and pedestrian refuge is provided. Sidewalk widths should typically be prioritized over median width.

Indiana, PA

Speed Control and Traffic Calming

Gateway Treatments

Gateway treatments are often used to calm traffic when drivers are transitioning from a higher-speed roadway into a more pedestrian-oriented residential neighborhood or center. They typically involve a decorative sign, landscaping, and lighting.

APPLICATION

Gateway treatments should be considered at the entrances to streets with low speeds or vehicular traffic, where the intersecting street is higher volume or speed, a Neighborhood Street intersecting with a Mixed Urban Boulevard, for example.

DESIGN GUIDELINES

a. Speed control measures should be considered including corner curb extensions, chokers or center medians.
b. A gateway sign may be provided that indicates the neighborhood or center's name. "Hudson County" should be identified on all gateway signs.
c. Distinct landscaping with seasonal interest should be used.
d. Additional lighting should be used for the roadway, pedestrian and landscaped areas.

Portland, OR
Credit: Kevin Robert Perry

Summit, NJ

Speed Control and Traffic Calming

Chokers

A choker (also known as a pinch point) is a set of two curb extensions placed directly opposite each other, which narrow the traveled way. They are useful tools for deterring speeding and cut-through traffic and may be used mid-block. They are particularly effective on roadways with long block lengths and can be combined with mid-block pedestrian crossings.

APPLICATION

Chokers can be used on one or two lane Avenues or Streets that have a parking lane adjacent to the curb. They are ineffective on roadways with more than one travel lane in each direction.

DESIGN GUIDELINES

a. Chokers should project no greater than six (6) feet from the existing curb.
b. Chokers may be landscaped or hardscaped but are not intended to be occupiable programmable space.

H. Bicycle Facilities

Bicycling should be considered as a viable transportation mode whenever planning or designing a Hudson County Road. As expressed in the Hudson County Complete Streets Policy and Plan 2040, the North Jersey Transportation Planning Authority's Regional Transportation Plan (RTP), safe and convenient bicycle access offers many benefits to residents and community members. These benefits include reduced congestion on roadways, improved access to employment and education, and increased desirability of a neighborhood or community. With the success of NJ TRANSIT's Bike Aboard program and the immanent expansion of bike-share programs, the need for safe and convenient bicycle facilities should be an important consideration on all county roads.

Bicycle Facilities

General Design Standards

a. Each land development subject to County approval shall provide a bikeway within or alongside the County right-of-way if such is required by any applicable zoning, subdivision, site planning or other ordinance of the Municipality or the County Master Plan.
b. The design of all Bicycle Facilities shall comply with the latest edition of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guidelines.


Christopher Columbus Drive, Jersey City, NJ


Washington Street, Newark, NJ

Bicycle Facilities

Bike Lanes

Bike Lanes utilize pavement markings, striping, curbs and or other barriers to offer a space within the right-of-way that is exclusive to bicyclists. Bike lanes are typically located on-road and are for one-way travel.

APPLICATION

Bike lanes should be considered on lower speed (25 mph) Avenues or Streets. Specifically they would be most appropriate on Downtown Avenues, Mixed-Use Avenues, and Main Streets.

DESIGN GUIDELINES

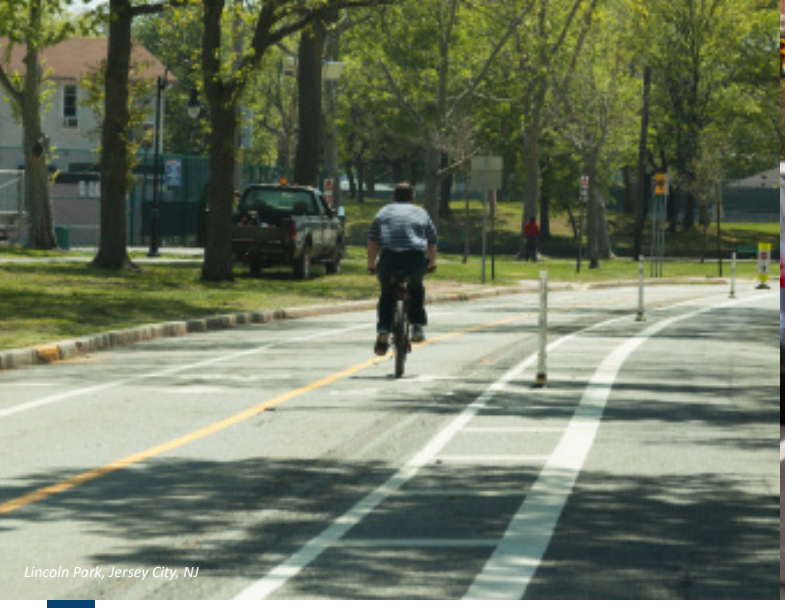
a. Type and Placement: Bike lanes are typically located on the right side of the street, and flow in the same direction as vehicular traffic. In some instances, placing the bike lane on the left side (on on-way streets with on-street parking) may be safer. Contra-flow lanes can also be considered if needed to maintain a connected network.

b. Bike Lane Width: Bike lanes should be made wider than the minimum widths whenever possible. If the extra width exists, consider using buffered bike lanes.

   i. Adjacent to a curb: 6' preferred, 5' minimum.

   ii. Adjacent to a longitudinal joint/road edge: 4 feet preferred, 3 foot minimum.

   iii. Adjacent to a parking lane: 14.5 feet from the curb edge, 12 foot minimum. Narrowing the parking lane and increasing the bike lane width is preferred, with a minimum bike lane width of 5 feet.


Lincoln Park, Jersey City, NJ


Observery Highway, Hoboken, NJ

Bicycle Facilities

Cycle Tracks

A Cycle Track is a physically separated bicycle facility which is distinct from the sidewalk. While cycle tracks may be one-way or two-way, one-way cycle tracks are preferred. When on-street parking is present, the cycle track is located between the parking lane and the curb.

APPLICATION

Cycle tracks should be considered on medium speed Boulevards or Avenues which typically have higher traffic volumes and greater frequency of truck and public transit traffic, which can make the experience uncomfortable and dangerous for cyclists.

DESIGN GUIDELINES

a. Placement:
    i. One-way cycle tracks should flow the same direction as motor vehicle traffic. If a two-way cycle track is used, the direction of the cycle track closest to the motor vehicle travel lane should flow the same direction.

b. Width:
    i. One-way cycle tracks should have a minimum width of five (5) feet. In high volume areas or on uphill sections, the preferred minimum is seven (7) feet to make passing easier.
    ii. The preferred width for two-way cycle tracks is twelve (12) feet, with a minimum width of eight (8) feet in constrained ares.
    iii. Buffers for either type should be a minimum of three (3) feet.

Madison, WI
Credit: ITRE Bicycle and Pedestrian Program, https://flic.kr/p/y6Y3xP

Vancouver, B.C.
Credit: Payton Chung, https://flic.kr/p/8tLkD

Bicycle Facilities

Bicycle Boulevards

Through the use of signs, pavement marking, and speed and volume management measures to discourage through trips by motor vehicles, Bicycle Boulevards create safe, convenient alternative routes for bicyclists.

APPLICATION

Bicycle Boulevards are appropriate for Neighborhood Streets where the traffic volume and speed is generally low. These streets are already intended to prioritize pedestrians and bicyclists over vehicular traffic. Designating certain Neighborhood Streets as bicycle boulevards can help create a connected bicycle network.

DESIGN GUIDELINES

a. Motor vehicle traffic volumes should not exceed 1,500 vehicles per day. Volume management techniques as outlined in the (NACTO) Urban Bikeway Design Guidelines should be implemented to reduce traffic volume if it is above 1,500 vehicles per day.
b. Speed management elements such as curb extensions and chokers should be implemented on bicycle boulevards. The target speed should be below 25 mph, preferably 20 mph.
c. Bicycle Boulevards should have right-of-way priority at intersections with local and minor collectors, in order to reduce travel times for bicyclists.


South Park Street, Montclair, NJ


College Ave, New Brunswick, NJ

Bicycle Facilities

Shared Lane Markings (Sharrows)

The shared lane marking is a pavement marking with a variety of uses to support a complete bikeway network; it is not a facility type and should not be considered a substitute for bike lanes, cycle tracks, or other separation treatments where these types of facilities are otherwise warranted or space permits.

