BERGEN COUNTY STANDARDS FOR SUSTAINABLE LAND DEVELOPMENT

SITE PLANS

Adopted June 6, 2018

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SECTION I
DEFINITIONS

AADT (Average Annual Daily Traffic): The total yearly volume divided by the number of days in the year.

AASHTO: American Association of State and Highway Transportation Officials.

ABUTTING COUNTY ROAD: Any existing or proposed County road shown on the adopted Map of Bergen County Required Road Right-of-Way Widths or Official Map that adjoins a lot or parcel of land submitted for approval under this Ordinance.

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 that will allow entering vehicles to merge safely with through traffic.

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

ADA: Americans with Disabilities Act (see PROWAG).

ADT (Average Daily Traffic): The total volume during a given time period in whole days greater than one day and less than one year divided by the number of days in that time period.

ADVERSE EFFECT: 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 Bergen County, will cause the carrying capacity and/or safety of the County road, County drainage structure, County drainage facility or buildings and lands owned or maintained by Bergen County to be diminished beyond the standards established in this Ordinance.

ADVERSE DRAINAGE CONDITION: Exists when due to the absence or inadequacy of drainage facilities of such size, design, location, construction or condition, in a drainage way leading to, along, or through a County road or County drainage structure within or exterior to a proposed site development, 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.

AGRICULTURAL PURPOSES: Farming and related pursuits not including the erection, alteration, enlargement, occupancy or any use of any building designed or suitable for residential occupancy except as related to the agricultural enterprise.

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: The owner or any other individual, firm association, syndicate, co-partnership or corporation having a proprietary interest to commence and maintain proceedings for site plan review pursuant to municipal ordinance and the standards contained herein. The term "DEVELOPER" may include an APPLICANT.

APPLICATION SUBMISSION FOR DEVELOPMENT: The application form, drawings, and all accompanying documents required by this Ordinance for approval of a site plan.

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

AQUIFER: A geologic stratum containing groundwater.

AS-BUILT DRAWINGS: Sealed plans that provide an accurate record of project conditions after construction has been completed.

ASCE: American Society of Civil Engineers.

AVERAGE DAILY TRAFFIC: see ADT.

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 also be used as a temporary safety device.

BARRIER FREE DESIGN: The design of facilities to eliminate physical obstacles for the physically handicapped in accordance with the Americans with Disabilities Act (ADA).

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): Nonstructural strategies and structural facilities used individually or in combination to manage stormwater runoff and/or infiltration in order to achieve the County's stormwater goals in the most effective and practicable manner.

BICYCLE COMPATIBLE ROADWAY (BCR): A road designed to accommodate the shared use of the roadway by bicycles and motor vehicles, including streets designed for a target speed of 25 mph or slower.

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

BICYCLE NETWORK: A continuous network consisting of any combination of physically designated bicycle lanes, bicycle paths, bikeways or BCR's.

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 that 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.

BIORETENTION SWALE: A gently sloped, vegetated swale designed to allow and treat on-site stormwater runoff through a number of physical, chemical and biological processes.

BIORETENTION BASIN: A landscaped depression or basin used to slow and treat on-site stormwater runoff through a number of physical, chemical and biological processes.

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

BRT: Bus Rapid Transit.

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.

BUFFERING: The area of open land that serves to mitigate potential conflicts between different types of land uses. Buffer zones are the most commonly employed between different types of uses but, in certain circumstances, it may be appropriate to provide a buffer between high and low density residential uses.

BULKHEAD: A vertical structure or partition, placed on a bank or bluff and usually running parallel to the shoreline, for the purpose of retaining upland soils while providing protection of the inland area from wave action.

CAR SHARING: A Best Practice for reducing Vehicle Miles Traveled (VMT) and the size of parking areas by the provision of a motor vehicle that can be reserved by the hour or day with or without the payment of a fee, in a designated space.

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: An open structure that collects rainwater and serves as an entry point to the storm drain system.

CENTERLINE: The surveyed center of the County right-of-way.

CERTIFICATE OF OCCUPANCY (CO): A written certification by the appropriate official of a municipality before a building may be inhabited or used.

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

CHANNELIZATION: The creation of new channels and the straightening, deepening, reshaping, and/or lining of existing channels to increase their flow capacity and/or velocity and/or to modify their flow direction.

CIRCULATION: Systems, structures and physical improvements for the movement of vehicles, people, goods or water.

CLEARING: Any activity that removes the vegetative surface cover including the stripping, grubbing and storage or removal of topsoil.

CLUSTER DEVELOPMENT: See residential cluster.

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.

COMPLETE APPLICATION: An application for site plan approval, which includes all of the information, fees, drawings and accompanying documents, required by this Ordinance for formal review.

CONCEPT PLAN: A preliminary presentation and attendant documentation of a proposed site plan of sufficient accuracy to be used for the purpose of discussion and comment.

CONDITIONAL APPROVAL: A preliminary approval of a site plan that must meet requirements and conditions as stipulated by the Planning Board prior to receiving final approval.

CONNECTIVITY: A measure of ease of mobility between a development and the surrounding street network and expressed as intersections per square mile, inclusive of public streets, alleys and bicycle networks.

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.

CONSTRUCTION EASEMENT: The temporary assignable rights and restrictions required for purposes of road widening, drainage, or sight distance improvements, or the modifications of the existing grade, and expiring upon completion of the construction.

COUNTY DRAINAGE FACILITY: A physical entity, device, or structure that safely and efficiently collects, conveys, and/or discharges stormwater. Includes, but is not limited to, dams, bridges culverts, headwalls, curbs, gutters, inlets, catch basins, ditches, swales, pipes, pumps and related types of structural facilities that provide for the drainage of stormwater and for which the County is responsible for construction, maintenance and/or proper functioning. See also DRAINAGE FACILITY.

COUNTY STORMWATER MANAGEMENT FACILITY: A physical entity, device, or structure that safely and efficiently restores, attenuates, reduces, recharges and/or treats stormwater. Includes, but is not limited to, basins, swales, filters and related types of structural facilities that provide for the management of stormwater and for which the County is responsible for construction, maintenance and/or proper functioning. See also STORMWATER MANAGEMENT FACILITY.

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 County 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 PARKS: Parks that provide outdoor recreation facilities that often provide specialized or unique facilities such as golf courses, equestrian centers, tennis centers, large group facilities and, ballfield sport complexes that serve the County.

COUNTY ROAD: A road that is under the jurisdiction of the County of Bergen as shown and listed on the Official County Map adopted by the County Board of Chosen Freeholders.

COUNTY ROAD RIGHT-OF-WAY CLASSIFIACTION MAP: A map showing the proposed right-of-way for each county road.

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

CROSS SECTION: A diagram of the vertical cut through of a road, showing the median pavement, cross slope, number of traffic bearing lanes, sidewalks, curbs and right-of-way.

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 conduit with a span of five to twenty feet, designed for the purpose of conveying an open channel watercourse under a road, highway, pedestrian walk, railroad embankment, or other type of overhead structure.

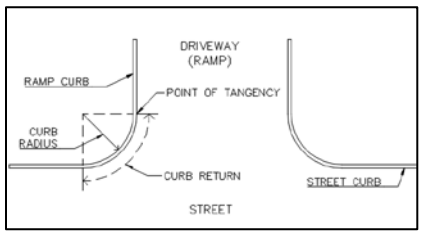
CULVERT EASEMENT: An easement to allow access to property by the County or its agents for the construction, repair and/or maintenance of a culvert and its ancillary facilities.

CURB: A vertical or sloping edge of a roadway, paved area, concrete, or other improved boundary marking material. See also, Barrier Curb, Mountable Curb.

CURB CUT: The opening along the curb line at which point vehicles may enter or leave the roadway.

CURB RAMP: That section of the pedestrian access route that connects the sidewalk and curbcut for the pedestrian crossing.

CURB RETURN: Curbing along the radius of a road or driveway opening that extends from a point tangent to the adjacent traveled lane, paved shoulder, acceleration or deceleration lane to a point tangent to the road or driveway lane.



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 roadway to make the necessary reduction in speed without interfering with the free movement of through traffic.

DEDICATION: The transfer of property rights from private to public ownership. Land so conveyed to the County may be used, but not limited to, streets, parks, and stormwater drainage. The governing body must formally accept the dedication for the transaction to be complete.

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 STANDARDS: Standards that set forth specific improvement requirements.

DETENTION BASIN: A constructed or natural stormwater surface or subsurface management facility that provides temporary storage and controlled release of stormwater runoff through an outlet structure.

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. The term "APPLICANT" may include DEVELOPER.

DEVELOPMENT: The construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any building or other structure, or of any excavation or landfill.

DEVELOPER'S AGREEMENT: A contract negotiated between the County and the developer setting forth the rights, duties and obligations of both parties with regard to a particular 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: 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 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.

DEVELOPMENT REVIEW TEAM (DRT): A team of County professionals that meets regularly to review submitted site plans in accordance with the standards and criteria established in this Ordinance. This team may be comprised of representatives from the Department of Planning and Engineering, the attorney to the County Planning Board, and other County professionals.

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 collection, conveyance, and discharge of water by drains, grading, inlets, channels, swales, conduits, channels, and/or other structural drainage facilities.

DRAINAGE AREA: The size of a watershed's area. Also used as a substitute term for WATERSHED, particularly ones of smaller size.

DRAINAGE FACILITY: A physical entity, device, or structure that safely and efficiently collects, conveys, and/or discharges stormwater. Includes, but is not limited to, dams, bridges, culverts, headwalls, curbs, gutters, inlets, catch basins, ditches, swales, pipes, pumps and related types of structural facilities that provide for the drainage of stormwater.

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 watercourse in order to preserve the channel and provide maintenance and to allow for the free flow of stormwater therein to safeguard the public against flood damage.

DRAINAGE SYSTEM: Natural and constructed components and facilities that contain, convey, absorb, store, treat, attenuate, dispose, or otherwise convey and/or manage surface water or groundwater.

DRIVEWAY: A defined paved or unpaved surface used for ingress or egress of vehicles, and allowing access from a street to a building, other structure, or facility.

DRT: See Development Review Team.

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

EASEMENT: An area of private land conveyed, but not dedicated 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.

ECONOMIC DEVELOPMENT: Activities aimed at job creation, retention and expansion, which strengthen a community's economic base and provide employment opportunities for the population.

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.

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, through either, 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 that 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.

ENVIRONMENTAL QUALITY CORRIDORS: An open space system designed to link and preserve natural resource areas and provide passive recreation. The system includes stream valleys, wildlife habitats, and wetlands.

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.

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 site plan, after all conditions, engineering plans and other requirements have been completed or fulfilled.

FLOODPLAIN: An 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.

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 Freeholders to encroach or occupy county property or a portion of the County right-of-way.

GABION: A surface protection measure 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 water. 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 Freeholders.

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

GRADED AREA: As it pertains to streets, land adjacent and parallel to the cartway within the right-of-way.

GRAY WATER: Untreated wastewater that has not been in contact with toilet water, such as that discharged from sinks, showers, washing machines, etc.

GREEN BUILDING: Structures and their associated landscapes that are located, designed, constructed, operated and dismantled in an environmentally responsible manner to minimize short-and long-term negative impacts on the environment and building occupants.

GREEN INFRASTRUCTURE: An adaptable term used to describe an array of localized facilities and measures that use natural and/or engineered systems that mimic natural processes to maintain or replicate a site's existing response to precipitation, particularly during smaller, relatively frequent rainfalls. The primary processes include runoff storage, infiltration, and treatment. Green infrastructure facilities and measures include, but are not limited to, pervious paving, bioretention and infiltration facilities, vegetated swales and buffers, drywells, and water reuse.

GROSS FLOOR AREA: The aggregate of all proposed useable floor space built on the site including basement areas.

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.

GROUNDWATER: Water that collects or flows beneath the Earth's surface, filling the voids in soil, sediment, and rocks. Groundwater originates from precipitation and is the source of water for aquifers, springs, and wells. The upper surface of groundwater is the water table.

GROUNDWATER RECHARGE: The portion of infiltrated stormwater that enters the groundwater. Also refers to the physical process by which this occurs.

GUIDE RAIL: A safety barrier designed to protect motor vehicles from hazardous areas in accordance with NJDOT standards (as revised).

GUTTER: An area set along a curb or the pavement edge of a road for purposes of catching and conveying stormwater.

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, County, or Municipal registry or in the process of such registration.

HYDROLOGIC SOIL GROUP (HSG): A designation developed by the NRCS that describes the infiltration capacity of soil. Hydrologic groups are categorized in decreasing infiltration capacity from A to D and are used in NRCS equations to estimate runoff from rainfall.

IES: Illuminating Engineering Society.

ILLICIT DISCHARGES: Discharges of non-stormwater to the storm drainage system. Examples are discharges from internal floor drains, sump pumps, appliances, industrial processes, sinks, and toilets that are connected to the 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 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 constructed body of water, such as a pond, confined by a dam, dike, floodgate, or other barrier.

IMPROVEMENT: Any constructed, immovable item that 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.

INFILL DEVELOPMENT: Development on a site that has at least 75% of its boundary along previously developed sites.

INFILTRATION: The process by which water seeps into and through the soil or other subsurface material.

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 of the lowest point in a channel or inside a pipe, culvert, bridge, or other drainage facility.

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.

JOINT REPORT: A report prepared by the Department of Planning and Engineering on behalf of the Planning Board indicating the requirements and conditions for final approval.

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.

LOADING AREA: A yard or designated area, with passenger automobile parking prohibited for the sole purpose of loading and unloading vehicles and the accompanying vehicle maneuvering area.

LOT: A designated parcel, tract or area of land.

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 technique that combines nonstructural stormwater management strategies and measures with Green Infrastructure facilities and measures to maintain or mimic a site's existing response to precipitation, particularly during smaller, relatively frequent rainfalls.

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

MAINTENANCE GUARANTEE: Any security which may be accepted by the County for the maintenance and/or analysis of any improvements required by the County Planning Act and this Ordinance, including but not limited to a surety bond~~s~~, letter~~s~~ of credit, certified checks or bank check.

MAJOR DEVELOPMENT: Any development or redevelopment that will ultimately result in the disturbance of one or more acres of land. Disturbance for the purpose of this Ordinance 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 formula for calculating the hydraulic capacity of a channel or conduit.

MARGINAL ACCESS STREET: A service street that runs parallel to a higher order street that, for purposes of safety, provides access to abutting properties and separation from through traffic.

MASS TRANSIT: A term used to describe public transportation facilities and vehicles such as rail and buses.

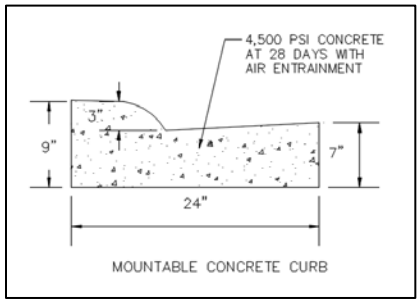
MASTER PLAN: A composite of one or more written or graphic proposals for the development of the County, as set forth and adopted by the Board of Chosen Freeholders pursuant to N.J.S.A. 40:27-2 et seq.

MEDIAN: That portion of a divided roadway separating the traveled ways of traffic proceeding in opposite directions.

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: Low curb with flat slopping faces.



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 Devices.

NATIVE PLANT: Plant species that is indigenous to New Jersey, including any non-invasive plant species that would have occurred naturally on a site prior to development or that has adapted to the area as part of the process of natural succession.

NJAC: New Jersey Administrative Code.

NJSA: New Jersey Statutes Annotated.

NONSTRUCTURAL STORMWATER MANAGEMENT: Stormwater management strategies and measures that are not structural in nature, such as limiting disturbance, disconnecting impervious surfaces, landscaping techniques, site restoration or enhancement, pollutant source controls, zoning, setbacks, buffers and clustering.

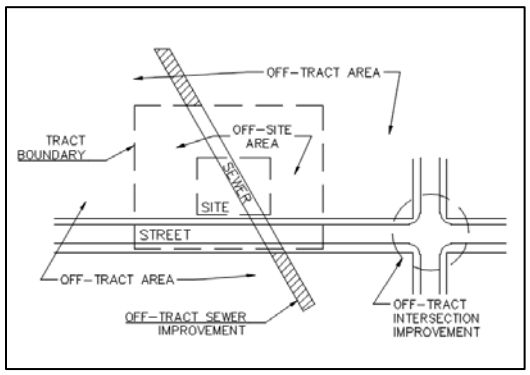
NOAA: National Oceanic Atmospheric Administration.

NRCS: The Natural Resources Conservation Service, a branch of the U.S. Department of Agriculture.

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 the Board of Chosen Freeholders of the County pursuant to N.J.S.A. 40:27-5.

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



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

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

ON-SITE: Located on the property in question.

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

OPEN SPACE: Any land that is provided or preserved for (i) park or recreation purposes, (ii) conservation of land or other natural resources, (iii) historic or scenic purposes.

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

OVERT: Elevation of the inside top of a pipe.

OWNER: Any individual, firm, association, syndicate, co partnership, or corporation having sufficient proprietary interest in the land sought to be developed.

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

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

PARKING SPACE: A designated area provided for the temporary storage of a motor vehicle.

