HUDSON COUNTY'S

LAND DEVELOPMENT REGULATIONS

FOR SMART GROWTH & SUSTAINABLE DEVELOPMENT

Hudson County

New Jersey

Adopted by the Board of County Commissioners

Prepared and Administered by the Hudson County Planning Board

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Approved by the Hudson County Board of County Commissioners on October 23, 2008

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APPENDIX

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 “Resolution” 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-50)

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. Realty Improvement, Water Supply & Sewer System Act (N.J.S.A. 58:11-37)

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

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

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

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

k. Coastal Zone Management Rules (N.J.A.C. 7:7E)

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

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

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

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

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

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

r. 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).

The Hudson County Planning Board has, by the adoption of this Resolution, vested its power to review and approve subdivisions and site plans with the Hudson County Site Subdivision and Site Plan Review Committee, hereafter sometimes referred to as the "Committee." Said Committee shall include the Executive Director to the County Planning Board, at least one member of the Planning Board, and such others as the Planning Board deems appropriate.

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

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.

Section II
Definitions

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

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 this Resolution.

ABUT / ALONG: Those properties in part or in whole within 200' of a county road. Where a subdivision occurs adjacent to a County Road, the Applicant shall be required to file the site plans for all parcels, including the corresponding parcels which no longer abut the county road as a result of the subdivision.

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.

ADMINISTRATIVE COMMITTEE: A committee including the Executive Director to the Planning Board and at least one member of the Planning Board and such other members as the Planning Board sees fit vested by Planning Board resolution with the power to review and approve subdivisions and site plans.

ADMINISTRATIVE OFFICIAL: The Executive Director of the Planning Board or his or her designee, unless a different county official or officials are designated by resolution or statute.

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.

APPLICATION FOR DEVELOPNENT: The application form and all accompanying documents required by this resolution for approval of a subdivision plat or site plan.

APPROVING AUTHORITY: The County Planning Board unless a different agency is designated by the Administrative Code or by resolution.

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

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

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.

ASCE: American Society of Civil Engineers.

ASTM: American Society for Testing Materials, Philadelphia.

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

AWWA: American Water Works Association.

BACKWATER: Water upstream from an obstruction which is deeper than it would be without the obstruction.

BAFFLE: A device to deflect, check or regulate flow.

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.

BERM: A mound of soil, either natural or constructed, used for one or more of the following purposes: screen, buffer, separator, landscape feature, noise attenuator, dam, or stormwater control.

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 COMPATIBLE ROADWAY: A road designed to accommodate the shared use of the roadway by bicycles and motor vehicles.

BICYCLE LANE (BIKE LANE): A portion of a roadway which as 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.

BIOFILTRATION SWALE (BIOSWALE): A long, gently sloped, vegetated ditch designed to filter pollutants from stormwater. Grass is the most common vegetation, but wetland vegetation can be used if the soil is saturated.

BLOWOFF: A valve or device to allow the escape of air, fluid, or sediments from a pipe within which fluid is flowing under pressure greater than atmospheric pressure.

MUNICIPAL BOARD OF ADJUSTMENT: 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.

CAPPED SYSTEM: A completed water supply and/or sewerage system put in place for future use (contingent upon expansion), rather than to meet immediate development needs.

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.

CBR: means California Bearing Ratio, which is a method for measuring the strength and condition of road subgrades.

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: means systems, structures and physical improvements for the movement of people, goods, water, air, sewage or power by such means as streets, highways, railways, waterways, towers, airways, pipes and conduits, and the handling of people and goods by such means as terminals, stations, warehouses, and other storage buildings or transshipment points.

CLUSTER DEVELOPMENT: See residential cluster.

COMMON LATERAL: A lateral serving more than one (1) unit.

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 this Resolution for formal review.

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.

CORPORATION STOP: Also known as, “corporation cock”. A valve which is placed in a building's water or gas service pipe near its junction with the public water or gas main.

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 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 County Commissioners of Hudson County.

CPA: County Planning Act N.J.S.A. 40:27-6.1 et seq.

CUL- DE -SAC: A street with a single means of ingress and egress and having a turnaround, the design of which may vary.

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.

CUSHIONS: Supportive or protective bedding materials placed underneath piping.

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: An area with a specified minimum contiguous acreage of 10 acres or more to be developed as a single entity according to a plan, containing one or more residential clusters or planned unit residential developments and one or more public, quasi-public, commercial, or industrial areas in such ranges of ratios of nonresidential uses to residential uses as shall be specified in the zoning ordinance.

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.

DRAINAGE: The removal of surface water or ground water from land by drains, grading 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.

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 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.

DROP MANHOLE: An inspection chamber or manhole used at changes in horizontal and/or vertical directions for storm or sanitary sewers or underground utility conduits where the incoming conduit is two feet or more above the elevation of the discharge conduit.

DROP PIPE: A vertical pipe used to convey sewage from a higher to a lower elevation.

DRY LINES: See capped system.

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.

ENVIRONMENTAL CONSTRAINTS: Features, natural resources, or land characteristics that are sensitive to improvements and may require conservation measures or the application of creative development techniques to prevent degradation of the environment, or may require limited development, or in certain instances may preclude development.

ENVIRONMENTALLY CONSTRAINED AREA: The following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, steep slopes, threatened and endangered species sites or designated habitats, and parks and preserves.

ENVIRONMENTALLY CRITICAL AREA: An area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitats of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas.

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.

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 this Resolution 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: Area of all floors of buildings or structures.

FLUSHING: The cleaning out of debris and sediment from pipes by force of moving liquid, usually water.

FRANCHISE: A limited and revocable authorization, right or permission granted by the Board of Chosen County Commissioners to encroach or occupy county property or a portion of the county right-of-way.

FRONTAGE: See lot frontage.

GABION: means 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.

GENERAL DEVELOPMENT PLAN: A plan outlining, general, rather than detailed, development intentions.

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

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 INFRASTRUCTURE - 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 principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, 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 filter air pollutants, 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.

HARDY CROSS METHOD: Method of controlled trial and error by which water distribution system can be analyzed, first introduced in 1936 by Hardy Cross, Professor of Civil Engineering, University of Illinois.

HISTORIC DISTRICT: 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.

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

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

IES: Illuminating Engineering Society.

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.

IMPOUNDMENT: A natural or man made body of water, such as a pond, confined by a dam, dike, floodgate, or other barrier.

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.

INDIVIDUAL 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.

INFILTRATION: The process by which water seeps into the soil from precipitation.

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.

ITE: Institute of Transportation Engineers.

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

LATERAL SEWERS: Pipes conducting sewage from individual buildings to larger pipes called trunk or interceptor sewers that usually are located in street rights of way.

LEED: Leadership in Energy and Environmental Design.

LINEAR DEVELOPMENT: A development with the basic function of connecting two points, such as a road, drive, public walkway, railroad, sewerage pipe, stormwater management pipe, gas pipeline, water pipeline, or electric, telephone or other transmission line.

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.

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.

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.

MANNING EQUATION: A method for calculating the hydraulic capacity of a conduit to convey water.

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

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.

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

MUTCD: Manual of uniform Traffic Control Devise.

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.

NUTRIENT: A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

OFFICIAL COUNTY MAP: The map, with changes and additions thereto, adopted and established, from time to time, by resolution of the Board of Chosen County Commissioners 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.

OFFTRACT: 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 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 this Resolution.

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

PARKING LOT: A ground-level, generally open area that provices 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.

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.

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.

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

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..

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

PLANNED UNIT DEVELOPMENT: An area with a specified minimum contiguous acreage of 10 acres or more to be developed as a single entity according to a plan; containing one or more residential clusters or planned unit residential developments and one or more public, quasi public, commercial or industrial areas in such ranges of ratios of nonresidential uses to residential uses as specified in the relevant municipal zoning ordinance.

PLANNED UNIT RESIDENTIAL DEVELOPMENT: An area with a specified minimum contiguous acreage of 5 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.

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

PRINCIPAL BASIN: A detention or retention basin whose function is controlling or managing the runoff from a particular area or property that is to be developed.

PROHIBITED: means that a development application is unacceptable and that the Board, County Engineer and Planning Staff will use its legal authority to reject or deny the proposal.

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.

PUD: See planned unit development.

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 this Resolution 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 CLUSTER: An area to be developed as a single entity according to a plan containing residential housing units which have a common or public open space area as an appurtenance.

RESIDENTIAL 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). Since its function is to promote free traffic flow, access to homes and parking should be prohibited. Collectors should be designed to prevent use as shortcuts by non neighborhood traffic. Total traffic volume should not exceed 3,000 ADT.

RESIDENTIAL DENSITY: The number of dwelling units per gross acre of residential land area including streets, easements, and open space portions of a development.

RESIDENTIAL NEIGHBORHOOD STREET: A type of residential access street conforming to traditional subdivision street design, which provides access to building lots fronting on a street and provides parking on both sides of street. (See Street Hierarchy.)

RESIDENTIAL SUB-COLLECTOR: Middle order of residential streets (see street hierarchy). Provides frontage for access to lots and carries traffic to and from adjoining residential access streets. Traffic should have origin

or destination in the immediate neighborhood. Traffic volume should not exceed 500 ADT at any point of traffic concentration.

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.

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.

SCS: Soil Conservation Service.

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.

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.

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 this Resolution, 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 this Resolution. 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 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): means stabilized base course or asphalt concrete base consisting of soil aggregate and bituminous material uniformly mixed and placed on a previously prepared surface.

STABILIZED EARTH: Earth or soil, strengthened usually by the mixing of cement or lime with the original material to achieve increased strength, thereby reducing shrinkage and movement.

STABILIZED TURF OR EARTH: Turf, or earth (soil), strengthened usually by the mixing of cement or lime with the original material to achieve increased strength, thereby reducing shrinkage and movement. May also include the use of a fabric or geotextile system of materials in combination with soil.

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; and/or stormwater outfall.

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 nonstormwater 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:

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 this Resolution 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 this Resolution, 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 Department of Planning and Economic Development office, states the requirements needed before review can begin time limit of application and related fees.