APPLICATION

Shared Lane Markings should only be used on streets where bicycling is safe and practical, but actual bicycle facilities are not feasible. Particularly, they are useful in lanes adjacent to on-street parking to help bicyclists position themselves outside of the “door-zone” of parked cars, and to encourage bicyclists to position themselves closer to the center of the lane when it is too narrow for cars to safely pass.

DESIGN GUIDELINES

a. Shared Lane Markings should not be used where the posted speed is greater than 35 mph or the traffic volume is greater than 3000 vehicles per day.
b. Placement:
    i. Where the speed limit is 25 mph or less, the preferred placement is the center of the lane to reduce wear and to encourage bicyclists to use the full lane.
    ii. If on-street parking is not present, the minimum distance from the curb face is four (4) feet. Where on-street parking is present, shared lane markings should be a minimum of eleven (11) feet from the curb.

Seattle, WA
Credit: Oran Viriyincy, https://flic.kr/p/79DHoF

East Coast Greenway, Hudson County

Bicycle Facilities

Bicycle Wayfinding Signage

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

APPLICATION

Wayfinding signage should be used on all thoroughfares where bicycling is expected or encouraged. At a minimum, it should be provided where bicycle lanes, cycle tracks, or shared lane markings are used.

DESIGN GUIDELINES

a. Follow MUTCD Standards (Section 9B.01 - Application and Placement of Sings), including mounting height and lateral placement from edge of path or roadway. Additional standards and guidance are found in Section 9B.20 - Bicycle Guide Signs.


Guelph, Ontario


Madison, NJ

Bicycle Facilities

Bicycle Parking

Bicycle parking includes both short-term and long-term parking. Short term parking is typically in commercial areas near stores and restaurants and consist of typical bike racks or a corral. Long-term parking is typically located at public transit stations, schools and universities, and employment centers. It is typically more secure, and can take on a variety of forms, such as a dedicated room inside a residential building or workplace, or a secure enclosure at a parking garage or public transit station.

APPLICATION

Bicycle parking should be provided as often as possible in locations such as multi-modal transportation hubs. multi-family buildings, shopping centers, retail and office.

DESIGN GUIDELINES

a. Bicycle parking should be provided at the rates provided by the most current version of the Association of Pedestrian and Bicycle and Professionals (APBP) "*Bicycle Parking Guidelines*."
b. Bicycle rack criteria:
    i. The rack should provide two points of contact with the bicycle frame. Racks which put stress on the wheel and may bend it are unacceptable.
    ii. Racks should accommodate a variety of bicycle and attachments. Avoid designs and spacing which restrict the length, height or width of bicycles or attachments.
    iii. Racks should allow users to lock the bicycle through the frame and one wheel with a single U-lock.

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Section VIII: Stormwater Management Design Standards

A. Findings of Fact

It is hereby determined that:

Land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition;

In areas where Combined Sewers exist this stormwater runoff can contribute to Combined Sewer Overflows as the increase in runoff rates and volume pushes existing sewers to capacity;

This stormwater runoff and Combined Sewer Overflows contribute to increased quantities of water-borne pollutants in receiving bodies, and;

Stormwater runoff volume and quantity, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

Therefore, Hudson County establishes this set of policies to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development projects and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health and safety.

1. To assure the provision of adequate public facilities needed to serve development projects by requiring each proposed development, as a condition of approval, to pay its pro rata share of the costs of such improvements.

2. To mitigate the adverse impacts on community facilities by providing a means of allocating the costs of needed services and facilities among new developments in proportion to the demand for such facilities created by each new development.

B. Purpose

The purpose of these Regulations is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction. These Regulations seek to meet that purpose through the following objectives:

1. Minimize increases in stormwater runoff from any development in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;

2. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality

3. Minimize the total annual volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic regime to the maximum extent practicable.

4. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety.

5. Encourage the widespread use of stormwater best management practices (BMPs) and green infrastructure as primary techniques for stormwater management.

6. Reduce or eliminate the number and frequency of Combined Sewer Overflow events.

C. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued for subdivisions and site plans pursuant to these Regulations are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or

approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of these Regulations shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare.

These Regulations are not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of these Regulations impose restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

D. Jurisdiction

All subdivision and site plans that discharge directly or indirectly to County Facilities and Roads shall be subject to County approval and shall provide for the management of stormwater runoff in a manner consistent with the policies and procedures of these Regulations.

E. General Policies

1. All subdivisions and site plans shall provide adequate drainage facilities in accordance with the standards established herein for the management of stormwater runoff that is generated by a development that now flows or will flow directly or indirectly to a County road or through a County drainage facility.

2. The developer shall be responsible for providing adequate drainage systems along County roadways as required and in accordance with the standards and construction herein.

3. Where there is stormwater runoff from a non-residential or mixed-use development impacting County roadways or county drainage facilities, or any such development that discharges to a County drainage facility, the applicant shall submit a Stormwater Management Plan in accordance with N.J.A.C. 7:8. Where there is stormwater runoff from a residential development, the applicant shall submit a Stormwater Management Plan in accordance with N.J.A.C. 5:21. The Plan shall provide for drainage improvements of adequate design and capacity to intercept and dispose of stormwater from the proposed development in a manner which does not increase the drainage impact upon the County roads, County-maintained drainage facilities, or drainage systems within designated stormwater management areas.

4. All subdivisions and site plans requiring a Stormwater Management Plan and affecting County roadways or County drainage/stormwater management facilities shall be required to submit hydraulic calculations documenting the drainage basin studies. Depending on the location of the site in relationship to the total drainage basin, an on-site stormwater detention facility may be required where it is found that the installation of the facility will reduce the overall impact of stormwater runoff. In cases where on-site detention is not feasible due to specific site limitations such as space limitations, topography, location in the common drainage area and wetland conservation areas, a detention facility will not be required. All such developments not able to meet the standards of these Regulations shall be required to contribute to the future improvements of County drainage facilities, included, but not limited to, drainage channels, structures, and/or regional detention facilities within the common drainage area. The costs will be determined by the County Engineer based on the area of the site in relationship to the total drainage area and considering the amount of increased runoff rate from the site. Developments providing on-site infiltration or recharge facilities, and resulting in no change or increase in the amount of predevelopment stormwater runoff off-site, will not be required to contribute to County improvements.

5. In cases where stormwater runoff from a development discharges to bays, rivers, creeks, wetlands or other water bodies, the County may require special filtration and other water control measures in order to meet current permissible water quality standards and reduce the risk of contamination of the receiving water body from stormwater runoff. The applicable water quality standards are contained in NJDEP rules cited as NJAC 7:8, 7:9, 7:14, and 8:9 et. seq.

6. The development and disturbance of steep slopes is prohibited. Steep slopes include any slope equal or greater to 20 percent, as measured over a minimum run of ten (10) feet. Steep slopes are determined based on contour intervals of two (2) feet or less. Steep slopes are protected because, when disturbed, these areas contribute disproportionately to large loads of suspended solids, due to the velocity and erosive potential of runoff. Disturbance of steep slopes results in accelerated erosion processes from stormwater runoff and the subsequent sedimentation of water bodies with the associated degradation of water quality and loss of aquatic life support. Related effects include soil loss, changes in natural

topography and drainage patterns, increased flooding potential, further fragmentation of forest and habitat areas, and compromised aesthetic value. It has become widely recognized that disturbance of steep slopes should be restricted or prevented based on the impact on water quality and quantity and the environmental integrity of landscapes (See N.J.A.C. 7:15 et seq.)

7. Nonstructural methods of stormwater management shall be used to the greatest extent possible, and explored before relying on structural BMP's, for the purpose of: flood control, minimizing stormwater volume and total suspended solid generation, maintaining natural filtration, groundwater recharge, simulating natural drainage systems and minimizing the discharge of pollutants to ground and surface waters. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge. Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans.

8. These stormwater management standards shall be supplemented by the guidelines provided in the NJDEP Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the Department's website at www.njstormwater.org

9. These policies and standards are intended to serve the needs of the County for the design of stormwater management plans, systems and facilities under its jurisdiction. The County Standards shall not take precedence over any municipal stormwater management ordinance which regulates the design of the systems and facilities internal to the development site. In such instances which involve the detention or retention stormwater flowing from the site into a County maintained drainage system or facility, the more stringent of the two standards shall be applied.

10. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150.

11. A Development Permit shall be obtained before construction or development begins within any area of special flood hazard in accordance with Hudson County's Flood Damage Prevention Ordinance.

F. Stormwater Management Plan

A Stormwater Management Plan and Report shall contain but not be limited to the following information:

1. Separate pre and post development contoured drainage Area Maps outlining area referenced in the study with acreage, runoff, curve numbers and time of concentration paths, areas detained and undetained, proposed drainage structures and common points of analysis.

2. The resultant changes in the volume and peak rate of runoff for the designated storms from the various areas on the site toward the County drainage structures showing, in the instance of detention basins, inflow, outflow, undetained flow and total flow shall be presented in a summary table in the Executive Summary of the Report.

3. The proposed location (latitude and longitude) of stormwater measures, the run-off volume, peak rate, flow path, detention and retention of stormwater on-site for the designated storms.

4. The volume and peak rate of off-site stormwater discharged from the site for the designated storms.

5. Hydraulic computations for the analysis and design of the stormwater Management facilities. All calculations, assumptions and criteria used in the design analysis should be justified and documented.

6. Detention basin routing computations by the Storage Indication (Modified PULS) Method or other appropriate procedure or method for the specified design storms.

7. Data, illustrations and narrative outlining provisions to meet water quality requirements.

8. Computations showing the total additional impervious surface for the development.

9. All Hydrologic and Hydraulic and calculations shall

be based on Methods Approved by NJDEP, and accepted by the County Engineer, including: Hec 1, Hec 2, Hec12, Hec Ras, TR-20, and TR-55. Other methods may be accepted per NJDEP and accepted by the County Engineer.

10. An Urban Runoff Mitigation Plan as specified by these Regulations and detailed data, illustrations, and calculations for provided use of non-structural BMPs.

11. A Maintenance and Operations Manual providing for the immediate and long-term maintenance of the stormwater management facility shall be provided using the guidance of the New Jersey Stormwater Best Management Practices Manual.

G. County Storm Drainage Systems

1. It shall be the applicant's responsibility to provide adequate drainage facilities along County roadways as required by the County Engineer.

2. When a drainage system or any part thereof is proposed for a development which discharges to a County roadway, the additional capacity necessary to accommodate the anticipated increased stormwater runoff from the development, or of areas tributary to the drainage system, shall be determined in accordance with the following procedures:

    a. The capacity and design of the drainage structure or system to accommodate stormwater runoff shall be determined by the applicant's engineer in accordance with these Standards. Storm drainage calculations and a storm drainage map shall be submitted by the applicant's engineer.

    b. If it is necessary to enlarge a drainage structure or system the applicant's engineer shall prepare plans and designs required to provide capacity for the anticipated increase in stormwater runoff for the post-development and for the predevelopment flow of stormwater for areas outside of the development which are tributary to the drainage system, subject to the approval of the County Engineer.

    c. If determined by the County Engineer a drainage structure or system cannot be enlarged by the applicant, the applicant shall make payment to the County in lieu of the installation of the drainage system. The County may also participate in the construction of improvements, or assume responsibility for construction of the drainage system. Payment for all improvements shall be consistent with the provisions of these standards.

H. Existing County Bridges and Culverts on Roads to be widened

1. All modifications to existing Culverts or Bridges shall be designed and constructed in accordance to the Current New Jersey Department of Transportation Design Standards for Bridges and Culverts.

2. Where road pavement widening is required by these Standards, the developer shall extend bridges and culverts to the full width of the widened traveled way or future pavement width, whichever is greater, plus a sidewalk or embankment area, if such is required. In no instances, however, shall the traveled way be less than 26 feet (13 feet from centerline).

3. Where these Standards require widening on both sides of the road, the culvert or bridge shall be extended, or replaced as specified by these Regulations.

4. Where an existing bridge or culvert is found to be structurally or hydraulically inadequate to serve the proposed development, then total replacement of the structure shall be required by the Planning Board or County Engineer.

5. When bridges and culverts are designated for replacement but immediate replacement is found to be impossible or impractical, then full payment of the total replacement cost shall be charged to the developer as provided in these standards.

6. The design of bridges and culverts to be extended or replaced shall conform to the procedures and standards of the current New Jersey Department of Transportation Design Standards for Bridges and Culverts.

I. New Bridges and Culverts

The County may assume jurisdiction and future maintenance of bridges and culverts on municipal roadways within developments when said structures will be for the purpose of spanning a waterway and will have a nominal four (4) foot clear

span or greater. Said structures must further comply with the applicable standards for procedures, design, and construction as set forth in the Current New Jersey Department of Transportation Design Standards for Bridges and Culverts.

J. Bridges and Culverts Downstream of Development

1. All developments, which drain to an existing County Bridge or Culvert, will be considered to directly increase the hydraulic requirements of that structure. Residential subdivisions of 3 lots or less, not involving any other subdivision action within the prior three years, and not involving addition of pavement, may be exempted from this requirement, at the discretion of the County Engineer.

2. A developer shall be required to pay a proportionate share of the cost of correcting an adverse drainage condition when the County Engineer or Planning Board determines that a development situated in a drainage basin:

    a. Would create an immediate or potential impact on a County drainage structure, such as increased stream flows and discharges; or

    b. When the development lies in a drainage basin where drainage facilities have previously been installed, replaced or altered under the provisions of these Standards.

3. The proportion of the cost of such facilities to be paid by a developer whose proposed development would drain into such facility will be equal to the proportion that the acreage of the proposed development bears to the acreage of the entire drainage basin. The developer's engineer shall perform all calculations of storm runoff based on consideration of the physical features of the basin and the future development of the area based on the future build out and existing local zoning ordinances. The County Engineer shall on behalf of the Planning Board review said calculations.

4. The proportionate cost of the drainage facility installation or alteration will be the estimated cost of installing the new facility as calculated by the County Engineer, plus 10 percent for contingencies. In cases where the payment is to be made toward the proportionate cost of facilities previously installed or the cost of previously performed alterations, the actual cost of the work performed will be used in place of an estimated cost.

5. Regardless of any other provision in these standards, the developer will not be financially responsible for any part of existing drainage facilities for which full payment has previously been made to the County by other developers in the same drainage basin.

K. Drainage Rights of Way and Easements

1. All developments traversed by a water course, drainage way channel or stream shall provide a storm-water drainage easement or drainage right-of-way of such width as may be deemed necessary and adequate for the purpose of maintaining and preserving the drainage facility. The existing natural drainage features shall be preserved in the design of the development.

2. Drainage easements shall be established for all existing and proposed open or enclosed storm drainage systems. The purpose of the drainage easement shall be to enter upon, operate and maintain the system. The easement shall be no less than 20 feet in width.

3. All stormwater detention and infiltration facilities shall provide easements to permit access for maintenance in accordance with minimum standards established by the County or Municipal Engineer. A minimum width of 20 feet for the entire perimeter of the facility should be provided.

4. Where a development by necessity, design, or both, must discharge storm drain runoff or alter the course of a stream to flow onto or across lands of the downstream property owner(s), for which there is no drainage easement of record, the developer shall secure the necessary easement and/or right-of-discharge agreement from the downstream property owner and submit a copy of the easement and/or right-of-discharge agreement to the Planning Board.

5. The site plan or final development plat which is to be recorded in the Office of the Hudson County Register shall show all drainage easements and "Dedicated to the County of Hudson "(Town, Township or Borough) for storm drainage purposes," whichever is appropriate. In addition the developer shall furnish the County Engineer and Planning Board with deed of easement in accordance with these Standards. Computer Aided Drafting (CAD) files should be provided to the applicable agencies.