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

PAVEMENT, IMPERVIOUS: A surface that either prevents or significantly retards the infiltration of water into the subsurface base material as occurs under pervious conditions and from which stormwater runs off at an increased rate and/or volume.

PAVEMENT, PERVIOUS: A surface that readily allows infiltration by water into the subsurface material. Such pavement may include, but not limited to, permeable concrete, permeable asphalt, or manufactured systems including interlocking brick, permeable pavers with clean stone base, or a combination of sand and hard block lattice.

PEAK FLOW RATE: The maximum amount of flow, in unit volume per unit of time.

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

PERCOLATION TEST (PERC Test): A test designed to estimate the ability of soil to absorb water in order to determine its suitability for drainage or a septic system.

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

PERVIOUS SURFACE: Any surface that readily allows infiltration by water into the subsurface material.

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

PLANNED INDUSTRIAL DEVELOPMENT: An area of a minimum contiguous or non-contiguous size as specified by ordinance to be developed according to a plan as a single entity containing one or more structures with appurtenant common areas to accommodate industrial uses and any other uses incidental to the predominant use as may be permitted by ordinance.

PLANNED UNIT DEVELOPMENT (PUD): 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.

PM10: A standard for measuring the amount of solid or liquid matter suspended in the atmosphere over 10 micrometers in diameter.

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.

POTABLE WATER: Water meeting or exceeding EPA drinking water quality standards and approved for human consumption.

PRE-APPLICATION MEETING An initial meeting between the applicant and County representatives that affords the applicant an opportunity to present the development proposal informally.

PRECIPITATION: Any product of the condensation of atmospheric water vapor that falls under gravity. The main forms of precipitation include rain, sleet, and snow.

PREVIOUSLY DEVELOPED SITE: A site consisting of previously developed land equal to or greater than 75% of the total site area prior to the construction of a new project.

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 FACILITIES: Facilities that are required to support the services and functions provided by the County government or public utility companies. Such facilities are essential to support the community and its development and to enhance the overall quality of life. Public facilities include such necessities as water and sewer lines, drainage and stormwater management facilities, and police and fire protection, as well as educational, recreational and cultural services.

PUBLIC OPEN SPACE: An open space area conveyed or otherwise dedicated to a municipality, municipal agency, board of education, county or state agency, or other public body for recreational or conservation use in a PUD: See Planned Unit Development.

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

RAIN GARDEN: A type of infiltration or bioretention basin that is typically designed for smaller spaces.

RATE OF RUNOFF: The volume of stormwater runoff flowing past a given point with respect to time, typically expressed in cubic feet per second.

RATIONAL METHOD: A method of computing the peak rate of stormwater runoff from a period of rainfall.

REDEVELOPMENT: The removal and replacement, rehabilitation, or adaptive reuse of an existing structure or structures, or of land from which previous improvements have been removed.

REPORTING PERIOD: The 30 day period in which the Department of Planning shall have to submit a report on a site plan to the municipality involved and the Applicant. The reporting period commences with the receipt of all information required in this Ordinance. A letter to the Applicant and municipal approving authority from the Department of Planning 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.

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

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: See STORMWATER RETENTION.

RETENTION BASIN: see STORMWATER RETENTION BASIN.

RETROFIT: The modification of an existing development or development feature through the construction of new and/or enhancement of existing stormwater drainage or management facilities or measures.

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” defined elsewhere in this section.

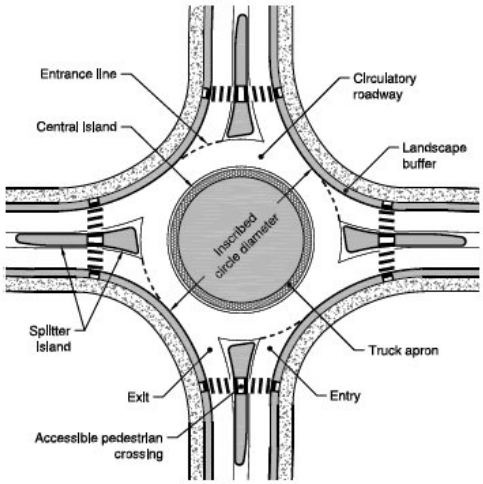
RIGHT-OF-WAY: The area over which a legal right of passage exists; land use for public purposes in association with the construction or provision of public facilities, transportation projects, or other infrastructure.

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

ROAD ACCESS PERMIT: A permit issued by the Department of Public Works/Operations Division in accordance with County ordinances and regulations to allow one or more driveways on a County road.

ROAD OPENING PERMIT: A permit issued by the Department of Public Works/Operations Division in accordance with County ordinances or regulations to allow the construction of curbing, drainage, utilities or any other related work within the limits of the County right-of-way.

ROUNDABOUT: A circular intersection or junction in which traffic is slowed and flows continuously in one direction around a central island to several exits onto various intersecting roads.



RUNOFF: See STORMWATER RUNOFF.

RUNOFF COEFFICIENT: An input parameter in the Rational Method of computing stormwater runoff rates that represents the percentage of rainfall that will become stormwater runoff.

RUNOFF RATE: See Rate of 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: The former Soil Conservation Service, now named the Natural Resources 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.

SEDIMENT BASIN: A temporary facility, designed in accordance with the standards of this Ordinance, to collect silt and eroded soil resulting from grading the area of a site, for the purpose of limiting the deposit of silt and eroded soil in streams and brooks.

SEDIMENTATION: The deposit of sediment 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.

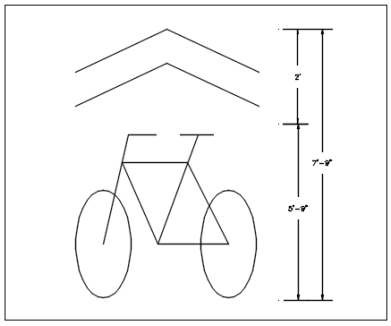
SEPTIC TANK: A watertight receptacle that receives the discharge of sewage.

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 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.

SHARROW: A lane marking normally using chevron arrows and a bicycle icon to identify a travel lane intended to be shared by vehicles and bicycles.



SHEET FLOW: The portion of stormwater runoff movement that occurs over the surface in a relatively thin layer.

SHOULDER: The graded part of the right-of-way that lies beyond the edge of the main pavement.

SIDEWALK: An improved path for pedestrian use outside of the cartway.

SIGHT DISTANCE: The length of the roadway ahead that is visible to the driver.

SIGHT DISTANCE LINE: The distance of sight obtained from a driver's eye position in a vehicle standing in an exit driveway fifteen feet behind the existing or proposed gutter line of a County road.

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 the proposed development.

SITE PLAN: A development plan of an existing 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, driveways, 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 Ordinance.

SITE PLAN APPLICATION: An official application form required by Bergen County for the review and/or approval of site plans. This application states the requirements needed before review can begin, time limit of application and related fees. This Application is available on-line at the official Bergen County Website

SITE PLAN REVIEW COMMITTEE: A committee established by Resolution of the Bergen County Planning Board, appointed by the Chairperson to review and approve subdivision and site plans on behalf of the Bergen County Planning Board in administering the provisions of this Ordinance.

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.

SOLAR REFLECTANCE INDEX (SRI): Index expressing ratio of reflected solar energy to incoming solar energy (ASTM E903).

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, byproducts, industrial machinery, or other industrial activities that are exposed to stormwater.

STABILIZATION: As it pertains to streets, the ability of a surface to resist deformation from imposed loads.

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.

STOPPING SIGHT DISTANCE: Is the sum of two distances: (1) the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes are applied, and (2) the distance needed to stop the vehicle from the instant brake application begins.

STORMWATER: Water resulting from precipitation that runs off the land's surface, or infiltrates into the land's subsurface.

STORMWATER DETENTION: A stormwater management technique that utilizes the temporary storage and controlled release of stormwater flow to a natural or constructed stormwater drainage or management facility.

STORMWATER DETENTION BASIN: A stormwater management basin that utilizes stormwater to safely and effectively store, attenuate, reduce, recharge and/or treat stormwater.

STORMWATER FACILITY: A physical entity, device, or structure that affects the drainage and/or management of stormwater.

STORMWATER INFILITRATION: A stormwater management basin that utilizes the temporary storage and infiltration of stormwater runoff to the subsurface.

STORMWATER INFILITRATION BASIN: A stormwater management basin that utilizes stormwater infiltration to safely and effectively store, attenuate, reduce, recharge and/or treat stormwater.

STORMWATER MANGEMENT: The practices and facilities that safely and effectively store, attenuate, reduce, recharge and/or treat stormwater.

STORMWATER MANAGEMENT BASIN: A type of structural stormwater management facility that permanently and/or temporarily stores stormwater.

STORMWATER MANAGEMENT FACILITY: A physical entity, device, or structure that safely and efficiently stores, attenuates, reduces, recharges and/or treats stormwater. Includes, but is not limited to, basins, swales, filters and related types of structural facilities that provide for the management of stormwater.

STORMWATER PRACTICE: An action, technique, or measure that affects the drainage and/or management of stormwater.

STORMWATER POLLUTION: Organic and inorganic material such as trash, automotive fluids, oil, paint, fertilizers and pesticides, lawn and garden clippings and pet waste collected by stormwater from surfaces such as streets, parking lots, driveways and yards.

STORMWATER RETENTION: A stormwater management practice that utilizes the permanent storage of stormwater.

STORMWATER RUNOFF: Water resulting from precipitation that runs off the land's surface.

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.

STREET FURNITURE: Constructed, above ground items that may be found in street rights of way, including, but not limited to, benches, kiosks, planters, canopies and shelters.

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

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.

TIME OF CONCENRATION: the time it takes for runoff to travel or concentrate from the hydraulically most distant point of the watershed to the point of interest within a watershed.

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

TRAFFIC DEMAND MANAGEMENT: Strategies aimed at reducing the number of vehicle trips, shortening trip lengths, and reducing trips during peak hours.

TRAFFIC IMPACT STUDY: A study of the additional traffic generated by the proposed development and its impact upon the County road system either off-site or off-tract.

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.

URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD: A neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

URBAN ENTERPRISE ZONES: A zone designated by the New Jersey Urban Enterprise Zone Authority pursuant to the New Jersey Enterprise Zones Act, N.J.S.A 52:27H-60 et seq.

URBAN RUNOFF: Stormwater from city streets, gutters and paved surfaces.

USGBC: United States Green Building Council.

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

WATER COURSE: Any swale, channel, stream, brook, or river through which water flows ordinarily and frequently but not necessarily continuously. Includes watercourses that have been realigned or channelized.

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

WATERSHED: A geographic area in which water, including stormwater runoff and groundwater, drains to a common surface location or outlet such as a lake, estuary, or ocean.

WET POND: See STORMWATER RETENTION BASIN.

WETLANDS: Any land characterized by wetness for a portion of the growing season. Wetlands are generally delineated on the basis of physical characteristics such as soil properties indicative of wetness,

the presence of vegetation with an unusually strong affinity for water, and the presence or evidence of surface wetness. Wetland environments provide water quality improvement benefits and, in most cases, are ecologically valuable.

VEHICLE MILES TRAVELED (VMT): Number of miles driven by motorists in a specific area during a specified time period (per day, per year, etc.) expressed in absolute or per capita terms.

Other terms and definitions not specifically listed herein shall be terms and definitions as generally accepted in Planning and /or Engineering usage.

An overview of the County's stormwater drainage and management terminology is presented in SECTION IX – DESIGN STANDARDS: STORMWATER MANAGEMENT.

Illustrations: *The Complete Illustrated Book of Development Definitions*, 4th Ed., Moskowitz, Lindbloom, Listokin, Preiss, & Merriam

*** END OF SECTION I ***

SECTION II
ADMINISTRATION

A. Short Title

This Site Plan Ordinance shall be known and may be cited as “Bergen County Standards For Sustainable Land Development-Site Plans” hereafter sometimes referred to as the “Ordinance”.

B. Authority

This Ordinance is adopted pursuant to the County Planning Act, N.J.S.A. 40:27-1 et seq., as amended and supplemented. This Ordinance does not extend the County’s authority over any municipal zoning and/or Master Plan.

C. Purpose

The purpose of this Ordinance is to:

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

2. Ensure that land development within the County proceeds in accordance with, and is consistent with, the goals and objectives of the Bergen 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 the applicant for their proportionate share of the cost of County improvements located off-site which must be made to accommodate the increased traffic or runoff that would be generated as a result of the development.

5. Mitigate adverse traffic and drainage impacts from the proposed development on roads, drainage facilities, buildings and lands owned and/or for which the County is responsible for the construction, maintenance or proper functioning.

6. Promote pedestrian and/or bicycle traffic along County roads.

7. Promote 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 applicant’s professionals, and the County development review staff.

10. To promote the public health, safety, convenience and general welfare of the citizens of Bergen County.

D. Approving Agency

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

The County Planning Board may, by ordinance adopted by the Freeholders, vest its power to exempt site plans from County Planning Board approval with the Department Director, or other designated alternate, when said site plan meets the criteria for exemption as described in this Ordinance.

E. Power to Amend and Modify

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

The County understands that occasions 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, 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. Validity

If any section, subsection, paragraph, clause, phrase or provision of this Ordinance 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.

G. Language

1. The words “shall” and “must” are mandatory and not discretionary.

2. The words “should” and “may” are discretionary and not mandatory.

3. Words used in the singular shall include the plural and the plural shall include the singular; words used in the present tense shall include the future tense.

4. All references to the County herein shall refer to the County of Bergen.

*** END OF SECTION II ***

SECTION III
APPLICABILITY

A. Approval Required

All site plan applications and subsequent revisions along County roads or affecting County drainage facilities shall be submitted to the County Planning Board for its review and approval as set forth in N.J.S.A. 40:27-6.6., and contained in this document. Site plan applications are defined as follows:

1. Commercial or industrial development or redevelopment.

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

3. Any other land development/redevelopment proposing five (5) or more additional on-site parking spaces.

4. Any land development producing surface runoff in excess of standards set forth in this Ordinance.

B. Exemptions

1. Site plan applications not along a County road that include less than one (1) acre of new impervious surface are exempt from County approval.

2. Site plans for single family or multifamily dwellings of less than five (5) units are exempt from County approval. However, a road access permit is required to construct a new access point to a County road or to modify an existing driveway to a County road. Plans to construct or modify an access point to a County road must be reviewed and accepted by the County prior to the issuance of a road access permit.

*** END OF SECTION III ***

SECTION IV
APPLICATION SUBMISSION PROCEDURES

A. Pre-Application Meeting

A prospective applicant or applicant's agent may request an informal meeting with the Development Review Team (DRT) prior to submitting a formal application and detailed plans.

1. Purpose

The purpose of a pre-application meeting is to:

a. Advise the applicant of the substantive administrative and procedural requirements of the Ordinance.

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

c. 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, including Best Management Practices for Low Impact Development (LID), green buildings and green infrastructure.

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

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

f. Provide for an exchange of information regarding the proposed project and the applicable elements of the County Master Plan and other development requirements.

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

h. Expedite application processing and development plan review.

i. Coordinate requirements with local and state agencies where applicable.

2. Fees

There shall be no fee for the pre-application meeting.

B. Filing of Application

Site plan applications shall be submitted to the County Planning Board. The application will not be determined to be formally filed until it is considered "complete" in accordance with this Ordinance.

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

1. Three (3) copies of the Bergen County Site Plan Review Application form completed in its entirety, with original signatures (Appendix B).

2. The appropriate application fees (Appendix B).

3. Three (3) legible prints of the plan in accordance with the **Checklist for Site Plans**, signed and sealed by a New Jersey licensed engineer or professional land surveyor.

4. A completed Bergen County Development Review Checklist for Site Plans (Appendix C).

5. A completed Low Impact Development (LID) Checklist signed and sealed by the licensed professional who completed the checklist (Appendix H).

6. A digital file of plans submitted in conformance with the County's Digital Submission Standards (Appendix F).

7. A Land Survey in accordance with N.J.A.C 13:40-5 (Appendix D).

8. Other items as may be required such as (2 copies of each):

    a. A Traffic Impact Report.

    b. A Stormwater Management Plan.

    c. An Urban Runoff Mitigation Plan (Appendix G).

C. Determination of Completeness for Filing

An application will not be determined to be formally complete until the appropriate fees and number of drawings, County application forms and other required documents have been submitted in accordance with this Ordinance. The time period for action on the application will not commence until the Development Review Team (DRT) has deemed the application complete for filing. If the applicant fails to submit the items required for completeness within 90 days from the date of written notification of the items that must be submitted, the incomplete application package will be voided and discarded. Any submitted fees will be returned.

D. Report of Approval or Disapproval to Local Authority; Time Limit; Extension

The County Planning Board shall have thirty (30) days from receipt of a complete application to report to the appropriate local authority, unless extended for an additional thirty (30) days by mutual agreement between the County Planning Board and the municipal approving authority. Applicant can neither extend nor waive the foregoing time limits.

E. Application Review Fees

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

2. Application fees shall be submitted in accordance with the "Fee Schedule" in Appendix B of this Ordinance, or subsequent revisions adopted by ordinance by the Board of Chosen Freeholders.

F. Exemption from Site Plan Application for Approval

1. A fee shall be charged for the processing of a site plan exemption.

2. The exemption application fee shall be submitted in accordance with the "Fee Schedule" in Appendix B of this Ordinance, or subsequent revisions adopted by ordinance by the Board of Chosen Freeholders.