SUBDIVISION AND SITE PLAN COMMITTEE: 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.

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

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.

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.

ULI: Urban Land Institute

USGBC: United States Green Building Council.

USCGS: (Also USC&G & USC&GS). United States Coast and Geodetic 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.

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.)

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.

WYE: A Y branch or Y fitting. In a plumbing system, a branch in the shape of the letter Y.

WYE CONNECTIONS: See WYE.

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.

Section III
Applicability

A. Subdivisions

1. Review.

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

Minor 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 Subdivision and Site Plan Review Committee 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 and subsequent revisions, modification to site facilities or change of use permits along County roads or affecting County drainage facilities 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. 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.

2. Exemptions

a. Site plan applications not along a County road that include less than a combined total of one (1) acre of existing and proposed impervious surfaces are exempt from County site plan review.

b. Site plans for single family or duplex homes are exempt from County site plan review.

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. Pursuant to N.J.S.A. 52:27D-312.c, regional contribution agreements (RCA's) shall be approved by the Council on Affordable Housing, after review by the county planning board or agency of the county in which the receiving municipality is located. The council shall determine whether or not the agreement provides a realistic opportunity for the provision of low and moderate income housing within convenient access to employment opportunities. The council shall refer the agreement to the county planning board or agency which shall review whether or not the transfer agreement is in accordance with sound, comprehensive regional planning. In its review, the county planning board or agency shall consider the master plan and zoning ordinance of the sending and receiving municipalities, its own county master plan, and the State development and redevelopment plan. In the event that there is no county planning board or agency in the county in which the receiving municipality is located, the council shall also determine whether or not the agreement is in accordance with sound, comprehensive regional planning. After it has been determined that the agreement provides a realistic opportunity for low and moderate income housing within convenient access to employment opportunities, and that the agreement is consistent with sound, comprehensive regional planning, the council shall approve the regional contribution agreement by resolution. All determinations of a county planning board or agency shall be in writing and shall be made within such time limits as the council may prescribe, beyond which the council shall make those determinations and no fee shall be paid to the county planning board or agency pursuant to this subsection.

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 this Resolution;

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 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. Three (3) 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. Three (3) 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. A CAD file or AutoCAD compatible digital file of final plans submitted on CD-ROM, in conformance with the County's Digital Submission Standards (Appendix E),

g. Other items as may be required such as:

   i. A Traffic Impact Report (Appendix F)

   ii. A Stormwater Management Plan

   iii. An Urban Runoff Mitigation Plan

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 this resolution, 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 questions.

3. The Board or its authorized committee shall grant or deny the request within 30 days of the dates 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 this Resolution, or subsequent revisions adopted by resolution of the Chosen County Commissioners.

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.

Section V
Application Review and 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**.

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, or municipal approval of the site plan.

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.

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 this Resolution. 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 this Resolution.

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 County Commissioners within ten (10) days after the date of notice by certified mail of said action.

2. The Planning Board or Board of Chosen County Commissioners 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.

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 this Resolution 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.

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 this Resolution.

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 Meadowlands Commission (NJMC) to finance identified transportation improvements. The County maintains the right to assess impact fees for impacts created outside the boundaries of the NJMC. 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 this Resolution 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 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 this Resolution. 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 (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 this Resolution to a point where their alteration or removal would be impractical.

2. The r, 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
Design Standards: Traffic and Roadway Design

A. Purpose

The purpose of good subdivision and site design is to create a functional and attractive development, to minimize adverse impacts affecting county roads and drainage facilities, to protect the County's natural resources, and to ensure development is sustainable and will be a long-term asset to the community.

This section presents design and construction standards, general policies and improvement requirements for all developments related to traffic and roadway design. All proposed development must give appropriate consideration to the scale and character of the existing neighborhood in which the development is to be located.

B. General Policies

1. All developments 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 physical improvements for the safety and convenience of the traveling public. Improvements shall include but are not limited to: the dedication of additional rights-of-way for road or drainage ways, adequate drainage facilities and easements, road pavement widening, grading of rights-of-way, curbs, bikeways, bike facilities, sidewalks, cross-walks, shade trees, landscaping, street furniture, soil erosion and sediment control, stormwater management, stream protection, street and traffic control signs, traffic signals, marginal access streets, reverse frontage, off street parking facilities plus on or off tract highway and traffic design features necessary to correct potential traffic and safety hazards which could be created by an increase in traffic volumes or impediments to traffic flows caused by the development.

3. Off track 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 his fair share of the cost of such improvements.

4. Whenever blasting is proposed for a project, a blasting report shall be submitted to the County Engineer for review prior to the commencement of any construction operations.

5. The proposed interior streets and walkways shall be designed to provide optimal vehicular and pedestrian 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. Appropriate traffic calming facilities and techniques shall be incorporated where existing or proposed traffic conditions would benefit from such traffic calming approach.

9. All proposed development within the County shall be designed to improve, not deteriorate, traffic and circulation over existing conditions.

10. In proposing an application for development, the applicant shall clearly demonstrate that an alternate means of access for the site, which is not located on a County road, is not available.

11. The applicant shall wherever possible consider implementation of traffic mitigation measures in the form of ridesharing programs, deferred parking, public transportation, bicycling and pedestrian improvements in order to minimize traffic and subsequent road improvements.

12. 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 installing porous pavement, porous concrete, vegetated islands and buffers, shielded street lighting, solar panels for lighted street signs.

13. Design or road improvements shall be in accordance with these Standards supplemented and modified, as needed by the County Planning Board based on the advice of the County Engineer.

C. 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.

D. Level of Service (LOS)

Any development that causes a location on a roadway to operate in excess of capacity Level D is discouraged. A developer shall undertake mitigation or other corrective measures as may be necessary so that the traffic levels at any affected intersection remain at capacity Level D or better, per the Traffic Impact Reporting requirements. A developer may, by incorporating design modification or by contributing to the cost of off-site traffic improvements, be able to address traffic problems resulting from the development.

E. Streets and Circulation

1. General

a. The purpose of proper street design is to create a functional and attractive development, to minimize adverse impacts, to foster mass 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 current American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*, New Jersey Department of Transportation standards, the Institute of Transportation Engineers 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 Hierarchy

a. Streets shall be classified in a street hierarchy system with design tailored to function in accordance with RSIS (N.J.A.C. 5:21-4.3).

b. The street hierarchy system shall be defined by road function and average daily traffic (ADT), calculated by trip generation rates for major land use categories, prepared by the Institute of Transportation Engineers (ITE).

c. Each new street shall be classified and designed to meet the RSIS standards for one of the street types

d. The applicant shall demonstrate to the planning board's satisfaction that the distribution of traffic to the proposed street system will not exceed the ADT thresholds indicated in Table VII-1 for any proposed street type.

Table VII-1
Residential Street Hierarchy Definitions

STREET TYPE	DESCRIPTION	AVERAGE DAILY TRAFFIC (max)
LOCAL/ RESIDENTIAL	Low order, County streets. An urban Local Street system is designed to carry small volumes of traffic with an emphasis on land access over traffic mobility. It should be a link to other street systems and provide direct access to adjacent land uses. An alternate land use is desirable for through traffic.	1,500*
COLLECTOR	Middle order of County Street. An Urban Collector Street system is designed to carry moderate volumes of traffic with an equal emphasis on land access over traffic mobility. It should be the Primary link between minor Arterials and local roads. These roads may run through residential neighborhoods.	5,000
MINOR ARTERIAL	High order of County Streets. A Minor Arterial Street system is designed to carry large volumes of traffic with slightly greater land access and less traffic mobility than a Principal Arterial. It should be the primary link between Principal Arterial and Collector Roadway Minor Arterials should not intrude into residential neighborhoods.	10,000
PRINCIPAL ARTERIAL	Highest order of County Streets. A Principal Arterial System is designed to carry large volumes of traffic at high speeds to and from major urban activity hubs and between major connections. Access to Principal Arterials should be limited in order to ensure minimum disruption of the traffic flow. This system is designed for longer trips	Over 20,000

	and should carry traffic wishing to bypass Downtown metropolitan areas. The Urban Principal Arterials can be further broken down into three types of roadways; Interstate, other Freeways, and expressways, and other Principal Arterials with no control of access.	
SPECIAL-PURPOSE STREETS		
Alley	A service road that provides a secondary means of access to lots. On the same level as residential access street, but different standards apply. No parking shall be permitted; alleys should be designed to discourage through traffic.	500
Cul-de-sac[1]	A street with a single means of ingress and egress and having a turnaround, the design of which may vary. A divided-type entrance roadway to at least the first cross street, with median of sufficient width to ensure freedom of continued emergency access by lanes on one side, shall not be considered part of a cul-de-sac. Parking lots with a single means of ingress and egress shall not be included within the definition of cul-de-sac.	250
Court	A street with a single means of ingress and egress, which serves multifamily development, that does not provide a means for vehicles to turn around. The length of multifamily courts is limited to 300 feet.	Note[2]
Divided street	Municipalities may require streets to be divided to provide alternate emergency access, protect the environment, or avoid grade changes. Design standards should be applied to the combined dimensions of the two street segments, as required by the street class. A street with a single means of ingress and egress.	1,000

* Residential access streets of "loop" configuration, that is two ways out, should be designed so no section conveys an ADT greater than 1,500. Eash half of a loop street maybe classified as a single residential access street, but the total traffic volume generated on the loop street should not exceed 1,500 ADT, nor should it exceed 750 ADT at any point of traffic concentration.

[1] Streets serving multifamily developments with a single means of ingress and egress shall be classified as multifamily access cul-de-sacs.

[2] There is no ADT limit for multifamily courts specified because the length of the court will effectively limit the ADT to acceptable levels.

3. 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 hierarchy and should be sensitive to the intensity of development.

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

d. Right-of-way requirements are shown in Table VII-2, and graphically depicted in Figures VII-1, VII-2, VII-3, AND VII-4 below.

e. 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*.

f. 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.

