City of Los Angeles

SmartLA 2028

Technology for a better Los Angeles

December 2020

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INTRODUCTION

”The soul of our recovery will shape the contours of our City’s future for decades to come… We have a blueprint for the city of the future.”

- Mayor Eric Garcetti
State of the City
April 19, 2020

We live in a world full of urban challenges: from racial injustice that impacts our minority populations to natural disasters that threaten safety and property to environmental changes that affect the very water we drink and the air we breathe. To address these challenges, cities seek tools that can positively transform the urban environment. The most promising of these tools is technology. While not a silver bullet, technology provides solutions previously unavailable to generations before us. It is technology that enables transparency in our policing and gives a powerful voice to our diverse communities. It is technology that prepares us for incoming natural disasters. It is technology that innovates alternative energy sources to reduce pollution and limit our carbon footprint. It is technology that allows people with disabilities to fully participate in civic life.

Technology enables the City of Los Angeles to efficiently and ethically improve the quality of life for our residents, businesses, and visitors. In other words, when done right, technology makes us “smarter”. This is why the City of Los Angeles strives to be a “smart” city.

In 2019, the City of Los Angeles Information Technology Agency (ITA) convened its Smart City Committee, composed of 24 departments and elected officials. While Los Angeles had become a civic technology leader (winning #1 U.S. Digital City award for three straight years), the exponential growth of new technologies and increasing public expectations

requires new levels of coordination to realize our vision. Our Smart City Committee came to the following conclusions:

1. Smart cities are multi-faceted and made up of several components, not just IT infrastructure

2. Smart cities are evolving, which requires both near-term and long-term goals that adhere to an overarching set of Smart City values

3. Smart cities require collaboration, where government and non-government entities work together to deliver best-in-class services to the public

4. Smart cities require local resident and business participation, especially in light of major social movements, such as the protests for racial justice, the Digital Divide, and social impacts from the COVID-19 pandemic

5. Smart cities don't happen by accident; they require careful strategic planning and investment to become intelligent urban ecosystems designed for the humans that live there.

Understanding the importance of technology for the modern city, SmartLA 2028 is our concise smart city strategy, which is followed by specific working group meetings and an implementation plan for impacted City of Los Angeles departments.

Ted Ross
General Manager and CIO
City of Los Angeles,
Information Technology Agency

OUR VISION FOR LOS ANGELES

The City of Los Angeles envisions a highly digital and connected city in 2028.

Los Angeles residents will experience an improved quality of life by leveraging technology to meet urban challenges. No longer the “car capital of the world”, residents will choose how they wish to get around LA, using a single, digital payment platform, with choices like renovated Metro rail and bus systems or micro transit choices, such as on-demand LANow shuttles or dockless bicycles. Neighborhoods will again welcome the pedestrian and allow easy access to green space.

If needed, all Angelenos, including those with disabilities, will have ready access to public safety services through phone, text, their vehicles, and other devices More than simply reacting, our public safety services will seek to use ethical, proactive technology that identifies fire, violence, or other risks to the health and safety of L.A. residents even before a 9-1-1 call.

Other advancements will enable Angelenos to access City services like park information or library digital content from the comfort of their homes through an Amazon Echo, Google Home, or Apple Siri. Living in a Digital Economy, the City of Los Angeles will continue to improve both the speed of Internet access and accessibility for underserved communities through a dedicated digital inclusion fund.

Businesses will find Los Angeles as the economic epicenter of multiple industries. As the digital media capital of the world, LA will be home to the best talent and startup ecosystem whether in Silicon Beach or the Downtown L.A. Cleantech Incubator. In addition to Hollywood, Los Angeles will continue to pioneer in fashion, aerospace, cuisine, and other industries.

Of course, competing in a digital economy requires digital infrastructure. L.A. will build on its initial success the first large 5G city in the U.S. (2018), with ubiquitous, ultra-high speed 5G connectivity across the city. Starting a business will also be much easier by 2028, through our enhanced, one-stop L.A. Business Portal along with completely digital permitting and licensing.

Visitors for the 2028 Summer Olympics and Paralympics will find a transformational digital Olympic experience from the moment they arrive. Passing through LAX airport's completely renovated terminals, they can use the new automated people mover to select between light rail airport connections, rideshare, or taxi transportation choices. They will be greeted by digital signage, directed by multi-lingual electronic wayfinding, and connected through their smartphone with the hotels, restaurants, and venues that they are looking for during their stay. Whether visiting Hollywood Boulevard or Venice Beach, visitors will use smartphones or easily accessible kiosks to learn in their own language about the landmarks and readily available services to enhance their experience, including blind or deaf visitors.

This vision is already becoming a reality. As a three-time United States Digital City Winner (2016-18), the City of Los Angeles has been investing and continues to invest in the infrastructure, digital services, and data tools to be a globally recognized Smart City. The SmartLA 2028 strategy is a concise summary of our vision, our approach to being a Smart City, and our roadmap to 2028.

HOW TECHNOLOGY MAKES US "SMARTER"

Technology has transformed almost every facet of our lives. 85% of Americans already connect with each other through handheld smartphones, 72% are active on social media, and the average household has 11 connected devices (Pew Research, Dec 2020 & Deloitte Consulting, Dec 2019). Our nation has fundamentally become digital, connected, and online.

Likewise, at the City of Los Angeles, technology is fundamental to how we function, in managing traffic, planning our communities, engaging our constituencies, and protecting our residents. Technology is instrumental to how we improve the lives of our 4 million residents, 500,000+ businesses, and 50+ million annual visitors. Through the coordination of existing and emerging technologies, we are well-positioned to transform the way we live, work, and move around L.A.

What Makes a City "Smart"?

At the City of Los Angeles, we believe that ***a Smart City is one that efficiently and ethically uses secure technologies, data, & resources to improve quality of life and sustainability for residents, businesses, and visitors.***

- **Efficient –** Choose optimal, multi-purpose solutions to maximize limited government resources
- **Ethical –** Protect the City against racial or geographic inequities and negative social consequences for the public (e.g. privacy, bias).
- **Secure –** Safeguard sensitive data and prevent unauthorized access by hackers.
- **Technology, data, and resources –** Use carefully curated and integrated assets to benefit our stakeholders.
- **Quality of life and sustainability –** Fulfill expectations identified by our stakeholders: the people who live in Los Angeles (**residents)**, the companies that operate in Los Angeles **(businesses)**, and the tourists who visit Los Angeles **(visitors)**, including those with disabilities.

In other words, the City of L.A. works to build a smarter, better Los Angeles for those who live, work, and play here.

In contrast to internal or administrative uses of technology that enable City operations (e.g. the City's payroll system), ***Smart City technology is one that directly benefits L.A.'s residents, businesses and visitors.***

The MyLA311 mobile app, 5G cellular deployment, text to 911, digital parking meters, electric vehicle charging stations, body worn cameras for police officers, the ATSAC traffic management system, ShakeAlertLA earthquake early warning app, connected street lamps, and GPS-enabled street sweepers are just some of the examples of the City of Los Angeles Smart City technologies that provide a direct and tangible public benefit.

