JANUARY 2019

SMART VEGAS

A FORWARD-FOCUSED PLAN

CITY OF LAS VEGAS NEVADA

The City of Las Vegas is ready to evolve for the future. The following pages are intended to set a progressive path forward to realize a vision for a more efficient, innovative and cutting-edge smart city — Smart Vegas.

The City of Las Vegas, and cities across the nation, face unprecedented challenges from population booms, increased carbon emissions, strained infrastructure, crime, and a growing economy. To combat these evolving issues, the City is committed to integrating innovative technologies and new data to improve city management through a smart city — or Smart Vegas — approach. Smart Vegas' goal is to enhance public services that in turn will improve the quality of life for the more than half million residents and nearly 42 million tourists and business travelers that visit our region annually.

Inside lies the Smart Vegas implementation plan to guide the City of Las Vegas in identifying tech-centric projects, evaluating innovative proposals, and quantifying performance metrics. Six key pillars — Public Safety, Economic Growth, Mobility, Education, Social Benefit, and Healthcare — form the foundation of Smart Vegas, and are the primary focus to deploy and monitor project success. The following pages reflect comprehensive research and analysis to recommend best practices for developing processes and strategic plans as the City transforms into Smart Vegas.

Moving forward, Smart Vegas will evolve, solve, and plan for future-ready projects to enhance our region and expedite our growth. With the vision, expertise, collaboration, and commitment of public-sector officials and sponsors, the City of Las Vegas of today will become the Smart Vegas of tomorrow.

Smart Vegas Priorities

In April 2018, the Las Vegas City Council identified six citywide priorities to address our most pressing needs:

— Create an iconic Las Vegas

— Promote workforce development

— Become the city of choice to develop Smart City applications

— Address at-risk populations

— Promote neighborhoods and preserve quality of life

— Enhance public safety

Inside

From the Mayor

Las Vegas continues to capture the world's imagination as the city where anything is possible. With world class hotels, award-winning restaurants, luxurious spas, fantastic shopping, the finest golf courses, and spectacular entertainment, Las Vegas remains one of the most electrifying destinations in the world.

We are building a world-class city that features the best in arts, culture, and medicine, and we also continue to diversify our economy with projects like the Las Vegas Innovation District. Las Vegas is an international stage for innovation and technology, hosting the massive Consumer Electronics Show (CES) and Specialty Equipment Market Association (SEMA) shows annually. The City of Las Vegas established the Innovation District in 2016 to create a center for testing and deployment of technologies in areas such as public safety, digital equity, and mobility. Projects and solutions are being developed through collaborative efforts between the city and new technology partners.

The city's evolution into a smart city will leverage technologies to enhance city operations and services, with a focus on improving the quality of life for all of our citizens, visitors, and businesses. Join us as we continue efforts to become a hub for new technologies that will be used around the world.

CAROLYN G. GOODMAN
Las Vegas Mayor

THE LAS VEGAS OF TOMORROW

STARTS TODAY

Smart Vegas will connect citizens and technology for an enhanced quality of life, improved economy, and future-focused environment. Through integrated data analysis, our smart city approach accelerates positive results across various sectors. This document presents ideas and actions to enable the Smart Vegas evolution within a one- to five-year timeframe. While changes today may not have an immediate impact, they serve as foundational elements for an ongoing transformation into the future.

As we benchmark Smart Vegas against other smart cities to determine our progress, we remain proactive in our evolution by streamlining administrative processes and enacting innovative project management techniques. The following pages propose actions — already supported by a significant number of stakeholders — that offer citywide benefits. Our plan builds on existing investment plans, ensuring options that are achievable in the short- to medium-term, and addresses any gaps in service provision.

The future is ever-evolving, and so will these recommendations as new technologies develop, unique opportunities emerge, and diverse challenges evolve. Strategic plans and processes to select, deploy, and evaluate Smart Vegas technology initiatives are meant to be a starting point — refined and revisited over time — to guide conversations for an enhanced future.

Smart Vegas Vision

Provide safe, reliable, and efficient civic technology that impacts change, creates better amenities for the community, provides better efficiency for governments as a whole, and optimizes the citizen and business experience.

On April 4, 2018, the Las Vegas City Council adopted six core City priorities as part of the Citywide Comprehensive Strategic Plan.[1] The following themes — which will be annually reviewed and updated — serve as the leading tenets for prioritizing and deploying Smart Vegas initiatives.

City Strategic Priorities

PUBLIC SAFETY	ICONIC LAS VEGAS	SMART VEGAS	WORKFORCE DEVELOPMENT	NEIGHBORHOODS	AT-RISK POPULATIONS
Our goal of becoming the safest high-profile American city is rooted in improving our law, fire, medical, and judicial services with efficient and effective response times. Enhancing public satisfaction and reassurance in public spaces — particularly tourist destinations — will give our residents peace of mind.	*We will develop and preserve memorable public spaces and event facilities and promote public art throughout the city. By accelerating construction of the Medical District and citywide infrastructure, we will attract additional business development, and our private investment incentives will increase housing options.*	*By increasing public-private partnerships and private investment opportunities, Smart Vegas will set its foundation as a prime choice for smart city applications. Our focus on financial and environmental sustainability as well as connecting all of our residents will cement our evolution into Smart Vegas.*	*Preparing our workforce for the future is critical, and we will empower our community with technical and vocational training. We will promote higher education by fostering business parks and employment centers, encouraging tech-based programs, and supporting the education continuum of pre-k to workforce.*	*We will support at-risk neighborhoods by planning revitalization programs and developing parks, recreation and open-spaces across the city. We will provide a level of constituent-responsive services in neighborhoods to maintain the highest quality of life.*	*Developing key relationships will help to address critical issues among underserved populations like at-risk youth and the homeless. We will work to improve health and mental healthcare services as well as substance abuse support, and create opportunities for affordable housing.*

BUILT ON THE CITY'S *VISION*

Six vital components form the foundation of Smart Vegas, and will be applied to all ideas and initiatives. These core pillars will be the basis for proposal development, project evaluation, implementation, and performance monitoring.

Six Pillars of Smart Vegas

PUBLIC SAFETY

Innovative technology will better inform first responders and decrease response times. We will revolutionize how we locate, mitigate, and prevent incidents, resulting in enhanced public protection.