Table VII-2
Roadway Pavement/ROW Requirements

STREET TYPE	TRAVEL/ MOVING LANE	PARKING LANE (a)	TOTAL CARTWAY	UTILITY, SIDEWALK & PLANTING AREA (c)	RECOMMENDED RIGHT OF WAY
Local	Two @ 10-11 ft	One Side 7-8 ft.	27 - 36 ft.	2 @ 8- 10 ft. Mi n.	50 - 56 ft.
Collector	Two @ 11 - 12 ft.	Two Sides @ 8-9 ft.	38- 42 ft.	2 @ 8- 10 ft. Mi n.	54 - 62 ft.
Minor Arterial	Two @ 12 ft.	Two Sides @ 8-10ft.	40- 44 ft.	2 @ 8- 10 ft. Mi n.	60 - 64 ft.
Principal Arterial	Four @ 12-13 ft.		48- 52 ft.	2 @ 8- 10 ft. Mi n.	> 64 ft
Alley:					
One-way	One @ 16 ft.	None	16 ft.		24 ft.
Two-way	Two @ 10 ft.	None	20 ft.		24 ft.
Residential					
Cul-de-sac	Two @ 12 ft.	0	24 ft.	2 @ 8- 10 ft. Mi n.	44 ft.
Court	Two @ 12 ft.	0	24 ft.	2 @ 8- 10 ft. Mi n.	44 ft.
Divided Street (b)					

(a) Refers to parallel parking. Angle parking shall not be permitted on through streets.
(b) Cartway width for divided streets shall conform to standards of street classification and should be the aggregate of the street width and median width. There shall be no parking along the median divider.
(c) Wider sidewalk and planting strip widths may be required in commercial areas per the sidewalk requirements of these regulations, or to match existing sidewalk and planting strip widths, or where required by the County Engineer.

RIGHT –OF-WAY DESIGN REQUIREMENTS

Figure VII-1
LOCAL

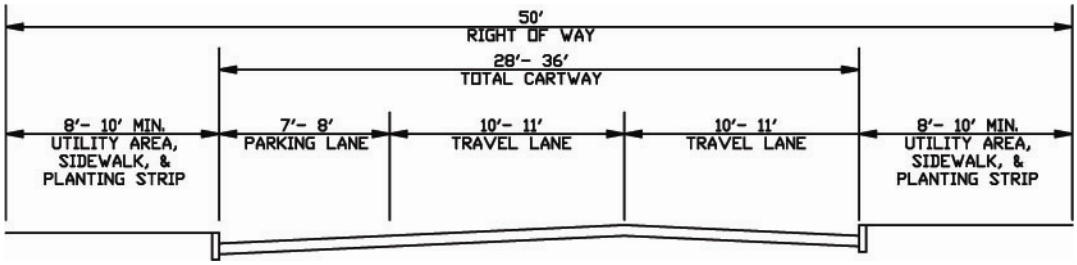


Figure VII-2
COLLECTOR

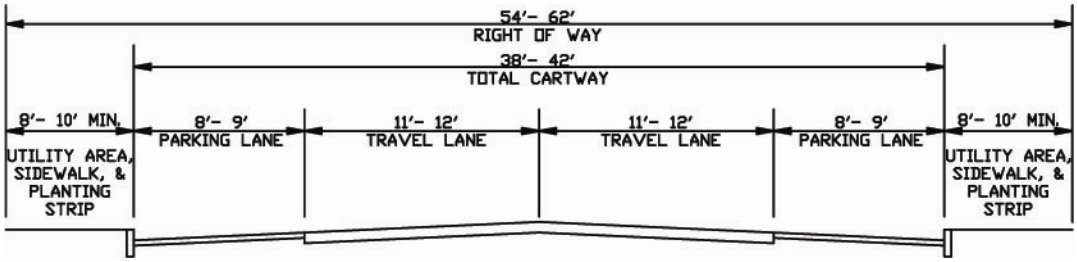


Figure VII-3
MINOR ARTERIAL

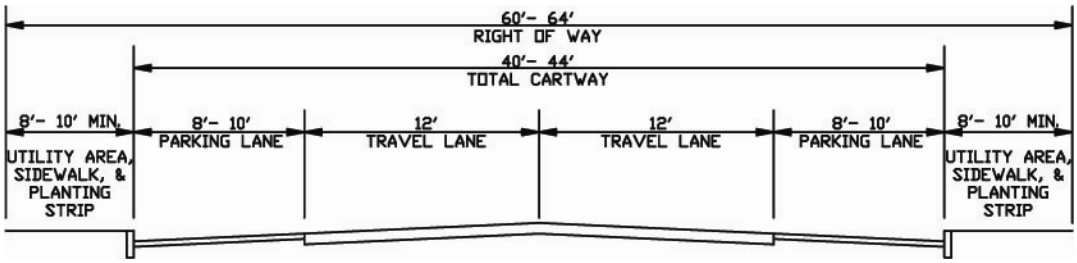
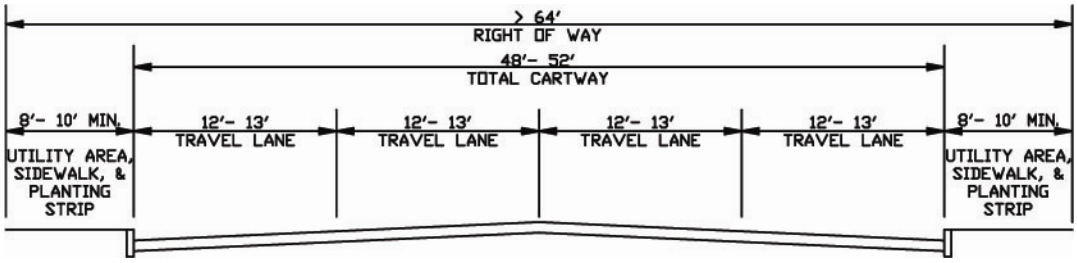


Figure VII-4
PRINCIPAL ARTERIAL



4. 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 widths for each street classification are shown in Table VII-2

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

d. 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.

5. 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.

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

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

6. 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-3).

Table VII-3
Street Grade, Curve and Intersection Design Criteria

	ALLEY	COURT CUL-DE-SAC	LOCAL RESIDENTIAL	COLLECTOR	ARTERIALS Minor/Principal
Minimum Grade	0.50%	0.50%	0.50%	0.50%	0.50%
Maximum Grade	15%	12%	12%	10%	8% / 6%
Maximum Grade of Secondary Street within 50' of Intersection*	5%	5%	5%	5%	5% / 2%
Minimum Center-line Radius	100'	100'	100'	150'	300' / 500’
Minimum tangent length between reverse curves	0'	50'	50'	100'	150' / 300’
Curb Radii	20'	25'	25'	30'	35' / 50’

*As measured from the nearest right-of-way line.

7. Driveways

The following standards shall apply to all driveways.

a. Number of Driveways

i. No driveway which intersects the right-of-way line of a County road shall be constructed or modified unless a construction permit is first obtained from the County.

ii. The number of driveways permitted from a site directly onto any County road shall be limited in accordance with the specifications below, except under conditions where the safety and/or convenience of the general motoring 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 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 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-4); 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.

Table VII-4
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

d. Driveway Dimensions

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 required to utilize high to maximum dimensions. Driveways serving low daily traffic volumes shall be permitted to use low to minimum dimensions.

Table VII -5			
Driveway Width (feet)			
	One-way	Two-way	Curb-radii
Residential	10' - 12'	12' - 14'	5' – 15'
Multi-family	12' - 15'	24' - 30'	5' - 15'
Commercial	12' - 15'	24' - 36'	10' – 20'
Industrial	15' - 18'	30' - 36'	20'- 45'

e. Geometric Designs

The geometric design of a driveway connection to a County road should be governed by sound traffic engineering principles. Below are guidelines in preparing a geometric design, but deviation from them may be necessitated from time to time due to the many variables encountered in the course of preparing a design. The applicant should be aware, therefore, that although the driveway layout may conform to these guidelines, conditions may dictate deviations from them and requirements of the County Engineer shall be final.

i. Two-Way Operation: Driveways used for two-way operation will intersect the County road at a right angle (90 degrees) wherever possible, and in no case will be less than 60 degrees (measured at the center line of the intersecting driveway or road).

ii. One-Way Operation: Driveways used by vehicles in one direction of travel (right turn only) shall not form an angle smaller than 45 degrees with a County road.

iii. 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. The required maximum and minimum dimensions for driveways connecting to a County road are set forth in Table VII-6.

iv. Driveways serving a large volume of daily traffic or traffic over 25 percent of which is truck traffic shall be required 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 permitted to use low to minimum dimensions.

v. Any vertical curve on a driveway shall be flat enough to prevent the dragging of any vehicle undercarriage. The maximum permitted gradients for driveways shall not exceed a 2 percent grade for a distance of 10 feet or to the right-of-way line. Whenever possible the driveway shall be graded to prevent stormwater entering the site from the County road.

vi. Driveway geometry shall be in accordance with Table VII-6.

Table VII-6 Driveway Geometry			
	Single Family Res.	**Commercial & Multi Family**	**Industrial**
Turning Radius			
Min	5’	15’	30’
Max	15’	35’	45’
Min. Spacing			
From Property Line	5’	10’ or –R	-R
From Intersection	10’	25’	25’
Between Drives	50’	150’	150’
Angle			
Two Way	90 Deg	60 Deg	60 Deg
One Way (min)	-	45 Deg	45 Deg
Grade			
Grade (max)	+/- 8%	+/- 8% *	*
Note: 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. The surface of any driveway within the existing or proposed right-of-way of a County road subject to County site-plan approval shall be constructed with hot mix asphalt and in accordance with current NJDOT Standards and Details.

ii. 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.

8. 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.

i. 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.

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

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

9. 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:

b. 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.

c. 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.

d. 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.

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

f. 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.

