Attachment C
Request for Changes to the SCVURPPP HMP Applicability Map

This attachment contains our request to make changes to the SCVURPPP HMP Applicability Map in order to reflect a more accurate percentage of impervious surface in two areas based on new, local impervious surface data. These areas (one catchment and one subwatershed) are part of the "Areas Under Review" noted as pink on the February 2009 applicability map contained in the Revised TO. The information provided is consistent with the process allowed for review of these areas described in Attachment F.4.c. of the Revised TO.

The two areas that were reviewed for accuracy of impervious surface data included:

1. A catchment just to the north of downtown Palo Alto, known as Catchment 386 on the SCVURPPP map. The City of Palo Alto used impervious area records from its Storm Drainage Fee billing process to estimate the imperviousness of land parcels in this catchment, and added the estimated impervious area of streets and sidewalks in the catchment to determine that the catchment is approximately 76% impervious.
2. A subwatershed on Stanford campus, including portions of Santa Clara County and the City of Palo Alto, that encompasses Stanford Shopping Center, Stanford Hospital, Stanford University classroom and research buildings, and associated parking lots. Stanford Utilities Division staff used 2006 aerial photography data and campus basemap data (with field verification) on AutoCAD to delineate areas of buildings, parking lots, roads and sidewalks, and determined that this subwatershed is 66.1% impervious.

Attachment C contains the following attachments:

- Comments from the City of Palo Alto on the Hydromodification Management Plan (HMP) Applicability Map contained in the Municipal Regional Permit Revised Tentative Order, March 30, 2009, describing the impervious surface data sources and analysis, and a map of Catchment 386.
- Comments from Stanford University on the Revised Municipal Regional Permit (MRP) Tentative Order – Request to Change SCVURPPP HMP Applicability Map, March 25, 2009, describing the impervious surface data sources and analysis, and a map of the subwatershed under review.
- The revised SCVURPPP HMP Applicability Map, dated March 2009, reflecting the updated impervious surface data and the change in applicability status of the aforementioned catchment and subwatershed (both are more than 65% impervious and are shown as red in the upper left corner of the map).

We request that this revised HMP Applicability Map be included in Attachment F of the final MRP.

City of Palo Alto
Public Works Department

March 30, 2009

Mr. Bruce Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Comments from the City of Palo Alto on the Hydromodification Management Plan (HMP) Applicability Map contained in the Municipal Regional Permit Revised Tentative Order

Divisions
Administration
650.329.2373
650.329.2299 fax
Engineering
650.329.2151
650.329.2299 fax
Environmental Compliance
650.329.2598
650.494.3531 fax
Equipment Management
650.496.6922
650.496.6958 fax
Facilities Management
650.496.6900
650.496.6958 fax
Operations
650.496.6974
650.852.9289 fax
Regional Water Quality Control
650.329.2598
650.494.3531 fax

Dear Mr. Wolfe:

Thank you for the opportunity to submit comments on the Regional Water Board's Municipal Regional Permit (MRP) Revised Tentative Order dated February 11, 2009. City staff have reviewed the areas that are designated as "Areas Under Review" within the City of Palo Alto on the latest Hydromodification Management Plan (HMP) Applicability Map to determine whether or not there is justification for exempting these areas from the HMP requirements based on more detailed impervious area data maintained by the City.

The City has extensive impervious area records used as the basis for charging the monthly Storm Drainage Fee that is billed to each developed parcel in the City. The Storm Drainage Fee amount for each land parcel is based on the amount of impervious surface on the parcel. The Storm Drainage Fee billing unit is known as an "Equivalent Residential Unit (ERU)", which is equal to 2500 square feet of impervious surface. This figure is based on an analysis of impervious area data from a representative sample of single-family residential parcels, using aerial photogrammetry techniques. This analysis found that the typical single-family residential parcel in Palo Alto contains 2500 square feet of impervious area (including buildings, driveways, patios, walkways, etc.). The analysis also showed that there is a strong proportional relationship between parcel size impervious area. Based on this analysis, the City assesses the Storm Drainage Fee for single-family residential parcels in accordance with the following fee schedule:

SFR PARCEL SIZE (sq.ft.)	ERU
< 6,000 sq.ft.	0.8 ERU
6,000-11,000 sq.ft.	1.0 ERU
> 11,000 sq.ft.	1.4 ERU

P.O.Box 10250
Palo Alto, CA 94303

Printed with soy-based inks on 100% recycled paper processed without chlorine

For non-single-family residential parcels, the Storm Drainage Fee is based upon actual measurements of impervious area from either aerial photographs or approved improvement plans.