ECONOMIC GROWTH

New technologies and infrastructure from increased private sector investment will promote new business models, encourage operational efficiencies, and lead to new job opportunities that enhance public well-being.
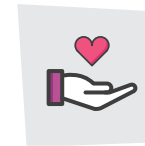
MOBILITY

We will implement connected vehicle infrastructure and data analytics to enhance our existing infrastructure. Our focus is to promote safer, more reliable, and energy-efficient mobility options.

EDUCATION

Improving the quality of our education and expanding collaboration with universities will allow us to support initiatives in both the arts and sciences at all levels of public education, which will help prepare our future workforce.

SOCIAL BENEFIT

Our social responsibility translates into programs for underserved communities that will help establish demographic equity and improve the quality of life across all residential areas, including at-risk communities.

HEALTHCARE

New technology advancements in connected and intelligent medical devices will encourage a broader view of health and well-being, and encourage diagnostics to preempt treatment.

DELIVERED WITH AN EYE TOWARDS THE FUTURE

Smart Vegas focuses on innovative delivery of critical services to address pressing modern city challenges such as rapid expansion, tourism growth, strained infrastructure, increased carbon emissions, demand for mobility choices, and a need for improved motorist, bicyclist, and pedestrian safety. While each challenge may seem daunting and a smart city does not have an all-encompassing solution, our traditional path for serving residents and tourists is no longer viable. However, coupling city assets and infrastructure with innovative technologies will lead to a brighter future and establish our transformation into Smart Vegas.

Increased internet connectivity and new technologies have immensely impacted how societies interact and govern themselves. Given the digital world's relentless pace towards evolution and improvement, Smart Vegas technologies will increasingly expand to better assist city managers as they navigate and adapt to future challenges.

Essential Smart Vegas Actions

To maximize new technologies and capabilities, it is imperative to integrate the following mindsets when adapting Smart Vegas projects:

— Regard Smart Vegas as a "system of systems" that works collectively and is addressed holistically.

— Integrate infrastructure and processes as a single, cohesive solution.

— Focus on environmental and economic sustainability.

— Promote new digital technologies that efficiently maximize existing infrastructure and services.

— Champion public involvement and benefits of citizen-focused service delivery.

— Leverage enhanced data analytics to identify root causes and update citizens in real time.
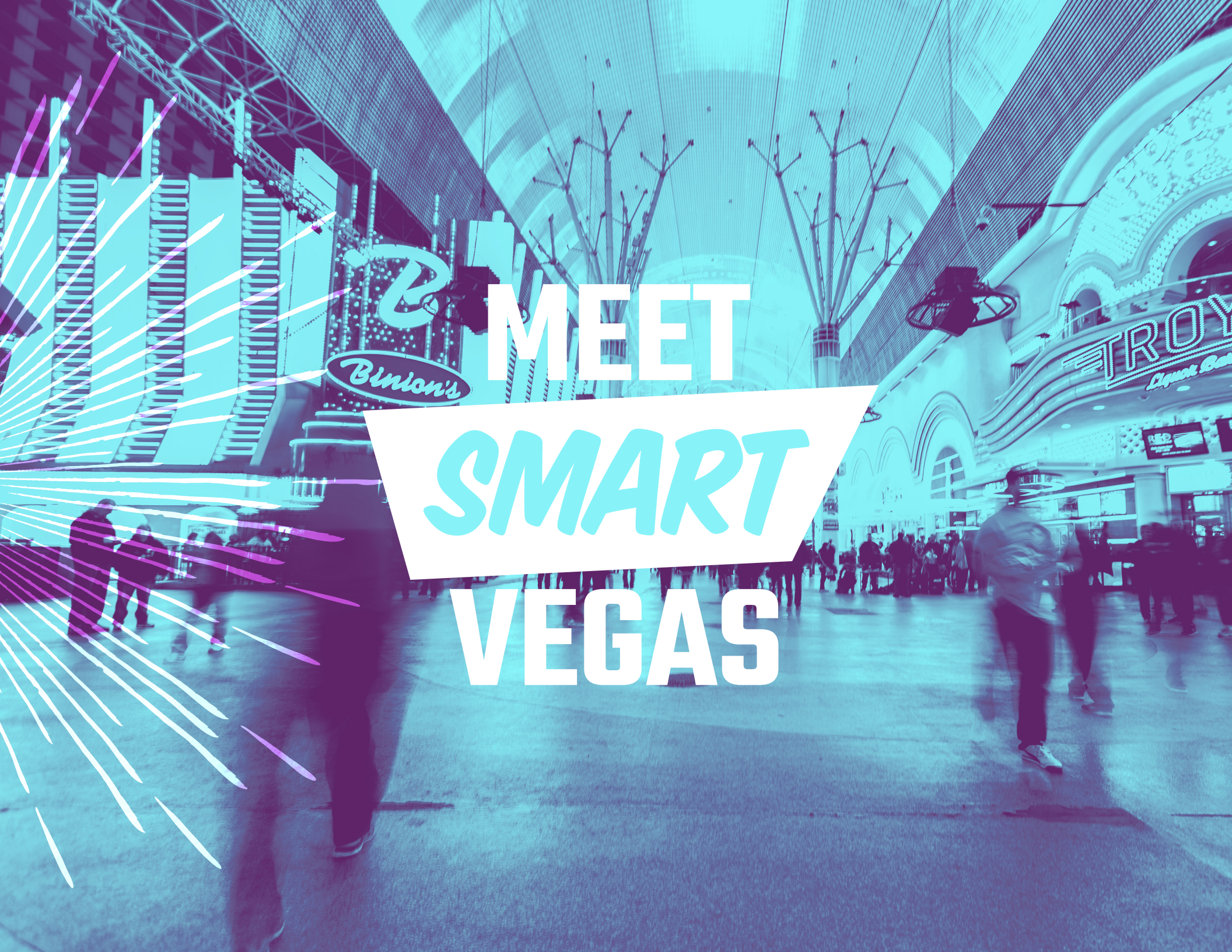
MEET *SMART* VEGAS

Smart Vegas unites technological innovation, data analysis, real-time and predictive modeling, and information sharing. Combined, these elements will establish a truly integrated and connected City of Las Vegas by 2025. The program relies on academic, public-public, and public-private partnerships to install sensors and data-gathering equipment. Collected information will be integrated, evaluated, and applied across public resources for proactive, real-time analysis.