*** END OF SECTION IV ***

SECTION V
APPLICATION REVIEW AND APPROVAL PROCEDURES

A. General Provisions for Review and Approval

1. Municipal Action

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

b. In accordance with N.J.S.A. 40:27-6.7, the municipal agency or official authorized to issue a Certificate of Occupancy shall not issue such permit until "A Letter of Compliance" has been issued by the County Engineer's Office. The letter of compliance shall be addressed to the municipal agency or official authorized to issue a Certificate of Occupancy, and copied to the County Department of Planning and Engineering.

2. Revisions

a. All revisions to site plans and components thereof, both preliminary and final, shall be submitted to the DRT by the applicant or appropriate approving authority for review.

b. In order for a timely review and approval by the County Planning Board all final revisions must be received by the DRT no less than thirty (30) days prior to the next regularly scheduled Planning Board meeting.

c. 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 orsheet each revision is shown.

d. Where the following minor revisions are proposed, no fees need to be paid, although three (3) copies of the site plan, incorporating the changes, and a cover letter explaining what changes have been made and why, shall be submitted:

1) Where minor changes to the site plan are requested by the municipal approving authority.

2) Where there are only minor changes in the site plan proposed by the applicant, which do not involve any significant changes in the layout of the site as determined by the DRT.

e. When final approval is granted, no changes or alterations shall be made to any portion of the approved plan over which the County Planning Board has approval

power without the approval of said change by the County Planning Board or its designee.

f. Deviations that substantially revise the approved plan shall require the approval of the County Planning Board. In the event it becomes necessary to deviate from the approved plan due 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.

3. Substantial Revisions that Require a New Application

Any proposal that involves substantial revisions to a site plan previously approved by the County Planning Board may require resubmission of a complete site plan application and payment of fees in accordance with the requirements of this Ordinance. A revision shall be deemed to be "substantial" if:

a. It includes any changes to the site's access.

b. It includes any changes to a County roadway or County facility.

c. It includes any other changes deemed to be substantial by the DRT.

d. The revision is made more than one (1) year from the date of County approval.

B. Review Time Period

1. Within thirty (30) days from being deemed complete, the DRT shall act upon the land development application in accordance with the standards and procedures established in this Ordinance.

a. Should the County fail to act within the thirty (30) day statutory period or any other period allowed by amendment thereto, the land development application shall be deemed to have been approved by the County. Except as set forth in Paragraph 2 below, the applicant can neither extend nor waive the forgoing time limits.

b. Should the County fail to act within the statutory period, the applicant is nevertheless not released from the requirement to obtain approvals for subsequent stages of review or substantial revisions to a site plan given default approval pursuant to N.J.S.A. 40:27-6.7; in which event a new thirty (30) day review period shall begin on the date the additional information is received by the County.

2. As set forth in N.J.S.A. 40:27-6.7, by mutual agreement, the County Planning Board and the municipal approving authority, with the consent of the applicant, may extend the thirty (30) day period for an additional thirty (30) days.

C. Notification of Action

The DRT shall report to the local approving authority in writing of its action within the review time periods set forth above. In the event of a disapproval, such report shall state the specific reasons therefore. A copy of such action shall be forwarded to the applicant and/or his or her designated agent(s).

D. Waivers from Standards

1. If the Applicant seeks a waiver from strict compliance with the technical standards or criteria set forth herein, an application for waiver pursuant to this section shall be filed in writing to the DRT and shall include:

    a. A statement of the technical standards or criteria from which a waiver is sought.

    b. A statement of the manner by which strict compliance with said technical standards or criteria would result in an undue hardship.

    c. A statement of the nature and extent of such undue hardships.

    d. A statement of feasible alternatives to the technical standards or criteria, which would adequately protect the health, safety and welfare of the intended users or occupants of the site and the general public.

    e. Supporting opinion of a professional engineer/planner/architect.

2. Upon receipt of the above items a meeting will be scheduled with the DRT to evaluate the waiver request. If a mutually agreeable decision cannot be reached, then the DRT shall within 45 days of this meeting submit the waiver request and supporting documentation to the County Planning Board for a decision. A waiver request may delay completeness determination by the County.

3. Any waiver approved by the Planning Board shall be assessed a fee per waiver (see Appendix B).

E. Appeals

1. Applicant may appeal any recommendation of the DRT in writing to the County Planning Board within ten (10) days after the date of notice of such final determination, by certified mail, and pursuant to the provisions of N.J. S.A 40:27-6.9.

2. Any person aggrieved by site plan review and approval by the County Planning Board may file an appeal in writing to the Board of Chosen Freeholders within ten (10) days after the date of the notice, by certified mail.

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

4. Notice of said hearing shall be made by certified mail at least ten (10) days prior to the hearing to the applicant, any appellant who is not 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.

5. The County Planning Board or Board of Chosen Freeholders, as the case may be, shall render its decision within thirty (30) days from the date of conclusion of the hearing.

F. Construction without Final Approval

1. No construction related to the application shall be permitted unless final approval is granted by the County Planning Board.

2. Whomsoever constructs or begins construction without final approval shall forfeit and pay a penalty of not more than one-hundred and twenty-five dollars ($125.00) for each business day that work continues without approval. The County of Bergen may bring the action to enjoin such construction and may also recover the penalty by a civil action in any court of competent jurisdiction. The fine shall commence from the date the written notice is brought by the County Planning Board or its duly authorized representative. The County Planning Board or its duly authorized representative shall issue a "Notice of Violation" to the municipal construction code official and copy shall be sent by certified mail to the property owner.

*** END OF SECTION V ***

SECTION VI
CONDITIONS AND REQUIRMENTS FOR APPROVAL

A. General

Applicant shall be required to comply with any and all conditions and requirements set forth in an approval by the County Planning Board (hereinafter "Joint Report").

B. Dedications and Easements

1. Required deeds of dedication and/or deeds of easement shall be submitted for review and acceptance.

2. The deeds shall be prepared in a form approved by County Counsel and shall bear all necessary signatures prior to recording. The County Planning Board will forward a copy of the signed, sealed and dated metes and bounds description to the County Engineering Division for review and approval. County Counsel will record the executed deed with the County Clerk's Office.

C. Proportionate Share Contributions and Payments in Lieu

1. The applicant shall submit any required payments in lieu of required County road and/or drainage improvements or payments for a proportionate share of the cost of future installation of County traffic improvements and/or drainage facilities.

2. When a County road and/or drainage facility is scheduled for improvements under the County's capital budget or improvements program, which would include, but not limited to, change in alignment, profile, or pavement width of the road, and would adversely affect the improvements undertaken in connection with the 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 DRT and based on the standards and specifications for improvements contained in this Ordinance.

3. Applicants undertaking development projects within the Transportation Planning District of the New Jersey Meadowlands District (as established by the Hackensack Meadowlands Transportation 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, however, may still require specific conditions of approval.

4. All payments in lieu of improvements shall be in the form of certified check or bank check made payable to the "County of Bergen".

D. Performance Guarantees, Maintenance Guarantees and Other Payments

1. Prior to final approval of a site plan, the applicant shall be required to post any performance/maintenance guarantees required by the County Planning Board.

2. All performance and maintenance guarantees shall be in the form approved by the Office of County Counsel and shall be in the amount established by the County Planning Board.

3. When the DRT determines that off-site/off-tract improvements are necessary, the applicant shall be required to provide a performance guarantee, cash payment, and/or maintenance guarantee to the County. The amount for both installation and maintenance shall be established by the County Planning Board.

4. Where the DRT determines that a post development review of the traffic conditions may be required, the Applicant shall post a traffic maintenance guarantee.

E. Release of Performance Guarantees

1. The County Engineering Division shall inspect all improvements required by the County Planning Board for which a performance guarantee has been posted. The County Engineer shall certify in writing, to the applicant, whether improvements have been satisfactorily constructed.

2. The County Engineer shall forward a copy of said certification to the Board of Chosen Freeholders with a recommendation for release of the performance guarantee.

3. The Board of Chosen Freeholders, at its next regular meeting, following receipt of the recommendation for release of the performance guarantee from the County Engineer, shall act on the recommendation to release the guarantee.

F. Release of Maintenance Guarantee

1. The County Engineering Division shall inspect all County facilities covered by a maintenance guarantee within thirty (30) days prior to the expiration of the bond. The County Engineer shall certify in writing, to the applicant, whether or not the facilities are in satisfactory condition.

2. The County Engineer shall forward a copy of said certification to the Board of Chosen Freeholders with a recommendation for release of the maintenance guarantee.

3. The Board of Chosen Freeholders, at its next regular meeting after the receipt of the recommendation for release of the maintenance guarantee from the County Engineer, shall act on the recommendation to release the guarantee.

G. Developer's Agreement

1. A Developer's Agreement shall be required when one or more of the following conditions exist:

    a. Improvements to County facilities;

    b. Pro-rata, off-site/off tract improvement obligations;

    c. Multiple developers jointly funding and/or constructing improvements, and

    d. Public/private partnerships.

2. Provisions contained within the Developer's Agreement may include, but are not limited to, the following:

    a. Parties to the Agreement and site demarcation;

    b. Objectives and responsibilities;

    c. Construction of improvements;

    d. Easements and dedications;

    e. Municipal permits and approvals;

    f. Reporting mechanisms;

    g. Assignment and transfer;

    h. Duration;

    i. Enumeration of approved plans;

    j. Attachment of approval resolutions, both municipal and County, and

    k. Other items and conditions.

3. Such Agreement shall be retained until all improvements have been completed to the satisfaction of the County Engineer.

4. In instances when the provisions of this Ordinance allow or require a cash contribution to the County to cover a share of the cost of all improvements, the approval of a site plan shall be further conditioned on the receipt of such contributions in the form of a certified check or bank check made payable to the "County of Bergen" and deposited in an account reserved for such improvements.

H. Road Opening Permit

1. Prior to the start of construction of improvements in or along a County road, the applicant shall obtain a road opening permit if required in the County Planning Board's Conditions of Approval from the County Operations Division and comply with all the requirements of the Division. No additional performance guarantee will be required for work covered under guarantees required by the County Planning Board. The application for a road opening permit must be accompanied by proof of the County Planning Board's final approval. This shall not be construed in any way of exempting a project from any additional fees required by the Operations Division.

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

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

   b. Project plans and specifications, and

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

I. Notification Prior to Taking Action

Applicant shall not take any action that would affect County facilities prior to a pre-construction meeting and the submission of a written construction schedule to the County Engineering Division.

J. Pre-Construction Requirements

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

1. Final County Planning Board approval of the project, which includes, but not limited to, submission and processing of any required contributions, guarantees, and fees.

2. Final construction plans, if required and approved by the County Engineering Division, have been provided to the contractor and are on file with the County Planning Board.

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

4. A pre-construction meeting, if required, with the County Engineering Division, 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 pre-construction meeting. The pre-construction meeting shall be held at least one week prior to the anticipated start of construction.

5. A road opening permit has been obtained.

K. Construction Requirements

1. Inspections

The inspection of construction under County jurisdiction will be performed by the County Engineering Division. All phases of construction work must be coordinated with the County. It is the contractor's responsibility to notify the County a minimum three (3) business days in advance of any work, particularly if the work requires samples to be taken for laboratory testing. Any work performed without an inspection is subject to rejection.

If the County Engineering Division 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 by the County shall be paid by the applicant.

2. Laboratory Testing

Laboratory testing will be performed for various construction procedures as deemed necessary by the County Engineering Division. The cost of the laboratory tests is the responsibility of the applicant.

3. Material Certifications

Material certifications are to be provided to the County Engineering Division as requested by the County Engineering staff.

L. Post-Construction Requirements

1. As-Built Drawings

As built drawings, if required, are to be submitted to the County Engineer and the Department of Planning and Engineering after the construction work, under County jurisdiction, has been completed. The drawings are to be submitted in hard copy and in digital (AutoCAD compatible) format acceptable to the County Engineer.

2. Punch List

A punch list will be prepared by the County Engineering Division that identifies any items that have not been satisfactorily completed. The performance guarantee will not be released until all punch list items have been satisfactorily addressed.

After the punch list is completed and presented to the applicant, the items identified in the punch list must be completed. The contractor is responsible for notifying the County at least three (3) business days prior to commencing work on the punch list items.

The punch list items shall be satisfactorily corrected within sixty (60) days, weather permitting, from the date the list is issued. If the improvements are not adequately completed in the required time frame, the County may initiate the necessary actions for the work to be completed.

When 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.

M. Noncompliance with Conditions of Approval

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

1. Refusal of the County Operations Division to issue a road opening permit for a site development.

2. A request 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 guarantees required by the County to cover the costs of improvements specified in that portion of the site plan over which the County has jurisdiction.

4. Appropriate court action initiated by the County. Prior to initiating court action a written Notice of Noncompliance from the County Engineering Division will be forwarded by certified mail to the local approving authority, local building official and the applicant, requesting compliance with the conditions of the site plan approval within a period of time not less than ten (10) business days from the date such noncompliance is determined.

N. Stop Work Order

If construction is being undertaken contrary to the provisions of this Ordinance, or other applicable laws and ordinances, the enforcing agency may issue a stop work 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.

O. Applicant Liability

The applicant of a site plan shall assume full responsibility and liability during construction and until the release of the performance or maintenance guarantee for any improvements required by the County Planning Board.

*** END OF SECTION VI ***

SECTION VII
DESIGN STANDARDS: TRAFFIC AND ROADWAY DESIGN

A. Purpose

The purpose of good 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. Any proposed development should consider 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 may be required to provide for improvements necessary for the safe and efficient movement of traffic, affecting roads, intersections, driveways, bridges, culverts and drainage structures, as well as other off-site/off-tract improvements, in accordance with this Ordinance, the Map of Bergen County Required Road Right-of-Way Widths (Appendix J), and the County Engineer.

2. Physical improvements for the safety and convenience of the traveling public shall include, but are not limited to, adequate drainage facilities, cross-walks, handicap ramps, shade trees, stormwater management, stream protection, street and traffic control signs, traffic signals, marginal access streets, reverse frontage, 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 development.

3. The right-of-way requirements for County roads shall conform to the standards of the County Master Plan or the Map of Bergen County Required Road Right-of-Way Widths.
4. The County may require easements for the construction and maintenance of drainage facilities.

5. Off-site/off-tract improvements may be required to remediate any degradation of service or impact to public safety resulting from a proposed development that affects a County road or drainage facility. Where determined, the applicant may be required to contribute its share of the cost of such improvements.

6. The general pattern of a development should be oriented towards the street. Pedestrian access, circulation and safety should be a foremost consideration over vehicular traffic.

7. All development shall conform to road and traffic-related improvements that 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 may be considered where existing or proposed traffic conditions would benefit from such an approach.

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

10. When a project site abuts both a County road and either a municipal street or internal roadway, the preferred location of the driveway should be from the municipal street or internal roadway.

11. When a project site abuts two or more County roads, access shall be from the County road with the lower right-of-way width designation shown on the Map of Bergen County Required Road Right-of-Way Widths, unless other access standards preclude placement of a driveway at this location.

12. Wherever possible the applicant shall provide for common access between adjacent sites to minimize the number of driveways along the County road.

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

14. Wherever possible the applicant shall use construction techniques that are designed to be environmentally sustainable and which promote the conservation of energy. On-site techniques and methods include, but are not limited to: installing porous pavement, porous concrete, vegetated islands and buffers, shielded street lighting, and solar panels.

C. Traffic Impact Report

A comprehensive traffic report shall be prepared by a New Jersey licensed professional engineer and submitted to the County for any land development located along or affecting a County road that meets one or more of the following conditions:

1. Land development that is subject to County jurisdiction and results in 50 or more added vehicle trips in any peak hour based on the ITE Trip Generation Manual shall submit a traffic impact statement in accordance with acceptable design sources/manuals listed in Appendix K.

2. Land development that is subject to County jurisdiction and if one or more of the following circumstances exist:

    a. Current traffic problems as identified by the County exist in the vicinity of the site;

    b. Current or projected levels of service of the adjacent roadways will be significantly impacted;

c. Public safety problems exist for vehicular or pedestrian traffic, and

d. Other specific problems or deficiencies that may be affected by the proposed development or affect the ability of the development to be adequately accommodated.

3. Specialized traffic studies, which address only existing and proposed site access points, may be required for developments not meeting any of the above criteria.

4. Any development proposing a drive-up facility.

5. Any other traffic or operation items that may be relevant to the subject development or required as determined by the DRT.

D. Traffic Reports for Phased Developments

If the development is staged with multiple phases within the development, the traffic report should include the opening year of the first phase and all subsequent phases. The DRT reserves the right to request a new traffic report during any subsequent phase of the project.

E. Contents of a Traffic Report

The following items shall be included in all traffic impact reports submitted to the County Planning Board:

1. Project Description

a. Those factors that quantify vehicular traffic generators, such as dwelling units, commercial uses, square footages, persons to be employed and restaurant seats. Residential developments should be specific as to the type of residential units.

b. Proposed driveways, streets, internal circulation and any existing and/or proposed parking.

c. A vicinity map showing the site location, size and type of development and study area relative to other transportation systems.