Staff used the City's billing system impervious area data and its Geographic Information System (GIS) to calculate the imperviousness of the catchment to the north of Downtown Palo Alto (see attached map). The impervious area study of this catchment yielded the following results:

PARCEL IMPERVIOUS AREA =	2598000	SQ FT
STREET/SIDEWALK IMPERVIOUS AREA =	2011633	SQ FT
TOTAL IMPERVIOUS AREA =	4609633	SQ FT
TOTAL AREA OF POLYGON =	6062536	SQ FT
PERCENT IMPERVIOUS =	**76.03%**	

The following is a description of the sources of the specific figures shown in the table above:

- Parcel impervious area (A): Summation of impervious area data for all land parcels within the catchment polygon, derived from the City's storm drain utility billing system database. Parcels are billed for storm drainage service based upon the amount of impervious area on the parcel.
- Street/sidewalk impervious area (B): Estimated impervious area based upon linear feet of street centerline within the catchment polygon, multiplied by an assumed total width of 50 feet (40-foot street width + 10-foot width of two 5-foot-wide sidewalks).
- Total impervious area (C): Sum of A + B
- Total area of polygon (D): Area of catchment polygon as calculated within the City's GIS application
- Percent impervious (E): Quotient of C/D

Based on this analysis demonstrating that the catchment immediately to the north of downtown Palo Alto is approximately 76% impervious, I hereby request that this catchment be changed to "red" (exempt) on the HMP Applicability Map to be adopted by the Water Board with the Municipal Regional Permit. If you have any questions or need further information, please contact me at (650) 329-2129 or joe.teresi@cityofpaloalto.org.