While smart city technologies have been around for several years, the United States Department of Transportation (USDOT) Smart City Challenge, launched in December of 2015, kick-started many of the nation's cities' interest in tech innovations. The USDOT program promised to commit up to $40 million — plus an additional $10 million from Paul G. Allen's Vulcan Inc. — to engage mid-sized U.S. cities in the development and implementation of an integrated, first-of-its-kind smart transportation system.

Across the nation, 78 cities — including the City of Las Vegas — submitted applications to the Smart City Challenge program. In March 2016, only seven finalist cities were announced: Austin, Columbus, Denver, Kansas City, Pittsburgh, Portland, and San Francisco. While not selected, the City recognizes the importance of smart tech integration and identified 11 projects to help achieve a smart city — or Smart Vegas — status on our own.

The following pages outline key processes, current projects, and future considerations. Welcome to the City of Las Vegas of tomorrow — welcome to Smart Vegas.

SMART VEGAS

TECHNOLOGY

ECONOMY

PEOPLE

Smart Vegas will be a place where technology brings people together to improve our quality of life and economy.

TECHNOLOGY

Connected

Affordable and reliable digital connectivity will be accessible from anywhere in the city, uniting the entire community and breaching the digital divide that limits access for many underserved populations. The City will serve as an incubator for start-ups, innovative applications, services, and ways of working.

Smart

Investing in and deploying smart sensors will help collect data from new commercial and residential developments as well as advanced mobility projects. Data analysis will help make the City adaptable, resilient, and capable of supporting healthy and prosperous communities.

Informative

Publicly available open data used by private companies and city stakeholders will provide new insights and opportunities for better informed decisions. Data will help guide development of new services and apps to create valuable city assets for social and economic gain.

Innovative

Technology-centric projects will improve resident and tourist well-being as well as the overall experience and quality of life in the city. Projects will produce robust datasets that will help inform decision-making and promote economic development.

ECONOMY

PEOPLE

Modern

People and businesses collaborate on data, technology, and networks to design new solutions that address societal and economic challenges.

Sustainable

Increased use of sustainable energy sources, coupled with building technologies such as smart grids and metering, will help improve the supply and demand of the City's energy needs.

Mobile

Providing travelers and freight with improved trip planning and up-to-date travel information will help ease congestion, reduce air and noise pollution, and improve pedestrian, motorist, bicyclist, and transit rider safety and mobility, making the city an easier and more enjoyable place to get around.

Invested

Public-private partnerships and grant programs will help us invest in technologies that achieve economic sustainability and an improved financial position.

Digital

The fully connected City will provide digital equality to every resident and tourist, and equip all with important information on city happenings, events, and activities that will improve our quality of life.

Educated

City programs and public schools/ universities will collaborate to close the education gap by providing STEM programs, innovative learning environments, and increased job opportunities for the entire community, regardless of socioeconomic position.

Organized

By streamlining our management system with processes to review and validate new projects, we will be agile and adept at prioritizing initiatives while remaining transparent to city managers and the public.

Decisive

Integrating data analysis into our workflow will allow us to quickly make well-informed decisions that can improve the City's health, reduce crime, and enhance mobility.

Cultivating Innovation

As part of the USDOT Smart City Challenge, the Las Vegas City Council created the Innovation District in February 2016 (Resolution Number R-4-2016). Its purpose is to act as a test bed for introducing advanced technologies and new transportation infrastructure that can promote sustained economic development and an improved quality of life.

The resolution enables city staff to create partnerships with automated vehicle (AV), advanced mobility, and technology companies to establish demonstration sites throughout the Innovation District.

Once new technologies are tested and fully vetted, those with the greatest community impact, easiest citywide scalability, and potential for maximum return on investment will be considered for deployment across the City.

One of the Las Vegas City Council's goals is to become a City of Choice for smart city applications, and the Innovation District will play a pivotal role in achieving that status. While partnerships with tech companies will help assess new ideas for the City, the Innovation District also provides companies with an incubator testing ground — the ideal environment to showcase their products.
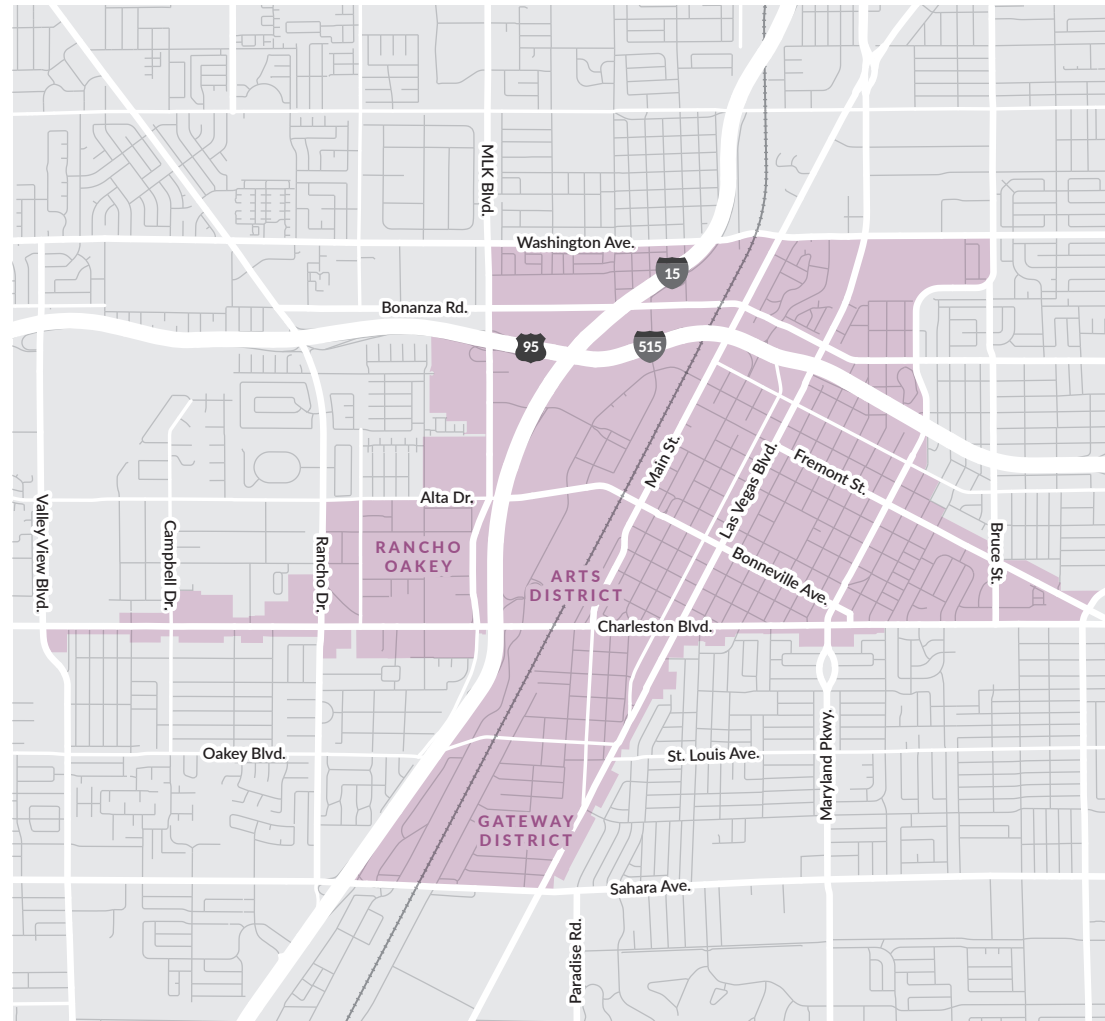
Embracing collaboration