2. Existing Conditions

a. A description of existing intersections and roadways within and surrounding the project site. Include roadway classification, jurisdiction, the number of lanes, shoulders and roadway widths, signalized intersections, lane configurations, separate turn lanes, pedestrian crossing areas, traffic control devices and the signal phases for turning movements, posted speed limit, on street parking, bus stops, grade differences, railroad crossings, percentage of heavy trucks, adjacent access point locations, transit frequency, bicycle compatible roadways (BCRs) and above ground utility locations.

b. Existing daily directional and peak-hour (through and turning) traffic volumes for the abutting and surrounding roadways and intersections. Local streets affected by the project should also be shown. Each report shall include appendices providing count data used in the preparation of the report, as well as the source and date of the traffic volume information. Count data should not be over one (1) year old.

c. The scope of the analysis and study area shall be determined in consultation with the DRT and may include off-tract intersections and highway links that may be affected by the development.

d. Existing levels of service (LOS) and average delay per vehicle and total delay calculations using the latest edition of the Highway Capacity Manual, published by the Transportation Research Board.

3. Proposed Conditions

a. Trip Generation Analysis

Tabulate the estimated number of daily AM and PM peak hour trips generated by the proposed development (entering and exiting the site) and any other significant peak anticipated (e.g., Saturday). Supporting information must be provided for any generation rates, which deviate, from the *ITE Trip Generation Manual.*

b. Trip Distribution

Diagrams showing the percentages and volumes of the project's AM and PM peak-hour trips logically distributed on the surrounding roadway system. Full documentation of the distribution and procedures including gravity model or site-specific survey must be provided. For mixed-use development, internal trips should be addressed in the trip distribution section.

c. Trip Assignment

A graphic depiction of trip assignment for each peak-hour trip analysis shall be provided.

d. Queue Analysis:

A queue ("Q") analysis shall be provided for any project proposing a drive-up facility.

e. Other Projects

To the extent a reasonable inquiry can be made, a list of all other projects that are within a one-and-a-half mile radius of the project site. Other projects shall mean all pending, approved, or constructed projects that are not occupied at the time of

the existing traffic counts. A table and a map showing the status, project, zone change, if any, conditional uses permitted, if any, parcel map, tract number, and the location of each project must be provided.

f. Build Year Volumes

Build year traffic volumes with level of service calculations for a target year. Target year volumes must also include volumes from other projects and background traffic growth and existing traffic.

g. Level of Service Analysis (LOS)

If it appears that the project's generated traffic alone or together with other projects in the area could reduce the LOS of an intersection or roadway, a before (no build) and after (build) LOS analysis is necessary. Intersection LOS analysis and calculation work sheets, as well as diagrams showing turning volumes comparison table and LOS shall be included in the report for the following conditions:

1) Existing traffic;

2) Existing traffic + background traffic growth (to the year the project would be completed);

3) Existing traffic + background traffic growth + cumulative traffic of other known developments;

4) Existing traffic + background traffic growth + cumulative traffic of other known developments + improvements by others;

5) Existing traffic + background traffic growth + cumulative traffic of other known developments + improvements by others + project traffic, and

6) Existing traffic + background traffic growth + cumulative traffic of other know developments + improvements by others + project traffic+ proposed mitigation measures by the applicant.

h. Analysis Discussion

1) Discuss conclusions regarding the adverse impacts caused by the proposed project on the roadway system and those areas that require mitigation measures.

2) Discuss other possible adverse impacts on traffic such as, but not limited to, the restricted visibility of access points on roadways due to vertical or horizontal alignment and insufficient pavement width.

3) Discuss whether or not the project is consistent with the Circulation Element of the County's Master Plan.

4. Traffic Improvement and Mitigation Strategies

Identify traffic improvement strategies that would mitigate the project and/or related projects' significant impacts to an acceptable level of service. Also identify any mitigation measures that are assumed to be implemented by others. Mitigation strategies shall be designed for a minimum Level of Service "C" in the peak hour, and should include, but are not limited to, the following traffic engineering techniques:

a. Locate access points to optimize visibility and reduce potential conflict.

b. Design parking facilities to avoid queuing into public streets during peak arrival periods.

c. Provide sufficient off-street parking.

d. Provide adequate sight distance at intersections and driveways.

e. Provide and/or modify traffic signals at intersections.

f. Install left-turn phasing and/or provide multiple turning lanes to accommodate heavy turning movements.

g. Widen the pavement to provide turn-lanes to reduce the interference with traffic flow.

h. Widen intersection approaches to provide additional capacity.

i. Restrict left turns.

j. Provide enhancements to traffic signals, including but not limited to, count-down/audible pedestrian buttons, crosswalks, vehicle detection, battery backup, generator hookups, signal coordination and signal preemption.

5. Transportation Control Measures (Per US Clean Air Act 1990 Amendments, 42 USC 7401):

a. Improved public transit.

b. Restrictions of certain road or lanes to, or construction of such roads or lanes for use by, passenger buses or high occupancy vehicles.

c. Fringe and transportation corridor parking facilities serving multiple occupancy vehicle programs or transit service.

d. The provision of all forms of high-occupancy, shared ride services.

e. Employer-based transportation management plans, including incentives.

f. Secure bicycle storage facilities and other facilities including bike lanes, for the convenience and protection of bicyclists.

g. Construction of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation.

6. Traffic Demand Management (TDM)

Provide a discussion of specific Traffic Demand Management (TDM) measures that will be implemented to reduce peak-hour trips and the expected effect of such TDM measures. TDM measures should maximize the movement of people, not vehicles, and should reduce the dependence on and use of single-occupant vehicles or alter the timing of travel to other, less congested time periods, using the above transportation control measures, and including, but not limited to, the following strategies:

a. Improve/increase alternatives to single occupancy vehicles, including transit service, carpooling, vanpooling, jitney service and provisions for walking and bicycling where appropriate.

b. Use of incentives and disincentives such as preferential parking, direct subsidies to high occupancy vehicle users.

c. Better management of work hours, including the use of flexible hours (flex-time), staggered work hours, and modified work schedules (work from home, telecommuting, 4-day workweek).

d. Encourage truck deliveries during off-peak hours.

e. Establish a monitoring program to ensure that actual traffic volumes do not exceed projected volumes. Monitoring period shall be determined by the DRT.

E. Level of Service (LOS)

The Applicant shall undertake mitigation or other corrective measures on or off-site as determined by the DRT so that traffic levels at any affected intersection or roadway remain at an acceptable Level of Service. As determined by the DRT, the applicant may address traffic problems resulting from the development by incorporating on or off-site design modifications/improvements or by contributing to the cost of off-site improvements.

F. County Road Improvements

1. Road Widening

a. Each land development requiring County site plan approval shall install curbing, ADA compliant ramps where required and pavement along the entire property

frontage that may include transitions beyond the property frontage, in accordance with this Ordinance, the Map of Bergen County Required Road Right-of-Way Widths (Appendix J), and the County Engineer.

b. The DRT may modify the roadway widening standards in consideration of the following:

1) When additional widening may be required for County roads that are part of a designated bike and/or mass transit route (e.g. BRT) as indicated in the County Master Plan.

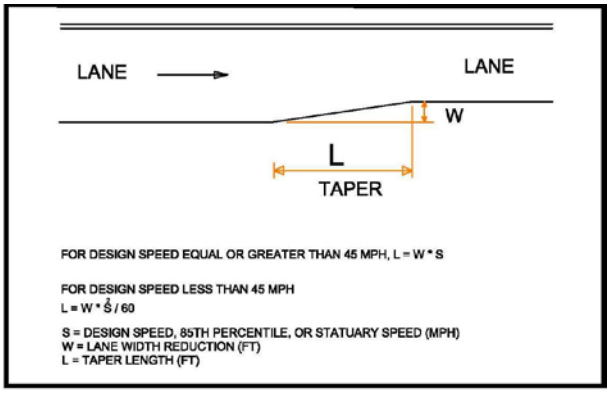
2) Where the pavement width and curb have already been established by previous road improvements.

3) To be consistent with pavement and curbing shown on a County intersection and/or roadway improvement plan.

4) Where a redevelopment plan or other plan has been adopted by the municipality and accepted by the County with specific standards and widths of roadways and right-of-ways.

c. All road widening shall be constructed in accordance with the requirements specified in this Ordinance, or as directed by the DRT.

d. A roadway transition from the new curb or proposed edge of pavement to the existing curb or edge of pavement shall be constructed of either concrete or rolled macadam. The type of curbing shall be determined by the DRT. The transition length shall be in accordance with the MUTCD roadway transition formula below:



2. Right-of-Way Grading

a. County right-of-way or easement areas that slope toward the County road shall be graded to a maximum cross-slope of two (2%) percent.

b. County right-of-way or easement areas that slope away from the County road shall be graded to a maximum slope of two (2%) percent away from the County road or to a grade acceptable to the DRT.

3. Alignment and Grade of Curb

a. The alignment and grade of curb and pavement is to be determined based on what is established or existing in the area and subject to the approval of the County Engineer.

b. The DRT may modify the alignment and grade of the curb and pavement as deemed necessary to ensure proper drainage.

4. Driveways

The following standards shall apply to all driveways:

a. No driveway that intersects a County road shall be constructed or modified unless a road opening permit is first obtained from the County Operations Division.

b. Number of Driveways:

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 efficiency along the County road is compromised. Such conditions shall be determined and the number of permitted driveways specified by the DRT.

Number of Access Driveways Permitted	
Length of Property Frontage	**Maximum Number of Driveways**
150 Feet or less	1
Greater than 150', but less than 300'	2
300 feet or more	To be determined by the DRT

c. Location of Driveways

1) All entrance and exit driveways to a County road shall be located to afford maximum safety on the County road.

2) No entrance or exit driveway shall be located on the following portion of a County road: on a roundabout; on a ramp of an interchange; or within twenty (20) feet of the beginning of any ramp or other portion of an interchange.

3) Where two or more driveways connect a single site to any one County road, a minimum clear distance of fifty (50) feet measured along the existing or proposed right-of-way line shall separate the closest edges of any two such driveways.

4) Where a site occupies a corner of two intersecting roads, no driveway entrance or exit shall be located on the corner radius or within twenty (20) feet of the point where the curb return of the street intersection and curb line meet.

5) No part of any driveway shall be located within ten (10) feet of a side property line. This requirement may be waived in cases where a common access is proposed between the subject property and any abutting property.

6) Access to a County road may not be permitted if the site also abuts a municipal or adjacent driveway and access to the municipal road or adjacent driveway can be provided.

7) On sites abutting a County road for which a traffic control/intersection improvement plan has been prepared, the DRT may require that driveways or other site plan features for which plan approval is being sought, conform in location and design to the provisions of the traffic/intersection plan.

d. Geometric Design

The geometric design of a driveway connection to a County road should be governed by accepted traffic engineering principles. Below are requirements for preparing a geometric design, but deviations from them as determined by the DRT may be necessitated due to the many variables encountered in the course of preparing a site design. The applicant should be aware that although the driveway design may conform to these requirements, site conditions may dictate deviations from them.

1) Driveways shall intersect the County road at a horizontal angle as near to 90 degrees as site conditions will permit for a minimum distance of thirty (30) feet from the gutterline, and in no case shall be less than 60 degrees unless acceleration and deceleration lanes are provided.

2) The radii of curbs at intersections where either or both roads are in the County road system shall be set at a minimum of thirty (30) feet unless otherwise determined by the DRT.

3) When a proposed driveway is to serve any land development providing fifty (50) or more parking spaces, curbing may be swept back as curb returns as in the case of a street intersection. Depressed curb shall still be required along the gutter line of the driveway's opening when using this type of design.

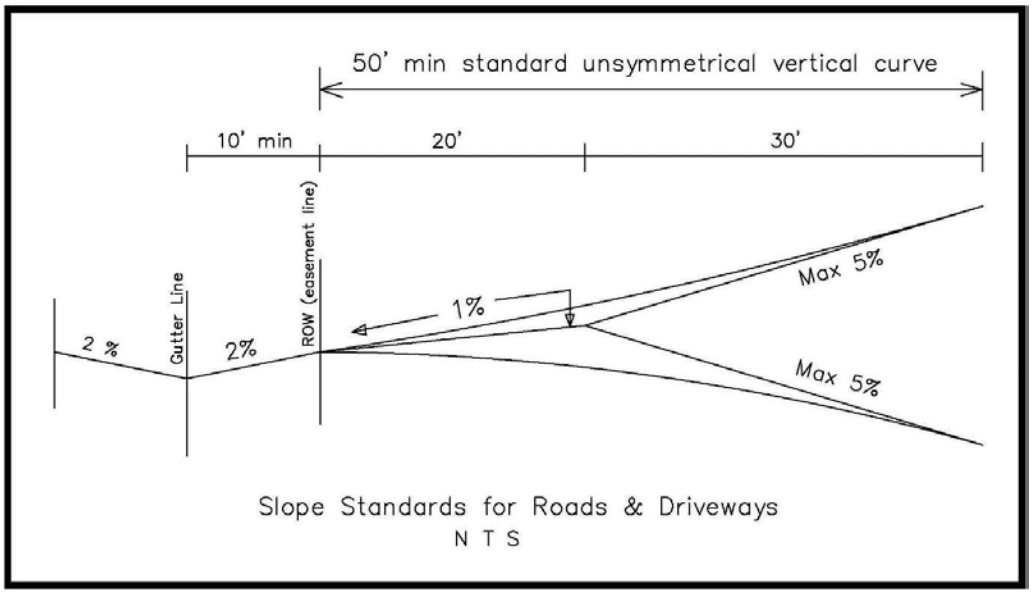
4) Any vertical curve on a driveway shall be flat enough to prevent the dragging of any vehicle undercarriage.

5) In cases where a sidewalk approaches a driveway the gradient shall be determined by Federal ADA accessibility guidelines.

6) The maximum permitted gradients for driveways shall not exceed the following:

a) Slope Toward County Road:
A one (1%) percent grade on the tangent for a distance of twenty (20) feet from the right-of-way/easement line and a five (5%) percent grade on the tangent for a distance of thirty (30) feet therefrom. The vertical curve shall be a total of fifty (50) feet.

b) Slope Away From County Road:
A one (1%) percent grade on the tangent for a distance of twenty (20) feet from the right-of-way/easement line and a maximum negative five (-5%) grade on the tangent for twenty (20) feet therefrom. The vertical curve shall be a total of fifty (50) feet.



Note: The vertical curve portion of the diagram above also applies to driveways using a concrete apron.

7) If the driveway serves a land use having less than fifty (50) parking spaces, a depressed curb with concrete apron shall be used. Where a sidewalk is existing or proposed along the property frontage the concrete apron for the driveway shall be ramped to the sidewalk. The concrete apron shall not exceed a cross-slope of fourteen (14%) percent based on a five (5') foot wide apron. The cross-slope of the sidewalk shall not exceed

two (2%) percent. If an apron and sidewalk design cannot be achieved and the crosswalk is to be combined with the apron, the crosswalk portion of the apron shall be a minimum of four (4) feet in width and not exceed a cross-slope of two (2%) percent.

e. Driveway Dimensions

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

1) The required minimum dimensions for driveways are indicated in the following table:

Driveway Width in Feet			
Use	**One-Way**	**Two-Way**	**Curb Radii**
Residential	12'-15'	24-30'	10'-15'
Commercial	15'-20'	24'-34'	15'-20'
Industrial	18'-25'	30'-36'	30'-45'

2) For Apron style driveways, a five (5) foot flare shall be provided on the entering and exiting side of the apron to facilitate these maneuvers.

f. Sight Distance at Driveways

Sight distances shall meet the Design Sight Distance shown in Tables 1 and 2 below.

1) With marked crosswalk:

Any exit driveway or driveway lane shall be designed in profile and grading and shall be located to permit the following minimum design sight distance measured in each direction along the County road (see graphic). The measurement shall be from a point measuring fifteen (15) feet behind the gutter line and the eye level shall be three and half (3.5) feet above grade to a point two (2) feet above the center of all lanes, not the centerline.

2) Without marked crosswalk:

Any exit driveway or driveway lane shall be designed in profile and

grading and shall be located to permit the following minimum design sight distance measured in each direction along the County road (see graphic). The measurement shall be from a point measuring ten (10) feet behind the gutter line and the eye level shall be three and half (3.5) feet above grade to a point two (2) feet above the center of all lanes, not the centerline.

3) The following note shall be provided on the applicable drawings: Shrubbery, plantings, walls, signs and/or other visual barriers that could obstruct the sight distance of a driver preparing to enter the roadway are prohibited within the defined sight distance.

4) The bottom of any business identification sign constructed on pylons shall be a minimum of eight-four (84) inches measured from the driveway pavement of where the sight distance is measured from.

5) The DRT reserves the right to request additional sight distance based on existing conditions.