10. Intersections

a. General

i. 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.

ii. All street intersections with a County road shall be designed in accordance with current NJDOT Standards and Details.

b. Design of Street Intersections

i. 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.

ii. 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.

iii. 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.

iv. 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.

c. Curb radii

i. Curb radii shall vary by street hierarchy and land use as presented in Table VII-3. The highest road classification at an intersection shall determine the curb return radii standard.

d. Grade

i. 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.

e. **Sight Triangles**

i. 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.

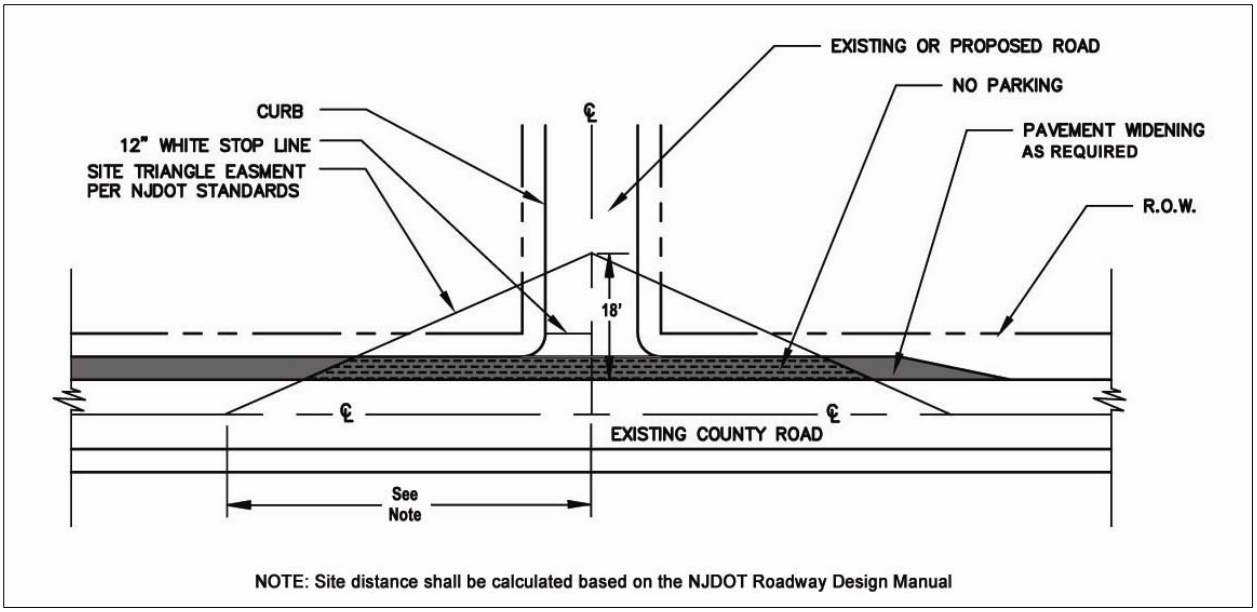
ii. In cases where the sight triangle easement extends beyond the property limits of the development, only that portion within the ownership or control of the developer is required.

iii. 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.

iv. 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.

v. In addition to the right-of-way widths required, sight triangle easements shall be provided as shown in Figure VII-5.

Figure VII-5
Sight Triangle Easements



11. 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

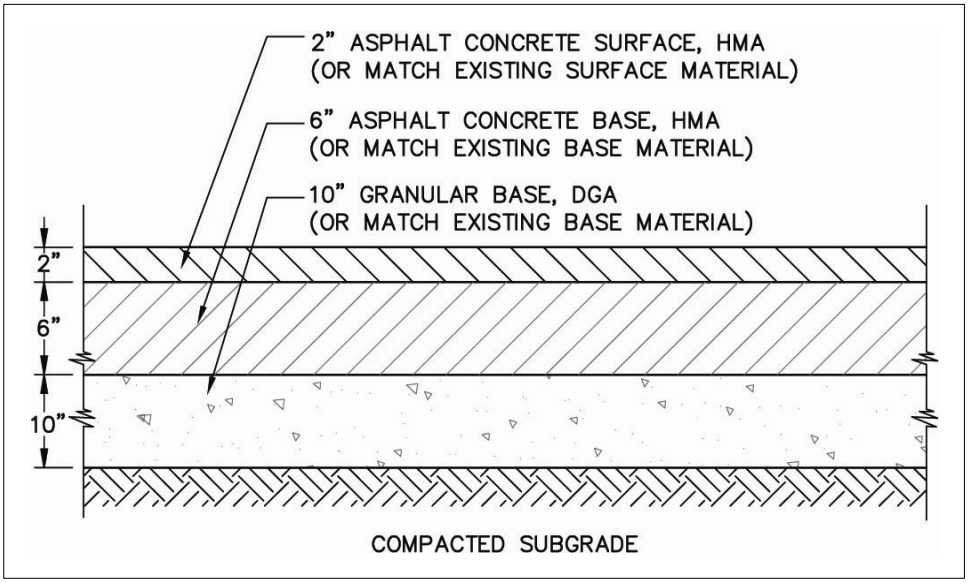
standards be in accordance with current NJDOT Standards and be used on all County Roads dependant on the quantity of the proposed Pavement. Pavement construction requirements shall be in accordance with Figure VII-6, and may be varied at the discretion of the County Engineer.

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).

Figure VII-6
Pavement Detail



12. 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.

g. Depressed curbs

i. Curbing shall be designed to provide a curb ramp in compliance with the American with Disabilities Act (ADA) or the Barrier Free Subcode of the New Jersey Uniform Construction Code (5:23-7) at street intersections, as applicable.

ii. 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.

13. Sidewalks

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 in order to protect pedestrian traffic while facilitating vehicular traffic. The sidewalk area may include a paved area for pedestrian travel, a planting strip for vegetation and shade trees, vehicular and/or pedestrian-scale lighting, street furniture, ornamental tree grates, trash receptacles, landscaped stormwater planters, drainage facilities, curbing or other features required by the Board, and shall be provided in accordance with the following standards.

a. **Sidewalk placement**.

i. Sidewalks shall be placed in the right-of-way, parallel to the street within the right-of-way, unless an exception has been permitted to preserve topographical or natural features, or to provide visual interest, or unless the applicant shows that an alternate pedestrian system provides safe and convenient circulation.

ii. Sidewalks may be required to be installed away from the road system, in order to link dwelling units with other dwelling units, the street, parking areas, recreational areas and other on-site areas.

iii. Pedestrian way easements of 10 feet may be required by the Board through the center of blocks more than 600 feet long.

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.

b. **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).

ii. Where pedestrian crossings exist or are proposed, sidewalks and curbs shall be designed with ramps and curb cuts in accordance with ADA requirements and Barrier Free Subcode of the Uniform Construction Code (N.J.A.C. 5:23-7:31).

iii. Residential sidewalk widths shall be a minimum of four (4) feet. Where sidewalks abut the curb and cars overhang the sidewalk, widths shall be 6 feet.

iv. Commercial sidewalk widths shall be a minimum of fifteen (15) feet; however, the width of the sidewalk may be modified at the County's discretion.

v. Brick pavers may also be required if compatible with the surrounding area.

vi. The use of pervious pavers is encouraged when appropriate.

c. Sidewalk maintenance

The maintenance of the sidewalk is the responsibility of the Developer or owner of the site which is the subject of development.

14. Planting Strip

a. Along all residential streets, a landscaped planting strip shall be provided in between the sidewalk and the curb;

b. Along non-residential streets, a landscaped planting strip shall be provided in between the sidewalk and the curb where such exists on adjacent sites, or where required by the County Board or Engineer; otherwise the use of tree pits shall be provided on non-residential streets; appropriate paving materials such as pervious pavers or stamped concrete may also be requested in this area.

c. Continuous planting strips should be as wide as possible with a recommended width of 6 feet. In no case shall the planting strip for a tree be less than 4 feet wide.

d. Landscaping in the planting strip may include plant materials such as trees, shrubs, ground covers, perennials and annuals.

e. Landscaping must use native species that are hardy to urban conditions.

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

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

h. The installation of stormwater planters or gardens designed to capture, slow, cleanse, and infiltrate street runoff are encouraged as an alternative to a planting strip (See Figure VII-7

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

Figure VII-7
Urban Stormwater Gardens in Planting Strip
Source: Nevue Ngan Associates

15. Street Trees

a. Purpose

i. The planting and maintenance of healthy trees and vegetation throughout Hudson County and along County rights-of-way furthers the County's conservation goals and commitment to sustainability. Specifically, trees offer the following health, environmental, energy-saving and community benefits:

(a) Provides shade and comfort to pedestrians and residents.

(b) Reduces air temperatures and the urban "heat island" effect.

(c) Reduces air movement into buildings and conductive heat loss from buildings.

(d) Sequesters CO2, reducing its presence in the atmosphere.

(e) Reduces air pollutant emissions of NO2, PM10, volatile organic compounds (VOCs), and SO2 and improves overall air quality.

(f) Intercepts dust and particulate matter, thereby purifying the air.

(g) Reduces the amount of stormwater runoff and pollutant-loading in receiving waters.

(h) Reduces flooding and prevents soil erosion.

(i) Trees provide screening, which in turn aids in the reduction of noise and glare.

(j) Beautifies the surrounding area, provides shade that increases human comfort and sense of place.

(k) Provides natural habitat for wildlife and birds.

(l) Improves human health, privacy, and well-being.

(m) Protects and enhances property values and community image.

(n) Creates a traffic calming effect to induce desired operating speeds.