Smart Vegas relies on teamwork, and we have established several partnerships that promote collaboration on multiple levels. The city and state stakeholders (listed at right) embody the Smart Vegas vision, and currently work closely with the Las Vegas Department of Information Technologies and the Smart Vegas Team. While our focus is implementing citywide initiatives, the City also invites a global stage through events like the Consumer Electronics Show. Events like the Consumer Electronics Show will bring exposure to Smart Vegas, promoting regional, national, and global collaboration — culminating in a worldwide recognition for the City of Las Vegas as a City of Choice and center of excellence for smart city initiatives.

THE SMART VEGAS ECOSYSTEM

Through a collaborative and connected Smart Vegas Ecosystem, city officials can work with all stakeholders to deliver long-lasting benefits that provide the flexibility and agility to address future demands.

TECHNOLOGY PROVIDERS
CITY & STATE STAKEHOLDERS
SMART VEGAS TEAM
SMART CITY USERS
SIX PILLARS
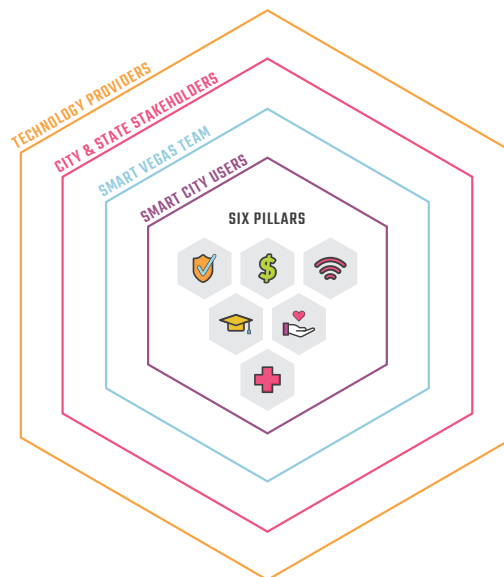
Key Stakeholders

— **City of Las Vegas.** Manages city activities and identifies projects in support of Smart Vegas initiatives that address city challenges.

— **Nevada Department of Transportation (NDOT).** Sets AV policy and regulations within the state.

— **University of Nevada, Las Vegas (UNLV).** Partners on projects/grants and provides research components and data analytics.

— **Regional Transportation Commission of Southern Nevada Freeway and Arterial System of Transportation (RTC FAST).** Coordinates regional arterial management and freeway management systems and sets policy for regional deployment of smart city technologies and potential funding sources.

— **Governor's Office of Economic Development (GOED).** Promotes a robust, diversified, and prosperous economy in Nevada that stimulates business expansion and retention, encourages entrepreneurial enterprise, attracts new business, and facilitates community development.

— **Nevada Department of Motor Vehicles (NDMV).** Enacts legislation and regulations to enable AV testing and operation.

— **Nevada Center for Advanced Mobility (NCAM).** Provides the contact point for industry, government, and academia to develop and deploy policy, standards, and technology around advanced mobility including electric, connected, and automated vehicles, and related infrastructure.

— **Utility Partners.** Provides access and collaboration of utility-based systems and services such as water, energy, communications, sewer, and facilities.

— **Local Public Agencies.** Partners with the City to refine and execute a vision for the future that connects people with places and services.

Launching the future

The Smart Vegas projects on the following page are currently underway, and can be categorized across four focus areas (below) that benefit all populations, regardless of their socioeconomic position. Additional project details and their alignment with Smart Vegas priorities are provided in the Smart Vegas Action Plan section that begins on page 26.

Mobility

Safely and effectively transporting people and goods throughout the City of Las Vegas is critical, particularly with our strained infrastructure and growing population. Our mobility-focused projects cover an array of technologies and applications that connect citywide resources and systems to increase roadway safety and ease traffic.

Infrastructure

Enhancing our utility, communications, and transportation assets — such as laying fiber optic cable and deploying area-wide wireless networks — will play a vital role in uniting our community. These projects will set the stage for many other initiatives and connect our citizens to City services.
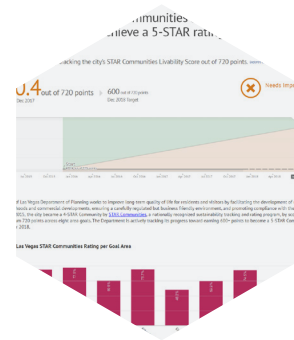
Data Analytics

Smart Vegas focuses primarily on the benefits from modern technology, which is translated from data information collected across the city. Regionally deployed sensors and telecommunications equipment will assist in analyzing data to provide more efficient City services.