L. Storm Drainage Design Criteria

1. Methodology

   a. All drainage facilities shall be designed using one of the following methods as required by the County Engineer:

      i. Rational Method - for peak discharges of uniform drainage areas up to 50 acres.

      ii. Modified Rational Method - for runoff volumes of uniform drainage areas of less than 20 acres.

      iii. Soil Conservation Service (S.C.S.) Technical Release No. 55 or Hec 1, Hec 2, Hec 12, Hec Ras, TR-20 and TR-55for drainage areas between 1 acre and 2000 acres.

      iv. Other methods subject to approval of the County Engineer.

   b. Drainage calculations shall include computations of the total drainage basin area and the percentage of the total drainage from a development which connect directly into an existing County storm drain or requires drainage facilities to be installed within the County right-of-way. The applicant's engineer shall submit hydraulic calculations for all storm drains, ditch cross sections, swales, culvert and bridge details which are part of, or related to, the development. A storm drainage map shall also be provided indicating the area tributary to the County roadway or drainage facility.

   c. Drainage calculations for storm drain pipes shall be based on Mannings formula for pipes flowing full, as outlined in the NJDOT Drainage Design Manual.

   d. Detention and retention facilities are to provide stormwater management for the proposed project and such facilities shall be designed to control stormwater runoff for the 2, 10, and 100 year storm events so that peak flow rates and velocities meet the guidelines in this document at or downstream of the point of discharge.

   e. Recharge facilities shall provide stormwater management for the proposed project, and shall be designed to accommodate the additional runoff volume for the 100 year storm, and empty within 72 hours.

2. Pipelines and Open Channel Hydraulics.

   All storm sewers and open channels shall serve two major functions:

   a. To carry the maximum discharge for which it is designed.

   b. To encourage transport of suspended solids in such a manner that deposits in the sewer are kept to a minimum.

3. Design Formulas

   a. Rainfall depths and intensity curves shall be developed using the NOAA National Weather Service Hydro-meteorological Design Studies Center Precipitation Frequency Data Server – Jersey City Station (28-4339). The website can be found at: https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nj. All pipelines within the development, County roadway drainage system, and stormwater systems shall be designed to carry flows of the 25 year storm frequency. All open channels, or culverts shall be designed for a 25 year storm frequency when the upstream drainage area is less than 50 acres. When the upstream drainage area equals or exceeds 50 acres, all open channels and culverts shall be designed for the 100 year storm frequency. All Bridges shall be designed for the 100 year storm frequency.

   b. The runoff coefficient for a development shall be derived based on the future development of the project.

   c. The values of the runoff coefficients shall be approved by the County Engineer and shall be in accordance with typical values established in TR-55 and the Residential Site Improvement Standards (N.J.A.C. 5:21-7.2 Table 7.1).

      i. Ensure that the appropriate shape factor is used, dependent on the project's location.

   d. Minimum design velocity for pipes flowing full shall be 2.5 feet per second and the maximum velocity for pipes flowing full shall be 8 feet per second.

   e. The friction factor Manning Coefficient "n" for pipe conduits shall be in accordance with the NJDOT Drainage Design Manual and current

NJDOT Standards and Details.

4. Line Transition

   For pipe sizes less than 48 inches in diameter, all transition in slope, horizontal direction, junction, and change in pipe sizes shall be confined to manholes, catch basins, or other accessible structures designed for one or more of these purposes. For pipelines 48 inches and larger, horizontal deflections may be accomplished without the use of such structures if the radius of the curve in feet is greater than ten times the diameter in inches of the proposed pipe.

5. Open Channel Flow

   Open channels shall be designed using the Mannings Formula for hydraulic flow and the size and shape shall meet the requirements of runoff, depth, side slope, gradient, and velocity limitations in accordance with these standards. Open channels and swales shall also be designed so that the velocities do not exceed those provided in the Standards for Soil Erosion and Sediment Control in New Jersey, 7th edition, 2014, Table 11-1.

   Channels, swales, and other drainage systems shall be protected by the use of vegetation, rip rap, or paving and area subject to approval by the County Engineer.

M. Design of County Storm Drainage Systems

1. Hydraulic calculations for storm drainage pipelines shall be based on Mannings Formula for pipes flowing full or other approved design methods acceptable to the County Engineer.

2. Pipelines shall be designed to carry the maximum runoff when flowing half full.

3. The minimum design velocity for pipes flowing full shall be 2.5 feet per second.

4. Minimum pipe diameters shall be 15 inches.

5. Pipes used shall be reinforced concrete pipe, Class III, Wall B, unless otherwise directed and approved by the County Engineer, and shall have a minimum of 2 feet of cover over the top of the pipe wherever possible. Where minimum cover cannot be obtained, the pipe strength or type shall be increased as approved by the County Engineer.

6. All changes in pipe size, slope and horizontal direction shall be made in a manhole, inlet or other accessible structure designed for the above purpose. The designer shall match pipe inverts or provide hydraulic gradient calculations to determine the hydraulic losses in the Manhole transitions. All pipe ends shall be encased in a head-wall, FES or other appropriate structure conforming to the current NJDOT Standards and Details.

7. Design engineers shall use the Department of Transportation (NJDOT) Type N-Eco Head with a bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996).

N. Storm Sewer Layout

1. Inlet spacing shall not exceed 250 feet or a design inlet flow of 6 cubic feet per second, whichever conditions shall be more stringent. Access manholes shall be spaced at 500 foot intervals through right-of-ways and at sewer junctions where there are no catch basins.

2. Inlet Spacing and Gutter Spread Calculations shall be provided, for all roadway drainage systems, in accordance with NJDOT Drainage Design Manual and current NJDOT Standards and Details.

3. Inlets shall be located to intercept stormwater runoff before the runoff crosses intersections or crosswalks and at the beginning and end of new curbing.

4. All drainage facilities upon completion of construction shall be cleared of all debris, dirt and other objectionable material and shall be maintained in clean condition until such time as maintenance is accepted by the County Engineer.

5. Grease traps, oil skimmers, sediment basins and other water quality improvement or “Best Management Practices” structures shall be installed as required per NJDEP BMP.

O. Storm Sewer Construction Standards

1. All inlets and manholes shall conform to current NJDOT Standards and Details, unless otherwise approved by the County Engineer.

2. Pre-cast concrete manholes, inlets or catch basins shall conform to the requirement of ASTM Specification C478-72A and shall withstand an HS-20 highway loading current New Jersey State Highway Department Standard Specifications for Road and Bridge Construction for 1961, as supplemented and amended.

P. Flood Hazard Area

All projects with a total tributary drainage area less than 50 acres and all minor projects, as defined by the New Jersey DEP Flood Hazard Control Act may be approved by the County Engineer. All other projects must make application for a flood hazard area from the NJDEP. A copy of said application shall be forwarded by the applicant to the County Engineer. Flood Hazard Area lines established by the NJDEP shall be identified with bearings and distances on the subdivision plat or site plan submitted to the County for approval.

Q. Soil Erosion and Sediment Control

1. Developers must provide Soil erosion and sediment control measures in accordance with the Hudson-Essex-Passaic Soil Conservation District standards.

2. All development must provide a Construction Access and shall be designed in accordance with the County SCS Standards.

R. Detention, Recharge, Water Quality Facilities

Where required by these Standards, and as determined by the County Engineer, developments must construct stormwater detention/retention facilities to control the volume of runoff, rate of discharge and quality of water being discharged from the site. If municipal standards exist which differ from those of the County, the more stringent of the two standards would apply.

1. Stormwater Quantity Control.

    a. All stormwater management calculations with regard to quantity shall be in accordance with N.J.A.C. 7:8-5.7 Calculation of Stormwater Runoff and Groundwater Recharge.

    b. All non-residential and mixed-use site development or redevelopment shall be required to provide water quality control measures to meet current permissible water quality standards as set forth by current NJDEP standards. All residential development shall provide water quality control measures in accordance with N.J.A.C. 5:21.

    c. A waiver may be requested from these water quality control measures if the total existing or proposed impervious surface on a development site is less than 1,000 square feet.

    d. Stormwater management measures shall be designed in accordance with N.J.A.C. 7:8-5.5 Stormwater runoff quality standards

2. Special Water Protection Areas.

    a. In accordance with the definition of FW1 at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

    b. Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage area. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

        i. The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

            (a) A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession is provided.

