

Quality and Productivity Commission
34th Annual Productivity and Quality Awards Program
“Leading with Excellence”

2021 APPLICATION

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

NAME OF PROJECT: PUBLIC WORKS PAVEMENT MANAGEMENT PROGRAM

DATE OF IMPLEMENTATION/ADOPTION: JUNE 30, 2020

(Must have been fully implemented for a minimum of at least one year - on or before July 1, 2020)

CHECK HERE IF THIS PROJECT IS BEING SUBMITTED FOR THE **COVID-19 IMPACT AWARD ONLY**. (Projects must be implemented on or before December 31, 2020. **Note:** Projects implemented less than one year ago will not be eligible for any other PQA awards. In addition, once a project is submitted, you cannot submit the same project for awards consideration in subsequent years).

PROJECT STATUS: Ongoing One-time only

HAS YOUR DEPARTMENT PREVIOUSLY SUBMITTED THIS PROJECT? Yes No

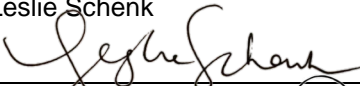

EXECUTIVE SUMMARY: Describe the project in 15 lines or less using Arial 12 point font. State clearly and concisely what difference the project has made.

1 The Public Works Pavement Management Program (Program) achieved a high level of
 2 productivity and quality in delivering improved roads to the public. The Program
 3 implemented effective strategies to reduce costs and decrease project timelines including
 4 in-house project management, collaborative design processes, and streamlined
 5 construction contracting. The Program delivered 29 projects totaling \$46,575,000, using
 6 increased revenue from the Senate Bill 1, Road Maintenance and Rehabilitation Account.
 7 The Program had a strong focus on sustainability in alignment with the County's Strategic
 8 Plan Goals and utilized treatments that were both environmentally and economically
 9 sustainable. Using innovative technologies, including Cold-In-Place Recycling and Cold-
 10 Central-Plant Recycling, Public Works was able to reuse existing asphalt materials in
 11 roadway rehabilitation. This resulted in an 80% decrease in energy usage, 79% savings
 12 in Greenhouse Gas emissions, and 37,113 cubic yard reduction in landfill deposits.
 13 Projects were executed with shorter design phases, fewer construction working days, and
 14 reduced construction impacts to the public. Utilizing these technologies resulted in a \$4.1
 15 million cost savings when compared to traditional methods.

BENEFITS TO THE COUNTY

(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
\$ 4,100,000	\$	\$	\$ 4,100,000	<input type="checkbox"/>

ANNUAL = 12 MONTHS ONLY

SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS Public Works 900 S. Fremont Ave Alhambra CA 91803		TELEPHONE NUMBER 625-458-4925
PROGRAM MANAGER'S NAME Yonah Halpern	EMAIL YHalpern@pw.lacounty.gov	TELEPHONE NUMBER 625-703-9596
PRODUCTIVITY MANAGER'S NAME AND SIGNATURE (PLEASE CALL (213) 893-0322 YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME) Leslie Schenk 		DATE 6/24/21
TELEPHONE NUMBER 626-458-5946		EMAIL lschenk@pw.lacounty.gov
DEPARTMENT HEAD'S NAME AND SIGNATURE Mark Pestrella 		DATE 6/24/21
TELEPHONE NUMBER 626-458-4001		

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ELECTRONIC, WET, OR SCANNED SIGNATURES ARE ACCEPTABLE

1st FACT SHEET – LIMITED UP TO 3 PAGES ONLY: Describe the **challenge(s), solution(s), and benefit(s)** of the project **to the County**. What quality and/or productivity-related outcome(s) has the project achieved? Provide measures of success **and specify assessment time frame**. Use Arial 12 point font.

Challenges:

Los Angeles County Public Works manages the largest and most diverse County road network in the State. The road network is comprised of 7,560 lane miles, totaling 580 million square feet of pavement and services a diverse combination of urban, rural, and mountainous environments. The mission of Public Works' Pavement Management Program (Program) is "to be good stewards of the County's road system by treating the right roads with the right treatment, at the right time, and in the right way." This mission is achieved by utilizing pavement treatments that focus on environmental and economic sustainability.