Planning & Outreach

Smart Vegas is designed to benefit and connect the people of Las Vegas — whether businesses, tourists, or residents. These projects ensure community awareness and communicate information to residents, visitors, and businesses about City services and the Smart Vegas program.

SMART VEGAS PROJECTS CURRENTLY UNDERWAY

SIX CITY STRATEGIC PRIORITIES

Category	Project	Public Safety	Iconic Vegas	Smart Vegas	Workforce Development	Neighborhoods	At-risk Populations
MOBILITY	GENIVI Vehicle-to-Infrastructure Communications	●		●		●	●
	City Automated / Connected Vehicle Fleet Conversion	●		●		●	●
	AAA-Keolis Driverless Shuttle Pilot	●		●			●
	Connected Corridors	●	●	●	●	●	●
	Connected Bicycle Pilot	●		●		●	●
	Bike Share (in collaboration with RTC-Southern Nevada)	●	●	●		●	●
INFRASTRUCTURE	Sensor Deployment	●	●	●			
	Wireless Networks	●	●			●	●
	Sensor Networking	●	●	●			
	Alternative Fuel Charging		●	●			●
	Smart Metering	●	●	●			●
	Smart Street Design	●	●	●			●
	Security Upgrades	●	●	●		●	●
DATA ANALYTICS	Video Analytics	●	●	●		●	●
	Fleet Monitoring	●	●	●			
	Sound Detection Crime Prevention	●	●			●	●
	Systemwide Monitoring and Analysis	●	●	●	●	●	●
	Air Quality Environmental Analysis					●	●
PLANNING & OUTREACH	Downtown Loop Kiosks			●		●	●
	Wayfinding		●	●	●	●	●
	Go Vegas App		●	●	●	●	●
	GOVegas Streaming						
	Amazon Alexa		●			●	●
	Apple TV Channel		●			●	●
	Park Application	●	●	●			●
	Participation in Consumer Electronics Show		●		●		
	Living Lab		●		●	●	
	U.S. Ignite Smart Gigabit Community		●		●	●	
	Innovate Vegas Portal		●		●		
	UNLV Autonomous Vehicle Survey			●			
	Connect Home				●	●	

OUR
SMART VEGAS
APPROACH

Smart Vegas — built on the six pillars of Public Safety, Economic Growth, Mobility, Education, Social Benefit, and Healthcare — will connect our citizens with innovative technologies to foster a brighter future with enhanced mobility, stronger infrastructure, insightful data, and inclusive communication. Our initiatives will not only improve the City of Las Vegas as we know it, but inspire cities worldwide to implement similar projects for the benefit of its people.

Our vision is backed by a team diverse in background and expertise that together bring a wide berth of knowledge and ideas to push the boundaries of innovation. To solve the myriad of modern-day challenges the City faces, our team utilizes distinct processes to determine our most pressing needs and crafts solutions that not only benefit the public, but provide key performance indicators for ongoing analysis to ensure long-term effectiveness. Projects are evaluated collectively through a staggered review process and encourage input from all team members on priority, benefits, and level of effort. Collaboration will help vet the best projects for the City of Las Vegas, and cooperation will ensure quick and seamless implementation.
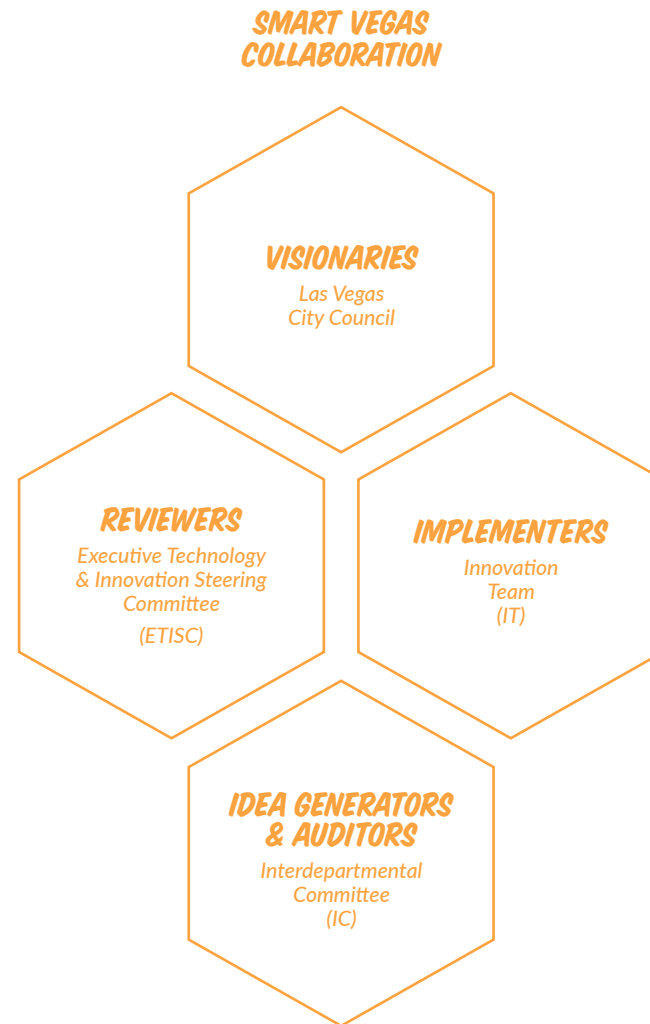
Our approach works alongside key stakeholders — whether public, private, or academic — to realize Smart Vegas initiatives. While some projects may not require significant funding, they will rely upon staff time, facilities, resources, goodwill, and the collective drive to bring the City of Las Vegas into the future.

Building a Team

Four unique groups — the Las Vegas City Council, the Executive Technology and Innovation Steering Committee (ETISC), the Innovation Team (IT), and the Interdepartmental Committee (IC) — work together to evaluate potential Smart Vegas projects and determine which initiatives should be implemented.

The City of Las Vegas IT evaluates proposals submitted for Smart Vegas consideration and consults with the IC on whether to recommend implementation. The IT is not required to consult with the IC, but it is strongly recommended — particularly for initiatives that impact multiple departments or require significant investment of time and/or resources. The ETISC is then responsible for approving Smart Vegas proposals recommended by the IT, and works with the City Council to establish required municipal codes or funding to launch the projects.

