

Ordinance No. 5112
Ordinance of the Council of the City of Palo Alto Amending
Chapter 16.11 of Title 16 of the Palo Alto Municipal Code
Pertaining to Stormwater Pollution Prevention Measures

WHEREAS the California Regional Water Quality Control Board, San Francisco Bay Region issued a Municipal Regional Stormwater Permit (Order R2-2009-0074; NPDES Permit No. CAS612008) to the City of Palo Alto;

WHEREAS, the new NPDES Permit requires cities to implement a series of stormwater pollution prevention measures over a three year phased period ending December 1, 2012;

WHEREAS, the City has a longstanding practice of regulating stormwater pollution prevention and these regulations are currently codified in Chapter 16.11 of the Palo Alto Municipal Code;

WHEREAS, the City's existing regulations were sufficient to address the NPDES permit measures that went into effect immediately, but the permit requires the City of Palo Alto to implement additional stormwater pollution prevention measures by December 1, 2011 and others by December 1, 2012;

NOW, THEREFORE, the Council of the City of Palo Alto does ORDAIN as follows:

SECTION 1. Section 16.11.020 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby amended to read, as follows:

“16.11.020 Definitions.

The following words and phrases, whenever used in this chapter, have the meanings as set forth below:

(a) “Development Project” means any private or public project under the planning and building authority of the city that creates 10,000 square feet or more of impervious surface collectively over the entire project site, including but not limited to roof area, parking lots, and other hardscape associated with commercial, industrial, residential subdivision, mixed-use, and public land development projects. A Development Project shall include the issuance of a permit for building, construction, reconstruction, subdivisions, parcel maps or occupancy, but not a permit to operate. The following development shall not constitute a Development Project:

(1) An individual detached single-family home, which is not part of a larger common plan of development, that is designed with appropriate source control and site design measures.

(b) "High Impact Project" means a project that falls into one of the categories listed below and that creates and/or replaces 5,000 square feet or more of impervious surface collectively over the entire project site.

(1) High Impact Categories. This category includes development projects of the following four types on public or private land that fall under the planning and building authority of the city:

(A) Auto service facilities, described by the following Standard Industrial Classification (SIC) Codes: 5013, 5014, 5541, 7532-7534, and 7536-7539;

(B) Retail gasoline outlets;

(C) Restaurants (SIC Code 5812); or

(D) Uncovered parking lots that are stand-alone or part of any other development project. This category includes the top uncovered portion of parking structures unless drainage from the uncovered portion is connected to the sanitary sewer along with the covered portions of the parking structure.

(2) Exceptions. The following development types shall not constitute a High Impact Project:

(A) Interior remodels;

(B) Routine maintenance or repair, such as roof or exterior wall surface replacement and pavement resurfacing within the existing footprint.

(3) Partial Development. High Impact Projects that result in an increase of, or replacement of, more than fifty percent of the impervious surface of a previously existing development that was not subject to this Chapter shall include Permanent Stormwater Pollution Prevention Measures sufficient to reduce water quality impacts of stormwater runoff from the entire site for the life of the project.

High Impact Projects that result in an increase of, or replacement of, fifty percent or less of the impervious surface of a previously existing development that was not subject to this Chapter shall include Permanent Stormwater Pollution Prevention Measures sufficient to reduce water quality impacts of stormwater runoff from the increased or replaced portion of the site for the life of the project.

(c) "Hydromodification Management Measures" means an approved combination of on-site, off-site, and in-stream control measures incorporated into specified development projects and significant redevelopment projects in order to reduce stormwater runoff so as to not cause an increase in the erosion potential of the receiving stream over the pre-project condition, in accordance with and as required by Order No. R2-2009-0074 under NPDES Permit No. CAS612008 issued by the California Regional Water Quality Control Board, San Francisco Bay Region (the "Water Board"), as it may be amended from time to time.

(d) "Impervious Surface" means land that has been modified by the action of persons to reduce the land's natural ability to absorb and hold rainfall. This includes any hard surface area which either prevents or retards the entry of water into the soil mantle as it entered under natural conditions pre-existent to development, and/or a hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions pre-existent to development. Impervious surfaces include, but are not limited to, rooftops, pavement, sidewalks, walkways, patios, driveways, and parking lots where such surfaces are not constructed with pervious materials and/or are not designed to have zero stormwater discharge.