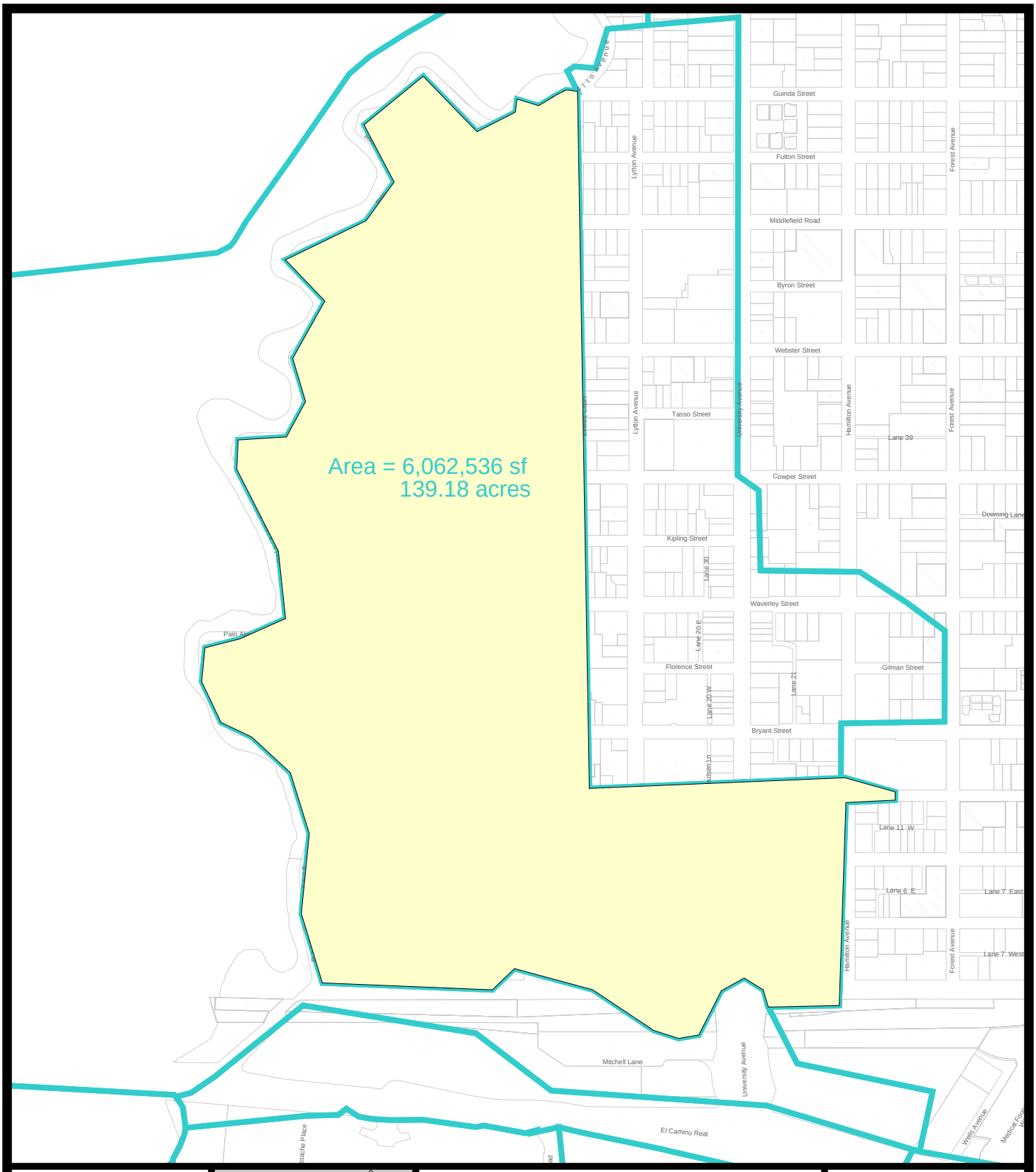
Sincerely,

Joe Teresi

Joe Teresi
Senior Engineer
Public Works Engineering

Attachment

cc: Glenn Roberts
Phil Bobel
Mike Sartor
Bob Morris
Jill Bicknell, SCVURPPP



The City of Palo Alto

Area of Catchment 386

This map is a product of the City of Palo Alto GIS

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dmatson, 2009-01-28 07:54:45
HMP IMPERV STUDY2 GIS (\\cc-maps\gis$\gis\admin\Personal\PWE.mdb)

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The City of Palo Alto assumes no responsibility for any errors. ©1989 to 2008 City of Palo Alto

Stanford University
Sustainability and Energy Management
UTILITIES DIVISION
327 BONAIR SIDING, 2ND FLOOR
STANFORD, CA 94305-7272

March 25, 2009

Mr. Bruce Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Comments from Stanford University on the Revised Municipal Regional Permit (MRP) Tentative Order – Request to Change SCVURPPP HMP Applicability Map

Dear Mr. Wolfe,

The current Tentative Order of the Municipal Regional Permit, dated February 11, 2009, identifies areas on the HMP Applicabiliy Map (Attachment F for Santa Clara Permittees) as "under review". Per attachment F, item 4c of the Tentative Order, Permittees may present new data indicating that the actual level of imperviousness of a particular area is greater than or equal to 65% impervious. As indicated in Attachment F, Item 4, this evaluation could be made based on either a catchment or subwatershed level.

Stanford met with Santa Clara Program staff member Lucy Buchan to review data and develop a method for making this evaluation. Upon initial review of available data, Subwatershed 21 (SUBID = SFQ_E1) was identified as likely greater than 65%, warranting detailed analysis.

Using GIS shapefiles for subwatersheds and catchments provided to Stanford by Lucy Buchan (originally provided by Santa Clara Valley Water District), 2006 aerial photography data and campus basemap data with field verification, Stanford mapping staff used AutoCAD to delineate areas of buildings parking lots, roads and sidewalks and made area measurements to determine the cumulative impervious area within this subwatershed.

The attached map reflects the results of this analysis. The total subwatershed area is 16,331,397 square feet, 10,797,489 square feet of which are impervious resulting in an overall impervious percentage of 66.1% within this subwatershed.

Based on this analysis, we request that subwatershed 21 be categorized as red, i.e., projects in this subwatershed are exempt from the HM Standard and associated requirements.

If any additional information is required to support this request, please feel free to contact me.

Sincerely,

Karla Traynor Smith, PE
Stanford Utilities Division

Attachments: Subwatershed Impervious Areas Map, Dated 03/18/09
C: Jill Bicknell, SCVURPPP

Scale: See Plan	Date: 03/18/09	By: JEM

SUBWATERSHED IMPERVIOUS AREAS

STANFORD UNIVERSITY
LAND, BUILDINGS & REAL ESTATE
UTILITIES DIVISION
327 Bonair Siding Stanford, CA. 94305-7270