SMART VEGAS COLLABORATION

VISIONARIES
Las Vegas City Council

REVIEWERS
Executive Technology & Innovation Steering Committee
(ETISC)

IMPLEMENTERS
Innovation Team (IT)

IDEA GENERATORS & AUDITORS
Interdepartmental Committee (IC)

EXECUTIVE TECHNOLOGY & INNOVATION STEERING COMMITTEE (ETISC)

City Manager

Deputy City Manager

Chief Financial Officer

Chief Operations & Development Officer

Exec. Dir. of Community Development

Chief of Staff

Chief Community Services Officer

Deputy Dir. of Information Technologies

Director of Information Technologies

Director of Finance & Business Services

Director of Communications

IT Business Relationship Manager

IT Business Relationship Manager

Innovation Program Manager

Staff in grey are non-voting members

THE SMART VEGAS INNOVATION TEAM

Smart Mobility

Smart City Infrastructure

Applications

Data Repository/ Big Data Analytics

Cyber Security

Social (Education & Housing)

Policy & Procedures PR/Outreach
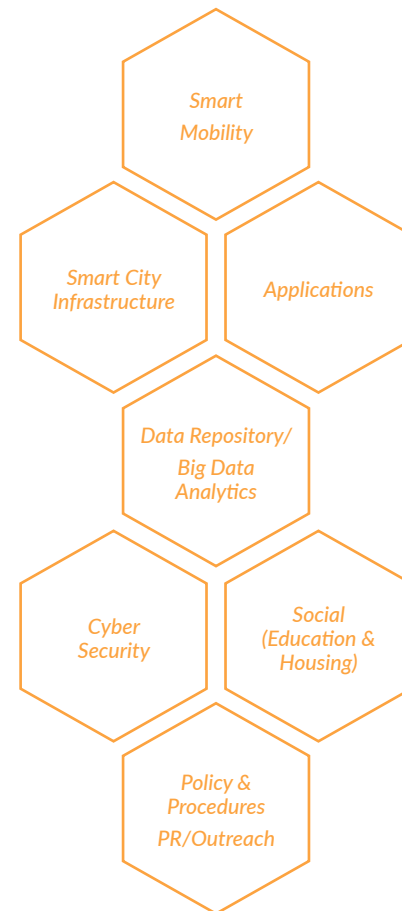
Developing a Project

We understand that a successful Smart Vegas starts with accurately identifying our most pressing issues. Our five-step process to establish potential projects (below) outlines our methodology to provide city officials and departments the tools and data necessary to monitor how well initiatives address our challenges.

| **1**	**2**	**3**	**4**	**5**
Develop a project that addresses a key issue	**Identify Key Performance Indicators**	**Collect and analyze data**	**Adapt and refine project as needed**	**Lessons learned**
Our projects start with a problem statement that evolves into a solution using new technologies, tools, and processes.	*Key Performance Indicators (KPIs) are quantifiable values used to benchmark a project's success. Data for these measures should be readily available, known, accurate, significant, and derive from a consistent source for an extended duration.*	*Project data collected by systems either impacted by or resulting from the project will be analyzed at regular intervals to measure performance. Many systems support real-time (or near real-time) snapshots of a project's performance, like the Results Vegas website (opendata. lasvegasnevada.gov/).*	*Root-cause analyses will identify issues with underperforming projects, which will be readjusted to meet their targets moving forward.*	*Following any KPI measurement refinement and/or at the conclusion of the project, overall performance against KPIs will be assessed and evaluated. Any lessons learned will be noted and applied to future projects.*

Evaluating Ideas

Our Smart Vegas team collectively reviews potential initiatives by following a set review process. This collaborative interaction between the Executive Technology and Innovation Steering Committee, Innovation Team and Interdepartmental Committee is characterized by six primary tasks.

ETISC

IT   **IC**
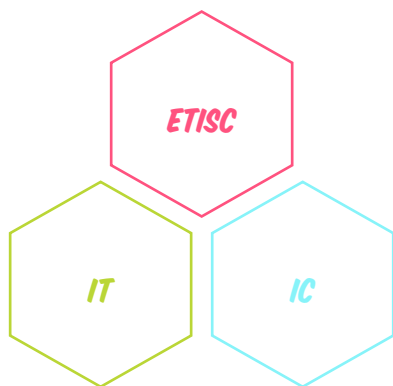
1   **Submit.** IT receives all proposals for Smart Vegas initiatives.

2   **Review.** IT coordinates with relevant IC members to obtain guidelines for evaluation.

3   **Advise.** IC members can advise IT during the evaluation process, but IT retains sole responsibility of proposal evaluations.

4   **Recommend.** IT recommends proposals to the ETISC. IT must submit a formal evaluation with supporting documentation, including input from affected city agencies/departments, for all potential project implementations.

5   **Approve.** The ETISC reviews recommendations from IT. Proposals deemed to effectively align with city goals and objectives are approved for implementation.

6   **Implement.** IT leads Smart Vegas implementation efforts and coordinates with relevant city agencies/departments.

Processing Proposals

Many proposals and ideas will be submitted for consideration in the Smart Vegas program, and a process is critical for prioritizing proposals — particularly those with high costs, interdepartmental coordination, or an increased element of risk. Two forms are integral to organizing proposals: the Proposal Intake Form and the Proposal Evaluation Form. Proposals will be prioritized based on the City's needs and ranked according to the criteria at right. Unselected proposals will remain on file, but will not be further considered until they better address a City need as reflected in the ranking criteria (assuming resources and budget are also available).

GENERAL TIMELINE FOR INTAKE & EVALUATION

1st month

IT initiates review by compiling information for evaluation and conferring with departments/ agencies most impacted by proposal.

2nd month

IT completes initial proposal evaluation and sends their summary and recommendations to the ETISC for consideration and formal approval.

3rd month

Proposals submitted to the Smart Vegas program are reviewed by the IC. IT initiates procurement for approved proposals.