Cities and Counties are looking for ways to face the challenges of supporting California's aging transportation system with limited resources. A well-maintained local street and road system is imperative for sustainable communities to prosper. The 2018 California Statewide Needs Assessment report estimates that approximately \$6.8 billion is needed annually over the next ten years to bring local streets and roads to sustainable levels. In addition, the State passed AB32 to reduce greenhouse gas emissions to 1990 levels by 2020 and maintain those levels.

Solution:

Public Works has embraced these challenges and developed a sustainable approach to address them. Public Works is taking the lead to provide greener, cost-effective roads by applying a three-pronged sustainable approach in the rehabilitation, construction, and maintenance of its road network: 1) focus on taking care of roads that are in good condition first; 2) use recycled materials from recycled tires or aggregates from existing pavement in the treatment selections; and 3) reutilize and modify the existing materials in-place by recycling the pavement or adding cement to the subgrade beneath the pavement to improve its strength. This sustainable approach results in not only meeting the objectives of AB 32 of reducing GHG emissions, but also reduces the impacts to landfills and communities in a cost-effective and sustainable way.

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Benefits:

The Pavement Management Program completed 29 projects in Fiscal Year 2020-21, totaling \$46,575,000. This included three sustainable reconstruction projects that utilized the Cold Central Plant Recycling and Cement Stabilized Pulverized Base treatments and one sustainable rehabilitation project that utilized the Cold-In-Place Recycling treatment. These sustainable treatments resulted in:

- 1) \$4.1 million cost savings when compared to traditional methods
- 2) Combined environmental benefit of 80% reduction in energy usage, 79% Greenhouse Gas emissions savings, and 37,113 cubic yard reduction in landfill deposits
- 3) Improved productivity in processes
- 4) Enhanced quality through collaborative design process

The Program's use of **innovative technologies** allowed for the **process improvement** of three different project phases: planning, design, and construction. During the planning phase, employees evaluated the current condition of roads in the County's network. Critical sections of the roadways were photographed and analyzed for cracking patterns in accordance with an industry standard pavement rating system. Each road was given a Pavement Condition Index rating which was calculated by the RoadMatrix software and used to prioritize roads in need of rehabilitation. The RoadMatrix software helped organize substantial amounts of data and analyze the network as a whole. In Fiscal Year 2020-21 the program completed evaluations of 1,424 lane miles totaling an area of 120 million square feet.

During the design phase, the Pavement Management Program consisted of site-specific investigations to determine the existing structural sections of roads earmarked for new projects. The technicians who performed this work were highly specialized and utilized a combination of traditional methods of exploration and innovative technologies. Traditional methods included coring and excavating existing roadway materials by hand. Innovative technologies included Ground Penetrating Radar and Falling Weight Deflectometer pavement evaluation tools. Staff also developed an innovative Geographic Information System (GIS) data collection system. This allowed technicians in the field to share pictures of the road sections, subbase and subgrade materials and tag them with geographic locations. This information was shared directly with engineers in real time so they could track the progress of different projects. This **improved productivity** by replacing the previous legacy process of recording notes by hand on template forms. The GIS layer was also shared with project designers and project managers for transparency. The team completed a total of 23 investigations for new projects during Fiscal Year 2020-21.

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The Program Engineers implemented other innovative and collaborative strategies to create efficiencies during design. These strategies included in-house project management to reduce soft costs, collaborative design processes to engage stakeholders, and streamlined construction contracting to minimize construction costs.

By managing 25 of 29 projects in-house, the Pavement Management Program Engineers **decreased project timelines and soft costs** by streamlining work processes and not needing to hire external project managers. The in-house project management was performed by three highly efficient engineers on the team. This work was completed in addition to their duties managing the roadway evaluations, performing engineering analyses, consulting with Road Maintenance Division, supervising technicians, and other regular tasks.

The Program utilized **collaborative design processes**, including getting input from the Supervisorial Districts and field staff when finalizing the list of projects. The Program also initiated a working group called the Sustainability Measures Advisory Review Team (SMART) to educate internal stakeholders on the benefits of sustainable roadway treatments. These meetings included representatives from various divisions in the Public Works Transportation Core Service Area. The meetings were used to collaborate, troubleshoot problems encountered among similar projects, and streamline the development of project plans and specifications deliverables. The Program utilized working groups to implement and track new construction contracting procedures for innovative Job Order Contracts (JOC). Utilizing the JOC process instead of low-bid contracting delivered faster and more cost-effective construction with fewer change orders.

