

## **MEMORANDUM OF AGREEMENT**

**BETWEEN**

**THE VENTURA COUNTY WATERSHED PROTECTION DISTRICT**

**AND**

**THE GENERAL SERVICES AGENCY FACILITIES & MATERIALS**

**FOR**

**PERVIOUS CONCRETE MAINTENANCE AT THE COUNTY GOVERNMENT CENTER PARKING  
LOTS AND JOHN F. JOHNSTON DRIVE**

The purpose of this Memorandum of Agreement is to identify Ventura County Watershed Protection District (VC WPD) and the General Services Agency Facilities and Materials (GSA) regarding future operations and maintenance (O&M) of the pervious concrete improvements installed at the County Government Center (CGC) parking lots located at 800 South Victoria Avenue, Ventura, CA. In accordance with State Water Resources Control Board Grant Agreement No.12-452-550, O&M of the installed improvements must be continued to ensure that project is functional to meet its design goals not less than 20 years from the date of completion of construction. Construction of the pervious concrete improvements at the CGC was completed in October 2015. Approximately 22,000 square feet of pervious concrete improvements were constructed within the various parking lots of the Government Center and the perimeter roadway, John F. Johnston Drive (for locations see Exhibit A).

### **GSA RESPONSIBILITIES:**

#### **STREET SWEEPING**

Mechanically vacuum all pervious concrete surfaces (approximately 22,000 square feet or 1% of the parking lot area) every 2 weeks or 2 times a month at speeds of not more than 3 miles per hour (mph). The pervious concrete improvements range from 18 inches to 15 feet wide. Wide areas may require at least 2 parallel passes. Sweeper rotating brushes must not be used. Sweeper tires may need to be up against the curb to ensure gutter flow lines are vacuumed.

#### **Street Sweeping Key Requirements:**

- ✓ Frequency: every 2 weeks or 2 times a month
- ✓ Operational speed: not more than 3 mph
- ✓ Pervious concrete area of 22,000 square feet (or 1% of parking lot area)
- ✓ No brushes, only vacuum

## **HOUSEKEEPING**

Maintaining good housekeeping and landscaping practices within the areas with pervious concrete improvements is a critical component of O&M program for pervious concrete including:

- Use blowers to remove and direct fine sediments and vegetative debris away from pervious concrete
- Collect and bag all lawn clippings directly adjacent to pervious concrete
- Do not stockpile any debris (raked leaves, mulch, etc.) on pervious concrete
- Manage adjacent vegetated areas to ensure no loose soils or debris fall on pervious concrete

## **SCHEDULE & COMMUNICATION**

Each year by July 1<sup>st</sup>, GSA Housekeeping and Grounds Manager or designated staff will provide VCWPD Stormwater Program Manager or designated staff with a schedule outlining anticipated street sweeping activities through June 30<sup>th</sup> the following year and current contact information for personnel completing the work for coordination purposes.

GSA staff will assist VCWPD staff with email notifications regarding scheduled pressure washing and vacuuming activities at CGC parking lots and along John F. Johnston Drive as described under "VCWPD Responsibilities". GSA will implement "No Parking" barricades and signs in advance of the scheduled pressure washing and vacuuming activities as well as relocate vehicles as needed for full access to pervious concrete. The areas that will require "No Parking" and potential vehicle relocation have been identified in Exhibit A.

## **VCWPD RESPONSIBILITIES:**

### **PRESSURE WASHING & VACUUMING**

Pressure washing shall be completed at an approximate 60 degree angle from the surface with the nozzle about 3–5 inches above the surface, operating at 3,500 psi (if raveling of surface is noticed then throttle-down the psi appropriately). Simultaneously, a tow-behind vactor flexible truck hose (< 8" in diameter) will vacuum the surface 1 - 2 inches downstream of where the pressure washer water stream contacts the pervious concrete surface. The hose shall be in contact with the pervious concrete surface maximizing suction and sediment/debris removal. The pressure washing and vacuuming will be completed at a rate of 1 minute per 5 square feet, unless otherwise approved. This method and approximate rate typically results in 2 crews (2 members each) working for three (3) 8-hour days. All water, sediment and debris collected by the vactor must be properly disposed of at a facility approved for acceptance of such materials.