Prioritization Criteria

Proposals will be assessed based the following key measures:

— Aligns with Smart Vegas six core priorities

— Directly addresses problem statements and overall benefit to the City

— Addresses both short- and long-term strategic goals and issues

— Represents optimal benefit versus cost, and its short- and long-term impact

— Complies with identified and available budgets

— Requires little to no impact on existing City staffing

— Requires little to no integration with or is compatible existing City systems

— Provides data that can be used for other smart city programs

— Garners support by key city management

— Aligns with key community or state initiatives and priorities

— Possesses low potential of risk

— Requires reasonable anticipated effort (in funding and resources) from City departments and agencies

Funding Projects

Funding for Smart Vegas can be secured through partnerships with the private sector (as well as private sector investment), including public-private partnerships (P3s) and consolidated technology and services joint ventures. Expanding Smart Vegas' relationship with local universities (i.e., University of Nevada, Las Vegas; Desert Research Institute) will also provide cost-effective research and analysis opportunities. Commercial development, crowd-sourced funding, technology, and innovation bonds or surcharges, and federal grants as well as privately funded programs — like Cisco's City Infrastructure Financing Acceleration, DigitalTown, Microsoft and Genetec Project Green Light, and the Venture Smarter Infrastructure Challenge — are additional avenues to raise capital.

The Smart Vegas team will engage early and often with national and international public and private grant programs to help shape and influence grant programs. While research funding alone will not pay for widespread deployment and adoption of all Smart Vegas projects, it can support the search for new ideas and help pilot development of new technologies.

Potential Federal Funding Sources

Smart Vegas initiatives and City-funded capital programs will be aligned to support matches for federal grants, like the following (see page 42 for acronym definitions):

- ATCMTD
- DOE Advanced Modeling Grid Research
- DOE Resilient Electric Distribution Grid
- EPA Sustainable and Healthy Community National Research Program
- ITA Market Development Cooperator Program
- ITA Smart Cities, Regions, and Communities Export Opportunities
- NIH Smart and Connected Health
- NIST Global City Teams Challenge
- NIST Internet of Things Enabled Smart City Framework
- NSF BIGDATA
- NSF Big Data Regional Innovation Hubs Grant
- NSF Critical Resilient Interdependent Infrastructure Systems (CRISP)
- NSF Partnerships for Innovation (PFI)
- NSF Smart and Connected Communities
- NSF US Ignite
- OST-R Connected Vehicle
- OST-R Emerging Technologies
- NTIA BroadbandUSA
- NTIA Using Partnerships to Power a Smart City: A Toolkit for Local Communities
- Smart Cities Council Readiness Challenge

SMART VEGAS
ACTION PLAN

The following section identifies currently deployed or planned Smart Vegas projects as well as recommendations for additional initiatives. Current projects are categorized according to the City's six strategic priorities — Public Safety, Iconic Vegas, Smart Vegas, Workforce Development, Neighborhoods, and At-risk Populations.

Public Safety

Smart cities reach beyond technology improvements — they impact the standard of living for all citizens. Public safety is paramount to improved quality of life. Our residents, visitors, and businesses must feel safe and secure no matter where they are in the city.

Improving the City's public safety is considered a critical initiative. It is imperative that our community feels confident in public safety agencies — police, fire, and Emergency Management Services (EMS) — and their ability to actively respond to incidents while proactively addressing overall safety improvement. Technology can help in a myriad of ways, from improving emergency response times and communicating with the public to using analytics and trend analyses to help identify and combat threats.

Urbanization and transportation play important roles in monitoring and preventing crime by identifying criminal acts or potential threats in advance. Advanced technology and its data — such as video cameras scattered throughout the city or social media platforms — can help digest information and extract key insights to identify crime hot spots.

Recently, the City has taken proactive measures to improve public safety by reducing crime, improving emergency response times, informing motorists of upcoming crashes, and improving overall bicyclist and pedestrian safety at major downtown intersections and corridors.

Key Considerations

Smart Vegas should continue expanding the number of data and video collection sources while leveraging social media to identify emergencies and communicate to the public. Increasing data and video analytics capabilities while seamlessly integrating public safety CAD/AVL data with other City data sources will allow city management to actively respond to incident response areas by rerouting traffic flow. Many of these programs could qualify for federal grant assistance through FEMA, DOJ, and the NSF. Many private companies are also willing to provide public safety systems at little to no cost in exchange for demonstrating in Smart Vegas' infrastructure.

Relevant Pillars

PUBLIC SAFETY   ECONOMIC GROWTH   MOBILITY

EDUCATION   SOCIAL BENEFIT   HEALTHCARE

Existing Relevant Projects

— GENIVI Vehicle-to-Infrastructure Communications

— City Automated/Connected Vehicle Fleet Conversion

— AAA-Keolis Driverless Shuttle Pilot

— Connected Corridors

— Connected Bicycle Pilot

— Sensor Deployment

— Wireless Networks

— Sensor Networking

— Smart Street Design

— Security Upgrades

— Video Analytics

— Sound Detection Crime Prevention

— Systemwide Monitoring and Analysis

Future Projects

The following table lists potential projects for consideration by the City team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

P-1	Work with law enforcement and emergency response teams to explore the use of unmanned aerial vehicles to provide incident response video	Medium-term
P-2	Incorporate pedestrian to vehicle awareness using Bluetooth or cell phone information into driverless vehicle and connected vehicle pilots	Medium-term
P-3	Broadcast emergency response locations to motorists using apps and in-vehicle displays	Short-term
P-4	Conduct connected vehicle pilots where motorists are automatically rerouted from areas where emergency responses are occurring	Medium-term
P-5	Explore data sharing and public safety testing opportunities with private-sector vendors	Short-term
P-6	Expand interactive kiosks to include emergency response requests, traveler information, local businesses and services information, and public service announcements	Medium-term
P-7	Deploy automatic incident detection technologies and LiDAR and RADAR systems to detect and report real-time incident information	Long-term
P-8	Expand Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) pilots to include safety testing in a multimodal environment (cars, buses, freight vehicles, bicycles, and pedestrians)	Long-term

Potential Stakeholders

Las Vegas residents and tourists

City management

Technology companies

Professional organizations

Data analytics companies

Security agencies

Federal research agencies (FEMA, FBI, DOJ, DOD)

Public Safety and Law Enforcement agencies and companies

Universities

Iconic Vegas

Estimated trillions in incremental GDP growth will significantly transform the way smart city citizens live and how our city operates. We need to be strategic in the way smart city technology is deployed to ensure we maximize our economic and operational potential.