(b) Encroachment within the designated special water resource protection area shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by NJDEP.

ii. All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard for Off-Site Stability in the "Standards For Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.

iii. If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey," established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

(a) Stabilization measures shall not be placed within 150 feet of the Category One (C-1) waterway;

(b) Stormwater associated with discharges allowed by this section shall achieve a 95 percent TSS post-construction removal rate;

(c) Temperature shall be addressed to ensure no impact on the receiving waterway;

(d) The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;

(e) A conceptual project design meeting shall be held with the appropriate NJDEP staff and Soil Conservation District staff to identify necessary stabilization measures; and

(f) All encroachments proposed under this section shall be subject to review and approval by the Department.

iv. A stream corridor protection plan may be developed by a regional stormwater management planning committee as an element of a regional stormwater management plan, or by a municipality through an adopted municipal stormwater management plan. If a stream corridor protection plan for a waterway has been approved by the Department of Environmental Protection, then the provisions of the plan shall be the applicable special water resource protection area requirements for that waterway. A stream corridor protection plan for a waterway shall maintain or enhance the current functional value and overall condition of the special water resource protection area as defined above. In no case shall a stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

v. Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, does not apply to the construction of one individual single family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009.

3. Water Quality Design Storm

a. All runoff within the water quality design storm cited in N.J.A.C. 7:8-5.5 et. seq. shall be controlled

by maximizing the use of feasible nonstructural management practices appropriate to the site or by structural management facilities which meet the standards of this rule.

i. The water quality design storm shall be defined as the one-year frequency S.C.S. Type III, 24-hour or 1.25 inches of rainfall falling uniformly in 2 hours. All practices and facilities used to meet the stormwater runoff quality goal shall be designed to control the water quality design storm unless otherwise specified.

ii. In computing the runoff from the water quality design storm, appropriate consideration shall be given to the relative runoff potential of pervious and impervious areas in order to accurately compute the rates and volume of runoff from the entire drainage area.

iii. The water quality design storm shall be controlled by Best Management Practices. These include, but are not limited to the following:

(a) In "dry" detention basins, provide for the retention of the water quality design storm, such that not more than 90 percent will be evacuated prior to 18 hours.

(b) In permanent ponds or "wet" basins, the water quality requirements of these rules shall be satisfied where the volume of permanent water is at least three times the volume of runoff produced by the water quality design storm.

(c) Infiltration practices such as drywells, infiltration basins, infiltration trenches, etc. may be used to meet the water quality standards, provided they produce zero runoff from the water quality design storm and allow for complete infiltration within 72 hours.

(d) Other Best Management Practices should be incorporated in the site design in order to meet water quality standards such as but not limited to: minimizing land disturbance, clustering, use of natural drainage ways, water quality swales, water quality chambers and landscaping. Reference should be made to the following documents for other suitable BMP's and associated information:

(1) New Jersey Stormwater Quantity/ Quality Management Manual, NewJersey, Department of Environmental Protection, February 1981.

(2) Stormwater and Non Point Pollution Control, Best Management Practices Manual, State of New Jersey, Department of Environmental Protection, Office of Land and Water Planning.

(3) Any Phase II Regional Stormwater Management Plan.

4. Groundwater Recharge

a. The following types of stormwater should not be recharged:

i. Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

ii. Industrial stormwater exposed to "source material." "Source material" means any material(s) or machinery, located at an industrial facility that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities

that are exposed to stormwater.

b. When designing infiltration or recharge basins, the design engineer shall ensure that the proposed practice is not placed in an area with known high pollutant loading or contamination in the existing fill, native soil, or surface without appropriate remediation.

c. When designing infiltration or recharge basins, the design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or down-gradient of the groundwater recharge area.

   i. At the County Engineer's request, a mounding analysis may be required as proof of meeting this condition.

d. Groundwater recharge may be calculated in accordance with The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at http://www.state.nj.us/dep/njgs/; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 08625-0427; (609) 984-6587.

5. Structural Stormwater Management Measures

a. Stormwater management facilities shall not be located within the floodway of the watercourse unless they are constructed on-stream as part of a Phase II regional or watershed stormwater management plan.

b. Stormwater management facilities design and construction shall be in conformance with the current NJDEP or Soil Erosion and Sediment Control Act. Standards, whichever is more stringent.

c. Multiple storm events and overland relief must be evaluated for all detention/retention facilities.

d. Side slopes of the facilities should not exceed 3:1 ratios.

e. All detention basins should have length to width ratios of at least 2:1 and maximize to the extent feasible the distance between pond inflow and outflow.

f. The facilities should have a vegetative cover of water-tolerant species. Suggested varieties of cover include reed canary grass, fescue, perennial rye, orchard grass and Bermuda grass.

g. Outlets from the facilities should be designed to function independent of manual, electric or mechanical controls. The outlets should have a minimum diameter of 3 inches. Trash racks consisting of vertical parallel bars, which can be cleaned from above with a rake, must be placed at all outlets.

h. A drainage easement shall be provided for all detention/retention basins and other related facilities for the purpose of access and maintenance.

i. Alternative types of detention/retention facilities may be utilized in lieu of the conventional detention basin (subject to the approval of the County Engineer) in order to overcome existing physical limitations of the site and surrounding area. Alternative detention/retention options are as follows:

   i. Wet ponds/retention basins

   ii. Created Stormwater wetlands

   iii. Stabilized, vegetated or biofilter swales

   iv. Vegetated filter strips

   v. Infiltration basins

   vi. Perforated pipes for underground recharge

   vii. Underground Storage

j. The design, construction of the above named detention/retention facilities shall comply with the Current NJDEP Stormwater Management Regulations.

k. Any retention system proposing the use of

infiltration (recharge) must provide a soil feasibility test for review and approval by the County Engineer. The design of an infiltration system must also provide for the removal and filtering of objectionable pollutants using methods described in the NJDEP Best Management Practices Manual for Stormwater and Non-point Source Pollution Control.

l. If underground detention is proposed, the outflow calculations shall not allow for infiltration rates unless otherwise specified by the County Engineer. All detention and retention basins must have an outfall structure and emergency spillway.

m. A detention system proposing the use of underground storage for the purpose of controlling stormwater volume must provide for the treatment of the water quality design storm prior to stormwater discharges to the underground storage system.

n. If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tail-water in the design of structural stormwater management measures.

S. Safety for Stormwater Management Basins

All safety requirements shall be as set forth in N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins

T. Landscaping

1. Upon completion of a detention basin recharge facility, the applicant shall immediately provide stabilization of the ground surface with seeding or sodding with a water tolerant grass. Where seasonal conditions do not permit seeding or sodding, temporary non-floatable mulch may be used. All of the above practices must be approved by the Hudson-Essex-Passaic County Soil Conservation District and shown on the soil erosion and sediment control plan required by that agency.

2. In cases where the detention/recharge basin has been used during construction for sediment control purposes, such facilities shall be restored by the removal of the accumulated sediment and debris, and sodded or re-seeded.

3. To the maximum extent possible, native species are to be used in landscaping for all stormwater management practices. Native species are to be selected for tolerance to draught, inundation, (and where salt deicing is expected) salt tolerant.

U. Maintenance

1. Maintenance of stormwater management facilities shall be in accordance with N.J.A.C. 7:8-5.8. A Stormwater Maintenance Plan shall be a requirement of all Subdivision and Site Plan applications that affect County Roads.

V. Green Stormwater Infrastructure (GSI)

1. All subdivisions and site plans subject to County approval shall include the use of green stormwater infrastructure and non-structural best management practice (BMPs), in addition to the above requirements for stormwater management.

2. Each application for development must implement a minimum of one (1) green stormwater infrastructure or non-structural BMP technique.

   a. For applications with greater than 5,000 square feet of earth disturbance, at a minimum, one or more proposed green stormwater infrastructure practices, alone or in combination, must be designed to safely intercept, manage, and convey stormwater runoff generated by the water quality storm listed in these regulations for an area equal to 50% of total earth disturbance

      i. All green stormwater infrastructure practices shall manage stormwater close to its source by treating stormwater runoff through infiltration into subsoil, treating stormwater runoff through filtration by vegetation or soil, and/or storing stormwater runoff for delayed release or reuse.

      ii. Managed areas do not necessarily need to be those areas that are being disturbed, though this is generally the most cost effective solution.

   b. These requirements do not replace or change those regulations set by other agencies such as a municipality or State requirements.