FILE: SUBWATERSHED_HMP_EX_AREA.dwg

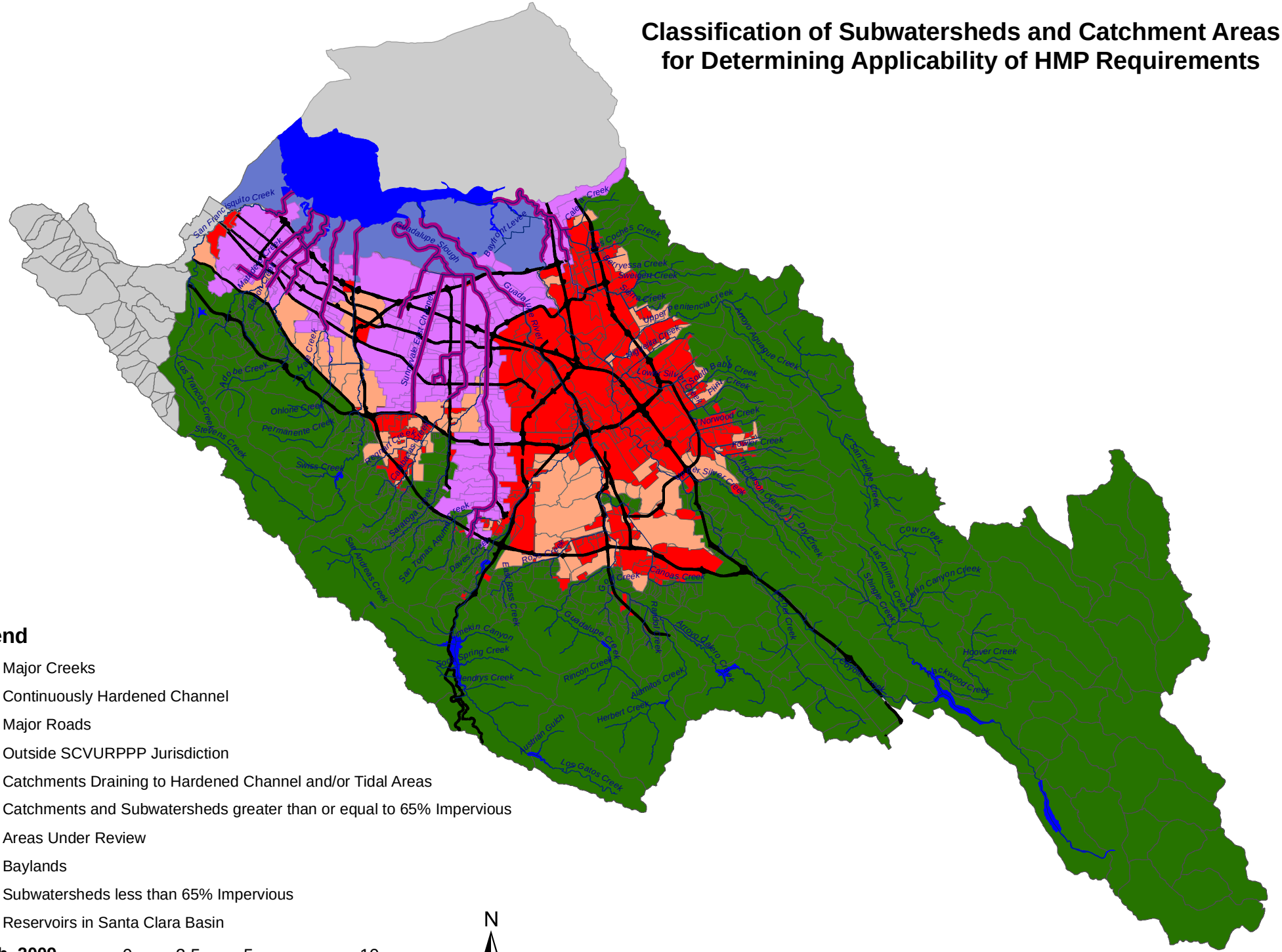
IMPERVIOUS FEATURE	AREA (SQ. FT.)
BUILDINGS	3,798,924
PARKING LOTS	3,324,604
ROADS	2,234,685
SIDEWALKS	1,439,276
TOTAL	**10,797,489**
SUBWATERSHED	16,331,397
PERCENT IMPERVIOUS	66.11%

BUILDINGS
PARKING LOTS
ROADS
SIDEWALKS
SUBWATERSHED BOUNDARY

GRAPHIC SCALE
200 0 100 200 400

AERIAL FLIGHT: APRIL 2006

Classification of Subwatersheds and Catchment Areas for Determining Applicability of HMP Requirements



This map contains: 1) a revision to the November 2007 version to correct a mapping error; and 2) two revisions to Areas Under Review in Palo Alto and North Santa Clara County to reflect updated impervious surface data, consistent with the HM applicability criteria set forth in Attachment F, Section 4 of the MRP