Quality and Productivity Commission

28th Annual Productivity and Quality Awards Program

"Los Angeles County: Ahead of the Curve"

2014 APPLICATION

Title of Project (Limited to 50 characters, including spaces, using Arial 12 point font):

NAME OF PROJECT: COUNTY OF LOS ANGELES STORM DRAIN NETWORK

DATE OF IMPLEMENTATION/ADOPTION: JUNE 2012
(Must have been implemented at least one year - on or before June 30, 2013)

PROJECT STATUS: √ Ongoing _____ One-time only

HAS YOUR DEPARTMENT PREVIOUSLY SUBMITTED THIS PROJECT? _____ Yes √ No

EXECUTIVE SUMMARY: Describe the project in 15 lines or less using Arial 12 point font. Summarize the problem, solution, and benefits of the project in a clear and direct manner.

Los Angeles County Public Works' Storm Drain Network (SDN) is a prime example of the latest "big data" techniques applied to internal public works service management and external customer service. The SDN is a geospatial database that allows the viewing of all Los Angeles County Flood Control District-owned or maintained infrastructure. It includes approximately 3,800 miles of storm drains, 500 miles of open channels, and over 80,000 catch basins. The network contains facility information such as size, material, design specifications, maintenance responsibility, ownership, etc. Prior to the SDN project, office staff and field inspection crews reviewed hard copy as-built plans to determine maintenance responsibility and inspection routes. The SDN allows inspection crews to see the drain system connectivity on top of aerial imagery to determine accessibility and route information. The SDN has benefited both field staff and office staff in performing inspections and responding to inquiries. The SDN is available to the public through a user-friendly map viewer on the Internet at:http://dpw.lacounty.gov/fcd/stormdrain/index.cfm. In addition, a mobile app (compatible with any smart phone or tablet) is also available.

(1) ACTUAL/ESTIMATED **ANNUAL** COST AVOIDANCE	(2) ACTUAL/ESTIMATED **ANNUAL** COST SAVINGS	(3) ACTUAL/ESTIMATED ANNUAL REVENUE	(1) + (2) + (3) = TOTAL ANNUAL ACTUAL/ESTIMATED BENEFIT	SERVICE ENHANCEMENT PROJECT
$ 485,100	**$842,820**	**$ 0**	**$ 1,327,920**	☐

ANNUAL = 12 MONTHS ONLY

SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS Los Angeles County Department of Public Works 900 S. Fremont Ave. Alhambra, CA 91803	**TELEPHONE NUMBER**
PROGRAM MANAGER'S NAME Marianne Jeffers	**TELEPHONE NUMBER** (626)458-7113 **EMAIL** mjeffers@dpw.lacounty.gov
PRODUCTIVITY MANAGER'S NAME AND SIGNATURE **DATE** (PLEASE CALL (213) 893-0322 IF YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME) Kathy Salama	**TELEPHONE NUMBER** (626)458-2521 **EMAIL** ksalama@dpw.lacounty.gov
DEPARTMENT HEAD'S NAME AND SIGNATURE **DATE** Gail Farber	**TELEPHONE NUMBER** (626)458-4002

We Support Plain Language

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1st **FACT SHEET – LIMITED TO 3 PAGES ONLY:** Describe the **Challenge, Solution, and Benefits** of the project.

CHALLANGE – In 2009, the Los Angeles County Flood Control District acquired ownership of the Storm Drain Network (SDN) from the Los Angeles County Sanitation District. At that time, it was referred to as the Storm Drain Initiative and contained generally accurate geographic information for the storm drain infrastructure, but unreliable attribute data, which include maintenance responsibility and design specifications. The Los Angeles County Flood Control District recognized the potential benefits of the SDN to the Los Angeles County Department of Public Works (Public Works) as well as the public in terms of quick access to information and flexibility of use if the database was further refined and user friendly.

SOLUTION - A SDN Team was created to include selected key staff members among different divisions within Public Works. The development of the SDN required extensive collaboration among the Team members to determine what should be added to the database to enhance accuracy, provide a user-friendly interface, and to consider cost benefits. After Team deliberation, decisions were made as to what information was to be collected from the as-built drawings, field maintenance maps, permits, and the Public Works Maintenance Management System (a non-geographical database) for inclusion in the data set.

The Mapping and GIS Section was assigned the task of implementing this project in a Geographic Information System (GIS) environment, also referred to as a geospatial database. The staff obtained the needed storm drain infrastructure data from thousands of previously scanned as-built plans, and made the necessary edits to ensure the SDN was complete with drainage connectivity. Connectivity is the ability to determine direction of flow throughout the storm drain system and can be used to trace the path of flow.

Public Works' Information Technology Division developed custom programs to enable a streamlined editing process. They also made the SDN database information accessible on a viewer, enabling Public Works employees and the public to view the SDN data along with other GIS information and aerial photogrammetry. Flood Maintenance Division of Public Works provided their field inspection maps for inclusion into the database.

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Flood Maintenance Division also updated the Maintenance Management System to assure that a drain was correctly assigned to the proper maintenance office, so that no drain was either inspected twice or not inspected at all. After mapping each drain, it was easy to determine each maintenance yard's jurisdictional responsibility.

BENEFITS - The SDN benefits Public Works and the public with fast access to valuable drainage information. This highly useful tool has helped various divisions, field staff, cities, and residents in determining the geographical location, ownership, and maintenance responsibilities of the Los Angeles County Flood Control Districts storm drain infrastructure.