Infrastructure used to meet other regulations or requirements can be used to meet the County's green stormwater infrastructure requirement.

c. Examples of acceptable green stormwater infrastructure techniques are included at the end of this section. Other practices may be accepted on a case by case basis at the County's approval. Additional green stormwater infrastructure practices and guidance may be found in the NJDEP Stormwater Regulations at N.J.A.C. 7:8-5.

3. The use of green infrastructure and low impact development (LID) techniques for Hudson County stormwater management is required for their numerous environmental, economic and human health benefits, including their ability to:

   i. Reduce stormwater runoff volumes and peak flows by utilizing the natural retention and absorption capabilities of vegetation and soils.

   ii. Reduce our reliance on traditional stormwater structures (i.e. pipes, channels, and treatment plants) that are expensive to build, operate and maintain.

   iii. Prevent pollutants in stormwater runoff from entering nearby surface waters by using soils, plants and microbes to naturally filter and break down pollutants.

   iv. Protect surface waters and protect and enhance drinking water supplies.

   v. Enhance the rate at which groundwater aquifers are recharged or replenished.

   vi. Limit the frequency of sewer overflow events by reducing runoff volumes and delaying stormwater discharges.

   vii. Increase carbon sequestration of plants and soils.

   viii. Mitigate the impact of urban heat islands produced from dense concentrations of pavement, buildings, vehicles, and other sources that trap and retain heat.

   ix. Reduce flood damage.

   x. Reduce energy demands for air conditioning, thereby decreasing emissions from power plants.

   xi. Improve air quality with trees and vegetation that absorb certain pollutants from the air through leaf uptake and contact removal.

   xii. Protect wildlife habitats and create additional open space by providing greenways, wetlands, vegetated swales, parks, etc.

   xiii. Improve human health and quality of life.

   xiv. Increase surrounding property values.

   xv. Reduce construction costs and long term maintenance costs.

4. Policies and Performance Requirements

   a. To the maximum extent possible, site design or techniques should incorporate on-site storage and infiltration through a soil layer prior to releasing stormwater runoff to storm sewers, and reduce the amount of directly connected impervious surfaces.

      i. Where infiltration into native soils is not possible, pretreatment through a soil layer prior to release back to the sewer is required to the maximum extent possible

   b. The selected on-site green stormwater infrastructure techniques should address three (3) main factors: flow control, runoff pollution prevention and stormwater treatment.

   c. Where applicable, the design of the selected green stormwater infrastructure techniques shall comply with standards in the NJDEP Stormwater Best Practices Manual.

5. Urban Runoff Mitigation Plan

   a. For applications with greater than 5,000 square feet of earth disturbance, at the time of submittal of an application for subdivision or site plan approval, an applicant shall be required to submit an Urban Runoff Mitigation Plan to the Planning Board.

   b. The Urban Runoff Mitigation Plan shall include the following information:

      i. A plan showing that the design for the

infiltration and treatment of projected runoff ensures that the site complies with the detention, recharge and water quality requirements listed in these regulations.

ii. A narrative explaining how the selected combination of design elements will adequately provide pretreatment, treatment, conveyance, and management.

(a) Include calculations, model printouts, etc as needed to demonstrate proper storage volumes, pipe capacities, drain down times, and all other requirements.

iii. A plan showing that the stormwater management design elements to the meet the green stormwater infrastructure requirements of this section and the stormwater management requirements of these regulations. The Plan shall show how the design:

(a) Has appropriately sized, placed, and designed green stormwater infrastructure techniques to meet the requirements of this section

(b) Has accounted for the change in drainage areas in the pre-construction and post-construction condition and the management of these areas to meet these regulations

(c) Has provided other stormwater management BMP's to properly meet the stormwater management requirements for the project

(d) Has met other agencies regulations as required by the nature of the project

iv. A plan for the maintenance of all BMP's requiring on-going maintenance. Maintenance requirements of all green stormwater infrastructure techniques shall meet the standards set by the NJDEP at N.J.A.C. 7:8-5.8.

v. The applicant's signed statement accepting responsibility for all structural and treatment control BMP maintenance. The transfer of property subject to an Urban Runoff Mitigation Plan must include as a written condition to the transfer that the transferee assumes full responsibility for maintenance of any structural, and/or source or treatment control BMPs.

c. The County Engineer shall review the proposed Urban Runoff Mitigation Plan for compliance with the standards set forth in this Section.

d. The County Engineer or his designee on behalf of the Board shall approve or disapprove the plan. If the plan is disapproved, the reasons for disapproval shall be given in writing to the developer. Any plan disapproved by the County Engineer must be revised by the developer and resubmitted for approval.

e. A waiver from meeting the green stormwater infrastructure requirements in these regulations may be issued by the Board or County Engineer if the petitioner shows impracticability of implementing these requirements. A waiver request must be submitted to the County Engineer for consideration. The waiver request is to be signed and sealed by a professional engineer and shall include a technical explanation and supporting documentation for the waiver request. Applicant is to provide a letter requesting waiver. Recognized circumstances demonstrating potential impracticability include:

i. Extreme limitations of space for treatment.

ii. Unsuitable soil conditions at a site to attempt infiltration

(a) Lack of infiltration in the native, underlying soil does not eliminate the ability to introduce a green stormwater infrastructure practice. Where lack of infiltration is found during design, systems should be designed to provide infiltration through a soil layer prior to slow release of stored runoff back to the sewers.

iii. Existing soil contamination; and

iv. Risk of groundwater contamination because a known unconfined aquifer lies beneath the land surface or an existing potential underground source of drinking water is less than ten (10) feet from the soil surface.

f. No building permit or other planning approval shall be issued until a proposed green stormwater infrastructure or non-structural BMP technique has been approved by the Board or

County Engineer.

6. Permitted Green Stormwater Infrastructure BMP Methods.

   a. The following list of Suggested Green Stormwater Management Practices are acceptable meeting the requirements of this section when properly designed by a design engineer.

   b. Additional methods of green infrastructure or stormwater Best Management Practices (BMPs) such as those recommended by the municipality, or other proven techniques proposed by the applicant may be considered by the applicant, subject to the review and approval of the County Engineer. Additional green stormwater infrastructure practices and guidance may be found in the NJDEP Stormwater Regulations at N.J.A.C. 7:8-5. Any green stormwater infrastructure management practice to be used must meet the NJDEP's definition of green infrastructure at N.J.A.C. 7:8-1.2.

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Suggested Green Stormwater Management Practices

HOW TO USE THIS LIST

The following Green Stormwater Management Practices (SMP) are suggestions provided by Hudson County to aid developers, designers, and professionals in meeting the Land Development Regulation requirements for stormwater management. Each SMP is listed with a brief Description, Quick Facts, Siting Guidelines, and Design Guidelines. This information should be used to inform initial design efforts.

While this list is provided as a starting point for meeting the stormwater management requirements of Hudson County, other management techniques will be considered on a project-by-project basis. It is suggested that applicants reach out to the County with conceptual stormwater management plans prior to a formal submission to ensure compliance or to discuss preferred SMP techniques.

Users are made aware that guidelines set forth in this manual are not meant to replace good engineering practices or compliance with any Local and State regulations. Additional guidance may be found in the NJDEP Stormwater Best Practices Manual.

Green Stormwater Infrastructure Siting Quick Reference Guide

	Site				Parking Lots			Roadways*		
	Open Areas	Gateway Entrances	Walkways	Full Buildout	Parking Stalls	Medians	Landscape Buffer	>3.5' Amenity Zones	On-Street Parking	Other Roads
Rain Gardens	X	X				X	X			
Swales	X		X			X	X			
Flow-Through Planters		X	X			X	X	X	X	
Subsurface Infiltration Trenches	X	X	X		X	X	X	X	X	X
Permeable Pavements					X	X		X		X
Stormwater Curb Extensions									X	X
Green Roofs				X						
Rain Water Harvesting				X						

*For Street Design guidance, refer to Section VII: Circulation and Roadway Design Standards

Rain Gardens

Raingarden; Portland, Oregon

Practice Description

Rain gardens are depressed, landscaped areas designed to collect and temporarily store stormwater runoff. The system consists of vegetation, soil, and sometimes stone storage. The stored stormwater is then allowed to infiltrate through soil providing water quality treatment, volume reduction and/or attenuation.