SIGHT DISTANCE FROM A DRIVEWAY

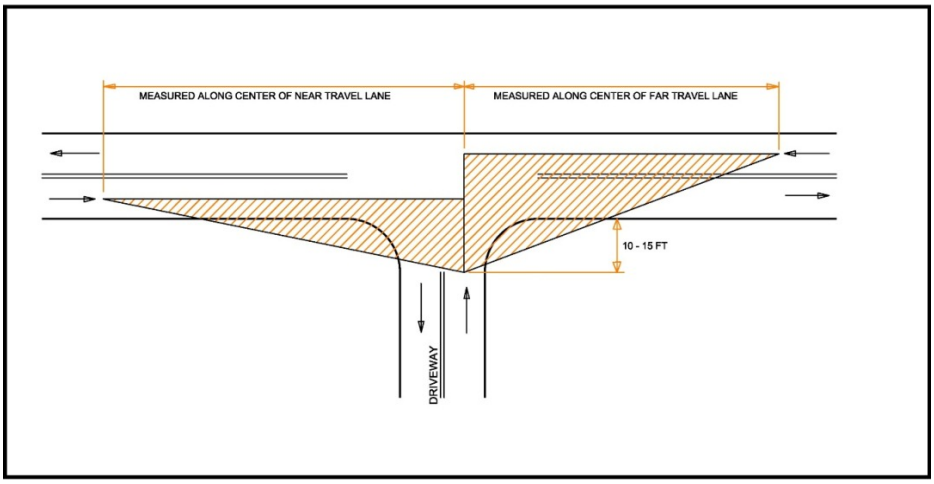


Table 1
Left turns from a driveway*

Design Speed (mph)	Stopping Sight Distance (ft)	Design Sight Distance (ft)
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500

***Design Intersection Sight Distance shown is for a stopped passenger car turning left onto a two-lane roadway with no median and a grade of less than 3 percent. For all other conditions, the distance must be adjusted and recalculated.*

Table 2
Right turns (and crossing maneuver) from a driveway*

Design Speed (mph)	Stopping Sight Distance (ft)	Design Sight Distance (ft)
25	155	240
30	200	290
35	250	335
40	305	385
45	360	430

**Design Sight Distance shown is for a stopped passenger car turning right* (and crossing maneuver) *onto a two lane roadway with no median and a grade of less than 3 percent. For all other conditions, the distance must be adjusted and recalculated.*

Source: A Policy of Geometric Design for Highways & Streets, AASHTO 2011, 6th Ed., Section 9.

5. Acceleration and Deceleration Lanes

a. A thirteen (13) foot wide acceleration lane/deceleration lane shall be provided to safely and efficiently accommodate the traffic generated by a site designed to serve:

1) A residential use that proposes 200 or more parking spaces.

2) A proposed business or commercial use that occupies a site of more than four (4) acres of land.

3) A proposed industrial, manufacturing or warehousing use that occupies a site of more than fifteen (15) acres of land.

4) A proposed combination of uses on the same site for which a total of 200 or more parking spaces is required by municipal ordinance or provided.

b. The width of the acceleration lane and deceleration lane shall be measured from the outside edge of the traveled way of the County road and the length measured from the centerline of the new driveway.

c. Lane length and required taper shall be based on the posted speed limit of the road (see table below):

Acceleration/Deceleration Lanes		
Acceleration Lanes		
Posted Speed Limit	**Full Width – 13 Foot**	**Taper**
25 MPH to 35 MPH	200 feet	150 feet
40 MPH to 45 MPH	300 feet	200 feet
50 MPH and over	450 feet	250 feet
Deceleration Lanes		
Posted Speed Limit	**Full Width – 13 Foot**	**Taper**
25 MPH to 35 MPH	150 feet	25 feet
40 MPH and over	200 feet	25 feet

6. Special Turn Lanes

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

a. Where a Master Plan, Official Map or Traffic Control Plan/Intersection Plan for a particular location or countywide area exists which shows the proposed location of jughandles and/or overpasses.

b. Where in the interest of safety and traffic flow such special turning lanes are necessary.

7. Pavement

a. Each land development requiring County site plan approval shall install pavement in the area between the existing edge of pavement and curbing along the entire improved portion of the property frontage.

b. Pavement design standards for all County roads shall conform to the specifications found in the County Engineer's *Design and Construction Plans and Standards.*

c. Existing pavement shall be milled from the crown of the road along the entire property frontage when determined by the DRT or Department of Public Works, Operations Division. The geometric shape of the newly installed pavement shall have a minimum two (2%) percent cross-slope from the edge of the existing

pavement to the new curb line or proposed edge of pavement and shall conform to proper design as approved 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.

8. Curbing

No curbing shall be constructed on a County road without site plan approval, or if determined by the DRT a road opening permit from the Department of Public Works, Operations Division.

a. Full Height

1) Curbing shall be required for drainage purposes, safety and the delineation and protection of the pavement edge.

2) Each land development shall install curbs along the entire property frontage.

3) Curbs shall be constructed according to the County Engineer's *Design and Construction Plans and Standards* and shall comply with the Americans with Disabilities Act (ADA) standards.

4) The alignment of curbing is to be determined by the DRT.

5) All curbing, shall have an eight (8") inch curb face and be constructed in accordance with current County design standards.

6) To facilitate the installation of ADA compliant ramps, curb height approaching the ramps may transition to less than eight (8") inches as determined by the DRT.

b. Depressed Curbs

1) Curbing shall be designed to provide a curb ramp in compliance with the Americans with Disabilities Act (ADA).

2) For all driveways, a depressed curb shall be used. The height of such depressed curb shall be no more than one and a half (1 ½) inches above the gutter grade.

9. Sidewalks

The County recognizes the importance of sidewalks in supporting pedestrian mobility and safety. Connectivity of sidewalks also provides pedestrians access to mass transit

facilities. Each land development requiring County site plan approval shall provide a sidewalk, within the County road right-of-way/easement, if such is required by municipal ordinance. Where no local ordinance requires a sidewalk the DRT may require a sidewalk in the County right-of-way/easement.

a. Sidewalk Placement

1) Sidewalks shall be placed in the County right-of-way/easement, parallel to the street at a minimum of five (5') feet behind the curb line unless an exception has been permitted to preserve topographical or natural features, or to provide visual interest, or unless the applicant demonstrates that an alternate pedestrian system provides safe and convenient circulation.

2) Where a municipal streetscape plan exists, that has been reviewed and accepted by the County, the sidewalk location shall comply with the municipal plan.

3) Installation of off-site sidewalk may be required to connect sidewalk being proposed along the property frontage to existing sidewalk in the vicinity of the site.

4) Installation of off-site sidewalk may be required to provide access to mass transit services.

b. Sidewalk Construction Specifications

1) Sidewalks shall be constructed in accordance with the standards and specifications of the Americans with Disabilities Act (ADA), the Manual on Uniform Traffic Control Devices (MUTCD), the New Jersey Department of Transportation (NJDOT) and County requirements.

2) Where pedestrian crosswalks exist or are proposed, sidewalks and curbs shall be designed with curb ramps in accordance with Federal ADA accessibility guidelines, MUTCD, NJDOT standards and County requirements.

3) All curb ramps shall be constructed of reinforced Class "B" Concrete unless otherwise specified.

4) Sidewalk widths shall be a minimum of four (4) feet. Where sidewalks abut the curb, widths shall be a minimum of six (6) feet.

5) All sidewalks within the County right-of-way / road widening easement shall have a maximum cross-slope of two (2%) percent toward the County road.

6) Pavers may be used when required by the municipality.

7) The use of pervious pavers is encouraged where appropriate.

c. Sidewalk Maintenance

The maintenance of the sidewalk is the responsibility of the property owner(s) in accordance with New Jersey State Statue, Title 40:65-14.

10. Street Amenities

The placement of street amenities such as, bus shelters, bike shelters and bike racks in the County right-of-way, shall be encouraged subject to approval by the DRT of its location and subject to the following conditions:

a. Any street amenities shall be appropriately fixed or of sufficient weight to preclude its accidental rearrangement by persons, vehicles or natural forces.

b. Items should be durable. Street amenities 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.

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

d. Street amenities shall not obstruct sight lines at any intersection and/or vehicular access point.

e. Street amenities shall comply with all applicable ADA standards.

11. Crosswalks and Pedestrian Signals

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

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

c. Detectable accessibility warning surfaces (DWS) shall be provided in accordance with Federal ADA accessibility guidelines.

d. Pedestrian audible/ countdown signals and call buttons must be provided for all signalized intersections in accordance with Federal ADA accessibility guidelines.

e. Striped crosswalks shall be delineated with high visibility reflective thermoplastic material. Crosswalks may be constructed with colored or textured material approved by the County Engineer.

12. Accessible Public Rights of Way

a. The Americans with Disabilities Act (ADA) requires that any of the following construction within the public right-of-way be in strict compliance with this Act:

1) New construction of any driveway or sidewalk within the County right-of-way, which may include curb ramps within the intersecting municipal right-of-way.

2) Reconstruction of any existing driveway or sidewalk within the County right-of-way, which may include curb ramps within the intersecting municipal right-of-way.

b. The Applicant shall provide the County with a signed and sealed 1"=5' scale (or as required) drawing of the proposed or re-constructed ADA compliant ramp and shall include, but not be limited to, the following information:

1) Cross sections;

2) Spot elevations and dimensions at all key locations;

3) Slopes with corresponding percent;

4) Location of above ground utilities such as poles, traffic control equipment and sign posts;

5) Location of drainage structures such as inlets and manholes;

6) Location of aboveground structures such as buildings, fences and walls, and

7) Location of at grade and underground utilities.

c. The design and construction of curb ramps shall be certified by the design engineer and verified by the municipal engineer.

d. Any deviation from ADA standards necessitated by field conditions that prevent the construction of a fully compliant curb ramp shall only be constructed if a Technical Infeasibility Waiver is approved by the County Engineer. The Applicant shall submit an application (see Appendix I) for a Technical Infeasibility Waiver to the County Engineer.

e. The applicant's engineer shall provide as-built drawings and a signed and sealed Compliant Construction Certification (see Appendix I), to the County ADA Coordinator for review and approval upon completion of construction. Any construction that resulted in non-compliant curb ramp without a previously approved Technical Infeasibility Waiver shall be removed and a compliant ramp

shall be constructed. All slopes are subject to compliance verification with an electronic level.

13. Bikeways

a. A bikeway shall be provided within or adjacent to the County right-of-way if such is required by any municipal plan, and approved by the County Engineer.

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

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

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

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

2) Shared lanes which are designed to accommodate the shared use of the roadway by bicycles and motor vehicles and which may or may not be marked with sharrows or signage.

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

4) Bicycle lanes separated from the roadway.

e. The County Engineer may require increased widths to accommodate sight distances, truck traffic, steep grades or traffic calming measures.

f. Bicycle-safe drainage grates shall be used in the construction of all catch basins wherever road improvements and/or drainage connections are proposed.

14. Utilities

a. Poles

1) Any cost associated with the relocation of utility poles necessitated by, but not limited to, road improvements, sidewalk installation, driveway location, ADA compliant ramps and drainage improvements will not be the responsibility of the County.

2) The location of the utility pole(s) shall be determined by the utility authority, but in no case shall the face of pole be relocated closer than

eighteen (18”) inches from the back of the curb, or interfere with any improvements approved by the County and/or ADA accessibility.

3) The height of utility poles at signalized intersections shall be sufficient so that no utility wires or cables interfere with a driver’s line of sight of the signal heads.

b. Subsurface

1) Any cost associated with the relocation of subsurface utilities necessitated by, but not limited to, road improvements, sidewalk installation, driveway location, ADA compliant ramps and drainage improvements will not be the responsibility of the County.

2) Relocation of underground electric service that is necessitated by any modifications/removal/relocation of utility poles now and in the future is the responsibility of the property owner, and not the County.

15. Driveway Medians and Islands

a. Where appropriate the DRT may consider a traffic control median or island to facilitate the safe and expeditious movement of traffic entering and exiting the land development. Such medians and islands may serve as pedestrian safety islands or traffic channelization islands. In all cases, medians and islands are to be designed, signed, illuminated and marked in accordance with the *Manual of Uniform Traffic Control Devices* (MUTCD), *A Policy on Geometric Design of Highways and Streets*, as amended, Federal ADA guidelines, and the following County design standards:

1) Medians shall be a minimum width of six (6) feet, as measured from the inside of the curb and be located be located fifteen (15) feet behind the gutterline of the County road unless otherwise specified by the DRT.

2) Islands shall be set at two (2) feet behind the gutterline of the County road unless otherwise specified by the DRT.

3) All traffic control islands designed for right turn only maneuvers shall be a minimum of 250 square feet or as determined by the DRT. Traffic control islands that are less than 250 square feet may be done by pavement striping as determined by the DRT.

16. Traffic Control Measures

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

a. The County Planning Board may require the installation of traffic control measures at intersections and driveways depending on the need as determined by the DRT.

b. All required traffic control measures provided by the applicant shall conform to Federal, State and County traffic standards and details.

c. All required traffic control measures provided by the applicant shall be maintained by the property owner and not the County of Bergen.

d. Traffic calming measures may be required by the County and shall be constructed in accordance Federal, State and County standards and details.

17. Traffic Signals

a. Where a development warrants the installation of a traffic signal, the applicant may be required to prepare plans, specifications, and construct a traffic signal to mitigate traffic generated by the proposed development and/or to provide the safe and efficient movement of traffic along the County road.

b. The applicant may be required to provide a fair share contribution for the improvement to any traffic signal that will be impacted by the proposed development.

c. Where it is determined that a traffic signal may be warranted in the near future, the applicant 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 applicant and shall remain in effect for five (5) years from the date of the first occupancy within the land development.

d. If and when a traffic signal becomes necessary during the five (5) year period cited in c. above, the applicant shall prepare plans, specifications, and construct the traffic signal, as directed by the County.

e. In all cases, no traffic signal shall be installed unless it meets the warrants as specified in the *Manual of Uniform Traffic Control Devices* (MUTCD), and approved by the County Engineer.

f. The applicant may be required to upgrade existing County owned traffic signals and related equipment.

18. Roundabouts

Where the situation warrants a self-regulated method of intersection control or involves awkward intersection alignments or offset streets, the County Engineer may approve the installation of a roundabout.

19. Guide Rail

Guide rail shall be provided or replaced as determined by the DRT, and shall be designed in accordance with NJDOT standards and details. In no case shall any guide rail be removed or installed without the written consent of the County Engineer

20. Traffic Control Signs

a. General

1) The applicant shall provide all signage required by the municipality, County and NJDOT in accordance with the *Manual on Uniform Traffic Control Devices* (MUTCD), USDOT, Federal Highway Administration.

2) The property owner shall be responsible for the maintenance of all traffic control signs relating to the movement of traffic into and out of the subject property.

3) Signs other than those required by the County should be coordinated with other street amenities to unify areas with distinct identity.

4) All existing traffic control signs shall be reset at the time of construction and not stockpiled.

b. Directional, Regulatory and Advisory Signs

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

2) All proposed traffic control signs must conform in face design and construction to specifications found in the MUCTD. Specifically, regulatory and warning signs shall be fabricated of flat aluminum sheets and shall be covered with ASTM D4956 Type XI super high efficiency full cube retro-reflective sheeting.

c. Advertising Signs

1) No advertising sign or device shall be erected on or overhang a County right-of-way and/or easement.

2) No advertising sign or device shall be erected that impedes sight distance at an intersection and/or exit driveway.

3) Advertising signs that revolve, move, flash, give the illusion of movement or resemble official traffic control devices shall be limited to areas where

they would not create a traffic safety problem for motorists or cause confusion to pedestrians or bicyclists.

21. Roadway Striping and Markings

All pavement markings/striping related to traffic control shall be of a reflective hot extruded thermoplastic material, minimum 90 mil. thickness, applied in accordance with Bergen County design standards and the manufacturer's specifications for application.

22. Off-Street Parking and Loading Areas

a. Design of Off-Street Parking Areas

1) Off-street parking areas shall be designed to prevent the maneuvering of vehicles into or out of parking spaces or the storage of vehicles within any portion of an entrance driveway that is within a minimum of twenty (20) feet of the County right-of-way and/or easement. Driveway throats that provide uninterrupted access beyond twenty (20) feet may be required. The length of such access shall be determined by the DRT.

2) Off-street parking areas shall be so designed as to permit all vehicles to turn around on the site in order to avoid the necessity of backing any vehicle onto a County road from the site.

3) No off-street parking, including adjacent parking access lanes or maneuvering space, shall be located within the County right-of-way and/or easement.

4) Handicapped parking shall be provided in accordance with Federal guidelines.

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

6) Bicycle racks should be provided for multifamily, non-residential and mixed-use development projects.

b. Interior Landscaping of Parking Lots

1) For parking areas designed to accommodate twenty (20) or more vehicles, a minimum of ten (10) percent of the parking surface area shall be considered for planted landscaped islands. The incorporation of landscaped islands into stormwater management design and Urban Runoff Mitigation Plans (see Appendix G) through the use of rain gardens and bioswales is strongly encouraged.

2) 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.

c. Off-Street Loading Spaces and Areas

1) No off-street truck loading or unloading space shall be located within the right-of-way and/or easement of the County road including the sidewalk area.

2) Off-street truck loading and unloading spaces shall be located and designed to permit any truck to turn around on-site without encroaching upon any portion of the County right-of-way and/or easement, including the sidewalk area.