(o) Creates an interesting pedestrian realm.

b. Applicability

i. For all site plan and subdivision applications, street trees shall be provided along all streets to define the street and sidewalk and to unify areas with a distinct identity, in accordance with these regulations.

ii. These standards apply to trees planted along or near a County Road right-of-way (such that by their proximity are reasonably expected to impact the County Road ROW or infrastructure after reaching maturity) and to all development projects requiring County approval.

iii. Number of Tress. One (1) street tree shall be provided for every 30 feet of street frontage of the lot. Fractions equal to or greater than one-half (0.5) resulting from this calculation shall be considered to be one (1) tree. Such trees shall be planted at approximately equal intervals along the entire length of the curb of the roadway subject to these requirements.

iv. If determined by the County Engineer that physical conditions within the County right-of-way do not allow the safe and effective planting of the required trees, the Developer, upon approval of the Board and County Engineer, shall make a cash contribution to the Hudson County Shade Tree Fund to be used solely for the planting and preservation of trees. In arriving at the determination of such number of trees and the cash contribution, the Board shall take into consideration the written opinion of an expert provided by the applicant, and in the Board's discretion, an expert consultant selected by the Board. The costs of all experts shall be borne by the applicant. The cash contribution per tree shall be the estimated cost of purchasing and planting if it were to be planted on the site.

c. Tree selection

i. Only trees which exhibit the following characteristics shall be selected:

(a) native to New jersey;

(b) drought tolerant;

(c) urban tolerant

(d) suitable to thrive in the soil conditions on the site;

(e) tolerant of road salts;

(f) have root growth and crown shape that will not be physically intrusive to surrounding utilities or County roads and structures;

(g) adequate canopies at maturity to provide shade and rain absorption;

(h) and require low maintenance.

ii. Tree species shall be selected in accordance with their growth habit and environmental function. Commercial streets should have trees that compliment the building facade and shade the street and sidewalk. Residential streets should provide for an appropriate canopy that provides shade and serves as a visual buffer between the street and home.

iii. Trees shall be planted in groupings of similar varieties, although monoculture plantings are discouraged. Use trees of similar form, height and character along a roadway to promote uniformity.

iv. The minimum caliper of trees shall be 2.5 to 3.5 inches (based on American Association of Nurseryman standards). The caliper shall be measured at a point four (4) feet above the ground.

v. The mature height and spread shall be considered to ensure that it will not interfere with existing or proposed structures and overhead utilities.

vi. Selected trees shall not cause interference with walls, walks, drives, and other paved surfaces, or affect water and sewer lines or underground drainage systems or sight triangles.

vii. All trees shall be supplied by reputable nurserymen and planted in accordance with these regulations.

viii. Species may be selected from the list of approved trees provided in the *Hudson County Community Forestry Plan*.

ix. No tree planting approval will be issued without a two (2) year guarantee period.

e. **Spacing**

i. Spacing between trees shall be determined based upon species and the desired concept. Recommended spacing is 25 to 30 feet. Actual spacing may vary due to local conditions. Consideration will be made for bus stop locations. The maximum range is 25 to 45 feet to accommodate for variables such as streetlights, fire hydrants, underground vaults, bus stops…etc..

ii. Spacing of existing trees may determine the spacing standards for new street trees unless otherwise directed.

iii. Street trees may be inter-planted between existing street trees; however, the species should remain the same, or have similar growth habit and visual characteristics. Shade trees may vary from road to road.

iv. Street trees shall be spaced evenly along the street; however, if a specific effect is desired the trees may be massed at critical points or shall be a combination of both. If columnar trees are to be planted, the spacing may be closer. All tree spacing shall be subject to review and approval.

f. Planting location

i. Trees may not be planted such that their future growth will interfere with utility wires or other interference.

ii. Trees that grow taller than 35 feet should not be planted directly under power lines. When possible the tree leader shall be offset from power lines.

iii. All trees shall adhere to the following minimum planting distances for all utility or site infrastructure clearances:

(a) 10 feet from all buildings.

(b) 10 feet from streetlights, utility poles and above-ground utility wires.

(c) 3 feet from all underground utility lines.

(d) 10 feet from a fire hydrant and man-hole covers.

(e) 10 feet from all drain inlets, catch basins, and trench drains.

(f) 3 feet from the curbline or driveway.

(g) 10 feet from a stop sign.

(h) 25 feet from a street intersection.

iv. Within sight triangles, a single tree may be permitted only with site-specific approval of the Municipal Engineer. Such trees, including those at driveways, shall be of such size as will enable them to be immediately pruned up to seven feet height upon planting.

v. Consider the use of double and triple rows of street trees for special emphasis.

vi. Where on-street parking is provided, trees, shrubs and raised planters should be located as not to conflict with opening car doors or pedestrian access to and from on-street parking.

g. Planting Specifications

i. Trees shall be planted in tree pits or within a planting strip, in accordance with these requirements. Construction specifications for tree planting are provided in Figure VII-8 and Figure VII-9 below.

ii. Tree planting pits should be as large as possible to allow for ample growing space for tree roots and crown. The overall width of a sidewalk can limit the size of a tree pit. The minimum width of a tree pit in the sidewalk area is 5 feet.

iii. Consider using continuous planting strips as opposed to individual tree pits, where ever possible.

iv. Trees shall be properly planted in accordance with accepted horticultural standards; the standards and construction details used shall be submitted with the application and plans.

v. A protective root barrier shall be installed to a depth of eighteen (18) inches within the planting bed, between the sidewalk and curb.

vi. Depending on the size of the tree, staking of trees is not recommended unless required by the County Engineer or Inspector.

vii. A prepared planting medium shall be used that is capable of permitting the percolation of water and air.

viii. The surface of the planting area shall be mulched with wood-chips, or other suitable material to conserve soil moisture. Mulch shall be applied to a uniform depth of three (3) inches and shall be so distributed as to create a smooth, level cover over the exposed soil. A gap of approximately 2" should be left between the mulch and the trunk of the tree to avoid mounding above the trunk flare and to avoid the “mulch volcano.”

ix. On site irrigation methods shall be specified. Water hose locations shall be convenient and underground irrigation shall be provided if deemed appropriate and suitable.

x. The use of tree grates in areas with considerable commercial and pedestrian activity may be used as an alternative to tree pits, only where absolutely necessary and considered as a temporary structure with a 5-10 year life span. Only ADA compliant tree grates shall be permitted, as well as those that allow for radial expansion as the tree grows.

xi. During construction, protective barriers shall be installed around each plant and/or group of plants that are to be retained within the county right-of-way. Barriers shall be self-supporting and shall not be attached to the vegetation being protected. Barriers shall be a minimum of four (4) feet high and constructed of highly visible orange plastic mesh that is durable and that will last until construction is completed.

h. Tree Removal

i. No person shall remove any deciduous tree having a caliper of six (6) inches or greater or any coniferous tree having a height greater than nine (9) feet unless authorized by the Board.

ii. Every reasonable measure shall be taken to avoid the removal of deciduous trees with a caliper in excess of 24 inches and coniferous trees with a height in excess of fifteen (15) feet.

i. **Tree Replacement**

i. Any tree removed as a result of a site plan or subdivision application subject to County approval shall be replaced with a new tree at a ratio of one (1) new tree for every six (6) inches in diameter of existing tree removed, with a minimum caliper of three (3) inches.

ii. Developers are required to preserve as many of the existing trees as practical.

iii. Any planted tree that is dead or, in the opinion of Board, is in an unhealthy or unsightly condition, and/or has lost its natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or other causes including vandalism, prior to final acceptance, shall be replaced in the next planting season. There shall be a two (2) year guarantee on trees commencing after the final inspection of the permitted planting. The topsoil in the tree pit shall be changed when any replacement tree is planted.

iv. Where dead trees have been identified, whether due to natural causes or vandalism, the dead material shall be removed by the property owner, including stakes, and Arbor Tie within three (3) weeks of notification. When necessary, topsoil, grass seed or appropriate

paving material shall be added to the pit by the property owner to eliminate potential tripping hazards at the time of removal.

v. Where vandalism or related causes are agreed as the cause for tree replacement, the applicant or property owner shall be responsible for one replacement during the two (2) year guarantee period after final inspection of the permitted planting.

j. Maintenance

i. Maintenance of new trees shall be the responsibility of the adjoining property owner unless provided by the municipality.

ii. Maintenance shall include weeding, cultivating, edging, pruning, adjustment and repair of stakes, and Arbortie™, repair of minor washouts, soil replacement and other horticultural operations necessary for the proper growth of all trees, and for keeping the entire area within the planting area neat in appearance.

k. Time of Guarantee

All trees shall be guaranteed for a period of two (2) years from the date that all improvements are accepted as complete. Both the planting of and the two (2)-year guarantee for trees shall be covered under the developer's performance security for the road and/or drainage improvements.

l. **Finishing**

i. Paving blocks or tree pit guards shall be installed as finishes, and shall be designed to.

(a) Prevent dogs from depositing waste on tree trunks and in tree pits;

(b) Prevent pedestrians from stepping on the soil in the pit;

(c) Allow for the planting of flowers and ground covers in the pit;

(d) Protect a tree from mechanical damage caused by car doors, bumpers, bike locks, and other sidewalk traffic.;

(e) Prevent chemical, salt and other toxins from flowing into the tree pit.

ii. A tree pit guard must not:

(a) Restrict the growth of a tree.

(b) Raise the level of soil around the tree.

(c) Pose a trip hazard to pedestrians.

iii. Paving Blocks Design

Granite blocks shall be new or used and shall be cut from fine to medium grained sound and durable granite. The granite shall be reasonably uniform in quality and texture throughout and shall be free from an excess of mica and feldspar and from seams, scales or evidence of disintegration. If used blocks are utilized they shall be clean, free from mortar, asphalt, etc.

Blocks shall be fairly rectangular in shape. Granite blocks shall be so dressed that they may be laid with one (1) inch joints (See Figure VII-10).

iv. Tree Pit Guard Design

A tree pit guard is a device, usually a cast-iron fence or wrought-iron wickets, installed around a tree pit for protection. A low cast-iron fence or wrought-iron wickets from 18" to 30" high, around the perimeter of the tree pit are recommended. This will protect the tree from dogs and pedestrians and give it enough space to grow for many years. Guards should not be installed close to tree trunks as they strangle the tree as it grows and fail to protect the root zone. Guards are not appropriate for areas where car doors may swing into them (See Figure VII-10).

Figure VII-8
Tree Pit Guard and Paving Block Protection Approaches

Vegetated tree pit with brick paving blocks

Iron fence with an opening for car doors

Wrought Iron wicket fence elevated on granite curb with opening for car doors.

