

**Quality and Productivity Commission**  
**32<sup>nd</sup> Annual Productivity and Quality Awards Program**  
**"Innovating for Impact"**

**2018 APPLICATION**

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

**NAME OF PROJECT: LOS ANGELES COUNTY DATACENTER1 PROJECT (DC1)**

**DATE OF IMPLEMENTATION/ADOPTION:** APRIL 1, 2016

(Must have been fully implemented for a minimum of at least one year - on or before July 1, 2017)

**PROJECT STATUS:**  On-Going  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 This project would relocate the IT Infrastructure and LA County's data assets for ISD  
 2 and the departments it serves from an aging and non-purpose-built facility in Downey to  
 3 a purpose-built, state-of-the-art, eco-friendly "Tier III" facility capable of providing the  
 4 necessary security, resiliency and sustainability necessary to protect the IT  
 5 infrastructure and data assets for all County departments today and into the future. ISD  
 6 is proud to announce that the new Data Center, also referred to as DATACENTER1  
 7 (DC1), is now online and capable of protecting and consolidating nearly all departmental  
 8 data assets while significantly decreasing the square footage, power, and infrastructure  
 9 necessary in an otherwise distributed model. This was accomplished with the use of a  
 10 modern-day architecture, sharing infrastructure, economies of scale and the elimination  
 11 of end-of-life technologies. Additionally, ISD has introduced new technologies that  
 12 would transform how DC1 delivers services going into the future. DC1 is now capable  
 13 of giving departments instant access to compute resources, rich analytic tools for  
 14 making data driven decisions, and hybrid cloud offerings with the ability to deploy them  
 15 where and when they will be most effective, thus providing a better service to the public.

**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
\$	\$1,970,052	\$5,046,605	\$7,016,657	X

ANNUAL = 12 MONTHS ONLY

<b>SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS</b> Internal Services Department 9150 Imperial Hwy Downey, Ca. 90242		<b>TELEPHONE NUMBER</b> (562) 940-2903
<b>PROGRAM MANAGER'S NAME</b> Tony Cronin		<b>TELEPHONE NUMBER</b> (562) 658-4514 <b>EMAIL</b> <a href="mailto:tcronin@isd.lacounty.gov">tcronin@isd.lacounty.gov</a>
<b>PRODUCTIVITY MANAGER'S NAME AND SIGNATURE</b> (PLEASE CALL (213) 893-0322 IF YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME) Diane Quarker 	<b>DATE</b> 7/3/2018	<b>TELEPHONE NUMBER</b> (323) 881-3611 <b>EMAIL</b> <a href="mailto:dquarker@isd.lacounty.gov">dquarker@isd.lacounty.gov</a>
<b>DEPARTMENT HEAD'S NAME AND SIGNATURE</b> Scott Minnix 	<b>DATE</b> 7/3/2018	<b>TELEPHONE NUMBER</b> (323) 267-2101

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**1<sup>st</sup> 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:**

The primary challenge was twofold, first, move the aging ISD Data Center from the non-purpose-built facility in Downey to a robust and purpose-built Data Center facility, and second, develop a shared computing environment capable of supporting the departmental consolidation of over 35 LA County Data Centers scattered throughout the County. Being the first and largest data center in the County to be consolidated, including managing and maintaining the IT infrastructure and data assets of multiple County departments, ISD would be challenged to invent ways of maintaining operational day to day service levels without interruption to vital County services. Additionally, ISD would be challenged with using its annual operational budget to complete the migration within 12 months from the time it gained access to the new facility.

Other large challenges included communication with County stakeholders regarding progress reports, migration schedules and expected deliverables quickly and accurately. Given the number of project tracks (planning, commissioning, deployment and migration), and with their numerous interdependencies, ISD would be challenged to invent highly collaborative and interactive solutions to keep information flowing so deliverables could stay on target. Doing so, would be essential to the success of meeting the completion timeline of December 31<sup>st</sup>, 2018.

**Solutions:**

To solve these challenges, ISD utilized highly efficient modern-day architecture techniques to lower the overall space and power necessary to replace the Downey Data Center while providing capacity to consolidate nearly all the County's departmental data centers. Additionally, by leveraging a virtualized computing environment and employing tools to organize applications into migration groups, ISD could "hot" migrate most of the County's 458 applications and data assets using existing disaster recovery techniques with little or no interruption.

ISD solved the scheduling and coordination challenges by developing an automated online reservation system that allowed departments to select migration times that were best aligned with their business requirements. Additionally, ISD solved communication challenges with the use of online collaboration web sites, status dashboards, strong project management, and progress reports for County stakeholders, technical teams, and IT management. This included broadcasting live video and progress dashboards to various video displays throughout the County – around the clock.

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**Benefits:**

One of the key outcomes of the project includes an immediate 58% reduction in the power consumed at DC1. That, combined with a 38% reduction in cost per kilowatt hour (kwh) necessary to operate the IT Infrastructure, makes it one of the most power efficient data centers occupied by a government institution in the nation. This benefit alone has resulted in an immediate \$537,000 in annual power cost savings to the County of Los Angeles, with the potential to save much more as other County departments begin to onboard their data assets.