23. **Public Transportation and Transit Facilities**

All roads should be designed to accommodate the needs of public transportation vehicles including weight and turning movement requirements in accordance with NJDOT standards and details.

a. The applicant may be required to provide facilities to support/encourage transit use, including the construction of bus turnouts/pullouts, bus lanes, bus shelters, bicycle storage and provisions for transit information, as determined by the DRT.

b. Exclusive bus lanes, entrances and exits should be provided when traffic volumes warrant such facilities, as determined by the DRT.

c. Bus turnouts and pullouts shall be designed in accordance with NJDOT standards and details, New Jersey Transit standards and/or as determined by the DRT.

d. A ten (10) foot long section of the sidewalk shall be extended to the curb for existing and/or proposed transit stops located along the property frontage.

e. Transit shelters shall be considered by the applicant at existing or proposed transit stops along the property frontage and shall be constructed in accordance with NJDOT and NJ Transit design specifications

G. Right-of-Way Encroachments

1. No development that adjoins or includes a County road or roads shall be designed to permit any of the following within the right-of-way:

a. Conduct of private business;

b. Erection of buildings;

c. Permanent or temporary merchandising displays;

d. Vehicular parking areas, servicing of vehicles, service equipment and/or appurtenances thereto;

e. Fencing of any kind, to include living and artificial or fabricated types;

f. Walls of timber, stone, concrete, metal or other materials;

g. Signs of all types, except traffic, regulatory and street signs, and/or

h. Berms, shrubbery and horticultural materials, except trees designated to remain or be planted as a requirement under these or municipal regulations.

2. A property owner may apply to the County for an encroachment agreement for the purpose of outdoor dining if permitted by the municipality (see Appendix B for fee schedule).

H. Right-of-Way (ROW) Dedication

1. The right-of-way requirements for County roads shall conform to the widths shown on the Map of Bergen County Required Road Right-of-Way Widths.

2. All proposed developments that adjoin or include existing County roads that do not conform to the right-of-way widths as shown on the Map of Bergen County Required Road Right-of-Way Widths, shall dedicate the required additional right-of-way width for the entire property frontage along one or both sides of 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 surveyed centerline of the right-of-way.

3. Where by reason of special or unusual conditions or to conform to the Map of Bergen County Required Road Right-of-Way Widths, the total additional right-of-way is to be secured from just one side of the 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 property owner should reserve the remaining area of right-of-way for future acquisition and should so designate the area on the development maps. All building setbacks should be measured and shown from the limits of the future right-of-way line.

3. In cases where the existing right-of-way exceeds the required standard as established by the Map of Bergen County Required Road Right-of-Way Widths, but the distance from the curb line is less than ten (10) feet, the property owner shall convey a minimum of ten (10) feet behind the curb line.

4. When the proposed site development abuts the intersection of two County roads, the County right-of-way requirement shall be increased by an additional ten (10) feet from the centerline of both roads for a distance of two hundred and fifty (250) feet from the

intersection of the centerlines and tapering to the standard right-of-way width over the next 100 feet.

5. In the case where two County roads form a T-intersection the additional ten (10) feet may not be required and the standards shown on the Map of Bergen County Required Right-of-Way Widths or a traffic control/intersection plan may apply, as determined by the DRT.

6. The right-of-way radii at intersections shall be established at a minimum of twenty (20) feet unless otherwise determined by the DRT.

7. In cases where: (1) a municipality has designated an area in need of redevelopment or rehabilitation or adopted a redevelopment plan in accordance with the Local Redevelopment and Housing Law set forth in N.J.S.A. 40A:12A-1 et seq.; and (2) requested improvements to the County road within the designated area in conjunction with the municipality's plan, the County's required right-of-way shall be in conformance with the County improvement plan accepted by the County Engineer.

8. In cases where the County Engineering Division has a roadway or intersection improvement plan, the right-of-way may be established in conformance with that plan as determined by the DRT.

9. When the property frontage contains an existing structure(s) that will remain as part of the development, the additional right-of-way required shall be established up to the structure(s) with the remaining area through the structure(s) reserved for future dedication.

10. The conveyance of land to the County for turning lanes, jughandles, and overpasses to a development may be required, as determined by the DRT.

11. The site plan shall bear the notation "Conveyed to the County of Bergen for Road Purposes", which shall be further defined by metes and bounds. In addition, the applicant shall show concrete monuments to be set on the new right-of-way line or roadway easement line at the corners and any points of curvature.

12. The property owner(s) shall submit to the County a deed of dedication or easement in favor of the County of Bergen in accordance with Appendix E. of this Ordinance.

13. Concrete monuments and /or reference markers in accordance with County design standards shall be set for the proposed right-of-way dedication or roadway easement to be conveyed to the County. New Jersey State Plane Coordinates (NAD83) shall be provided for each monument or reference marker being set for the proposed County right-of-way or easement.

I. Standards and Criteria for Adjusting or Waiving Right-of-Way Requirements

1. The County Planning Board may waive or adjust the right-of-way width requirements where, in such areas as developed business districts or high density residential

neighborhoods, buildings, walls or other structures have been constructed within the proposed right-of-way prior to the enactment of any County right-of-way standards to a point where their alteration or removal would be impractical.

2. Waiver of the County's right-of-way standards will be reviewed by the DRT when the following conditions occur:

   a. The street frontage for a distance of 500 feet from either side of the subject property is at least 85% developed within the proposed right-of-way.

   b. 65% of the subject property's frontage contains structures that will remain within the proposed right-of-way.

3. In no case shall the right-of-way be less than the minimum standard of thirty (30) feet measured from the surveyed centerline, unless otherwise approved by the Planning Board.

J. Other Easements

1. Additional easements including, but not limited to: construction easements, culvert maintenance easements, bridge 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 facilities impacted by the development.

2. Where applicable, the applicant shall be required to attempt to acquire any off-site easements and rights-of-way that are necessary to construct improvements to County facilities that are required in conjunction with the approval of the development by making reasonable offers to the affected property owners. If the applicant is unsuccessful in their attempts to acquire the necessary easements and rights-of-way, proper documentation of same must be provided.

K. Street Trees

In the event that a municipality does not have a shade tree ordinance the following shall apply.

1. Purpose

The planting and maintenance of trees and vegetation throughout Bergen County and along County right-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. Sequester CO_2, reducing its presence in the atmosphere.

e. Reduces air pollutant emissions of NO_2, PM10, volatile organic compounds (VOC's) and SO_2 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 erosion.

i. Provides 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 traffic calming effect to induce desired operating speeds.

o. Creates an interesting pedestrian realm.

2. Tree Selection

Only trees that exhibit the following characteristics shall be selected:

a. Native to New Jersey;

b. Drought tolerant;

c. Urban tolerant;

d. Suitable for local soil conditions;

e. Tolerant of road salts;

f. Have root growth and crown shape that will not be physically intrusive to surrounding utilities, sidewalks or County roads and structures;

g. Adequate canopies at maturity to provide shade and rain absorption, and

h. Require low maintenance.

3. Spacing

a. The spacing of trees shall be determined based upon species and the desired concept. Recommended spacing is every 30'-35' at a point at least ten (10) feet behind the curbline.

b. Location of existing trees may determine the spacing for new trees unless otherwise directed.

c. 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.

d. All trees shall be supplied by a reputable nursery and planted in accordance with the specifications for tree planting along County roadways, promulgated by the County Engineer.

e. All trees shall be guaranteed for a period of one year from the date that all improvements are accepted as complete.

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

4. Planting Location

a. Trees may not be planted such that their mature growth will interfere with utility wires, sight lines or County infrastructure.

b. Trees that grow taller than thirty-five (35) feet should not be planted directly under power lines. When possible the tree leader shall be offset from power lines.

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

1) Ten (10) feet from all buildings;

2) Ten (10) feet from streetlights, utility poles and aboveground utility wires;

3) Three (3) feet from all underground utility lines;

4) Ten (10) feet from a fire hydrant and manhole covers;

5) Ten (10) feet from all drain inlets, catch basins, and trench drains;

6) Ten (10) feet from the curbline;

7) Ten (10) feet from all traffic control signs serving a driveway;

8) Twenty-five (25) feet from a street intersection.

d. All trees shall adhere to the following minimum vertical clearances at maturity:

1) Eight (8) feet above any sidewalk or walkway;

2) Ten (10) feet above bicycle path surfaces.

5. **Miscellaneous**

In cases where a County road is scheduled for improvement and said road improvement will result in a change in alignment or profile of the road that would destroy the improvements undertaken in connection with a site development, the applicant may contribute monies in lieu of all or part of the shade tree improvements required under this Section.

*** END OF SECTION VII ***

SECTION VIII
WALKWAYS and TRAILS

A. Waterfront

1. Proposed developments located along any tidal waterway shall provide a thirty (30) foot right-of-way and sixteen (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.

2. Proposed developments located along any tidal 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 7E-8.11b et-seq.

3. Waterfront walkways shall be provided in accordance with the County Master Plan.

B. Trails

Applicant may be required to convey property for continuance or connectivity of proposed or existing trails.

*** END OF SECTION VIII ***

SECTION IX
DESIGN STANDARDS: STORMWATER MANAGEMENT

A. General Policies

All site plans subject to County approval shall provide for the management of stormwater runoff in a manner consistent with the following policies:

1. All site plans shall provide adequate drainage facilities in accordance with the standards established herein for the management of stormwater runoff that is generated by the development that now flows or will flow directly or indirectly to a County road or through a County drainage facility.

2. The applicant shall be responsible for providing adequate drainage improvements along County roadways as required and in accordance with the County Engineer's *Design and Construction Plans and Standards.*

3. All site plans that produce stormwater runoff tributary to County roadways, County drainage, or stormwater management facilities, shall include a Stormwater Control Plan and Report. The Plan and Report shall describe and detail the proposed drainage improvements that shall be of adequate design and capacity to intercept and convey the stormwater from the proposed development in a manner that does not increase the drainage impact upon such County roads or stormwater management facilities. Details of a Stormwater Control Plan are presented in Subsection B below.

4. Site plans that are not on a County road that propose one (1) acre or more of additional impervious surfaces are required to include a Stormwater Control Plan and Report as described in Subsection B below and to meet all applicable stormwater management requirements and related stormwater management measure and facility standards, details, design methods, and maintenance, safety, landscaping, and reporting requirements contained in Subsections C, K, L, M and N below.

5. Site plans that are on a County road that include one quarter (0.25) acre or more or more of additional impervious surfaces are required to include a Stormwater Control Plan and Report as described in Subsection B below and to meet all applicable stormwater management requirements and related stormwater management measure and facility standards, details, design methods, and maintenance, safety, landscaping, and reporting requirements contained in Subsections C, K, L, M and N below.

6. Any site plan that does not have an adequate drainage outlet, as determined by the County Engineer, and/or causes or increases existing flooding of a County road or adjacent land, is required to submit plans indicating how these conditions will be mitigated. Such mitigation measures may include stormwater management measures and facilities meeting the requirements and related standards, details, design methods, and maintenance, safety, landscaping, and reporting requirements contained in Subsections C, K, L, M and N below.

7. Any site plan proposing to connect to a County drainage system shall provide stormwater management calculations for the 25-year storm indicating the capacity of the downstream County system and the system's ability to adequately accept the flow from the proposed site.

8. All applications for development that drain directly to a tidal body (Hudson River, Hackensack River up to the Oradell Dam, Passaic River up to the Dundee Dam, and Overpeck Creek up to the tide gates) are exempt from providing on-site retention/detention. Applications for development that are tributary to a controlled regional facility (Darlington Lake and Overpeck Creek Lake) shall make improvements as determined by the Development Review Team (DRT) to the controlled regional drainage facility.

9. Where site constraints make on-site stormwater management facilities impractical for physical (e.g., steep slopes or rock conditions) or public health (e.g., septic systems) reasons, a cash contribution in lieu of actual construction may be accepted, as determined by the DRT. The cash contribution will be equal to the DRT approved estimated cost of providing on-site stormwater management facilities that would otherwise have been required.

10. County drainage and stormwater management requirements shall be coordinated with existing municipal stormwater management ordinances.

11. The diversion of flow to County drainage or stormwater management facilities will not be permitted except for flows up to one (1) cubic foot per second (cfs) to a system that can adequately handle this additional flow or as approved by the County Engineer.

12. Any drainage discharge, including sump pumps, is not permitted to drain into the gutter line of a County road through the curb.

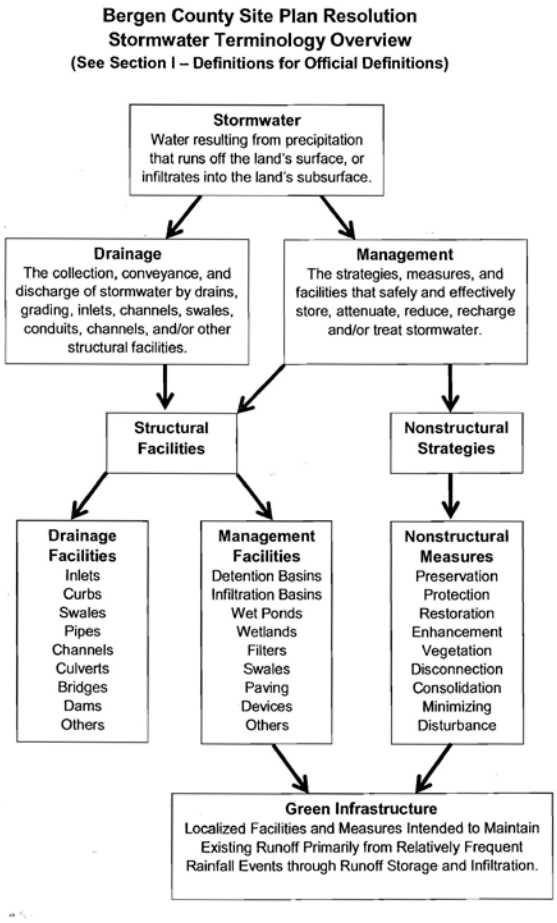
13. Any drainage discharge is not permitted within the public right-of-way of the County road or within ten (10) feet of the right-of-way. This includes discharges from roof gutters and leaders.

14. No fill shall be permitted within the twenty-five (25) year flood plain without compensation for the entire volume of said fill.

15. Where the DRT agrees that site conditions require the placement of uncompensated fill within the twenty-five (25) year flood plain, a cash in-lieu contribution will be placed with the County. The amount of the in-lieu contribution will be calculated based on the price per cubic foot as set by the County Engineer.

16. Site plans shall consider nonstructural strategies and measures and Green Infrastructure facilities and measures and utilize such strategies, measures, and facilities to the greatest practical extent.

17. An overview of the stormwater drainage and management terminology used in this Section is presented below:



B. Stormwater Control Plan and Report

A stormwater control plan and report shall contain, but not be limited to, the following information:

1. An introductory summary of the property's existing topography and hydrological conditions and how the additional stormwater runoff being generated by the development will be conveyed, managed, and/or discharged to meet the requirements of this Ordinance.

2. Separate pre-and-post development contoured drainage area maps outlining areas referenced in the study with acreage, runoff curve numbers, time of concentration and paths, areas detained and undetained, proposed drainage structures, and common points of analysis.

3. Points of analysis must include any proposed connection to any County drainage or stormwater management facility or structure.

4. The resultant changes in the volume and peak rate of runoff for the designated design storms from the various areas on the site toward the County drainage facilities showing, in the instance of stormwater management facilities, the peak inflow, peak outflow, peak

undetained flow and total peak flow shall be presented in a table in the summary of the report.

5. The proposed location of drainage and stormwater facilities, including nonstructural and Green Infrastructure facilities and measures.

6. The location, size, type of slope, and elevation of existing drainage and stormwater management facilities impacted by the development.

7. The peak flow rate, flow path, flow velocities and total runoff storage volumes within existing and proposed on-site stormwater management facilities for the designated design storms.

8. The volume and peak flow rate of stormwater discharged from the subject property to off-site properties and areas for the designated design storms for both existing and proposed site conditions.

9. Hydraulic computations for the analysis and design of the drainage and stormwater management facilities. All calculations, assumptions and criteria used in the design analysis shall be documented, including soil permeability test data and seasonal high groundwater elevation data.

10. Stormwater management facility routing computations by the Storage Indication Method or other appropriate procedure or method for the specified design storms.

11. Data, illustrations and narrative outlining provisions to meet water quality requirements.

12. Computations showing the total additional impervious surface for the development.

13. All hydrologic and hydraulic calculations shall be based on methods approved by the New Jersey Department of Environmental Protection. Other methods may be accepted subject to the approval of the County Engineer.

14. An Urban Runoff Mitigation Plan (URMP) as described in Subsection N.4 below.

C. General Performance Standards

1. Where required by Subsection A above, runoff produced by a proposed site plan shall be managed on-site, in accordance with the requirements in Subsections K, L, M and N below.

2. Drainage and stormwater management facilities and measures shall be designed in such manner as to prevent outlet flow velocities from causing scour, erosion and/or siltation in downstream channels, spillways and all other drainage and stormwater management facilities.

3. The site plan design shall be in accordance with the S*tandards for Soil Erosion and Sediment Control in New Jersey.* Soil erosion and sediment control plans shall be

certified where applicable by the Bergen County Soil Conservation District.

4. The applicant shall post performance guarantees to the municipality or County for the total cost of installation of the approved stormwater management facilities based on estimates of construction quantities to be provided by the applicant.