(e) "Infiltration Device" means any structure that is deeper than wide and designed to infiltrate stormwater into the subsurface and, as designed, bypass the natural groundwater protection afforded by surface soil. Infiltration devices include dry wells, injection wells, and infiltration trenches (includes french drains).

(f) "Low Impact Development (LID) Measures" means an approved combination of source control measures, site design measures, and/or stormwater treatment measures that reduce runoff and mimic a site's predevelopment hydrology by minimizing disturbed areas and impervious cover and then infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source. LID Measures embody principles such as preservation and recreation of natural landscape features and minimization of imperviousness to create functional and appealing site drainage that treats stormwater as a resource, rather than a waste product. LID Measures include rain barrels and cisterns, green roofs, permeable pavement, preservation of undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes. The design and implementation of the LID Measures must be in accordance with the guidelines and technical specifications provided by the city or other city-approved authority and the requirements of Order No. R2-2009-0074 and any subsequent orders.

(g) "Permanent Stormwater Pollution Prevention Measures" or "PSPPM" means an approved combination of source control measures, site design measures, and/or stormwater treatment measures that reduce stormwater pollution to the maximum extent practicable as required by Order No. R2-2009-0074 under NPDES Permit No. CAS612008 issued by the Water Board, as it may be amended from time to time. The design and implementation of the PSPPM must be in accordance with the guidelines and technical specifications provided by the city or other city-approved authority and the requirements of Order No. R2-2009-0074 and any subsequent orders.

(h) "Significant Redevelopment Project" means any private or public project under the planning and building authority of the city that creates 10,000 square feet or more of additional or replacement impervious surface collectively over the entire project site, including roof area, parking lots, and other hardscape associated with commercial, industrial, residential subdivision, mixed-use, and public land development projects. Redevelopment is any land-disturbing activity that results in the creation, addition, or replacement of exterior impervious surface area on a site on which some past development has occurred.

(1) Exceptions. The following redevelopment shall not constitute a Significant Redevelopment Project:

(A) Interior remodels;

(B) Routine maintenance or repair including, but not limited to, roof or exterior surface replacement, or pavement resurfacing within the existing pavement footprint; or

(C) An individual detached single-family home, which is not part of a larger common plan of redevelopment, that is designed with appropriate source control and site design measures.

(2) Partial redevelopment. Significant Redevelopment Projects that result in an increase of, or replacement of, more than fifty percent of the impervious surface of a previously existing development that was not subject to this Chapter shall include Permanent Stormwater Pollution Prevention Measures sufficient to reduce water quality impacts of stormwater runoff from the entire site for the life of the project.

Significant Redevelopment Projects that result in an increase of, or replacement of, fifty percent or less of the impervious surface of a previously existing development that was not subject to this Chapter shall include Permanent Stormwater Pollution Prevention Measures sufficient to reduce water quality impacts of stormwater runoff from the increased or replaced portion of the site for the life of the project.

(i) "Road Project" means a project to construct new streets or roads, including sidewalks and bicycle lanes built as part of the new streets or roads, that creates 10,000 square feet or more of newly constructed contiguous impervious surface and that falls under the building and planning authority of the city.

The following projects are not considered Road Projects for the purposes of this Chapter:

(1) Sidewalks built as part of new streets or roads and built to direct stormwater runoff to adjacent vegetated areas.

(2) Bicycle lanes that are built as part of new streets or roads but are not hydraulically connected to the new streets or roads and that direct stormwater runoff to adjacent vegetated areas.

(3) Sidewalks, bicycle lanes, or trails constructed with permeable surfaces (includes pervious concrete, porous asphalt, permeable concrete unit pavers, and granular materials).

(4) Caltrans highway projects and associated facilities.

(j) "Site Design Measures" means any project design features that reduce stormwater pollution by decreasing or slowing stormwater runoff or intercepting the flow of runoff across a series of contiguous impervious surfaces.

(k) "Source Control Measures" means any project design features that aim to prevent stormwater pollution by eliminating or reducing the potential for contamination at the source of pollution.