The innovative pavement treatments featured construction methods that reuse the existing asphalt materials in the roadway rehabilitation. The processes include grinding the existing asphalt off the road, breaking it down into smaller pieces, adding a rejuvenating emulsion oil, and re-placing the new asphalt material back on the roadway surface. The sustainable processes used in rehabilitation and reconstruction projects provided substantial environmental benefits. They **reduced energy usage, decreased Greenhouse Gas emissions, and decreased landfill depositions**. The treatments reduced construction truck traffic by eliminating the need to export waste material from the sites and import new asphalt materials, resulting in fewer construction working days and **less environmental impacts to County communities** during construction. The sustainable treatment methods resulted in substantial cost savings when compared to traditional methods of reconstruction.

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Linkage to the County Strategic Plan – 1 page only. Which County Strategic Plan goal(s) does this project address? Explain how. Use Arial 12-point font.

The Pavement Management Program is aligned with Strategic Plan Goals to Foster Vibrant and Resilient Communities and Realize Tomorrow’s Government Today.

The program addresses the following goals:

II.3.3 Address the serious threat of global climate change

II.3.4 Reduce waste generation and recycle and reuse waste resources

III.2.3 Prioritize and implement technology initiatives that enhance service delivery and increase efficiency

III.3.2 Manage and maximize County assets

The Program reduced project Greenhouse Gas emissions by 79% and reduced energy usage by 80% in its use of Cold Central Plant Recycling, Cement Stabilized Pulverized Base, and Cold-In-Place Recycling treatments. These reductions are in comparison to traditional methods of roadway rehabilitation and reconstruction. Climate resilience is integrated into the Program and its projects through these sustainable processes. The County’s leadership in successfully adopting sustainable treatments will inspire other counties and municipalities to follow suit. Outreach was also performed to share the County’s experience with other agencies.

The Program decreased landfill deposition by 37,113 cubic yards by re-using existing asphalt materials instead of removing them as waste. The Program recycles existing asphalt, repurposing it into new infrastructure. Public outreach about this program and its projects inspires local communities to reduce, reuse and recycle waste materials.

The Program prioritizes and implements new technologies in each phase of planning, design, and construction. This enhances service delivery by reducing costs and decreasing timelines from concept to construction. Utilizing new asphalt technologies increases efficiency and replaces timely and costly legacy methods of construction.

The Program manages and maximizes County assets by delivering strategic investments to roadway infrastructure that support economic development. The program is efficient in streamlining delivery of projects and reducing engineering costs, which maximizes the revenue that is invested into roadway rehabilitation. The fiscal responsibility of this program is aligned with the County’s highest priority needs.

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COST AVOIDANCE, COST SAVINGS, AND REVENUE GENERATED (ESTIMATED BENEFITS TO THE COUNTY): If you are claiming cost benefits, include a calculation on this page. Please indicate whether these benefits apply in total or on a per unit basis, e.g., per capita, per transaction, per case, etc. 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. Use Arial 12-point font

Cost Avoidance: Costs that are eliminated or not incurred as a result of program outcomes. Please indicate whether these are costs to the County or to other entities.

Cost Savings: A reduction or lessening of expenditures as a result of program outcomes. Please indicate whether these were expenditures by the County or by other entities.

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

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The \$4.1 million cost avoidance was calculated by comparing the innovative sustainable rehabilitation and reconstruction treatments utilized in this program, to traditional methods of construction. The cost avoidance shown represents the total cost savings in Fiscal Year 2020-21. A breakdown of the number of rehabilitation and reconstruction projects completed in this timeframe is provided in the table below.

TREATMENT	AREA (SQFT)	EST. TOTAL PROJECT COST	NUMBER OF PROJECTS	TREATMENT COST SAVINGS
PAVEMENT PRESERVATION	14,324,043	\$24,127,000	14	
RESURFACE	3,140,297	\$10,687,000	11	
REHABILITATION	615,456	\$2,769,000	1	\$434,000
RECONSTRUCTION	1,320,100	\$8,992,000	3	\$3,666,000
	19,399,896	\$46,575,000	29	\$4,100,000