5. The applicant shall post maintenance guarantees for the upkeep of the approved stormwater management facilities with the municipality.

6. Maintenance of on-site stormwater management facilities, after the release of the maintenance guarantee, shall be the responsibility of the property owners on which the facility is located or the responsibility of a legally constituted home-owners (residents) association, if one exists for the development in question.

D. General Design Standards

1. Methodology

All drainage facilities and stormwater management measures shall be designed using one of the following methods as appropriate:

a. Rational Method for peak discharges of uniform drainage areas up to 50 acres.

b. Modified Rational Method for runoff hydrographs of uniform drainage areas of less than 20 acres.

c. Natural Resources Conservation Service (NRCS) Technical Release or National Engineering Handbook Part 630 for drainage area up to 2000 acres. Computer software and models such as HEC-HMS and TR-20 among others may be utilized to perform computations.

d. Groundwater recharge computations may be performed based upon the New Jersey Groundwater Recharge Spreadsheet (NJGRS) as described in the *New Jersey Stormwater Best Management Practices Manual.*

e. Other methods, software, and models approved by the County Engineer.

2. P**ipelines and Open Channel Hydraulics**

All storm sewers and open channels shall serve two major functions:

a. To carry the discharge for which it is designed.

b. To transport suspended solids in such a manner that deposits are kept to a minimum.

3. Design Formulas

a. Rainfall intensity for the Rational Method and 24-Hour rainfall depths for the NRCS Method shall be taken from the current NJDEP or NOAA rainfall intensity-duration-frequency and/or rainfall depth-frequency data for Bergen County.

b. All stormwater management measures and facilities that are proposed to meet the Stormwater Quality Standards described in Subsection K-2 below shall be based upon the 1.2-Inch, 2-Hour New Jersey Stormwater Quality Design Storm as described in the New Jersey Stormwater Best Management Practices Manual.

c. All pipelines within the development and the County roadway drainage system shall be designed based on 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 stormwater management facilities shall be designed for the 2, 10, 25, and 100-year storm frequencies in addition to any required emergency design standards.

d. The runoff coefficients for the before and after conditions shall be respectively based on the existing and post-development conditions on the site. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the existing condition of a site or portion thereof is a wooded land use with good hydrologic condition. However, a runoff coefficient or groundwater recharge land cover for an existing condition instead of woods may be used if the design engineer verifies that the hydrologic condition has existed on the site or a portion of the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations for that area. In addition, it shall be assumed that all land covers are in good hydrologic condition and with the greatest level of conservation treatment if the land use type is cultivated agricultural lands.

e. The values of runoff coefficients shall be approved by the County Engineer and shall be in accordance with typical values established by the NRCS and the Rational and Modified Rational Methods.

f. In computing existing condition stormwater runoff, the design engineer shall account for all significant land features and structures such as ponds, wetlands, depressions, hedgerows, or culverts that may affect pre-construction stormwater runoff rates and volumes.

g. In computing stormwater runoff from all design storms for both existing and post-development conditions, the design engineer shall compute the stormwater runoff rates and volumes of pervious and directly connected impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from a drainage area. To calculate runoff from unconnected impervious surfaces,

urban impervious area modifications as described in the New Jersey Stormwater Management Practices Manual or other methods approved by the County Engineer may be employed.

h. The minimum design velocity for pipes shall be 2.5 feet per second and the maximum design velocity shall not exceed ten (10) feet per second.

i. The friction factor Manning Coefficient "n" for pipe conduits shall be in accordance with NJDOT *Roadway Design Manual Table 10-8, Section 10.6, Storm Drains.*

4. Line Transition

For pipes sizes less than 48 inches in diameter, all transition in slope, horizontal direction, junction, and change in pipes sizes and/or material shall be confined to manholes, catch basins, or other accessible structures designed for one or more of these purposes. For pipes 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 (10) 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 in the following table:

Open Channel Flow Permitted Velocities

Soil Type	Allowable Velocities (in feet per second)
Sands	1.8 fps
Sandy Loam (noncollodial)	2.5 fps
Silt Loam (also high loam clay)	3.0 fps
Sandy clay loam	3.5 fps
Clay Loam	4.0 fps
Clay, fine gravel (graded loam to gravel)	5.0 fps
Cobbles	5.5 fps
Shale	6.0 fps
Concrete lined ditch	10.0 fps

Channels, swales and other drainage systems shall be protected by the use of vegetation, rip-rap, or paving subject to the approval by the County Engineer.

E. Design Standards for County Road Storm 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 shall be 2.5 feet per second and the maximum design velocity shall not exceed ten (10) feet per second.

4. Minimum pipe diameters shall be 18 inches, unless otherwise approved by the County Engineer.

5. Pipes used shall be reinforced concrete pipe (RCP), Class III, Wall B, unless otherwise directed and approved by the County Engineer, and shall have a minimum of two (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 these purposes. The designer shall match pipe overts or provide hydraulic gradient calculations to determine the hydraulic losses in the manhole transitions.

7. Pipes starting or terminating in an open ditch shall have suitable headwalls which may include wingwalls, half end walls, aprons, rip-rap, flared end section (FES) or other appropriate structure conforming to NJDOT standards and details.

8. Design engineers shall use the NJDOT Type "N-Eco" curb piece with a bicycle safe grate, which is described in Chapter 2.4 of the NJDOT *Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines*.

9. Type "A" and Type "E" inlets or any other type of flat grate inlet will not be permitted within the County road pavement, unless otherwise approved by the County Engineer.

F. County Road Storm Drainage Layout

1. Inlet spacing shall not exceed three hundred (300) feet or a design inlet flow of 6.0 cubic feet per second (cfs), whichever conditions shall be more stringent. Access manholes shall be spaced at three hundred (300) foot intervals (maximum) through the right-of-way and at junctions where there are no catch basins.

2. Inlets shall be located to intercept stormwater runoff before the runoff crosses intersections or crosswalks.

3. "Dish" street intersections are not permissible. Sufficient catch basins shall be installed at street intersections and at low points in the street grade to avoid gutter over-flow.

4. All drainage facilities upon completion of construction shall be cleared of all debris, dirt and other objectionable material, to their outfall by the applicant.

5. If required, grease traps, oil skimmers, sediment basins and other water quality improvements, or *Best Management Practices* (BMP's) structures shall be installed as required per NJDEP.

G. County Road Drainage Construction Standards

1. All inlets and manholes shall conform to 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 the American Society for Testing and Materials (ASTM) Specification C478-11 and shall withstand an HS-20 highway loading in accordance with current *NJDOT Standard Specifications for Road and Bridge Construction, 2007.*

3. The top one (1) foot of all County maintained precast inlets and manholes are to be given a factory coating of an epoxy sealer on both the inside and outside face of the structure. The epoxy sealer shall be EUCOPOXY LPL MV material supplied by the Euclid Chemical Company or equal as per the NJDOT 2007 Standard Specifications for Road and Bridge Construction Subsection 912.02.02.

H. Existing County Bridges and Culverts on County Roads

1. All modifications to existing culverts or bridges shall be designed and constructed in accordance with NJDOT *Roadway Design Manual, Section 10.8 Drainage Design.*

2. Where road pavement widening is required by this Ordinance, the applicant shall extend the bridge or culvert 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 overall traveled way be less than thirty (30) feet (15 feet from centerline).

3. Where this Ordinance requires widening on both sides of the road, the bridge or culvert shall be extended, or replaced as specified by the County Engineer.

4. Where the existing bridge or culvert is found to be structurally or hydraulically inadequate to serve the proposed development, then the total replacement of the structure may be required by the County Engineer.

5. A proportionate share contribution toward the replacement of the bridge and culvert may be accepted when bridges and culverts are scheduled for replacement but immediate replacement is found to be impossible or impractical. The proportionate share amount will be determined by the County Engineer.

6. Where the applicant's road frontage includes both sides of the stream and the existing

structure is scheduled for replacement, the applicant shall make a cash payment sufficient to cover the proportionate share of the improvement. The amount of such cash payment shall be determined by the County Engineer.

7. The design of bridges and culverts to be extended or replaced shall be approved by the NJDEP and conform to the procedures and standards of the *NJDOT Design Standards for Bridges and Culverts*.

8. Prior to commencement of construction, the applicant will be required to contact the County Engineering Division.

9. A culvert and bridge maintenance and reconstruction easement shall be provided to the County, the size of which shall be determined by the DRT.

I. 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.

2. The applicant shall be required to pay a proportionate share of the cost of correcting an adverse drainage condition when the County Engineer determines that a development situated in the 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 this Ordinance.

3. The proportional cost of such facilities to be paid by the applicant whose proposed site development would drain into said facilities will be equal to the proportion that the acreage of the proposed site development bears to the acreage of the entire drainage area upstream of the facilities.

4. The proportional cost of the drainage facilities installed or altered will be the estimated cost of installing the new facilities as calculated by the County Engineer plus 10 percent for contingencies. In cases where the payment is to be made toward the proportional cost of the 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.

J. Soil Erosion and Sediment Control

1. Applicants must provide soil erosion and sediment control measures in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*, as revised.

2. All development must provide a construction access that shall be designed in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*, as

revised.

K. Stormwater Management Requirements

Where required by Subsection A above or as determined necessary by the County Engineer, the applicant must construct or otherwise implement stormwater management facilities to manage the volume of runoff, rate of discharge, and quality of water being discharged from the site and the volume of groundwater recharged on the site in accordance with the standards described below. If municipal requirements exist which differ from those of the County, the more stringent of the two requirements shall apply.

1. Stormwater Quantity Standards

a. In order to manage stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations in Subsection 3-d above, meet one of the following:

1) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2, 10, 25 and 100-year storm events do not exceed, in a meaningful way at any point in time, the pre-construction runoff hydrographs for the same storm events;

2) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2, 10, 25 and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the overall drainage area both at and downstream of the project site;

3) Design on-site stormwater management measures and facilities so that the post-development peak runoff rates for the 2, 10, 25 and 100-year storm events from the project site are 50, 75, 75, and 80 percent, respectively, of the existing peak runoff rates. The percentages apply only to the post-development stormwater runoff that is attributable to the portions of the site on which the proposed development is to be constructed. The percentages do not need to be applied to post-development stormwater runoff from offsite areas or onsite areas that are not proposed for development at the time of application. However, such onsite areas must either be subject to separate County review if they are developed in the future or must be preserved in their existing condition through a conservation easement or other County or state requirement that prohibits their future development;

b. In tidal flood areas, the stormwater runoff quality standards in Subsections

K.1.a, 1, 2 and 3 above shall only apply if the increased volume of stormwater runoff could increase flood damages downstream of the site's point(s) of discharge.

c. As described in detail in Subsections K.4 and K.5 below, the stormwater quality standards described above shall be met to the maximum practicable extent by nonstructural stormwater management strategies and measures and Green Infrastructure measures and facilities.

2. Stormwater Quality Standards

a. In order to manage stormwater runoff quality impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations in Subsection 3-D above, design stormwater management measures and facilities to reduce the average annual total suspended solids (TSS) load in the site's post-development stormwater runoff by 80 percent if the proposed project will increase the site's existing impervious surface by 0.25 acres or more. This standard may be met by conveying and treating all of the runoff from 1.25-Inch, 2-Hour New Jersey Stormwater Quality Design Storm through one or more stormwater management measures and/or facilities that have annual TSS removal rate of 80 percent.

b. 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.

c. For purposes of annual TSS load reduction calculations, the TSS removal rates for various stormwater management measures and facilities shown in the Table below shall be used. Additional details regarding these measures and facilities and their TSS removal rates can be found in the New Jersey Stormwater Best Management Practices Manual. Alternative removal rates and methods of calculating removal rates may be used subject to prior approval by the County Engineer.

TSS Removal rates for Stormwater Management

Measures and Facilities

Measure of Facility	Annual TSS Percent Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland90	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	Refer to manufacturer specifications
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

d. If two stormwater management measures and/or facilities in series are necessary or otherwise utilized to achieve the required 80 percent TSS reduction, the applicant shall utilize the following formula to calculate the total TSS reduction of the two in-series measures and/or facilities:

$$R=A+B-(AXB)/100$$

Where:
R=Total Annual TSS Removal Rate from Both Measures and/or Facilities.
A=Total Annual TSS Removal Rate from Upstream Measures or Facility.
B=Total Annual TSS Removal Rate from the Downstream Measure of Facility.

e. If runoff from the Stormwater Quality Design Storm or smaller events is discharged from the site at more than one location, the 80 percent annual TSS removal rate shall apply to each discharge point. If separate stormwater management measures or facilities are used to treat runoff from separate drainage subareas draining to the same site discharge point, the total TSS removal rate at the discharge point can be based upon the weighted average of each measure's or facility's annual TSS removal rate and their relative drainage subarea sizes.

f. As described in detail in Subsections K.4 and K.5 below, the stormwater quality standards above shall be met to the maximum practicable extent by nonstructural stormwater management strategies and measures and Green Infrastructure measures and facilities.

3. Groundwater Recharge Standards

a. In order to manage groundwater recharge impacts, the design engineer shall, using the assumptions and factors for stormwater calculations as stated in Subsection 3-d below, meet one of the following:

1) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or

2) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from the pre-construction to post-construction for the 2-Year, 24-Hour storm is infiltrated.

b. This groundwater recharge requirement does not apply to projects within an "urban redevelopment area", or to projects subject to Item c. below.

c. The following types of stormwater shall not be recharged:

1) Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents or petroleum products are loaded/unloaded, stored, or applied; areas 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

2) Industrial stormwater exposed to "source material".

d. 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 not limited to, exacerbating a naturally or seasonally high water table so as to cause surficial ponding, flooding of basements, or interference with proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity or down gradient of the groundwater recharge area.

e. As described in detail in Subsections K.4 and K.5 below, the groundwater recharge standards described above shall be met to the maximum practicable extent by nonstructural stormwater management strategies and measures and Green Infrastructure measures and facilities.

4. **Nonstructural Stormwater Management Standards**

a. To the maximum extent practicable, the standards in Subsections K.1, K.2 and K.3 shall be met by incorporating nonstructural stormwater management strategies set forth below into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures

identified below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for contention.

b. Nonstructural stormwater management strategies incorporated into site design shall:

1) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;

2) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;

3) Maximize the protection of natural drainage features and vegetation;

4) Minimize the decrease in the "Time of Concentration" from pre-construction to post-construction.

5) Minimize land disturbance including clearing and grading;

6) Minimize soil compaction;

7) Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;

8) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;

9) Provide other source controls to prevent or minimize the use or exposure of pollutants into stormwater runoff. Such source controls include, but are not limited to:

a) Site design features that help to prevent accumulation of trash and debris in drainage systems;

b) Site design features that help to prevent discharge of trash and debris from drainage systems;

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

d) 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.

c. Site design features identified under Subsection K.4.b.9 above should comply with the following standard to control passage of solid and floatable materials through a storm drain. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids.

1) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

a) The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guideline (April 1996); or

b) A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 0.5 inches across the smallest dimension. Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening potion) of combination inlets, grates on stormwater manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.

2) Whenever design engineers use a curb-opening inlet, the clear space in the curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

3) This standard does not apply:

a) Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;

b) Where flows from the stormwater quality design storm are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

i. A rectangular space four and five-eighths inches long and

one and one-half inches wide (this option does not apply for outfall netting facilities); or

ii. A bar screen having a bar spacing of .05 inches.

c) Where flows are conveyed through a trash rack that has parallel bars with one-inch (1") spacing between the bars, to the elevation of the stormwater quality design storm; or

d) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that no action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

d. Any land area used as a nonstructural stormwater management measure to meet performance standards in Subsections H.9,K.1, K.2, and K.3 shall be dedicated to a government agency, subjected to a conservation restriction filed with the Bergen County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or and equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.

e. Guidance for nonstructural stormwater management strategies and measures area available in the New Jersey Stormwater Best Management Practices Manual.