Prior to the SDN, when office staff received inquiries regarding field maintenance responsibilities of storm drains they referred to hard copies of as-built plans. Every morning, each of the seven field inspection crew members reviewed these plans for one to two hours, located the drains that needed inspection on hardcopy maps, and then planned their scheduled routes for the day. This was a time-consuming process. Today, the SDN is used to easily print field inspection maps delineating drainage systems that are to be inspected for the day, including the necessary information such as maintenance access points, pipe size, and geographical locations. The SDN is also used to prepare and print the maps used by the field crews performing the periodic catch basin cleanouts. The mobile app is also used by the field crews for easy access to the SDN data.

The SDN has also resulted in cost savings for other work flows. For example, it has reduced the number of follow-up investigations for the permitting compliance underground investigation crews. With the SDN and more comprehensive data, the scheduled field inspections reported fewer undocumented drain connections, thus reducing follow-up investigations by the permitting compliance underground investigation crews. The SDN project focused on including permitted connections, thus reducing the number of follow-up investigations for finding illegal connections to the storm drains. Illegally connected drains can transport pollution into channels and storm drains; and therefore, must be investigated to determine if they can be legally permitted or if they need to be closed off.

The SDN has benefitted the County of Los Angeles (County) by making it easier to locate Flood Control District drains for maintenance and refer residents to the appropriate cities responsible for those drains that the County does not maintain. The SDN also helps the County with hazardous spill cleanup in the flood control system by identifying the responsible party based on the location of the upstream source. In addition, the SDN has helped the County to comply with ever more stringent National Pollutant Discharge Elimination System (NPDES) Permit requirements. Public Works has incorporated into the SDN additional information needed for the NPDES Permit requirements, such as geographic locations and photo-documenting the drainage outfalls into the major channels, and determining their catchment drainage areas.

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The SDN is used in planning for future improvements to the flood control system such as unmet drainage needs. SDN GIS data combined with sewer pipe information or other infrastructure data provides for better overall planning. Users can easily navigate through the system, select drainage facilities, view relevant information, display aerial images, and link to the scanned as-built plans.

Knowing where all of the storm drains are geographically located, their design specifications, as well as their maintenance records and connectivity is a vital tool for assessing and managing possible legal action against the Flood Control District, thus reducing litigation costs.

This mapping effort could not have been done without the full Team's effort, input, collaboration, and total willingness to work towards the end goal. The Watershed Management Division of Public Works has supported the project financially and made sure that the data being produced can be used for accurate reporting to the State Water Resources Control Board. Engineers from Design Division and the Water Resources Division proactively shared their expertise to improve the accuracy of the data. Public Works also worked with the U.S. Geological Survey to get storm drains connected with natural streams for complete connectivity.

The ultimate goal is to have total connectivity of the drainage system 'from the mountains to the sea' and to have all this information readily available to the public and outside agencies via the Internet, thus supporting the goal of total government transparency.

The SDN Team continues to meet monthly to determine ways to refine and enhance the SDN based on findings from internal review and customer feedback.

The following quote is from the United States Environmental Protection Agency's website;

"Water is essential for life and plays a vital role in the proper functioning of the Earth's ecosystems. Water pollution has a serious impact on all living creatures, and can negatively affect the use of water for drinking, household needs, recreation, fishing, transportation, and commerce."

We are hopeful that the SDN plays an important role in meeting clean water goals.

LINKAGE TO THE COUNTY STRATEGIC PLAN (DETAIL IS REQUIRED FOR COUNTY DEPARTMENTS):
The SDN is linked to the County Strategic Plan, Goal 1: Operational Effectiveness; Strategic Initiative 4: Countywide IT Projects; Enhance E-Government Initiatives – "Pursue opportunities to expand user-friendly availability to County services and information by the public via websites, mobile applications, and other E-Government. "

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COST AVOIDANCE, COST SAVINGS, AND REVENUE GENERATED (ESTIMATED BENEFIT): If you are claiming cost benefits, include a calculation on this page. You must include an explanation of the County cost savings, cost avoidance or new revenue that matches the numbers in the box. Remember to keep your supporting documentation.

Cost Avoidance: Costs that are eliminated or not incurred as a result of program outcomes.

Cost Savings: A reduction or lessening of expenditures as a result of program outcomes.

Revenue: Increases in existing revenue streams or new revenue sources to the County as a result of program outcomes.

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Cost Savings:
Public Works Flood Maintenance Division field staff saves time answering inquiries about location and maintenance jurisdiction of drainage infrastructure. Among three Flood Maintenance Yards, on average, staff handle 1,920 inquires per year, with one hour saved per inquiry. At a rate of $110/hour, a total of **$105,600 is saved annually.**

Time saved in responding to spills into drainage system. The Spill Response Supervisor saves 3 hours that would have been spent locating as-built plans to know where to place devices to stop the spill. At 3 hours and an average of 50 spills per year, there is a total savings of **$16,500.**

Field underground drain inspection crews save time not having to review as-built drawings in planning their inspections for the day. A 7-person crew saves 1.5-hours per day, 4-days per week, 52-weeks times 3 field yards, totals a savings of **$720,720**.

Cost Avoidance:
Public Works Land Development Division's permitting underground crews save time in avoided follow-up investigations. With better mapping data there are fewer false undocumented connections discovered in the storm drain inspection process. With 70 less undocumented connections per yard, per year, since 2010 with each investigation taking a 7-person crew (required by Cal OSHA) 3 hours; (70 x 7 x 110 x 3hrs) x 3 yards = **$485,100**