The Benefit of Smart, Digital Tools for All Angelenos

Smart, digital tools offer unique advantages to improving our city, as they:

1. Permit positive, proactive influence on the urban landscape to improve resident's daily lives (e.g. timing traffic lights to permit faster public transportation)

2. Enable objective analysis and data-driven decision making for city planning for better neighborhoods (e.g. impact of proposed construction on a neighborhood)

3. Allow the City to make ad hoc adjustments based on emergencies for better public safety (e.g. ATSAC system re-routes traffic to avoid fire evacuation area)

4. Create highly accessible services that can be accessed 24/7 by each of L.A's diverse communities for better equity

5. Provide information and situational awareness around the city through sensors for better resource allocation and decisionmaking (traffic, crime, pollution, potholes, graffiti, etc.)

6. Deliver immediate feedback to City managers and elected officials after introducing changes to L.A.'s neighborhoods and services for better analysis

The events of the year 2020 further remind us of the importance of being a Smart City. The COVID-19 pandemic has been a humanitarian and economic crisis. The protests for racial justice are a stark reminder of the urgency to unite and act upon our guiding principles for a just society that upholds and values the lives of all Americans, regardless of race.

And while these events have been unprecedented in recent history, it was technology that enabled City of Los Angeles leaders to quickly respond and engage our communities. Throughout the crisis, **digital tools have emerged as a critical lifeline for our society** - enabling contact-free essential services, accelerated medical solutions, artificial intelligence (AI)-assisted policy making, protest coordination through social media, real-time community engagement and a scale and pace of innovation previously unthinkable.

Using Smart City technologies, the City of Los Angeles was able to:

- Stand up and mobilize free COVID-19 testing sites within 3 days
- Enable City workers to deliver contact-free essential public services (e.g., electronic permitting, library programs, etc.) that were previously in-person only
- Deliver critical information to keep our constituents safe through multiple digital channels (e.g., smartphones, websites, TV, social media) on a daily basis
- Strengthen community engagement and communications …all while providing the critical protections to secure the privacy and data of our constituents.

Herein lies the additional importance of SmartLA 2028 – to guide the digital transformation for the City of Los Angeles to accelerate our recovery in the near term, improve quality of life for all Angelenos in the long term, and establish the Smart City infrastructure necessary to effectively host the Summer 2028 Olympics and Paralympics.

COMPONENTS OF A DIGITAL AND CONNECTED LOS ANGELES

Smart Cities are much more than software you purchase or next-generation street lamps you install in the cityscape. A Smart City is an integrated, intelligent urban ecosystem comprised of multiple components that must integrate together for the benefit of the public's "customer journey":

Smart City Infrastructure

Physical technology used to deliver Smart City technologies to residents, businesses, and visitors, specifically focused on technology in the rights-of-way used to deliver services in the cityscape (e.g. IoT, 5G, fiber, etc).

Smart City Data Tools & Practices

Smart City Data Tools & Practices that enable effective cross-department, government-to-resident, government-to-business, and machine-to-machine information sharing.

Smart City Digital Services & Applications

Applications, websites, and other services used to digitally deliver City services to the public.

Smart City Connectivity & Digital Inclusion

Addressing digital inclusion by integrating public and private offerings to help L.A. residents, L.A. businesses, and those with disabilities to get online and connected.

Smart City Governance

Coordination and investment of Smart City efforts across City departments.

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INFRASTRUCTURE

Physical technology used to deliver Smart City technologies to residents, businesses, and visitors, specifically focused on technology in the rights-of-way used to deliver services in the cityscape (e.g. IoT, 5G, fiber, etc).

Participating Departments:

- Department of Water & Power
- Information Technology Agency
- Office of the Mayor
- Los Angeles World Airports
- Public Works Bureau of Sanitation
- Public Works Bureau of Engineering
- Public Works Bureau of Street Lighting
- Department on Disability

INFRASTRUCTURE

Smart City Infrastructure is the fundamental, physical technology required to deliver connectivity, sensors, and communications across our urban environment. This infrastructure includes wireless and wireline communications, as well as strategic hardware assets. These technologies often yield high volumes of useful data and underpin many of our Smart City digital services. However, we have observed many other cities over-invest in physical infrastructure and directly associate the infrastructure itself with being "smart" to the detriment of their overall Smart City programs. Among the benefits of Los Angeles' Smart City infrastructure investments are the following:

5G Delivers L.A.'s Next Generation Internet Access

5G is transformational for our Digital Economy. In 2018, L.A. became the first U.S. big city to launch 5G. The City of L.A. overhauled our cell tower permitting process to be 10 times faster, allowing over 2,500 5G access points within 2 years and earning us the 2019 U.S. Connected Cities award.

- 10% reduction in travel time using 40,000 loop detectors across 4,500 connected intersections through our traffic management system (ATSAC)
- Reduced electricity usage and annual savings of $3M by converting over 165,000 street lamps to LED with 50k connected online.
- Improved connectivity through 2,500 high-speed 5G cellular access sites across Los Angeles, with 3,000 more planned in the next three years.

INFRASTRUCTURE

Our L.A.M.P. Shines at LAX Airport

LAX is the world's busiest origin and destination airport. Always a popular destination, passenger volume even increased over 35% in the last 20 years. This dramatic growth has led to congestion and delays. The $5 billion Landside Modernization Project (LAMP) is one of largest public works programs in the history of Los Angeles. LAMP adds fiber optics, Wi-Fi, connected lighting, public safety tools, and Internet of Things (IoT) sensors to proactively manage all LAX airport facilities. Improvements include:

- 2.25-mile Automated People Mover connecting airport to rail and transit services
- New, consolidated Rent-A-Car Facility for all car rentals
- New Intermodal Transportation Facilities for parking, transportation, and meter-greeters

L.A.'s Green New Deal Builds Smart Sustainability

The L.A. Department of Water and Power (LADWP) is the largest municipal utility in the US, working to reach 55% renewable energy by 2025 and 100% renewable by 2045, as part of L.A.'s Green New Deal. Since 2000, LA has spent $1.31 billion on energy efficiency programs, reducing L.A.'s peak period power consumption by 845,000,000 watts!

- The Public Works Bureau of Street Lighting completed the retrofit of 180,000 streetlights with LED bulbs, saving $3 million per year and enabling installation of 10,000 EV chargers by 2024
- Reduced L.A.'s power consumption by 15% reduction (compared to 2010) and is targeting another 15% reduction by 2030
- Earned #1 Solar City in America in 2018 and 2019

Strategic Challenges

During the development of this plan, the City of Los Angeles departments and experts identified a series of strategic challenges to overcome as we increase the capabilities of Smart City Infrastructure towards the year 2028.