Quick Facts

- Provides aesthetic benefits and is an integral part of site design and layout
- Improves air and water quality
- Can provide large educational and outreach benefits since system is at the surface
- Size, shape, and depth are variable depending on implementation

Siting Guidelines

- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Can be placed to accept runoff private lands, or (only with approval from the County Engineer) from the public right-of-way.
- Generally placed in low lying, open areas
- Site should be selected early in the development of site designs to inform grading and stormwater/ drainage utility layout

Design Guidelines

- Where practices are unable to infiltrate, a flow regulating underdrain can be installed under the soil layer
- Taller plants can be used to hide the depression created by the rain garden to give a more classic landscape look
- Runoff can be captured through overland flow, inlets, trench drains, and daylighting of roof drains
- An overflow structure should be provided to safely transmit both managed runoff and other contributing drainage areas

Maintenance Requirements

- Quarterly inspection of structures, piping, and storage areas for trash and sediment accumulation
- Quarterly performance of general landscaping maintenance
- Monthly removal of surface litter and debris

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual, Chapter 9.1 Bioretention

Swales

Swale; Portland Convention Center, Portland, Oregon

Practice Description

Swales are shallow, open channels with a mix of trees and other plantings. Meant to both collect stormwater runoff and provide a path to an overflow or other practice. A swale provides infiltration, water treatment, volume reduction, and an increased time of concentration along its length.

Quick Facts

- Collects stormwater through direct runoff
- Footprint is generally linear, following impervious surface
- Design can be used to connect multiple practices or work on its own on implementation

Siting Guidelines

- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Can be placed to either connect other practices or to collect runoff from long, linear runs of impervious cover
- Stormwater can also be added to swales through daylighted pipes
- Should be oriented to follow natural downward grade of the site

Design Guidelines

- Planting can be complicated containing multiple types of plants or be a simple grass swale
- Runoff is generally captured through overland flow
- An overflow structure, if needed, should be provided to safely transmit both managed runoff and other contributing drainage areas
- Further flow attenuation can be provided by introducing weirs decorative rocks, or switchbacks in the flow path

Maintenance Requirements

- Quarterly inspection of structures, piping, and storage areas for trash and sediment accumulation
- Quarterly general landscaping maintenance
- Monthly removal of litter and debris
- Maintenance of vegetation to maintain vegetation as intended per design
- Removal of grass clippings and other planting debris after maintenance

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual, Chapter 9.12 Grass Swales

Flow-Through Planters

Flow-through Planters; Portland, Oregon (Right); Columbus Square, Philadelphia, Pennsylvania (Left)

Practice Description

Flow-through Planters are a sunken, contained, landscaped areas created using curbing designed to collect and temporarily store stormwater runoff. The stored stormwater is then allowed to infiltrate through soil providing water quality treatment, volume reduction and/or attenuation.

Quick Facts

- Collects stormwater runoff through cuts in planter wall or roof disconnections
- Footprint is generally smaller than a swale due to elimination of grading
- Planter material can be simple concrete or more decorative

Siting Guidelines

- Shall not be placed in the public right-ofway without prior appoval from County Engineer.
- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Can be placed in wider sidewalks to provide aesthetic benefits and a separation from vehicular traffic
- Where there is parking, systems should be spaced to allow for pedestrians to pass between individual planters, and set back from the curb line to allow for car doors to open

Design Guidelines

- Where practices are unable to infiltrate, a flow regulating underdrain can be installed under the soil layer
- Taller, woodier plants should be combined with other plants to fill the planter during all seasons
- Runoff can be captured trench drains, curb cuts, and rain water conduit disconnections
- Overflow is generally managed through a domed riser or outflow through a receiving curb cut when the system reaches capacity

Maintenance Requirements

- Quarterly inspection of structures, piping, and storage areas for trash and sediment accumulation
- Quarterly performance of general landscaping maintenance
- Monthly removal of litter and debris
- Removal of leaf debris as needed to keep inlets clear, especially in the Fall

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual

Subsurface Infiltration Trenches

Infiltration Trench; Julian Abele Park, Philadelphia, Pennsylvania

Practice Description

Subsurface trenches are below-grade storage systems designed to treat and temporarily store stormwater runoff. They typically consist of pipes embedded within clean-washed stone. Generally the system is not noticeable from the surface on its own and allows for flexibility in site design.

Quick Facts

- Can be used on its own but is generally accompanied by landscaped surface feature
- Allows for full utilization of the above surface
- Size and shape is incredibly variable to meet a given site's makeup

Siting Guidelines

- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Shall not be placed in public right-ofway without prior appoval from County Engineer.
- Can be placed under sidewalks to accept street runoff
- System should be placed at a low lying area but some flexibility since systems are subsurface
- Rise of the grade over the system should be minimized to avoid deep excavations

Design Guidelines

- Where practices are unable to infiltrate, a flow regulating underdrain can be installed
- Should be placed as a secondary storage system to maximize runoff treatment benefits
- Generally constructed using a stone backfill for storage, manufactured storage systems or large diameter pipes can be used to increase storage capacity. Loading ratios should be managed appropriately

Maintenance Requirements

- Quarterly inspection of structures, piping, and storage areas for trash and sediment accumulation
- Removal of leaf debris as needed to keep inlets clear, especially in the Fall

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual

Permeable Pavements

Permeable Pavement, PHA Oakdale Street Development; Philadelphia, Pennsylvania

Practice Description

Permeable pavements are systems that provide the structural support of conventional pavements, but are designed to collect stormwater runoff for storage. Permeable pavements consist of a porous surface material over a bed of clean-washed stone.

Quick Facts

- Collects stormwater through direct runoff
- Material can be pavers, concrete, asphalt, etc. as needed per use
- Permeable materials have been shown to have secondary benefits ranging from reduced snow collection to reduced noise on basketball courts

Siting Guidelines

- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Adjacent surface uses and cover should be considered to avoid unnecessary maintenance
- Surface use should be considered when selecting paving materials and siting practices to avoid damage to surfaces, contamination, clogging, etc.

Design Guidelines

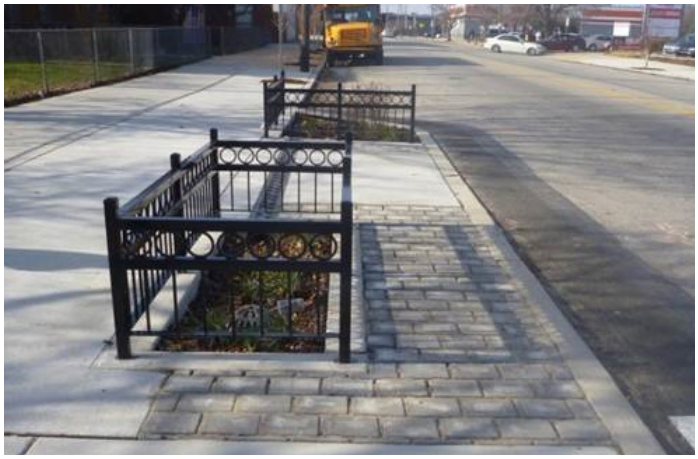
- Contributing drainage areas should be minimized to avoid loss of permeability
- Proper installation is incredibly important
- Where practices are unable to infiltrate an underdrain can be installed
- Overly steep slopes should be avoided

Maintenance Requirements

- Maintenance as required by surface material and manufacturer
- Monthly removal of litter and debris

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual, Chapter 9.7 Pervious Paving

Stormwater Curb Extensions



Stormwater Curb Extension; Philadelphia, Pennsylvania

Practice Description

Stormwater Curb Extensions are landscaped areas that extend into a roadway and are designed to collect, treat, and temporarily store stormwater runoff. The stored stormwater is then allowed to infiltrate providing water quality treatment, volume reduction and/or attenuation.