Iron fence elevated on granite blocks to protect the tree and allow room for growth

m. Resources

General methods, advice, and recommendations can be found in “Trees for New Jersey Streets”, New Jersey Federation of Shade Tree Commission, Blake Hall – Rutgers College of Agriculture and Environmental Science, New Brunswick, New Jersey, 1965.

Figure VII-9
Tree Planting Detail

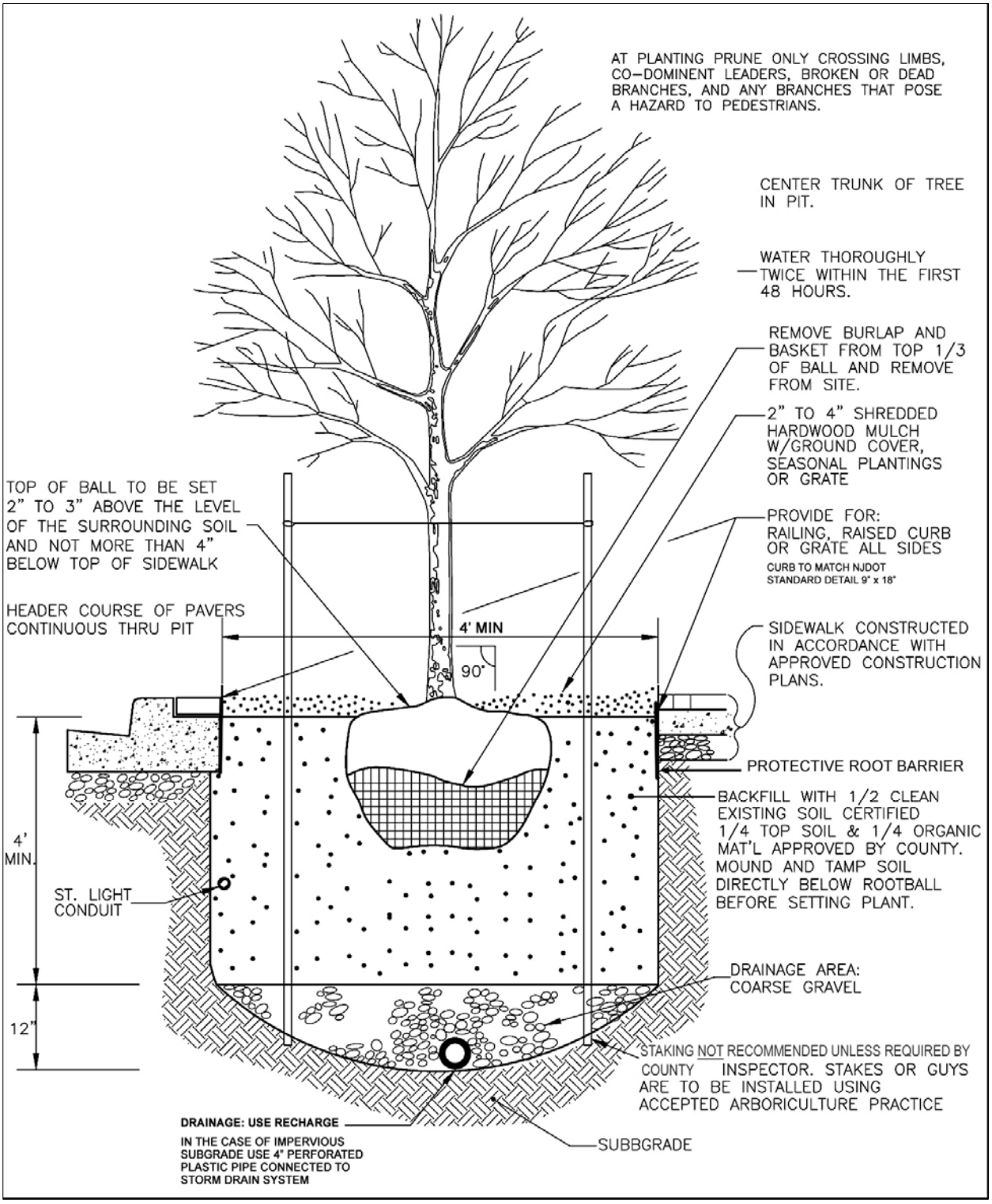
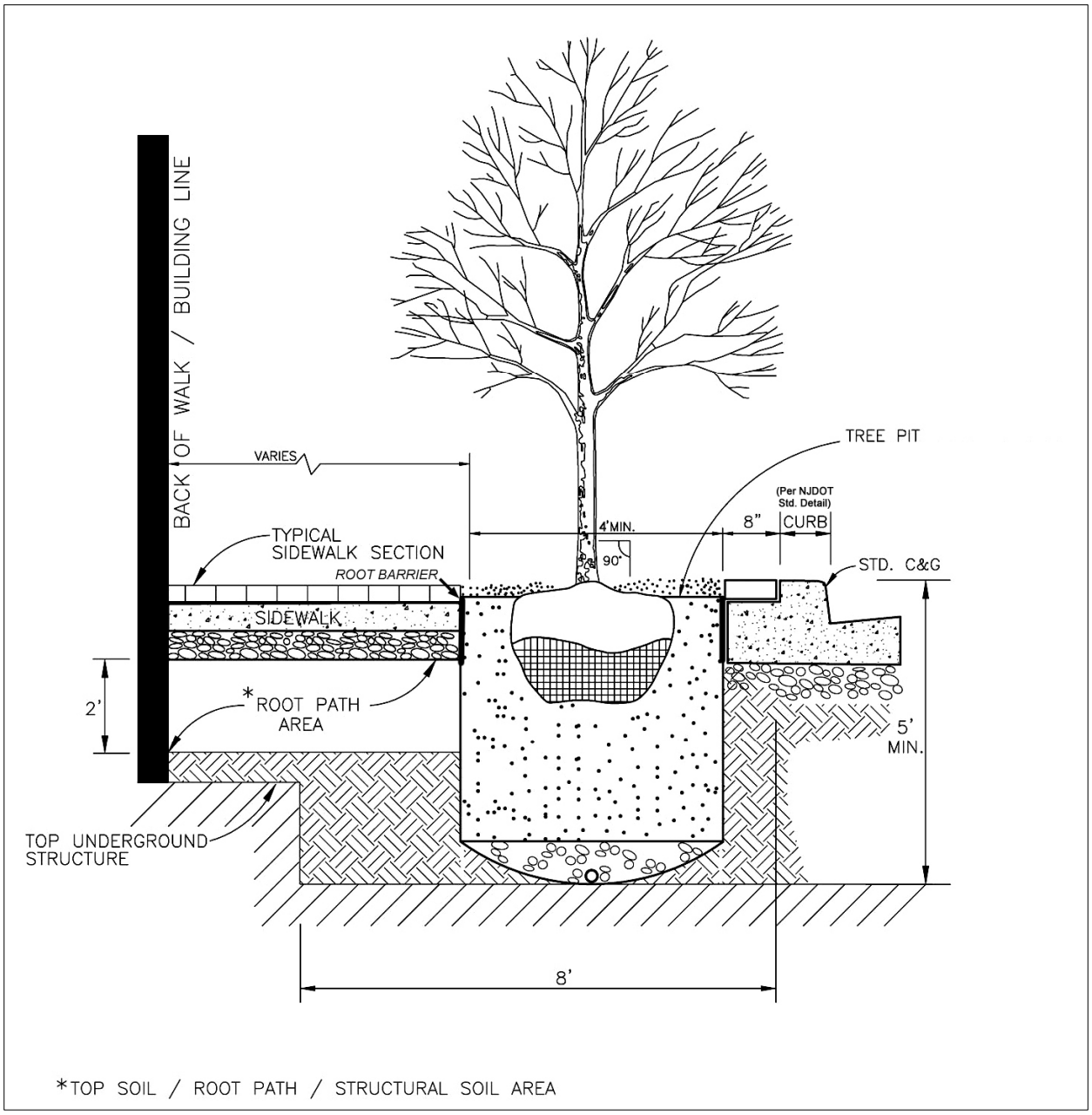


Figure VII-10
Tree Pit Detail



16. Roadway Lighting

a. All lighting shall be sufficiently illuminated to ensure traffic safety under all weather conditions.

b. 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.

c. 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.

d. Systems should be designed to minimize energy use while meeting the lighting requirements in these regulations, as well as the requirements of the municipality and NJDOT.

e. The lighting design, including fixture, lamp and luminaire selection, number of fixtures per pole, pole height and placement, and adequacy of shielding should produce high lumens per watt, have high energy efficiency, uniform light distribution, minimized glare, light trespass control and aesthetic considerations.

f. An excessive number of fixtures and lamps per pole can create a glare problem and should be avoided to prevent excessive energy-charges and maintenance. Fixtures should be limited to one or two per pole.

g. 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 spacing guidelines.

h. Lighting should illuminate storefronts, points of interest, and building facades.

i. Decorative/ornamental luminaires should be used where buildings are close to the street and sidewalk to provide an attractive appearance and to limit up-light. They should be mounted poles at heights between ten (10) and twenty (20) feet. The selected luminaire should be of a style, color and finish that match the architectural features of the streetscape. Decorative luminaries should meet the following criteria:

   i. Lamp type: 150 watt Metal Halide

   ii. Lamp lumens: 12,000 lm

   iii. Minimum luminaire efficiency: 66%

   iv. Color rendering index: 65 or higher

   v. Luminaire lumens between 75^{o} and 90^{o}: < 3percent

j. Proposed lighting should be selected to be consistent with existing lighting styles, where appropriate.

k. The applicant shall be responsible for the installation and maintenance of decorative street lighting along the property's frontage.

17. Street Furniture

The placement of street furniture in the County right-of-way, as defined in this Resolution, shall be encouraged subject to Planning Board approval of its location, style, type, color and design, and subject to the following conditions:

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 fines at any intersection.

j. Street furniture shall not be utilized as or for 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.

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.