Lack of Smart City Situational Awareness - While the City of Los Angeles has installed substantial Smart City infrastructure, there still remains a lack of monitoring, inventory, and situational awareness among our key utility systems, which can result in increased utility outages for the public and delays in restoration. Our challenges include:

- The need for accurate identification and location of all utilities and sensors in the City of Los Angeles (government and private sector)
- Lack of remote monitoring and management for most L.A. street lamps, especially in historic neighborhoods
- Need for continuous monitoring and feedback on the status of L.A.'s power grid

Need for Next-Generation Capabilities - Increasingly, the City of Los Angeles needs to not just expand previous Smart City infrastructure investments, but also deploy entirely new next-generation infrastructure to support emerging demands. Our challenges include:

- Need to grow fiber optic infrastructure for connectivity needs during the 2028 Olympics and Paralympics
- Limited number of electric vehicle charging stations across Los Angeles streets and parking lots
- Need for promoting smart alternative energy solutions for the 2028 Summer Olympics & Paralympics

Strategic Challenges (Continued)

Coordinating Smart Infrastructure Across Government & Private Sector - With a broad adoption of IoT sensors, the City of Los Angeles needs to improve shared usage across both City departments and with the private sector to maximize sensor investments to improve public services (e.g. parking availability). Our challenges include:

- Need for shared use of sensors and cameras across L.A. City departments for economies of scale
- Inability to leverage private sector “smart” infrastructure (IoT in high-rise buildings, parking lots, and commercial properties)

Security & Ethical Concerns with Smart Infrastructure - The proliferation of Smart City Infrastructure has resulted in substantial concerns around cybersecurity (e.g. securing IoT devices) and potential unethical uses of Smart City Infrastructure to the detriment of our residents (e.g. unauthorized surveillance). Our challenges include:

- Increase in security issues related to the exponential increase in smart devices and data sharing interfaces
- Smart infrastructure (e.g. facial recognition, high-speed connectivity, sensors, etc) can be used to discriminate against specific communities

INFRASTRUCTURE

Strategic Goals

Develop Street Lighting Strategy
Develop L.A. Street Lighting Strategic Plan which includes strategies for shared IoT sensor devices, remote monitoring, and design for new citywide street lamp, while maintaining ownership and intellectual property, by 2021.

Re-Imagine IoT Data Sharing Policies
Revise the City of Los Angeles Information Security Policy to include IoT and infrastructure data sharing practices by 2021

Adopt Digital Code of Ethics
Adopt Digital Code of Ethics with standards for smart infrastructure to ensure it does not discriminate against specific communities by 2021

2020 2021 2022

Incentivize Fiber Optic Build Out
Inventory fiber optic assets and incentive fiber build out to maximize bandwidth for LA 2028 and beyond (supports venues, entertainment streaming, etc) by 2022

Assess Utility Tracking Portal
Assess public/private utility tracking and identification through shared Los Angeles Utility Tracking Portal using GIS software and RFID technologies by 2022

INFRASTRUCTURE

Adopt IoT Shared Usage Policy
Adopt an Internet of Things (IoT) Policy that details the shared usage of sensors to avoid redundant IoT sensor networks that congest the urban environment by 2023

Multiply EV Chargers
Install 10,000 public electric vehicle chargers to promote smart alternative energy use by 2024

Expand Environmental Sensors Across L.A.
Install environmental sensors to inform remediation of environmental quality concerns (i.e., noise, air quality) by 2025

Build IoT Platform Through PPP
Build public-private partnership for an open-source IoT Integration Platform to leverage public and private smart infrastructure by 2026

Deploy LADWP Smart Grid
Build and deploy the LADWP Smart Grid L.A. for continuous monitoring of the power grid and to empower customers to control and limit their power consumption by 2028

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DATA TOOLS & PRACTICES

Data tools & practices that enable effective cross-department, government-to-resident, government-to-business, and machine-to- machine information sharing.

Participating Departments:

- Information Technology Agency
- Los Angeles Police Department
- City Planning
- Office of the Mayor
- Office of the Controller
- Office of the City Attorney
- Department of Building & Safety
- Public Works Bureau of Sanitation

DATA TOOLS & PRACTICES

Data is a unique component of a Smart City. It is both a byproduct of a Smart City (sensors, digital services, and infrastructure produce tremendous amounts of data) and is also itself an enabler of efficient, innovative Smart City services (e.g. sensor data feeds into earthquake early warning, traffic management, proactive public safety, etc). The L.A. Open Data Portal (Data.LACity.org), for example, allows free access to government data by third parties that enables their creativity and innovation in providing additional services to the public. Data tools and practices apply to both Machine-to-Human (data analysis by humans) and Machine-to-Machine (data usage between automated systems without humans). In fact, the City of Los Angeles has identified the effective use of data as transformational in reducing government costs, improving operational performance, creating new service opportunities, and identifying inequalities in government service delivery. Effective Los Angeles Smart City data investments have made a difference citywide.

- Reduced the number of "Not Clean" streets by 82% in one year by proactively assigning clean-up resources based on data measuring and categorizing street cleanliness across L.A. City's 6,500 miles of streets. - The Public Works, Bureau of Sanitation CleanStreets LA program (www.cleanstreetsla.com).

- Established an open-source IoT sensor platform that consolidates IoT sensor data from multiple platforms into an integrated single source for applications to use and consume. - The Intelligent IoT Integrator (I3) project (www.i3.usc.edu).

- Increased female participation in recreational sports from 26% to 45% using targeted subsidies based on demographic, park, and public health data. - Recreation & Parks Department's Girls Play LA program, (https://www.laparksfoundation.org/initiatives/girls-play-la).

Smart Policing Enables a Safer Los Angeles

CompStat ("Computerized Statistics") is a weekly framework used by LAPD to improve services across all L.A. neighborhoods. CompStat helps police understand where crime is happening and potential reasons for criminal activity, enabling proactive community outreach to prevent future crime. CompStat was integral in reducing officer involved shootings to a 30-year record low!

DATA TOOLS & PRACTICES

Smart Data Science Solving L.A.'s Urban Challenges

The L.A. Data Science Federation (DSF) is a collaboration between the Information Technology Agency and local universities.

The DSF started in 2015 with the University of Southern California as a means to utilize students and professors to tackle real-world challenges related to transportation safety. Growing to 18 universities and colleges and completing over 40 projects, the DSF matches complex civic challenges from City departments with data scientists-in-training to benefit local communities.

- Helped Office of Finance determine which businesses to audit, doubling rate of audit return and reducing frustration for low risk businesses
- Preventing homelessness through algorithms that score rent-stabilized buildings in Los Angeles with 98% accuracy at predicting removals

Building a Community of Civic Partners Through Data Angels

The Mayor's Data Angels initiative matches civic tech data enthusiasts with City programs requiring data and analysis support to realize high-value community outcomes. Working as cohorts, a diverse mix of data scientist volunteers (from local universities, established companies, and start-ups) partner with City of Los Angeles staff to solve real world problems affecting the quality of life for Angelenos.