### Pressure Washing & Vacuuming Key Requirements:

- ✓ Frequency: 3 times a year (January, May, and September)
- ✓ Two (2) 2-member crews for three (3) days per cleanup event
- ✓ All pressure wash runoff needs to be immediately vacuumed (1-2 inches downstream of where the pressure washer water contacts the pervious concrete)
- ✓ Cleaning criteria of meeting at least 200 inches/hour for infiltration rates after cleaning is completed to be verified by VCWPD infiltration testing
- ✓ No wash water can be discharged into the storm drain system

### **ALTERNATIVE PRESSURE WASHING & VACUUMING METHOD**

VCWPD designated staff continues investigating and testing any new emerging pervious concrete cleaning methods. Currently, there is the "BIRD" pervious concrete vacuum equipment offered by Bunyan Industries located in the State of Utah. The VCWPD staff tested BIRD system at the CGC parking lots on April 4, 2015. The BIRD system was found to be about 3 times more effective than above described pressure washing & vacuuming method for heavily clogged pervious concrete. VCWPD is not aware of BIRD units locally available for use or contracting. Operation of the system requires connection to a vactor truck and 2 staff. Pervious concrete cleaning utilizing the BIRD is much more effective and faster in pervious concrete cleaning and is therefore a more cost-effective method to achieve cleanup goals.

### Alternative BIRD System Key Requirements:

- ✓ Frequency: 3 times a year (January, May, and September)
- ✓ One (1) 2-member crew for five (5) days per clean-up event
- ✓ Vactor truck
- ✓ Cleaning criteria of meeting at least 200 inches/hour for infiltration rates after clean-up is completed to be verified by VCWPD infiltration testing
- ✓ No wash water can be discharged into the storm drain system

If BIRD system is made available, it is highly recommended instead of the pressure washing and vacuuming method described above.

### **INFILTRATION TESTING & EFFECTIVENESS EVALUATION**

VCWPD staff will complete pervious concrete infiltration efficiency testing to ensure that the design infiltration rate of 200 inches/hour or average infiltrated volume of 200,000 gallons per rain event, is maintained as required by the State Water Resources Control Board Grant Agreement No.12-452-550.

VCWPD staff will perform infiltration testing of pervious concrete (Method ASTM 1701) to monitor pervious concrete effectiveness and clogging rates. This will include testing before and after pressure washing & vacuuming activities to gauge effectiveness.

Cleaning criteria of meeting at least 200 inches/hour for infiltration rates after cleaning is expected and will be verified by VCWPD testing. Summary of testing results will be documented by VCWPD staff.

**SCHEDULE & COMMUNICATION**

VCWPD staff will provide training on as needed basis, at least annually due by June 30<sup>th</sup> in accordance with the Ventura Countywide Municipal Stormwater Permit Order No. R4-2010-0108.

Each year by July 1<sup>st</sup>, VCWPD staff will provide GSA Housekeeping and Grounds Manager or designated GSA staff with a schedule outlining anticipated pressure washing and vacuuming activities through June 30<sup>th</sup> the following year and current contact information for personnel completing the work for coordination purposes. VCWPD will provide at least 3 day notice for changes to scheduled pressure washing and vacuuming activities so that GSA may implement parking restrictions accordingly.

**DURATION AND FUTURE RECONSIDERATION OF THE AGREEMENT**

This memorandum of Agreement will be effective until October 31, 2035. Not later than May 1, 2021, VCWPD and GSA will reconsider the assigned roles and responsibilities related to Pervious Concrete Maintenance at the County Government Center Parking Lots and John F. Johnston Drive. Additional reconsideration of this agreement will occur on an as needed basis.