These benefits also help to support LA County's strategic plan to foster a cleaner, more efficient, and more resilient energy system (STRAT II.3.2). By choosing a facility with a dedicated onsite power substation, the County now pays a wholesale rate for power, or 38% less than previously charged in the Downey facility. Furthermore, by choosing a facility with close proximity to the Pacific Coast, ISD could leverage a multi-mode cooling system that uses the cool external air temperatures often associated with coastal climates. This "free cooling" mode is now operated over 85% of the year and uses 30% less water than typical water cooled-systems. As a result, the yearly power consumption has decreased from 5480 Megawatts to only 2289 Megawatts, or 58%. A practical measurement would be that moving to DC1 has saved the equivalent of 1835 barrels of oil!

Benefits also included an 82% reduction in the square footage necessary to support IT infrastructure and data assets occupying DC1; now only 4,000 square feet. As a result, the project successfully repurposed 22,883 square feet of floor space at the Downey facility, which can now be used in a more purpose-built way.

Benefits also included an immediate improvement to the security and protection of the County's IT infrastructure and data assets. DC1 is now SOC2, HIPAA, HITECH and PCI-DSS compliant. Additionally, the physical security necessary to access the IT infrastructure has significantly increased. Now, instead of a 2-tier physical security model that only used visual identification and card-key access, a 4-tier model has been implemented. DC1 now includes end-to-end video monitoring and biometric screening. The use of these additional technologies combined make DC1 one of the most secure computing environments in the nation.

Benefits also included a significant modernization of the County's network, compute and storage infrastructure. By replacing legacy IT infrastructure with modern-day, high density systems, significant increases to performance and response times have been realized. For example, LA County's payroll system has realized a 52% reduction in the overall time it takes to process. Additionally, department applications running remotely will instantly inherit faster response times and better performance once migrated to DC1.

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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.

Strategy III.2: Embrace Digital Government for the Benefit of our Internal Customers and Communities

Goal III.2.1: Enhance Information Technology Platforms to Securely Share and Exchange Data.

DC1 uses “multi-tenant” technologies on shared IT infrastructure so that economies of scale can be realized with a secure delivery and exchange of data for every department. DC1 introduced a “zero-trust” security model so that applications can securely share data with other applications and endpoints that are specifically trusted.

Goal III.2.3: Prioritize and Implement Technology Initiatives That Enhance Service Delivery.

With the deployment of orchestration and self-service provisioning technologies at DC1, departments can get same day delivery for a variety of IT services. Additionally, department IT managers are now able to quickly analyze performance and communication trends in real-time, allowing them to make effective data driven decisions and improve response times to County initiatives and communities.

Goal III.3.4: Complete Business Continuity Planning

DC1 was designed to be a “Forever-On” facility capable of operating during and after a variety of disaster scenarios. In addition to the physical capacity to withstand such an event, infrastructure running at DC1 is replicated to another purpose-built facility in Orange County known as the Local Recovery Center. Combined with an out-of-region data bunker located in Northern California, continuity of IT services for the County can be delivered in the event of a disaster.

Goal II.3.2: Foster a cleaner, more efficient, and more resilient energy system.

By selecting a facility within close proximity to the Pacific Coast, the County will save millions of dollars over the lifetime of the data center by leveraging a multi-mode cooling system that uses the cool external air temperatures often associated with coastal climates. DC1 operates in this “free cooling” mode over 85% of the year and with 30% less water than typical water cooled-systems.

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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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	<b>\$1,970,052</b>	<b>\$5,046,605</b>	<b>\$7,016,657</b>	<input checked="" type="checkbox"/>

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Cost savings

These benefits also help to support LA County's strategic plan to foster a cleaner, more efficient, and more resilient energy system (STRAT II.3.2). By choosing a facility with a dedicated onsite power substation, the County now pays a wholesale rate for power, or 38% less than previously charged in the Downey facility. Furthermore, by choosing a facility with close proximity to the Pacific Coast, ISD could leverage a multi-mode cooling system that uses the cool external air temperatures often associated with coastal climates. This "free cooling" mode is now operated over 85% of the year and uses 30% less water than typical water cooled-systems. As a result, the monthly power consumption has decreased 58%, from 626 Kilowatts to only 265 Kilowatts, or a **\$537,000** in annual savings to the County of Los Angeles. A practical measurement would be that moving to DC1 has saved the equivalent of 1,835 barrels of oil!

At the inception of DC1, there were 2,568 servers hosted by ISD. The total charge to County departments was \$6,676,492 per year. With the move to DC1 starting in July 1, 2017, the yearly chargeback dropped to \$5,243,404 per year. Cost reductions in chargeback to County departments by moving existing servers to DC1 was **\$1,433,052**.

$(\$6,676,492 - \$5,243,440 = \$1,433,052 \text{ yearly for server hosting}) + (\$537,000 \text{ due to Power and cooling savings}) = \mathbf{\$1,970,052}$

Revenue -

As a result of moving to DC1, the DC1 hosting environment has grown by 642 servers totaling **\$5,046,605** in yearly chargeback to customer departments.