DATA ANGELS

From defining new future of work methods to analyzing trends in transit, housing, and construction in preparation for the 2028 Olympics - Data Angels use a lens of equity to scrape and mine data, stitch together insights, and provide policy recommendations as a valuable City of Los Angeles accelerator.

Strategic Challenges

During the development of this plan, the City of Los Angeles departments and experts identified a series of strategic challenges to overcome as we increase the capabilities of Smart City Data Tools & Practices towards the year 2028.

Lack of Standardized Data Resources, Processes, & Tools - As the City develops the infrastructure to collect greater volumes of data, we face challenges in growing and retaining expert data analysis staff and optimizing City tools to analyze and manage data across all Smart City operations. Our challenges include:

- Shortage of data scientists across City departments limiting in-depth analysis of City Services and accessibility
- Departmental data silos that can hinder cross-department data sharing and analysis
- Lack of a centralized, citywide data inventory with data definitions as a resource for data analysts
- Lack of standardized data analysis tools for City of Los Angeles data scientists to grow their skills and collaborate on projects

Need for IoT Integration & Data Sharing - There are exciting opportunities to partner with the private sector to obtain useful IoT data, but doing so may require accommodating disparate technologies; without standardization, city expertise on multiple platforms would become inefficient and hinder outcomes. Our challenges include:

- Lack of integration standards when acquiring new IoT devices, which limits machine to-machine and machine-to-human data integrations for Smart City projects
- Inconsistent IoT data access and sharing across various vendor platforms
- Inability to leverage private sector, geographically specific “smart city” sensor data for use in our broader City of Los Angeles Smart City initiatives

Strategic Challenges (Continued)

Data Privacy Concerns - As the City of Los Angeles intakes more and more data, whether personal or de-identified, we must be cognizant of resident privacy concerns and take steps to ensure the ethical use of this data. Our challenge includes:

- Public concerns about government data privacy, bias, surveillance, and security

DATA TOOLS & PRACTICES

Strategic Goals

Implement Data Analysis Platform
Implement a Citywide Data Analysis Platform to provide tools, data sharing, and data project coordination for City of Los Angeles data scientists by 2021

Create Data Analyst Position
Establish Data Analyst civil service classification to recruit and develop more data scientists across City of Los Angeles departments by 2021

Establish Data Sharing Working Group
Establish a data leadership group that identifies and facilitates new cross-department data sharing opportunities across the City of Los Angeles by 2021

Adopt Data Code of Ethics
Publish a 'L.A. Digital Code of Ethics' that establishes data privacy, bias, and security standards to build and maintain public trust in the use of data by L.A. City departments by 2021

2020 — 2021 — 2022

Adopt IoT Policy
Publish an Internet of Things (IoT) Policy with technical purchasing standards to ensure machine-to-machine integrations when acquiring new IoT devices by 2022

DATA TOOLS & PRACTICES

Build L.A. Data Lake
Build the 'L.A. City Data Lake' for cross-department human and machine-to-machine (M2M) data sharing using an easy-to-use Cloud-hosted environment by 2023

Publish L.A. Data Dictionary
Create the 'L.A. City Data Dictionary' as a shared, centralized data inventory by 2024

Share Smart City Data Through I3
Partner with the open-source I3 Consortium to incorporate both public and private smart city datasets by 2024

Migrate Sensor Data Into I3
Migrate all City of Los Angeles IoT sensor data into the open-source IoT Integration Platform developed by the I3 Consortium by 2026

Establish L.A. Regional Data Marketplace
Establish the open-source I3 Consortium as a Los Angeles Regional Data Marketplace for LA2028 data sharing by 2028

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DIGITAL SERVICES

Applications, websites, and other digital services used to digitally deliver City services to the public.

Participating Departments:

- Office of the Mayor
- Information Technology Agency
- Police, City Planning
- Building & Safety
- Public Works Bureau of Sanitation
- Public Works Bureau of Street Services
- Department on Disability

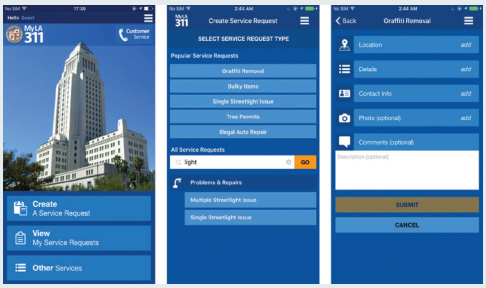
DIGITAL SERVICES

Smart City Digital Services are the apps, websites, and other public facing technologies used by the public to access City information, request City services, or simply engage their government. Unlike Smart City Infrastructure or Data, Digital Services are highly visible and tangible for our residents, businesses, and visitors. In the beginning, residents had to visit a City of Los Angeles facility to get information or request a public service. With the invention of the telephone, they could simply call. Then, websites allowed online access from a computer. Smartphone apps made these capabilities available anytime, anywhere.

Now, the City of Los Angeles emphasizes digital assistants that allow residents to simply talk to Siri, Alexa, or Google Home in their native language ("Hey Siri, ask LA City what events are at my library this weekend"). The real power of these digital services comes from the behind-the-scenes integration, infrastructure, and data sharing. However, these front-end Smart City technologies are the services that the public uses to judge whether or not our city is truly "smart" and connected. To be successful, these City of Los Angeles digital services must be full-featured, easy to use, engaging, available on any device (smartphones, tablets, computers, kiosks, Smart TVs, etc), and readily accessible by L.A.'s diverse communities. "These investments in digital services have been very beneficial, including allowing a fast transition to virtual City Council and Commission

MyLA311 Delivers Service Across All Digital Channels

The MyLA311 call center, website, and mobile app provide the public with easy access to more than 1,500 City services, from graffiti removal to pothole repair. The award winning MyLA311 mobile app allows residents and businesses to submit requests using their smartphones, track progress, securely pay their bills, and more.



- Over 1.3 million MyLA311 service requests were processed in 2019
- MyLA311's website includes Chip, a multilingual chatbot using AI to answer resident questions 24/7
- Future enhancements include integration with Amazon Alexa, Apple Siri, and Google Home to allow service requests from the comfort of your living room

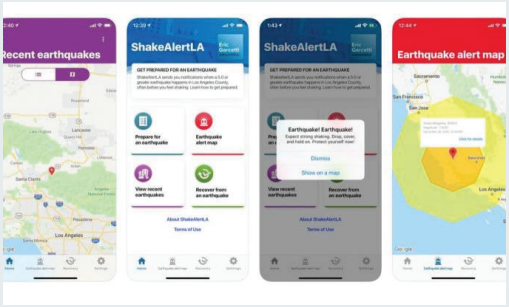
DIGITAL SERVICES

meetings during the COVID-19 pandemic Some of our most successful Los Angeles Smart City Digital Services enable:

- Resident access to over 1,500 City services, bill payment, and City Hall news, through their smartphone using the MyLA311 mobile app (lacity.org/myla311), which processes over 1.3 million requests annually.