(l) "Stormwater Treatment Measures" means any engineered system designed to remove pollutants from stormwater by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

(m) "Street Widening" means widening of existing streets or roads with additional traffic lanes.

(1) Where the addition of traffic lanes results in an alteration of more than 50 percent of the impervious surface of an existing street or road that was not subject to this Chapter, the entire project, consisting of all existing, new, and/or replaced impervious surfaces, must be included in the treatment system design.

(2) Where the addition of traffic lanes results in an alteration of less than 50 percent of the impervious surface of an existing street or road that was not subject to this Chapter, only the new and/or replaced impervious surface of the project must be included in the treatment system design. However, if the stormwater runoff from the existing traffic lanes and the added traffic lanes cannot be separated, any onsite treatment system must be designed and sized to treat stormwater runoff from the entire street or road.

(n) "Trail Project" means a project to construct new impervious trails greater than 10-foot wide or creekside trails (within 50 feet of the top of bank) that creates 10,000 square feet or more of newly constructed contiguous impervious surface and that falls under the building and planning authority of the city.

The following projects are not considered Trail Projects for the purposes of this Chapter:

(1) Impervious trails built to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas, preferably away from creeks or towards the outboard side of levees.

(2) Sidewalks, bicycle lanes, or trails constructed with permeable surfaces (includes pervious concrete, porous asphalt, unit pavers, and granular materials)."

SECTION 2. Section 16.11.030 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby amended to read, as follows:

"16.11.030 Permanent stormwater pollution prevention measures required.

(a) Permanent Stormwater Pollution Prevention Measures shall be incorporated into the following projects (collectively referred to sometimes in this Chapter as "Regulated Projects"):

(1) All Development Projects;

(2) All Significant Redevelopment Projects;

- (3) All Road Projects;
- (4) Effective December 1, 2011, all High Impact Projects;
- (5) Effective December 1, 2011, all Trail Projects;
- (6) Effective December 1, 2011, all Street Widening Projects.

(b) Any Permanent Stormwater Pollution Prevention Measure required by this section must be in effect during the entire life of the project.

(c) Effective December 1, 2011, unless the project is exempt as a special project pursuant to administrative guidelines adopted by the city engineer and approved by the Water Board, all Permanent Stormwater Pollution Prevention Measures shall include the following Low Impact Development (LID) Measures or other alternative measures to be approved by the city engineer:

(1) Source Control Requirements

(A) Minimization of stormwater pollutants of concern in urban runoff through measures that may include plumbing of the following discharges to the sanitary sewer, subject to the city's authority and standards as contained in Chapter 16.09:

- (i) Discharges from indoor floor mat/equipment/hood filter wash racks or covered outdoor wash racks for restaurants;
- (ii) Dumpster drips from covered trash, food waste and compactor enclosures;
- (iii) Discharges from covered outdoor wash areas for vehicles, equipment, and accessories;
- (iv) Swimming pool water, if discharge to onsite vegetated areas is not a feasible option; and
- (v) Fire sprinkler test water, if discharge to onsite vegetated areas is not a feasible option;

(B) Properly designed covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas;

(C) Properly designed trash storage areas;

(D) Landscaping that minimizes irrigation and runoff, promotes surface infiltration, minimizes the use of pesticides and fertilizers, and incorporates other appropriate sustainable landscaping practices and programs such as Bay-Friendly Landscaping;

(E) Efficient irrigation systems; and

(F) Storm drain system stenciling or signage.

(2) Site Design and Stormwater Treatment Requirements

(A) Minimization of disturbances of natural water bodies and drainage systems; minimization of compaction of highly permeable soils; protection of slopes and channels; and minimization of impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;

(B) Conservation of natural areas, including existing trees, other vegetation, and soils;

(C) Minimization of impervious surfaces;

(D) Minimization of disturbances to natural drainages;

(E) Minimization of stormwater runoff by implementation of one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff onto vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
- Construct sidewalks, walkways, and/or patios with permeable surfaces.
- Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces.

(F) Treatment of 100% of the amount of runoff identified in Section (d) below for the Regulated Project's drainage area with LID treatment measures onsite or with LID treatment measures at a joint stormwater treatment facility.