Quick Facts

- Collects stormwater through direct runoff
- Can be used for traffic calming or shortening of roadway crossings
- Design of surface can be customized for bus unloading and loading

Siting Guidelines

- Shall not be placed in the public right-ofway without prior appoval from County Engineer.
- Minimum of 10' offset from subsurface structures (i.e. basements) for infiltrating practices, unless a liner is included
- Should be sited in a parking lane
- Early coordination with appropriate transportation agencies for location selection is important

Design Guidelines

- A turning analysis should be performed for all locations
- Overly steep roadway slopes should be avoided
- For additional design guidance, please refer to Section VII: Circulation and Roadway Design Standards of these Regulations

Maintenance Requirements

- Quarterly inspection of structures, piping, and storage areas for trash and sediment accumulation
- Quarterly performance of general landscaping maintenance
- Monthly removal of litter and debris
- Removal of leaf debris as needed to keep inlets clear, especially in the Fall

For additional design guidance, refer to New Jersey Stormwater Best Management Practices Manual

Green Roofs

Green Roof

Practice Description

Green Roofs are generally a manufactured system that provides a vegetated cover for a building's roof. Rain that falls on the roof is absorbed by the vegetation and the planting medium providing mainly treatment benefits but also some storage capacity. Excess runoff flows through a traditional roof drainage system.

Quick Facts

- Collects the stormwater that falls directly on the roof
- Also provides secondary benefits through reduction of building HVAC needs and power usage

Siting Guidelines

- Siting is dependent on the chosen green roof system and manufacturer's requirements
- Structural capabilities of the building should be considered fully prior to installation

Design Guidelines

- Design guidance is dependent on chosen green roof system and manufacturer's requirements
- Generally, other stormwater management systems will be required to meet stormwater management goals for storage capacity
- Can be intensive or extensive depending on use. Intensive roofs are more like traditional gardens and extensive roofs use sedums

Maintenance Requirements

- Quarterly, or at the manufacturer's direction, inspection and maintenance of roof and green roof system

Rain Water Harvesting

Rain Water Harvesting ; Cistern

Practice Description

Rain Water Harvesting can be accomplished through many means but is generally the temporary storage of stormwater runoff in a rain barrel or cistern, above or below ground, for reuse. This practice provides storage capacity for stormwater runoff and makes it available for various uses around a site or building.

Quick Facts

- Collected runoff can be used for flushing toilets, watering plants, and many other uses

Siting Guidelines

- Rain Water Harvesting is flexible given the site and the scope of the proposed system

Design Guidelines

- Specific attention to drain down times, intended volumes for reuse, and other factors are very important to a design and application to ensure approval
- Depending on intended use for stored runoff, various cleansing requirements need to be met, dependent on relevant building codes

Maintenance Requirements

- Quarterly, or at the manufacturer's direction, inspection and maintenance of proposed system

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Section IX: Off-Site and Off-Tract Improvements

A. Purpose

This Section is intended to:

1. To assure the provision of adequate public facilities needed to serve development projects by requiring each proposed development, as a condition of approval, to pay its pro rata share of the costs of such improvements.

2. To mitigate the adverse impacts on community facilities by providing a means of allocating the costs of needed services and facilities among new developments in proportion to the demand for such facilities created by each new development.

B. Requirements

As a condition of subdivision or site plan approval, the County Planning board may require an applicant to:

1. Improve, extend, expand, construct or re-construct the necessary improvement.

2. Make a fair share contribution toward improving or reconstructing said off-tract improvement.

3. Make a payment-in-lieu to the county for improving or reconstructing off-tract improvements to county roads or county drainage facilities.

C. Scope of Improvements

The provision of off-tract improvements may include, but not be limited to:

1. Improving circulation and water, sewerage, and drainage facilities,

2. The provision of land and easements, located off-tract of the property limits of the subdivision or development.

3. Other improvements necessitated or required by the development, where “necessary” improvements are those clearly, directly, and substantially related to the development in question.

D. Notice and Determination

1. The County Planning Board shall provide in its resolution of approval the basis of the required improvements.

2. The capacity and design of the proposed improvements shall be based upon the circulation plan element and utility service plan element of the adopted master plan.

E. Cost Allocation

The proportionate or pro rata amount of the cost of such facilities within a related or common area shall be based on the following criteria.

1. Full Allocation

   In cases where off-tract improvements are necessitated by the proposed development, and where no other property owner(s) receives) a special benefit thereby, the applicant may be required at his sole expense and as a condition of approval, to provide and install such improvements.

2. Proportionate Allocation

   Where it is determined that properties outside the development will also be benefited by the off-tract improvement, the following criteria shall be utilized in determining the proportionate share of the cost of such improvements to the development.

3. Allocation formula

   a. Roadways

      The applicant’s proportionate share of street improvements, alignment, channelization, barriers, new or improved traffic signalization, signs, curbs, sidewalks, trees, other improvements uncovered elsewhere, the construction or reconstruction of new or existing streets, and other associated street or traffic improvements shall be as follows:

      i. The Applicant shall provide the County Engineer with the existing and reasonably anticipated future multi-modal peak hour flows for the off-tract improvements.

ii. The applicant shall furnish a plan for the proposed off-tract improvement, which shall include the estimated mutli-modal peak hour traffic generated by the proposed development and the proportion thereof which is to be accommodated by the proposed off-tract improvement. The ratio of peak hour traffic generated by the proposed development which is to be accommodated by the off-tract improvement to the future additional peak hour traffic anticipated to impact the proposed off-tract improvement shall form the basis of the proportionate share. The proportionate share shall be computed as follows:

$$\frac{\text{Total cost of enlargement or improvement}}{\text{Developer's Cost}} = \frac{\text{Capacity of enlargement or improvement (peak hour traffic)}}{\text{Development peak hour traffic to be accommodated by the enlargement or improvement}}$$

b. Drainage

The applicant's proportionate share of GSI and storm water and drainage improvements including the installation, relocation, or replacement of storm drains, culverts, catch basins, manholes, rip rap, improved drainage ditches and appurtenances thereto, and relocation and replacement of other storm drainage facilities or appurtenances associated therewith, shall be determined as follows:

i. The capacity and the design of the drainage system to accommodate storm water runoff shall be based on the standards specified in article six of these Regulations, computed by the developer's engineer and approved by the County Engineer.

ii. The capacity of the enlarged, extended, or improved system required for the subdivision and areas outside of the developer's tributary to the drainage system shall be determined by the developer's engineer subject to the approval of the municipal engineer. The plans for the improved system shall be prepared by the developer's engineer and the estimated cost of the enlarged system calculated by the County Engineer. The prorated share for the proposed improvement shall be computed as follows:

(a) Capacity of enlargement or improvement (total capacity expressed in cubic feet per second) Development generated peak rate of runoff expressed in cubic feet per second to be accommodated by the enlargement or improvement

(b) Total cost of enlargement or improvement Developer's Cost

F. Escrow Accounts

Where the proposed off-tract improvement is to be undertaken at some future date, the monies required for the improvement shall be deposited in an interest bearing account to the credit of the County in a separate account until such time as the improvement is constructed. If the off-tract improvement is not begun within two years of deposit, all monies and interest shall be returned to the applicant.

G. Contribution Funds

In accordance with Section IX of the Hudson County Land Development Regulations, the Planning Board has, by resolution, adopted the Passaic Avenue Traffic Mitigation Contribution Fund (Appendix I), the Schuyler Avenue & Harrison Avenue Traffic Mitigation Contribution Fund (Appendix J), and the Penhorn Creek Pump Station Contribution Fund (Appendix K)

Section X: Standards: Telecommunications Applications

A. Purpose

1. The purpose of this section is to establish basic requirements for the appearance of utility poles throughout the County in order to create or preserve a cohesive aesthetic character.

B. Design Standards

1. The proposed poles cannot obstruct or interfere with sight triangles and other safety related concerns.

2. The proposed poles must take into consideration the neighborhood character and infrastructure aesthetics and match the existing streetscape.

    a. The County Planning Board approval is contingent on the satisfaction of conditions set forth by each municipality.

3. No pole shall impede, obstruct, or inhibit the ability to use the sidewalk or road.

C. Other Standards

1. The County must be granted permission to access the utility poles for purposes it deems appropriate.

2. No utility pole shall be installed within the County's right-of-way without a non-exclusive agreement with the County.

Appendices

Funded by:

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Project Team:

HUDSON COUNTY NEW JERSEY

H2M architects + engineers
practical approach. creative results.

Stantec

arterial