- Personalized, hyper-local information such as local park and library resources, sanitation services, emergency information, their elected officials, and integrated 3-1-1 stats about their neighborhood is available to residents on the Webby award winning LACity.org Resident Portal (lacity.org/residents). LACity.org has almost 3.5 million unique annual visitors.

ShakeAlertLA Warns Angelenos of Coming Earthquakes



The City of LA is the first government in the US to have implemented an app that alerts residents of a coming earthquake, allowing up to 45 seconds of advance warning to get to safety, exit an elevator, pull their car to safety, etc. Using IoT sensors and advanced algorithms from USGS, ShakeAlertLA has been downloaded over 870,000 times in its first 12 months and received the 2019 Best of California IT Project Award.

Rapid COVID-19 Response Through Smart Testing

The City of L.A. rapidly established free testing for all Angelenos. Taking only 72 hours from inception to launch, the Office of Mayor Eric Garcetti and the Information Technology Agency deployed a custom app with symptom triage, automated test scheduling, and test site support… all while maintaining strict data privacy. The COVID testing app expanded within a month to 20+ testing sites with 12,000 daily tests and became a critical digital service for fighting the COVID pandemic.

DIGITAL SERVICES

Strategic Challenges

During the development of this plan, the City of Los Angeles departments and experts identified a series of strategic challenges to overcome as we increase the capabilities of Smart City Digital Services towards the year 2028

Improving User Experience (UX) Across L.A. Digital Services - In an era where even the best governments are compared to Amazon and Google, the City of Los Angeles must continue to improve the user experience and customer journeys across all of our digital services. Our challenges include:

- Limited use of emerging technologies across the City of Los Angeles (Blockchain, Robotic Process Automation, etc) which limits benefits of new technology for the public.
- City departments have inconsistent levels of expertise in delivering digital services and experiences to their constituents resulting in inequitable digital experiences for the public, especially in times of natural disaster, such as COVID-19 pandemic
- Difficulties in technology procurement and contracting, resulting in slow IT deployment and limited access to emerging technologies
- Lack of centralized, single user ID and password to access multiple City of Los Angeles digital services, requiring public to juggle multiple digital identities
- Varying functionality across some City of Los Angeles digital services causing lack of uniformity and confusion among the public (i.e. is this app official?)
- Lack of timely and detailed user feedback on the wide array of City of Los Angeles digital services
- Limitations with MyLA311 to allow more advanced notifications, event offers, and neighborhood opportunities.

Strategic Challenges (Continued)

Accessibility and Awareness of L.A. Digital Services - Even the best website or app is hindered without consistent traffic and easy access across our stakeholders. Our challenges include:

- Lack of awareness by public of the various, innovative City of Los Angeles digital services available to them at no cost
- Limited access to City of Los Angeles digital services in the physical right-of-way (bus shelters, sidewalks, tourist attractions, etc)
- Limited access to City of Los Angeles digital services in Angeleno's language of choice
- Lack of a regional procurement portal for widespread access of small and large businesses to compete for City of Los Angeles contracting opportunities
- Limited controls to ensure that all digital services fully comply with Section 508 of the Rehabilitation Act of 1973

Privacy & Ethical Concerns - As Americans become increasingly digital, they also have become increasingly distrustful of digital technology due to privacy concerns, data breaches, etc. As a government that heavily uses technology, the City of Los Angeles understands the importance of digital services that are both innovative and ethical. Our challenge includes:

- Americans are increasingly concerned about online privacy and adverse impacts from emerging technologies (e.g. facial recognition)

DIGITAL SERVICES

Strategic Goals

Create Digital Public Services Toolkit
Publish a Digital Public Services Toolkit for City departments to improve their expertise and the digital experiences of their constituents by 2021

Adopt Digital Services Code of Ethics
Write and publish a 'L.A. Digital Code of Ethics' with technology standards that address public concern around online privacy, unethical use of emerging technologies (e.g. facial recognition), and equitable access to City of Los Angeles digital services by 2021

Deploy Robotic Process Automation Technology
Design and deploy Robotic Process Automation (RPA) as an emerging technology for intelligent document processing to improve City services, beginning with data entry related to vendor invoices and expanding to other City operations by 2021

Deploy Blockchain Technology for Contracting
Design and deploy blockchain as an emerging technology for smart contracting and small business registration to provide an innovative, secure record keeping system by 2022

2020 2021 2022

Streamline IT Procurement
Work with the Chief Procurement Officer (CPO) to streamline and improve flexibility in IT procurement at the City of Los Angeles by 2023

Deploy Angeleno Account
Design and deploy an "Angeleno Account" that enables all residents easy access to City of Los Angeles digital services using a single digital identity and login by 2023

Comprehensive Advertisement of L.A.'s Digital Services
Launch citywide advertising campaign using LA Cityview for popular, innovative City of Los Angeles digital services to promote increased awareness and usage by the public by 2023

DIGITAL SERVICES

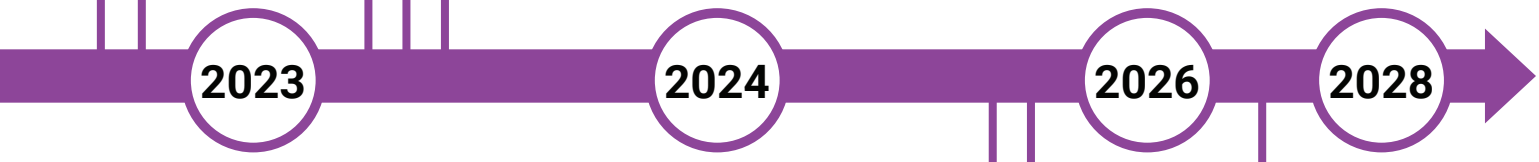
Deploy Regional Procurement Portal
Build and deploy a Regional Procurement Portal as a digital service for L.A. businesses to identify and compete for City of Los Angeles and regional partner contracts, including LA28 Olympic contracts, by 2023

Install Survey Tools Into All Websites
Add automated survey tools, such as Net Promoter Score, to all City of Los Angeles public websites to get timely user feedback and enable continuous improvement by 2023

Build All Websites With Language Translation
DGTL-10: Ensure all City of Los Angeles public websites have automated or human language translation capabilities so Angelenos can access them in their language of choice by 2024

Launch Parking Availability App
Design and deploy “Find-Me-A-Spot” wayfinding as an emerging technology for up-to-the-minute parking availability using IoT sensors around key City of Los Angeles landmarks and tourist attractions by 2024

Establish Central Services for City Apps
Establish citywide unified central components for digital services (i.e., common login, payment portal, API management tool, etc) across department solutions to provide increased uniformity and a more seamless experience for our residents and businesses by 2024 language of choice by 2023



Grow MyLA311 Into Resident Engagement Platform
Enhance the MyLA311 app to include hyper-local information about the user’s neighborhood, push notifications for LA28 Olympic/City of L.A. events, and new tools for engagement by 2026

Deploy SmartLA Kiosks
Deploy SmartLA kiosks in the public right-of-way, including information on City events, wayfinding, discounts for local businesses, submit City service requests, etc, by 2026

Integrate 311 with Digital Assistants
Receive MyLA311 City service requests using natural language processing through a popular consumer digital assistant platform (Amazon Alexa, Apple Siri, Google Home, etc) as an emerging technology by 2028

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CONNECTIVITY & DIGITAL INCLUSION

Addressing the Digital Divide through coordination across public and private digital equity programs to help Angelenos get online and connected.