5. Design Standards for Stormwater Management Facilities

a. Structural stormwater management facilities shall be designed to take into account the existing site conditions, including, for example, environmentally critical areas, wetlands, flood-prone areas, slopes, depth to seasonal high table, soil type, permeability and texture, drainage area and drainage patterns, and the presence of solution-prone carbonate rocks (limestone).

b. Structural stormwater management facilities shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure as appropriate, and shall have parallel bars with one-inch (1") spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm the parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (1/3) the width of the weir, with a minimum spacing between bars of one-inch and a maximum spacing between the bars of six inches. In addition, the design of trash racks must comply with the requirements of Subsection K.6 below.

c. Structural stormwater management facilities shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Facilities that are

consistent with the relevant portions of the Residential Site Improvement Standards at N.J. A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement.

d. Stormwater management facilities shall be designed to meet the minimum safety standards in Subsection K.6 below.

e. Manufactured treatment devices may be used to meet the Stormwater Quality Standards in Subsection K.2 above, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the NJDEP.

f. Stormwater management facilities shall not be located within the floodway of the regulated water unless they are constructed on-stream as part of a NJDEP Phase II Regional or Watershed Stormwater Plan.

g. Stormwater management facilities design and construction shall be in conformance with the current Soil Erosion and Sediment Control Act Standards where applicable.

h. Stormwater management facility bottoms should be designed with sufficiently steep slopes, surface and underdrains, low flow channels, and/or other measures as appropriate to protect against prolonged periods of standing water to prevent mosquito breeding.

i. Outlet control facilities should be designed to function independent of manual, electric or mechanical controls. The minimum diameter of an outlet control orifice shall be two and one-half (2-1/2”) inches. The outflow pipe shall have a minimum diameter of fifteen (15”) inches.

j. Stormwater management facilities (subject to the approval of the County Engineer) may be as follows:

1) Excavated basins;

2) Wet ponds/retention basins;

3) Created stormwater wetlands;

4) Basins created through use of curbs;

5) Stabilized, vegetated or biofilter swales;

6) Vegetated filter strips;

7) Infiltration/biofiltration basins;

8) Perforated pipes for underground recharge;

9) Underground storage;

10) Depressions in parking lots;

11) Stabilized earth berms or dikes;

12) Seepage pits;

13) Rain gardens, or

14) Any other form of grading which services to temporarily impound and store water.

k. The design and construction of all stormwater management measures and facilities shall comply with the current NJDEP Stormwater Management Rules in NJAC 7:8 and the *New Jersey Stormwater Best Management Practices Manual*.

l. Any stormwater management measure or facility proposing the use of infiltration must provide a soil infiltration feasibility test for review and approval by the County Engineer. This test must meet the requirements and standards in Appendix E-Soil Testing Criteria of the *New Jersey Stormwater Best Management Practices Manual.* The design of an infiltration facility must also provide for the removal and filtering of objectionable pollutants using methods described in the *Manual.*

m. If an underground stormwater management facility is proposed, the outflow calculations shall not allow for or include infiltration rates unless otherwise approved and specified by the County Engineer. All non-infiltration stormwater management facilities must have an outfall structure. All stormwater management facilities must have an emergency spillway or other means to discharge overflow and emergency overflows without manual, electric, or mechanical control.

n. Any stormwater management facility proposing the use of underground storage must provide the full-required treatment of the stormwater quality design storm as described in Subsection K.2 above prior to stormwater discharge to the underground storage system.

o. The design of all drainage facilities and stormwater management measures and facilities must determine the presence of tailwater that may affect the measure's or facility's performance and take into account all such tailwaters.

p. Suitable linings shall be placed upstream and downstream of principle outlets in stormwater facilities to prevent scour and erosion.

q. If earth berms or dikes are used to create the impounding area, they shall be provided with an emergency spillway or outlet to pass the 100-year storm and be

adequately stabilized and the slopes protected with vegetative cover, paving, or rip-rap to protect against failure or breaching. All stormwater management facilities that meet the definition of a "Dam" in the NJDEP Dam Safety Standards shall meet all applicable requirements in those Standards.

r. Any proposed seepage pit shall hold, at a minimum, the volume of a 25-year, 30 minute storm.

s. Any drainage system that uses infiltration (recharge) in its design shall be located a minimum of twenty (20) feet from the existing or proposed County right-of-way/easement line.

6. **Safety Standards for Stormwater Management Basins**

a. 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. 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 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 described below.

b. Requirements for Trash Racks, Overflow Grates, and Escape Provisions:

1) 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:

a) The trash rack shall have parallel bars, with no greater than six (6") inch spacing between the bars.

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

c) The peak velocity of flow through a clean trash rack is not to exceed 2.5 feet per second. Velocity is to be computed based on the net area of opening through the rack.

d) 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.

2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet has an overflow grate, such grate shall meet the following requirements:

a) The overflow grate shall be secured to the outlet but removable for emergencies and maintenance.

b) The overflow grate spacing shall be no less than two inches across the smallest dimension.

c) The overflow grate 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.

3) For purposes of this paragraph (3), escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:

a) If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency a free-standing outlet structure may be exempted from this requirement.

b) Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one-half feet above the permanent water surface.

c) In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 to 1 vertical. Emergency spillways must be adequately stabilized.

c. Fencing and/or vegetative screening may be erected around basins in accordance with municipal regulations.

d. A variance or exemption from the safety standards for stormwater management basins presented above may be granted only upon a written finding, by the appropriate reviewing agency, that the variance or exemption will not constitute a threat to public safety.

L. Landscaping Standards

1. Upon the completion of a stormwater management measure or facility, the applicant shall immediately provide stabilization of all disturbed ground surfaces with seeding or sodding with water tolerant grass or other approved plant materials as required by the type, character, function, and design of the measure or facility. Where seasonal conditions do not permit seeding or sodding, temporary mulch may be used. All of the above practices must be approved by the Bergen County Soil Conservation District and shown on the Soil Erosion and Sediment Control Plan required by the District.

2. In cases where the stormwater management measure or facility has been used during construction for sediment control purposes, such facilities shall be restored by the removal of the accumulated sediment and debris, and shall be sodded, seeded, or otherwise vegetated as required by the type, character, function, and design of the measure or facility.

3. Further guidance on stormwater management measure and facility landscaping can be found in the *New Jersey Stormwater Best Management Practices Manual*.

M. Maintenance Standards

1. In the event that a drainage facility or stormwater management measure or facility becomes a danger to the public health or safety, or is in need of maintenance, the County shall notify, in writing, the party responsible for the facility's or measure's maintenance by certified mail. The responsible party shall have fourteen (14) days from receipt of the notification letter to perform such maintenance and repair the facility subject to the review and approval of the County Engineer. If the responsible party either refuses to repair or conducts such repair in a manner unacceptable to the County Engineer, the County may immediately proceed with the repair or maintenance of the facility and bill the costs thereof to the responsible party.

2. Any easements for any stormwater management measures of facilities shall be provided to the municipality.

3. The County shall not be responsible for maintaining any stormwater facilities beyond the County right-of-way.

N. Green Infrastructure

All site plans subject to County review may be required to include the use of green infrastructure and non-structural Best Management Practice (BMP's) as required by NJ DEP Stormwater Management Rule (NJAC 7:8-5).

1. Each development should implement a minimum of two (2) green infrastructure or non-structural BMP techniques (Appendix G).

2. The use of green infrastructure and Low Impact Development (LID) techniques for County stormwater management is desirable for numerous environmental, economic and human health benefits, including the ability to:

    a. Reduce stormwater runoff volumes and peak flows by utilizing the natural retention and absorption capabilities of vegetation and soils.

    b. Reduce reliance on traditional stormwater structures (i.e. pipes, channels, and treatment plants) that are expensive to build, operate and maintain.

    c. Prevent pollutants in stormwater runoff from entering nearby surface waters by using soils, plants and microbes to naturally filter and break down pollutants.

    d. Protect surface water and protect and enhance drinking water supplies.

    e. Enhance the rate at which groundwater aquifers are recharged or replenished.

    f. Limit the frequency of sewer overflow events by reducing runoff volumes and delaying stormwater discharges.

    g. Increase carbon sequestration of plants and soils.

    h. Mitigate the impact of urban heat islands produced from dense concentrations of pavement, buildings, vehicles, and other sources that trap and retain heat.

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

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

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

    l. Improve human health and quality of life.

    m. Increase surrounding property values.

    n. Reduce construction costs and long term maintenance costs.

3. Policies and Performance Requirements

    a. To the maximum extent practicable, the site design 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:

1) Flow control;

2) Runoff pollution prevention, and

3) Stormwater treatment.

c. BMP's 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 contained in this Ordinance.

d. The applicant shall identify how each of the nine (9) non-structural strategies identified in Subchapter 5 of the New Jersey Stormwater Management Rules (NJAC 7:8-5) 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) non-structural strategies into the design of a particular project, the applicant shall provide a detailed rational 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 BMP's shall comply with standards in the NJ DEP Stormwater Best Management Practices Manual.

4. Urban Runoff Mitigation Plan

a. Upon submission of an application for approval, an applicant shall be required to submit an Urban Runoff Mitigation Plan (URMP) to the County (see Appendix G).

b. The URMP shall include:

1) Demonstrating that the design for the infiltration and treatment of projected runoff ensures that the site complies with the detention and water quality requirements of this Ordinance.

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

3) An explanation as to how the design will meet each of the Policies and Requirements as stated in Subsection N.3 above.

4) Demonstrating 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, rain gardens, green roofs and/or pervious pavement.

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

i. Orienting roof runoff towards permeable surfaces, drywells, French drains, or other BMP's rather than directly to driveways or non-permeable surfaces so that runoff will penetrate into the ground instead of flowing off-site.

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

iii. Using cisterns and retention structures to store precipitation or runoff for re-use.

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

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

6) The applicant's signed statement accepting responsibility for all structural and treatment control BMP maintenance shall run with the land. Any transfer of property that is subject to a URMP 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 BMP's.

c. The DRT shall review the proposed URMP for compliance with the standards set forth in this Section.

d. The DRT shall accept or reject the URMP. If the plan is not accepted, the reasons for rejection shall be given in writing to the applicant. Any plan rejected by the DRT must be revised by the applicant and resubmitted for approval.

e. The requirement to submit an URMP may be waived under the following conditions:

1) Extreme limitations of space for treatment.

2) Unfavorable soils (i.e., hydrologic soils group "D"), steep slopes, unstable soil or rock conditions to attempt infiltration.

3) 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 applicant will be required to transfer the savings in cost to the County in lieu of actual construction. The applicant shall be required to submit an acceptable cost estimate for the installation of improvements that would have otherwise been installed.

g. The approval of the URMP shall be set as a condition for all site plan approvals.

5. Permitted Green Infrastructure BMP Methods

a. Selected green infrastructure or stormwater BMP's can include, but are not limited to the use of the following as outlined in Appendix G, Green Infrastructure/BMP Methods:

1) Compatible design;

2) Natural landscaping;

3) Bioretention basins and swales;

4) Pervious pavers;

5) Rain barrels & cisterns;

6) Rain gardens, and

7) Green roofs.

b. Additional methods of green infrastructure or stormwater BMP's may be considered by the applicant, subject to the review and approval of the DRT.

*** END OF SECTION IX ***

SECTION X
OFF-SITE AND OFF-TRACT IMPROVEMENTS

The County Planning Board may require off-site and/or off tract improvements.

A. Purpose

This Section is intended to:

1. 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. Mitigate the adverse impacts on County facilities by providing a means of allocating the costs of needed improvements among developments in proportion to the demand created by each new development.

B. Requirements

As a condition of approval, the County Planning Board may require an applicant to:

1. Improve, extend, expand, construct or re-construct off-tract improvements.

2. Make a pro-rata contribution toward improving or reconstructing said off-tract improvements.

3. Make a contribution in-lieu of construction, to offset the cost of construction by the County.

C. Scope of Improvements

The provision of off-tract improvements may include, but not be limited to:

1. Improving traffic and/or drainage facilities.

2. Other improvements necessitated or required by the development.

D. Cost Allocation

The pro rata contribution toward improving traffic and/or drainage shall be based on the following criteria:

1. Full Allocation

   In cases where the off-tract improvements are necessitated by the proposed development, the applicant may be required at its sole expense and as a condition of approval to provide and install such improvements.

2. Proportionate Allocation

Where it is determined that the proposed development contributes a proportional increase in either traffic and/or off-site stormwater runoff, the following criteria shall be utilized in determining the proportionate share of the cost of such improvements to the development:

a. Roadways

The applicant's proportionate share of roadway improvements may include but not be limited to, widening, alignment, channelization, barriers, new or improved traffic signalization, signs, curbs sidewalks, sidewalk ramps, trees, other improvements identified elsewhere, the construction or reconstruction of existing streets, and any other associated street or traffic improvements.

1) The applicant shall provide the DRT with the existing and reasonably anticipated future peak hour traffic flows for the off-tract improvements.

2) The applicant shall furnish a plan for the proposed off-tract improvements, which shall include the estimated peak hour traffic generated by the proposed development and the proportion thereof that is to be accommodated by the proposed off-tract improvements. The proportionate share shall be determined in accordance with NJAC 16:47-4.34, as revised.

b. Drainage

The applicant's proportionate share of storm water, drainage and controlled regional facility improvements may include but not be limited to, installation, relocation, or replacement of storm drains, pipes, culverts, catch basins, manholes, rip- rap, tide gates, improved drainage ditches and appurtenances thereto, and the relocation and replacement of other storm drainage facilities or appurtenances associated therewith, shall be determined as follows:

1) The capacity and the design of the drainage system to accommodate storm water runoff shall be based on the standards specified by the County Engineer, computed by the applicant's engineer and accepted by the DRT.

2) The capacity of the enlarged, extended, or improved system required for the development and areas outside the applicant's tributary to the drainage system shall be determined by the applicant's engineer subject to the approval of the municipal engineer. The plans for the improved system shall be prepared by the applicant's engineer and the estimated cost of the system calculated by the County Engineer. The pro-rated share for the proposed improvements shall be determined using:

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 based on the applicant's unit costs.

3) In the case of controlled regional drainage facilities, the applicant may be required to contribute to improvements based on the proposed impervious surface of the applicant's development.

E. 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 a designated account to the credit of the County until such time as the improvement is constructed. If the off-tract improvement is not begun within fifteen (15) years of deposit, all monies shall be returned to the applicant.

*** END OF SECTION X ***

SECTION XI
LEED CERTIFICATION

LEED (Leadership in Environmental and Energy Design) Certification

In the United States and in a number of other countries around the world, LEED certification is recognized standard for measuring building sustainability. Achieving LEED certification is the best way for an applicant to demonstrate that the building is truly "green"

The LEED green building rating system - developed and administered by the U.S. Green Building Council, a Washington D.C. based, not-for-profit coalition of building industry leaders, is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

LEED certification, which provides independent third party verification that a building or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

LEED certification should be considered for all building projects. LEED certification shall be in accordance with standards in one of the rating systems set forth by the U.S. Green Building Council and found in their website: www.usgbc.org.

The processing fees assessed by the County will be reduced for building(s) or a neighborhood development earning the following LEED certification:

1. Platinum certification=100% reduction of processing fee.

2. Gold certification=50% reduction of processing fee.

3. Silver certification=25% reduction of processing fee.

*** END OF SECTION XI ***

SECTION XII
ELECTRIC VEHICLE INFRASTRUCTURE AND CAR SHARING

1. Charging stations are recommended to encourage the transition to electric vehicle use and to expedite the establishment of a convenient and cost-effective electric vehicle infrastructure. The use of car sharing is also encouraged to reduce vehicle miles traveled (VMT).

2. In order to incentivize the use of charging stations and designated spaces for car sharing, the parking stall fee shall be waived for each parking stall serviced by a charging station or that is designated and signed for car sharing.

*** END OF SECTION XII***

SECTION XIII
STANDARDS FOR BIRD-SAFE BUILDINGS

A. Birds and Buildings

1. Glass

Glass is a primary component of every building. Therefore, it poses one of the most serious threats to our avian population.

As building size increases, so does the amount of glass, making larger buildings more of a threat. Lower stories of buildings are the most dangerous because the windows are set at or below canopy height and are more likely to reflect trees and other landscape features that attract birds. This makes a long low building more hazardous than a tall one.

a. Site Strategy/Landscape

1) Analyze surroundings to identify location and angle of birds' approach to building; modify glass on this approach façade.

2) Plant trees and other vegetation so that they are not reflected on building surfaces.

3) If trees and other vegetation are desired near a building, they should be planted immediately adjacent to the exterior glass walls, (no more than three feet from the glass).

4) In small exterior courtyards and recessed areas, the edge of the building(s) should be defined clearly with opaque materials and non-reflective glass.

5) Avoid walkways and skyways constructed of clear glass.

b. Composition

1) Create visible details that birds will recognize.

2) Avoid flat reflective openings larger than two inches wide or four inches tall.

3) Include visible structural details such as columns, balconies and lintels in building facades.

4) Angle glass toward ground or sky so that the reflection is not in a direct line of site (optimum angle: 40 degrees).

c. Materials

1) Select bird-safe glass, or glass that is transparent to humans but not birds

2) Use fritted, frosted glass, non-reflective or ultra-violet glass.

3) Attach external screens to operable windows.

4) Use decorative paint and grills to minimize clear window area.

d. Exterior

1) Design facades with elements that are visually interesting and create a physical barrier, e.g. vines or sun shades.

2) Use awnings to cast shadows and mute reflection.

e. Interior

1) Integrate design elements in a way that mutes reflections or make the space appear solid, such as blinds, drapes hung close to glass, perforated shades or artwork installed close to glass.

2) Select pattern and material of window coverings to create a visible barrier for birds.

3) Interrupt views through parallel glass facades with objects such as sculptures and furniture.

2. Light

Light disorients birds. Birds may cluster around such lights circling upward, increasing the likelihood of collisions with a structure or each other. Besides adverse impacts on migrating birds, there are significant economic and human health incentives for curbing excessive illumination. Excessive illumination wastes tremendous amounts of electricity, increasing greenhouse gas emissions and air pollution levels.

a. Lighting Treatments

1) Avoid decorative lighting and unnecessary lighting. For necessary outdoor lighting, avoid “up-lighting” by directing lighting toward the ground.

2) Install motion sensors on interior lights to ensure that they are not left on overnight.

3) Minimize perimeter and vanity lighting.

4) Filters or special bulbs be considered to reduce red wavelengths where lighting is necessary. Use green and blue lights where possible.

*** END OF SECTION XIII ***