19. Cross-walks and Pedestrian Signals

a. Crosswalks shall be provided in heavy pedestrian crossing areas and may be required at the discretion of the County Engineer.

b. Crosswalks shall be planned, designed and installed to conform to the specifications in the Manual on Uniform Traffic Control Devices (MUTCD).

c. Detectable pedestrian warning systems shall be provided in accordance with MUTCD requirements. Pedestrian countdown signals and call buttons must also be provided.

d. Accessible Pedestrian Signals (APS) shall be provided in accordance with PROWAG and ADA standards.

e. 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.

20. Bikeways

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. Bikeways should be provided to link facilities on a site and to provide access to adjacent uses.

c. The construction of bikeways shall conform to the current version of NJDOT's *Planning and Design Guidelines for Bicycle Compatible Roadways and Bikeways* and the AASHTO *Guide for the Development of New Bicycle Facilities*, incorporated herein by reference.

d. Minimum pavement widths shall account for Average Daily Traffic (ADT), design speed, grade, and the presence of on-street parking as recommended by NJDOT.

e. Bikeways may take the following forms, as approved by the County Engineer:

i. Bicycle lanes at the edge of streets reserved and marked for the exclusive use of bicycles.

ii. Shared lanes which are designed to accommodate the shared use of the roadway by bicycles and motor vehicles.

iii. Shoulder lane within the right-of-way at widths that can safely accommodate bicyclists.

f. The Board may require increased widths to accommodate sight distances, truck, traffic, steep grades or traffic calming measures.

g. Bicycle-safe drainage grates shall be used in the construction of all streets.

21. 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.

22. Medians and Islands

a. Where a subdivision or site plan is expected to generate a large amount of traffic or creates a traffic safety hazard, the County Engineer may recommend that the land developer prepare plans, specifications, and construct a traffic control island to facilitate the safe and expeditious movement of traffic exiting and entering the land development. Such islands may serve as pedestrian safety islands or traffic channelization islands. In all cases, the islands are to be designed, signed, illuminated and marked in accordance with current editions of the Manual of Uniform Traffic Control Devices and "A Policy on Geometric Design of Highways", and all subsequent amendments thereto, subject to the approval of the New Jersey Department of Transportation.

b. Medians and islands shall be landscaped unless otherwise directed by the County Engineer.

c. Landscaped medians and islands shall be a minimum width of four (4) feet, as measured from the back of the curb. If large trees are to be planted in landscaped medians or islands, these medians or islands shall be a minimum of ten (10) feet in width measured from the back of curb, and include a minimum of 200 square feet of soil surface area per large tree.

d. All landscaped islands and medians shall receive a minimum of 6 inches of topsoil over finished subgrade, and shall be graded to provide adequate drainage.

e. Subsurface drainage may be recommended for landscaped medians and islands at the discretion of the County Engineer.

23. Traffic Control and Traffic Calming

Traffic control measures may include signals, pavement markings, signage and curbed islands.

a. The Planning Board may require installation of traffic control measures at driveways and intersections depending on the need as determined by the County Engineer and based upon the Traffic Impact Report as required by these regulations.

b. All traffic control measures shall be provided by the applicant and shall conform to the *Manual of 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.

d. Traffic calming measures shall be required at the discretion of the County Engineer and constructed in accordance with current NJDOT Standards and Details.

24. 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 or due to hazardous and safety reasons, and the New Jersey Department of Transportation authorizes the design and installation of such signal.

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 New Jersey Department of Transportation. This also applies to pull boxes conduits, cabinets and other constituent parts of traffic signals and electrical sign installations.

25. Guide Rail

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

26. 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 the electrical code of the municipality 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.

27. 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 shall be provided in accordance with New Jersey RSIS Standards (NJAC 5:21-4.14 through 4.16). Where a municipality in Hudson County has adopted Special Area Standards for residential parking, and those standards have been approved by resolution by the State Site Improvement Advisory Board, the municipal Special Area Standards for parking shall apply.

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 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.

(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.

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

iv. 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.

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.

28. Public Transportation

a. All roads should be designed to handle the needs of public transportation vehicles including weight and turning movement requirements in accordance with current NJDOT Standards and Details.

b. Transit facilities

i. The County Planning Board, with the advice of Transit providers, may require the applicant to provide facilities to support/encourage transit use, including the construction of bus turnouts/pullouts, bus lanes, bus shelters and provisions for transit information.

ii. Exclusive bus lanes, entrances and exits should be provided when traffic volumes warrant such facilities.

iii. Bus turnouts and pullouts shall be designed in accordance with current NJDOT Standards and Details and current NJ Transit standards.

iv. 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.

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

vi. 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 proved between the bus shelter and the buildings, if applicable.

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

c. Rail Stations

i. Improvements at commuter rail stations proximate to the applicant's development may be required at the discretion of the County Engineer.

ii. Improvements to rail stations can include expanding or repaving parking areas, lengthening platforms, rail patron amenities, station access improvements or similar projects, and shall be built in accordance with the NJ Transit Station Design Guidelines.

iii. Station amenities and architectural treatments shall be consistent with the aesthetics and motif of the subject rail station.

29. 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; 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.

30. Right-of-way (ROW) Dedication

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.

31. Other Easements

a. 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.

b. 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.

c. 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.

d. The county engineer on behalf of the Hudson County Planning Board, may recommend to the Board of Chosen County Commissioners 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.

Section VIII
Design Standards: Stormwater Management

A. Findings of Fact

It is hereby determined that:

Land development projects and associated increases in impervious cover alter the hydrolic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition;

This stormwater runoff contributes to increased quantities of water-borne pollutants, and;

Stormwater runoff, 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

1. The purpose of this Resolution 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. This Resolution seeks to meet that purpose through the following objectives:

2. 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;

3. Minimize increases in nonpoint source pollution caused by stormwater runoff from development which would otherwise degrade local water quality

4. 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.

5. 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.

6. Encourage the widespread use of stormwater best management practices (BMPs) and green infrastructure as a primary technique for stormwater management.

7. Reduce or eliminate the number and frequency of Combined Sewer Overflow events.

8. Reduce or eliminate the number and frequency of Combined Sewer Overflow events.

9. Protect

C. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued for subdivisions and site plans pursuant to this Resolution 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 this Resolution shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare.

This Resolution is 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 this Resolution imposes 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 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 this Resolution.

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. 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 this Resolution 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 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 including: Hec 1, Hec 2, Hec12, Hec Ras, TR-20, and TR-55. Other methods may be accepted at the discretion of the County Engineer.

10. An Urban Runoff Mitigation Plan as specified by this Resolution and detailed data, illustrations, and calculations for provided use of non-structural BMPs.

11. A Maintenance Plan 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 this Resolution.

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.

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 are not increased 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 3 days.

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 transport suspended solids in such a manner that deposits in the sewer are kept to a minimum.

3. Design Formulas

a. Rainfall intensity shall be taken from the current NJDEP "Rainfall Intensity Curves for Hudson County". 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 current NJDEP Standards.

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 stated the following table.

Table VIII-1 Open Channel Flow Permitted Velocities	
Soil Type (Feet Per Second)	**Allowable Velocities**
Sands	1.8
Sand loam (noncollodial)	2.5
Silt loam (also high loam clay)	3
Sandy clay loam	3.5
Clay loam	4
Clay, fine gravel,(graded loam to gravel)	5
Cobbles	5.5
Shale	6
Concrete lined ditch	10

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 overts 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 echo 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. Stream Encroachment & Wetlands Permits.

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 stream encroachment permit from the NJDEP. A copy of said application shall be forwarded by the applicant to the County Engineer. Stream encroachment 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 Control.

a. The stormwater runoff resulting from the development of a site for the 2, l0, 25 and l00 year storm events shall be controlled so that the pre-development peak flow rates and velocities from the site onto downstream properties, watercourses, and/or drainage systems is not increased at or downstream of the point of discharge.

b. If a Stormwater Management Plan for the region or watershed containing the watercourse affected by a proposed development has been adopted by the County, the applicant shall design the project and its stormwater management facilities to conform to that plan.

c. The applicant shall provide for on-site detention facilities such that the development's post-project construction peak runoff for the two (2) year storm event is 50 percent of the pre-project construction peak runoff rate and; the post-project construction peak runoff rates for the 10 and 100 year storm events shall be 75 and 80 percent, respectively, of the pre-project construction peak runoff rates. These percentages only apply to the portion of the post-project runoff from the site under development. Off-site runoff may be computed at 100 percent of the pre-project rate.

d. The design storms used to achieve the required level of site runoff control described in these standards shall be defined by the current NJDEP 24-hour storm using the rainfall distribution. A 20 acre drainage area shall be the maximum used for the modified rational method unless otherwise approved by the County Engineer or as designated in the Standards adopted under the Site Improvement Act (N.J.S.A. 40:55D-40.1 et. seq).

e. The design engineer should provide controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:

   i. Site design features that help to prevent accumulation of trash and debris in drainage systems.

   ii. Site design features that help to prevent discharge of trash and debris from drainage systems.

   iii. Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and

   iv. When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

2. Water Quality.

a. 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.

b. 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.

c. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80 percent of the anticipated load from the developed site, expressed as an annual average. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall

take into account the distribution of rain from the water quality design storm, as reflected in Table VIII-2.

Table VIII-2:
Water Quality Design Storm Distribution

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
0	0	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.05
15	0.025	80	1.084
20	0.05	85	1.117
25	0.075	90	1.15
30	0.1	95	1.175
35	0.133	100	1.2
40	0.166	105	1.225
45	0.2	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.25
60	0.625		

d. For purposes of TSS reduction calculations, Table VIII-3 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from on the Department's website at www.njstormwater.org. The TSS reduction shall be calculated based on the removal rates for the BMPs in the Table below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, New Jersey, 08625-0418.

e. If more than one BMP in series is necessary to achieve the required 80 percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

R = A + B – (AXB)/100

Where

R = total TSS percent load removal from application of both BMPs, and

A = the TSS percent removal rate applicable to the first BMP

B = the TSS percent removal rate applicable to the second BMP

Table VIII-3
TSS Removal Rates for BMPs

Best Management Practice	TSS Percent Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See N.J.A.C. 7:8-5.7(c)
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

f. If there is more than one onsite drainage area, the 80 percent TSS removal rate shall apply to each drainage area, unless the runoff from the sub-areas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

g. Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards.

h. Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual.