Participating Departments and Elected Offices:

- Office of the Mayor
- Council District 3
- Chief Legislative Analyst Office
- Office of City Administrative Officer
- Information Technology Agency
- City of Los Angeles Public Library

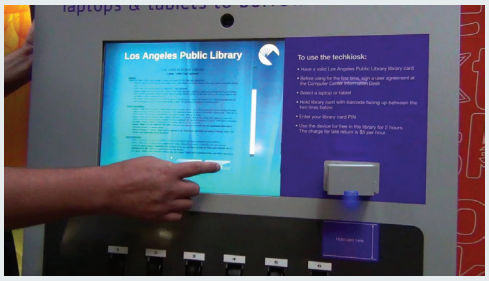
CONNECTIVITY & DIGITAL INCLUSION

To be a true Smart City, both the urban landscape needs to be “smart” and the residents/businesses need to be online and connected. While Internet connectivity used to be luxury, it has become an essential part of competing in the modern Digital Economy. Unfortunately, not all Los Angeles communities are fully online, connected, and digital.

In fact, in some areas of the City of Los Angeles (South LA, Watts, Pacoima, etc), the number of homes and small businesses with Internet connectivity has actually been decreasing recently compared to the rest of the City (USC, 2017 arnicusc.org/publications/mapping-digital-exclusion-in-los-angeles-county/). The social and economic impacts for those without access to broadband Internet are substantial, including the inability of children to maintain and excel in the classroom, the inability of businesses to establish a basic web presence and compete for customers, increased difficulty of these residents to seek and compete for high-end job opportunities, and inequitable access for families to learn about and receive L.A. City services.

Tech2Go Brings Connectivity to All Angelenos

No longer just a place to find a book, the LA Public Library’s (LAPL) provides the same breadth of digital services as it does physically across its 3,000 square mile service area. Tech2Go kiosks bring no-cost laptops, tablets, and mobile hotspots directly to Angelenos who need it most.



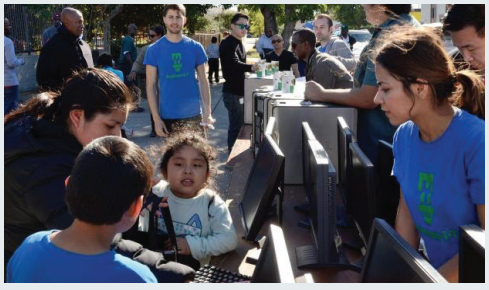
- Devices are loaded with literacy, creativity, STEAM, brain teaser, and health/fitness apps.
- In-person training classes are taught every month, from digital literacy to teen STEM courses
- 72 branch libraries provide free wifi, new computers, and have tech-savvy librarians.

CONNECTIVITY & DIGITAL INCLUSION

Resolving this Digital Divide is challenging, as its origin is rooted in deep technical, racial, socioeconomic, and geographic barriers. However, as evidenced in the 2020 Protests for Racial Justice, its importance is at the forefront of American priorities as we work towards a fairer and more equal society. Los Angeles Smart City Connectivity & Digital Inclusion efforts have resulted in:

- Thousands of L.A. City youth ages 16 to 24 taking a job skills quiz and connecting to potential jobs in the L.A. area through the Find Your Future app.
- Young people engaging with high-end technologies and mentors to develop technological and workforce skills at the after-school digital design studio at the Clubhouse @EXPO Center hosted by the L.A. Recreation & Parks Department.
- City departments and elected official representatives convening the Digital Inclusion (CDI) Working Group, reviewing digital inclusion challenges and facilitating programs for expanded Internet access.
- The City's Department on Disability (DOD) providing expanded education, guidance, technical assistance, and training on public facing digital accessibility to ensure City programs and services are inclusive for Angelenos of all abilities.

OurCycleLA Turns Digital Waste Into Digital Equity



OurCycleLA is an innovative digital inclusion partnership with the nonprofit Human IT that transforms aging City of LA computers into refurbished Internet devices for families in need (bypassing the City dump). Coupled with three years of free Internet access, these machines have helped students get their first computer, individuals leaving homelessness get a new job, and victims of domestic violence start a new life.

- Recycled and distributed over 5,000 devices, with digital literacy training to 1,000 families
- Trained youth and formerly incarcerated workers to refurbish over 3,000 PCs
- Diverted 100+ tons of e-waste from landfills

CONNECTIVITY & DIGITAL INCLUSION

Strategic Challenges

During the development of this plan, the City of Los Angeles departments and experts identified a series of strategic challenges to overcome as we increase the capabilities of Smart City Connectivity & Digital Inclusion towards the year 2028.

Measuring Digital Inclusion Initiatives & Impacts - Key performance indicators (KPIs) that are geographically and racially specific are critical to assess whether City of Los Angeles digital inclusion efforts are effective in improving digital inclusion in L.A. neighborhoods. Our challenge includes:

- Lack of a common Digital Inclusion definition and Digital Equity key performance indicators (KPIs), which makes it more challenging to prioritize investments, coordinate citywide efforts, and establish effective policies.

Improving Internet Access & Outcomes for L.A.'s Neighborhoods - Unconnected residents face major disadvantages in applying for jobs, growing their businesses, completing schoolwork, accessing banking services, and civic participation. Our challenges to reducing the Digital Divide include:

- Low-cost and no-cost Internet connectivity programs are spread across many providers, making it difficult for the public to take advantage of them. This is exacerbated by COVID-19 and the mass onboarding of L.A. students into online courses that many are ill-equipped for.