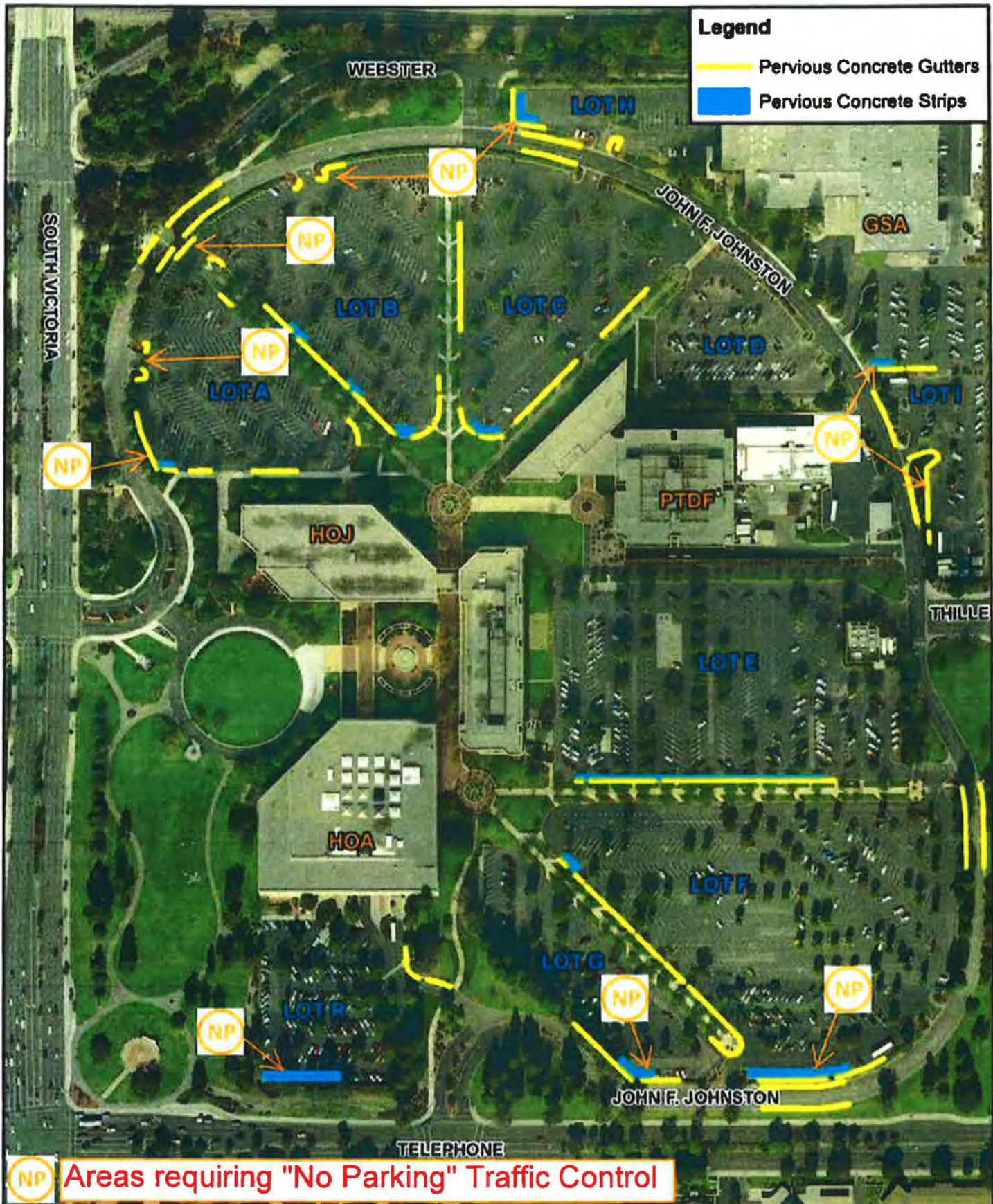
The Memorandum of Agreement is hereby entered into by Ventura County Watershed Protection District and General Services Agency Facilities and Materials on, and its effective date is, May 1, 2016.

  
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Tully Clifford, P.E., Director  
Ventura County Watershed Protection District

5/20/2016  
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Date

  
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Paul Young, P.E., Chief Deputy Director  
General Services Agency Facilities and Materials

5/19/16  
\_\_\_\_\_  
Date



County Government Center  
Parking Lot Green Streets Urban Retrofit