3. 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 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.

4. Water Quality Design Storm

a. All runoff within the water quality design storm cited in N.J.A.C. 7:8-1.1 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.

5. Design Standards for Detention Facilities

a. The following types of stormwater shall 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 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

c. 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.

d. Stormwater management facilities design and construction shall be in conformance with the current NJDEP or Soil Erosion and Sediment Control Act. Standards, which ever is more stringent.

e. Multiple storm events and overland relief must be evaluated for all detention/retention facilities.

f. Side slopes of the facilities should not exceed 3:1 ratios.

g. 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.

h. 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.

i. 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.

j. A drainage easement shall be provided for all detention/retention basins and other related facilities for the purpose of access and maintenance.

k. 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

l. The design, construction of the above named detention/retention facilities shall comply with the Current NJDEP Stormwater Management Regulations.

m. 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.

n. 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.

o. 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.

p. 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.

q. 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.

1. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin.

2. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management basins. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management basins to be retrofitted to meet one or more of the safety standards below for trash racks, overflow grates, and escape provisions at outlet structures.

3. Requirements for Trash Racks, Overflow Grates and Escape Provisions

   a. A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management basin to ensure proper functioning of the basin outlets in accordance with the following:

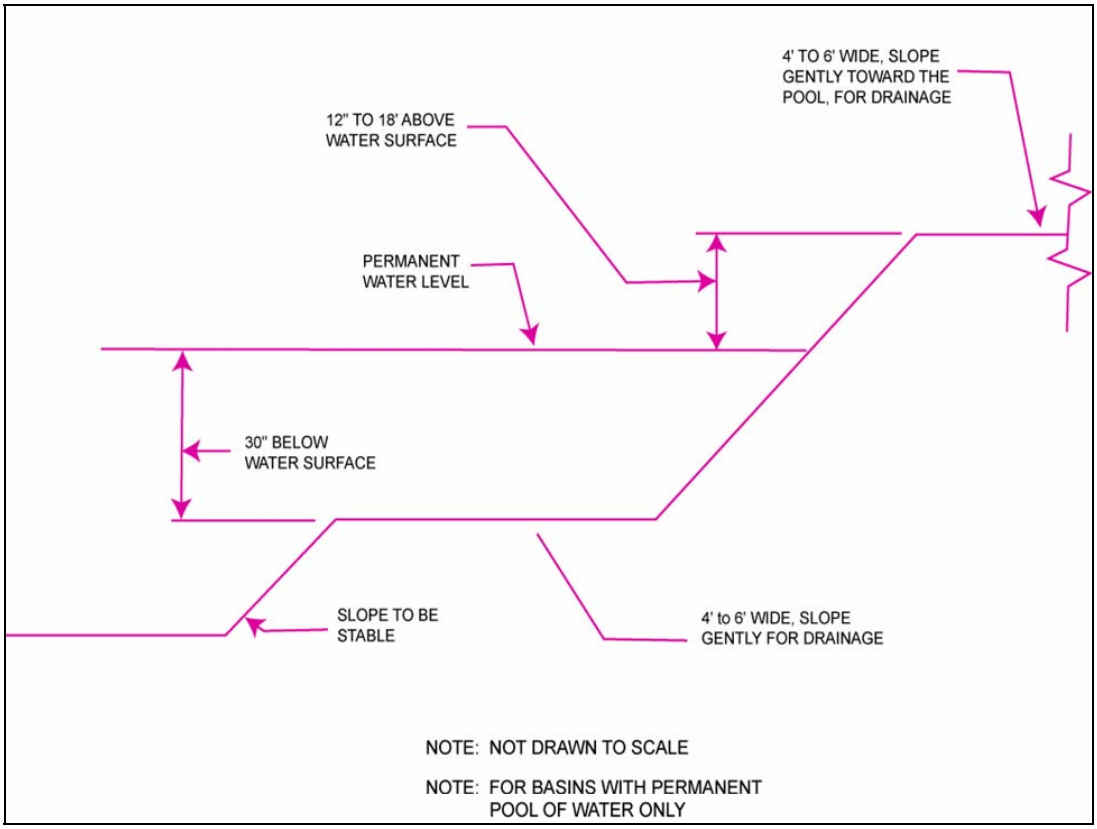
      i. The trash rack shall have parallel bars, with no greater than six inch spacing between the bars.

      ii. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

      iii. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

      iv. The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs/ft sq.

Figure VIII-1
Elevation View of Safety Ledges in a New Stormwater Management Basin.



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 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.

U. Maintenance

1. Detention/retention facilities which are required by the County due to drainage impacts on County facilities shall, as a condition of subdivision/site plan approval, submit proof of a maintenance agreement to the County Engineer and Planning Board for review and approval. After approval of the maintenance agreement, a copy will be placed on file in the County Engineer's office or some other appropriately designated location.

2. The maintenance agreement shall provide a program and schedule to include:

    a. Grass mowing (no higher than 2 inches)

b. Removal of debris from basin, trash rack, channel and culverts.

c. Name, address, and phone number of individual, company, or government.

d. Agency responsible for maintenance of the detention/retention facility.

e. Responsible party shall periodically inspect the basin capacity.

f. Set limits for silt accumulation after which time responsible party shall remove.

g. Dispose of silt in order to maintain the storage capacity of the facility.

V. Green Infrastructure

1. All subdivisions and site plans subject to County approval shall include the use of green infrastructure and non-structural best management practice (BMPs) to the maximum extent possible.

2. Each application for development must implement a minimum of two (2) infrastructure or non-structural BMP techniques.

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 energy demands for air conditioning, thereby decreasing emissions from power plants.

   x. Improve air quality with trees and vegetation that absorb certain pollutants from the air through leaf uptake and contact removal.

   xi. Protect wildlife habitats and create additional open space by providing greenways, wetlands, vegetated swales, parks, etc.

   xii. Improve human health and quality of life.

xiii. Increase surrounding property values.

xiv. 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, and reduce the amount of directly connected impervious surfaces.

   b. The selected on-site BMP techniques should address three (3) main factors: flow control, runoff pollution prevention and stormwater treatment.

   c. Best Management Practices (BMPs) shall be selected, designed and implemented so that the post-development peak discharge rate, volume and pollutant loading to receiving waters must meet the requirements listed herein.

   d. The applicant shall identify how each of the nine (9) nonstructural strategies identified in Subchapter 5 of the NJ Stormwater Management Rules (N.J.A.C. 7:8-5) and set forth in these regulations will be incorporated into the design of the project to the maximum extent practicable.

   e. If the applicant contends that it is not practical for engineering, environmental or safety reasons to incorporate any of the nine (9) nonstructural strategies into the design of a particular project, the applicant shall provide a detailed rationale establishing a basis for the contention that use of the strategy is not practical on the site.

   f. Where available, the design of the selected BMPs shall comply with standards in the NJDEP Stormwater Best Practices Manual.

5. Urban Runoff Mitigation Plan

   a. 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 Hudson County Department of Engineering.

   b. The Urban Runoff Mitigation Plan shall include the following information:

      i. A 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 of this Resolution.

      ii. A narrative explaining how the selected combination of design elements will adequately provide pretreatment, treatment, conveyance, maintenance reduction, and landscaping.

      iii. An explanation as to how the design will meet each of the Policies and Performance Requirements as stated above.

      iv. A showing that the stormwater management design elements include an appropriate combination of non-structural Best Management Practices, so long as the required projected runoff infiltration treatment is achieved. The Plan shall show how the design:

         (a) Utilizes permeable areas to allow more infiltration of runoff into the ground through such means as Biofiltration, Filter strips, Swales, Infiltration trenches, Green roofs and/or Permeable pavement, and/or,

(b) Directs runoff to permeable areas and/or utilize stormwater storage for re-use or infiltration by such means as:

(1) Orienting roof runoff towards permeable surfaces, drywells, French drains, or other Best Management Practices (BMPs) rather than directly to driveways or non-permeable surfaces so that runoff will penetrate into the ground instead of flowing off-site.

(2) Grading impervious surfaces to direct runoff to permeable areas, utilizing level spreaders or other methods to distribute the impervious runoff over pervious surfaces.

(3) Using cisterns, retention structures, or rooftops to store precipitation or runoff for re-use.

(4) Designing curbs, berms, or the like so as to avoid isolation of permeable or landscaped areas.

v. A plan for the maintenance of all BMP's requiring on-going maintenance.

vi. 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 the requirement to submit an Urban Runoff Mitigation Plan may be issued by the Board or County Engineer if the petitioner shows impracticability of implementing these requirements. Recognized circumstances demonstrating impracticability include:

i. Extreme limitations of space for treatment.

ii. Unfavorable (i.e., hydrologic soil group "D" soils) or unstable soil conditions at a site to attempt infiltration; and

iii. 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. If a waiver is granted for impracticability, the petitioner will be required to transfer the savings in cost, as determined by the County Engineer to a County stormwater mitigation fund to promote regional or alternative solutions for urban runoff pollution in the storm watershed, which may be operated by a public agency or a non-profit entity.

g. No building permit or other planning approval shall be issued until an Urban Runoff Mitigation Plan has been approved by the Board or County Engineer.

6. Permitted Green Infrastructure BMP Methods.

    a. Selected green infrastructure or stormwater Best Management Practices (BMPs) can include, but are not limited to the use of land compatible design, natural landscaping, better parking lot design, bioretention swales, permeable pavers, rain barrels and cisterns, and green roofs, as outlined in Appendix G, Green Infrastructure/BMP Methods.

    b. Additional methods of green infrastructure or stormwater Best Management Practices (BMPs) may be considered by the applicant, subject to the review and approval of the County Engineer.

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 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 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 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 this Resolution, 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.