(i) LID treatment measures are harvesting and re-use, infiltration, evapotranspiration, or biotreatment.

(ii) A properly engineered and maintained biotreatment system may be considered only if it is infeasible to implement harvesting and re-use, infiltration, or evapotranspiration at a project site.

(iii) Infeasibility to implement harvesting and re-use, infiltration, or evapotranspiration at a project site shall be determined in accordance with criteria approved by the Water Board and the city engineer.

(iv) Biotreatment systems shall be designed to have a surface area no smaller than what is required to accommodate a 5 inches/hour stormwater runoff surface loading rate. The planting and soil media for biotreatment systems shall be designed to sustain plant growth and maximize stormwater runoff retention and pollutant removal and shall conform to material specifications approved by the Water Board and the city engineer.

(v) Green roofs may be considered biotreatment systems for treatment of roof runoff only if they conform to specifications approved by the Water Board and the city engineer.

(d) Stormwater treatment measures proposed as part of a project's Permanent Stormwater Pollution Prevention Measures shall be designed in accordance with the following hydraulic sizing criteria to treat stormwater runoff.

(1) Volume Hydraulic Design Basis. Stormwater treatment measures whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:

(A) The maximized storm water quality capture volume for the area, based on historical rainfall records, determined using the formula and volume capture coefficients set forth in *Urban Runoff Quality Management*, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998), pages 175 – 178 (e.g. approximately the 85th percentile 24-hour storm runoff event); or

(B) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in the *California Stormwater Best Management Practices Handbook for New Development and Redevelopment* (2003), using local rainfall data.

(2) Flow Hydraulic Design Basis. Stormwater treatment measures whose primary mode of action depends on flow capacity, such as swales, sand filters, or wetlands, shall be sized to treat:

(A) Ten percent of the 50-year peak flow rate; or

(B) The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or

(C) The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

(3) Combination Flow and Volume Design Basis Treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.

(e) All plans and construction are subject to inspection and approval by the city engineer.

(f) Compliance with Chapter. Prior to the issuance of a building permit or other discretionary permit for a Regulated Project, the project applicant shall submit a certification by a qualified third party reviewer acceptable to the city that the design of the project complies with the requirements of this Chapter. In addition, no final occupancy permit shall be issued without the written certification by a qualified third party reviewer acceptable to the city that a Regulated Project was constructed or installed in accordance with the approved plans. The third party reviewer must be a Civil Engineer, Licensed Architect or Landscape Architect registered in the State of California, or staff of another Permittee subject to the requirements of the current NPDES permit issued to the City and must have current training on stormwater treatment system

design for water quality. Any consultant or contractor hired to design and/or construct a stormwater treatment system for a Regulated Project shall not perform the third party review for said project. Such certifications shall be in the form prescribed by the city engineer and shall not be issued without payment of all applicable fees which may be imposed for administration of this chapter. At the City's sole election, the city engineer may provide any of the certifications required by this section."

SECTION 3. Section 16.11.031 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby amended to read, as follows:

"16.11.031 Hydromodification management measures required.

(a) All Development Projects that result in the creation of one acre (43,560 square feet) or more of impervious surface and all Significant Redevelopment Projects that result in the addition or replacement of one acre (43,560 square feet) or more of impervious surface shall implement Hydromodification Management Measures, except for the following projects:

1. Projects that do not create an increase in impervious surface over pre-project conditions.

2. Projects located in areas designated as exempt from hydromodification management requirements on the Hydromodification Management Plan Applicability Map contained in Attachment F of Order No. R2-2009-0074 under NPDES Permit No. CAS612008 issued by the Water Board, as it may be amended from time to time.

(b) Hydromodification management measures shall be designed and implemented in accordance with guidelines and technical specifications provided by the city or other city-approved authority, the requirements of Order No. R2-2009-0074 under NPDES Permit No. CAS612008 issued by the Water Board, as it may be amended from time to time, and the provisions of the Hydromodification Management Plan for the Santa Clara Valley Urban Runoff Pollution Prevention Program as approved by the Water Board.

(c) All hydromodification management measures are subject to inspection and approval by the city engineer."

SECTION 4. Section 16.11.034 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby added to read, as follows:

"16.11.034 Limitations on Use of Infiltration Devices.