- Deployment of 5G cellular access may inadvertently favor wealthier Los Angeles neighborhoods and further the Digital Divide

- Not all fiber optic investments are beneficial to the City of Los Angeles and Digital Inclusion. Must identify high-value fiber optic corridors where incentives may benefit Smart City Connectivity & Digital Inclusion initiatives

Strategic Challenges (Continued)

Limited Resources for Digital Inclusion Initiatives - As critically important as it is, digital inclusion is still notoriously difficult to fund and sustain. Our challenges include:

- Lack of formal L.A. City Connectivity & Digital Inclusion Division with staffing. Work has been voluntary across several departments and increasingly difficult to prioritize under near-term economic and COVID-19 constraints

- Lack of consistent funding to implement and support identified Digital Inclusion initiatives

CONNECTIVITY & DIGITAL INCLUSION

Strategic Goals

Define Digital Inclusion KPIs
Establish a common Digital Inclusion definition with Digital Equity key performance indicators (KPIs) to improve prioritization of investments by 2021

Seek Funding for Digital Inclusion Team
Submit FY2021-22 budget request for formal L.A. City Connectivity & Digital Inclusion Division within the Information Technology Agency (ITA) that could coordinate and facilitate citywide Digital Inclusion initiatives by 2021

Establish Digital Inclusion Fund
Establish a new Digital Inclusion Fund to provide consistent funding for new Digital Inclusion initiatives by 2021

Accelerate Digital Inclusion Through COVID Relief Funds
Accelerate Digital Inclusion investment by leveraging appropriate and available COVID-19 relief funds to provide devices, training, job skills training by 2021

2020 — 2021 — 2022

Connect Communities to Internet Programs Through Web Portal
Establish a centralized web portal for residents to access low-cost and no-cost Internet connectivity program based on their home address by 2021

Establish Forum for 5G Accessibility
Establish forum with telecommunication providers to ensure equitable distribution of new 5G cellular networks across both advantaged and disadvantaged communities and explore funding models for assistance programs by 2022

CONNECTIVITY & DIGITAL INCLUSION

Incentivize Fiber Optic Corridors Through Subsidies
Identify and incentive high-value fiber optic corridors where L.A. City subsidies and incentives would increase dark fiber assets for Digital Inclusion initiatives by 2023

Complete Destination Crenshaw Connectivity Project
Establish high-speed connectivity zones as part of South L.A. Destination Crenshaw community investment project by 2023

Expand Digital Literacy Training for Public
Expand digital literacy programs focused on seniors, students, and residents in affordable housing by 2025

Expand Digital Resources for L.A. Communities
Greatly expand Library, Recreation & Parks, and other departments' computer labs and digital training courses across underserved areas by 2026

Incorporate Digital Inclusion into 2028 Olympics
Establish new Digital Inclusion projects with LA 2028 Committee as part of the LA2028 Olympic Events by 2028

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GOVERNANCE

The coordination and investment of Smart City efforts across City departments and our ecosystem of partners.

Participating Departments and Elected Offices:

- Office of the Mayor
- Chief Legislative Analyst Office
- Office of City Administrative Officer
- Information Technology Agency
- Public Works Bureau of Engineering

GOVERNANCE

Governance is the process of managing and controlling projects, whereby decisions and policies are made for the benefit of the stakeholders. Smart City Governance is the process of managing and influencing L.A.'s Smart City projects that, by definition, typically impact multiple stakeholders and require multi-department coordination (i.e. smart transportation requires integration with public safety departments so their ambulances and police cars can get through traffic lights quickly and safely when responding to 9-1-1 calls).

One of the five fundamental conclusions arrived at by our Smart City Committee was that "smart cities require collaboration, where departments work together to deliver best-in-class services to the public" (see Introduction section for full list). To date, City of Los Angeles departments, along with the Information Technology Agency (ITA), have informally worked together to coordinate Smart City efforts.

I3 Consortium - Building IoT communities for a more connected society

The USC Marshall School of Business and Viterbi School of Engineering, along with the City of Los Angeles and other public and private partners have formed a consortium to develop an open source platform called the Intelligent IoT Integrator (I3). I3 will serve as a marketplace that facilities the easy and secure movement of real-time IoT data streams between device owners and third-party applications, based on the establishment of suitable incentives and usage agreements.

The idea is to build an open source data aggregator and leverage the university as a "test bed" for participating organizations to explore smart city use cases, such as: the return on investment for interactive public kiosks, security camera data aggregation, and modeling the impact of development on a particular neighborhood.

GOVERNANCE

Our Smart City Governance has been successful across a number of impressive Smart City initiatives. In fact, our governance efforts have helped the City of Los Angeles recently become a three-time U.S. Digital City award winner. These governance and Smart City management efforts have included:

- The Information Technology & General Services (ITGS) City Council Committee, comprised of Councilmembers John Lee (Chairperson), Bob Blumenfield, and Monica Rodriguez, who advise, coordinate, and approve large City of Los Angeles technology investments and Smart City projects.

- Establishment of a citywide Information Technology Policy Committee (ITPC) comprised of IT managers across the City of Los Angeles. Each month, the ITPC reviews collaborate on technology challenges and opportunities, as well as, adopt new IT policies for the City of Los Angeles. The ITPC has been instrumental in the adoption of Cloud technologies, replacement of legacy operating systems, and a coordinated citywide response to COVID-19.

- Review and approval of enterprise technology projects and infrastructure through a dedicated Information Technology Oversight Committee (ITOC). The ITOC reviews and adopts/rejects large, multi-million dollar City of Los Angeles technology projects.

Innovation Commission Asks "What IF?" Through Innovation Fund

L.A's 9-member, volunteer Innovation and Performance Commission (IPC) is dedicated to innovating L.A. City government through pilot projects proposed by City employees. Distributing up to $1M each year through an Innovation Fund, the Commission enables innovative ideas that improve City services or reduce costs. Since its inception in 2016, over 40 projects have been funded, including a mobile nurse practitioner unit that reduces emergency room visits, employee payroll app that reduces paper and staff resources, and 3D printers for rapid prototyping of public works projects.

L.A. is a Founding Member of World Council on City Data (ISO 37120)

The World Council on City Data (WCCD) and its development of global standards for City data (ISO 37120) enables cities to use data to design and measure the performance of city services and the quality of life impacts on its communities. As a Founding City and Platinum-Certified member, the City of Los Angeles serves as one of the leaders to set the global agenda for standardized city data, identifying strategic trends for cities, and defining a framework for standardized urban metrics.

Strategic Challenges

During the development of this plan, the City of Los Angeles departments and experts identified a series of strategic challenges to overcome as we increase the capabilities of Smart City Governance towards the year 2028.