Any Permanent Stormwater Pollution Prevention Measure (PSPPM) which functions primarily as an Infiltration Device shall be designed such that:

(a) Appropriate pollution prevention and source control measures are implemented to protect groundwater at the project site, including the inclusion of a minimum of two feet of suitable biotreatment media soil to achieve a maximum 5 inches/hour infiltration rate for the infiltration system;

(b) Adequate maintenance is provided to maximize pollutant removal capabilities;

(c) The vertical distance from the base of any Infiltration Device to the seasonal high groundwater mark is at least 10 feet (or an alternative larger distance if the site is determined by the city engineer to be a high-risk site);

(d) Unless stormwater is first treated by a method other than infiltration, Infiltration Devices are not approved as treatment measures for runoff from areas of industrial or light industrial activity; areas subject to high vehicular traffic (i.e., 25,000 or greater average daily traffic on a main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; commercial car washes; fleet storage areas; nurseries; and other land uses that pose a high threat to water quality;

(e) Infiltration Devices are not placed in the vicinity of known soil or groundwater contamination sites unless it has been demonstrated that increased infiltration will not increase leaching of contaminants from soil, alter groundwater flow conditions affecting contaminant migration in groundwater, or adversely affect remedial activities; and

(f) Infiltration Devices are located a minimum of 100 feet (or an alternative larger distance if the site is determined by the city engineer to be a high-risk site) horizontally away from any known water supply wells, septic systems, and underground storage tanks with hazardous materials.”

SECTION 5. Section 16.11.036 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby added to read, as follows:

“16.11.036 Required Site Design Measures for Small Projects and Detached Single-Family Home Projects

(a) Effective December 1, 2012, any private or public project under the planning and building authority of the city which creates and/or replaces between 2,500 square feet and 10,000 square feet of impervious surface, and detached single-family home projects which are not part of a larger plan of development which create and/or replace 2,500 square feet or more of impervious surface, shall install one or more of the following site design measures:

- Direct roof runoff into cisterns or rain barrels for reuse.
- Direct roof runoff onto vegetated areas.
- Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
- Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
- Construct sidewalks, walkways, patios, driveways, bike lanes, and/or uncovered parking lots with permeable surfaces (includes pervious concrete, porous asphalt, permeable concrete unit pavers, and granular materials).”

SECTION 6. Section 16.11.038 of Chapter 16.11 of Title 16 of the Palo Alto Municipal Code is hereby added to read, as follows:

“16.11.038 Administrative Guidelines

The City Engineer shall have authority to promulgate administrative guidelines to assist in the implementation of this Chapter.

SECTION 7. The City Council finds that the adoption of this ordinance does not constitute a project under the California Environmental Quality Act.

SECTION 8. This ordinance shall become effective upon the commencement of the thirty-first day after the date of its adoption.

INTRODUCED: DECEMBER 13, 2010

PASSED: JANUARY 10, 2011

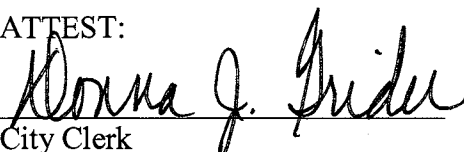
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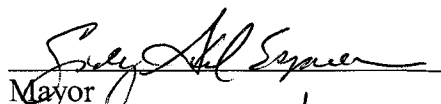
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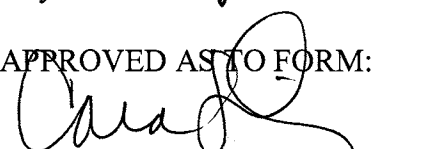
City Clerk

APPROVED:

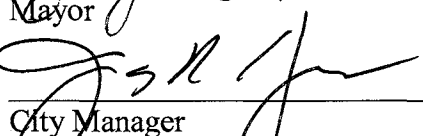


Mayor

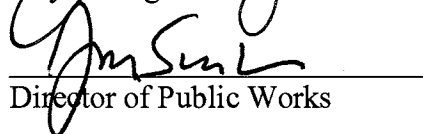
APPROVED AS TO FORM:



Senior Asst. City Attorney



City Manager



Director of Public Works