City Department Smart City Projects Can Be Uncoordinated & Inefficient - City of Los Angeles departments and the Information Technology Agency (ITA) have informally and organically delivered some award winning Smart City projects. However, cross department coordination would improve results and efficiencies. Our challenges include:

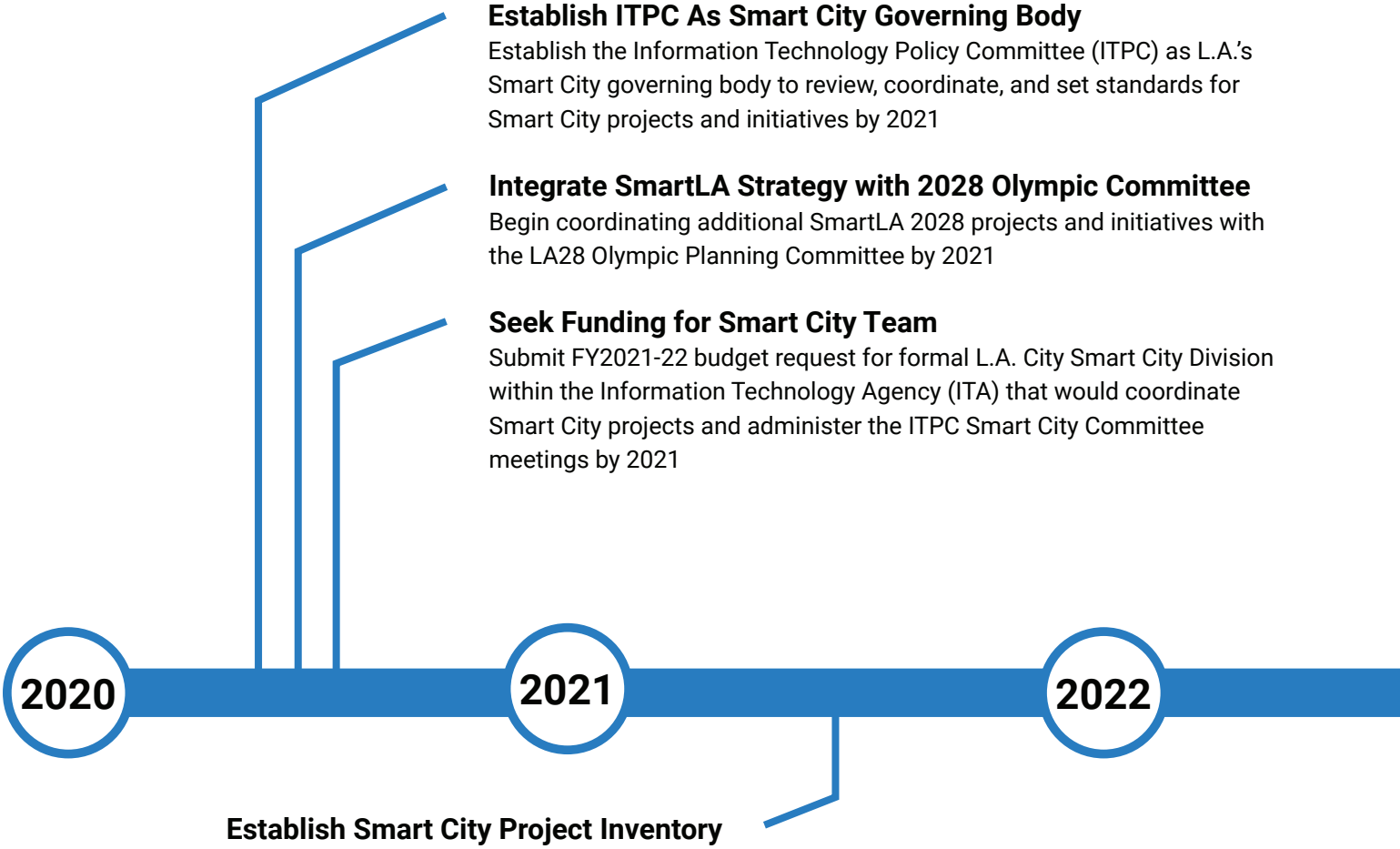
- Smart Cities require cross-department standards specifically for IoT, data, and security that is best established centrally.
- City of Los Angeles departments have varying funding sources, missions, and directives, which can inhibit unified, citywide Smart City technology initiatives
- Smart City projects performed organically by various departments have their benefits, but can become inefficient without the sharing or pooling of resources
- Lack of an official Smart City “project wishlist” limits visibility into Smart City projects and ability to prioritize projects

Limited Resources for Smart City Governance - The City of Los Angeles does not currently have dedicated Smart City resources and relies on voluntary coordination by the Information Technology Agency (ITA). Our challenge includes:

- The City of Los Angeles does not have a dedicated Smart City technology budget or staffing to manage Smart City initiatives

GOVERNANCE

Strategic Goals



Establish ITPC As Smart City Governing Body
Establish the Information Technology Policy Committee (ITPC) as L.A.'s Smart City governing body to review, coordinate, and set standards for Smart City projects and initiatives by 2021

Integrate SmartLA Strategy with 2028 Olympic Committee
Begin coordinating additional SmartLA 2028 projects and initiatives with the LA28 Olympic Planning Committee by 2021

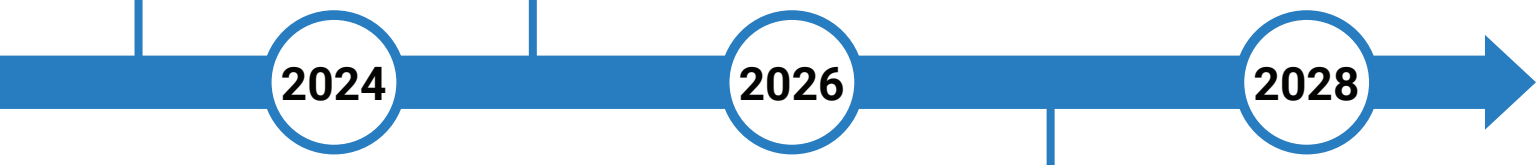
Seek Funding for Smart City Team
Submit FY2021-22 budget request for formal L.A. City Smart City Division within the Information Technology Agency (ITA) that would coordinate Smart City projects and administer the ITPC Smart City Committee meetings by 2021

Establish Smart City Project Inventory
Establish and maintain the official Smart City "project wishlist" of existing and upcoming Smart City projects and initiatives through the IT Policy Committee by 2024

GOVERNANCE

Establish Smart Technology Fund
Establish a Technology Capital Improvement Expenditure Program (TCIEP) that dedicates a portion of the overall Capital Improvement budget to large, capital technology projects under the review of the Information Technology Oversight Committee (ITOC) by 2022

Incorporate Smart City Projects into City Budget
Establish a formal Smart City IT budget review as part of the annual budget process to ensure department Smart City projects are sharing and pooling resources by 2026



Establish Comprehensive Smart City Standards
Establish cross-department standards for IoT, data, and security using the IT Policy Committee by 2028

ACKNOWLEDGMENTS

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We would like to acknowledge the truly progressive leadership of Mayor Eric Garcetti and our other elected leaders: City Attorney Mike Feuer, Controller Ron Galperin, and City Council, specifically the members of the Information Technology & General Services (ITGS) Committee (Chairperson Nithya Raman, Bob Blumenfield, and Curren D. Price, Jr) who ask the tough questions and expect excellence from City of Los Angeles technology.

Technology leaders from across the City of Los Angeles departments were instrumental with their input and review. We would like to specifically acknowledge them and the members of the Smart City Committee below:

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