Public-private partnerships provide alternate funding models that can help the City to deploy projects and invest in new, tech-centric programs. Smart city programs will create a catalyst for a better economy, and a better economy can lead to further investments in smart city programs.

A more skilled workforce — trained from smart city programs — will promote higher salary demands and a stronger tax position. Data analytics can promote operational efficiencies while reducing administrative waste and associated costs. Smart infrastructure and urban areas can be used as technology incubators, and will support small start-up businesses that could transform into technology juggernauts that will call the City of Las Vegas home for many years to come. Our tech-driven environment will be a real-time hub for testing and showcasing innovative processes and technologies, which will entice more companies to relocate to the City.

While our economy is currently considered healthy, stable, and growing, City officials understand that there is always room for improvement, and continued economic growth will attract businesses that can improve the City's overall economic position and offer well-paying, sustainable jobs.

Key Considerations

While the City of Las Vegas currently exhibits economic stability and growth, moving forward we should focus on reducing unemployment and attracting technology business relocations and start-ups. Establishing joint ventures and P3s with key technology and data companies will serve as a symbiotic relationship: companies can leverage existing Smart Vegas infrastructure while minimizing the City's economic investment to continue deploying technology projects. Data from Smart Vegas programs — from street operations to utility services — will be available to the private sector, which will help the City develop new services and applications that create jobs and improve livability.

Relevant Pillars

PUBLIC SAFETY

ECONOMIC GROWTH

MOBILITY

EDUCATION

SOCIAL BENEFIT

HEALTHCARE

Existing Relevant Projects

- AAA-Keolis Driverless Shuttle Pilot
- Connected Corridors
- Bike Share (in collaboration with RTC-Southern Nevada)
- Sensor Deployment
- Wireless Networks
- Sensor Networking
- Smart Metering
- Smart Street Design
- Security Upgrades
- Video Analytics
- Sound Detection Crime Prevention
- Systemwide Monitoring and Analysis
- Go Vegas app
- Amazon Alexa
- Apple TV Channel
- Parking Application
- Participation in Consumer Electronics Show

Future Projects

The following table lists potential projects for consideration by the city team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

EG-1	Last-mile, City-regulated broadband to underserved communities and other residential areas (may require new legislation)	Long-term
EG-2	Establish a voucher system to help small businesses with the costs of broadband connectivity	Long-term
EG-3	Explore infrastructure sharing opportunities with private sector to establish a broadband P3 for citywide connectivity (will need to identify possible required updates to legislation)	Medium-term
EG-4	Develop and implement a business case for data reuse and resell	Long-term
EG-5	Expand smart metering for water, transportation, and energy to smart buildings and smart lighting pilots	Medium-term
EG-6	Create a sister city agreement with an international smart city leader to conduct joint research and technology showcasing	Short-term
EG-7	Launch improved processes for proposal intake, evaluation, performance monitoring, and implementation	Short-term
EG-8	Expand the Innovation District to include key economic areas	Long-term
EG-9	Explore tax and bond initiatives focused on Smart Vegas programs	Long-term
EG-10	Establish a dedicated Smart Vegas contracting mechanism that minimizes contracting complexities while still protecting the financial and liability interests of Las Vegas	Short-term
EG-11	Develop an incubator in partnership with the U.S. Ignite Smart Gigabit Community for social and technology innovation to better serve the community, especially the underserved	Medium-term

Potential Stakeholders

Las Vegas residents and tourists	Utility providers	Telecom providers	Private investors
	Technology companies	Media companies	eRetail companies
Commercial real estate developers	Data analytics companies	City management	

Smart Vegas

The City of Las Vegas was the first city to launch a driverless shuttle[1], and Nevada was the first state to license an autonomous vehicle. Mobility with technology is increasingly important as demand escalates for our transportation infrastructure. Optimizing the existing network is critical.

Smart Vegas was initially created to support enhanced mobility. Transportation must effectively, reliably, and safely move people and freight, and its performance has a direct impact on the City's overall health. More than 90 percent of the regional workforce travels in a car. While average commute times are a little over 25 minutes, congestion in the region has increased more than 35 percent since 2000 and is likely to continue to worsen.2 Anticipated population growth of an additional half a million residents by 2035 poses a risk to increased congestion, carbon emissions, and motorist, pedestrian, and bicyclist safety on an already strained infrastructure. The City completed a long-term strategic Mobility Master Plan2 to help guide transportation decisions and prioritize public investments for the years ahead.

Modern mobility solutions — such as mobility as a service (MaaS) — leverage technology and data to more accurately plan demand, capital improvement, and maintenance programs. Automated vehicles, most of which are electric-powered, have created a new vehicle ownership model — the Shared Electric Automated Vehicle (SEAV). A SEAV model allows for vehicles to be owned by fleets or carshare companies and can be summoned on-demand by users. Benefits include better trip planning, consolidated payment systems, and data on per-mile usage fees for transport in key areas.

Key Considerations

While several Smart Vegas programs have begun to address mobility concerns through AV pilots, enhanced infrastructure technologies, vehicle monitoring, and data analysis for capital planning programs, Smart Vegas should continue to focus improvements for a more reliable, safer, quicker, and effective transportation network. Providing incentives for companies and motorists that use environmentally friendly vehicles will also encourage collaboration with MaaS and automobile technology providers that can then yield data for corridor improvements. Alternative fuel systems should also expand to include additional charging stations and embedded, inductive charging on key corridors. Funding assistance for these initiatives could come from federal grants through USDOT, but alternative sources such as congestion-based or road usage pricing could help as well.

Relevant Pillars

PUBLIC SAFETY · ECONOMIC GROWTH · **MOBILITY** · EDUCATION · SOCIAL BENEFIT · HEALTHCARE

1. Southern Nevada Strong Regional Plan
2. mobilitymasterplan.vegas

Existing Relevant Projects

— GENIVI Vehicle to Infrastructure Communications

— City Automated/ Connected Vehicle Fleet Conversion

— AAA-Keolis Driverless Shuttle Pilot

— Connected Corridors

— Connected Bicycle Pilot

— Bike Share (in collaboration with RTC-Southern Nevada)

— Sensor Deployment

— Wireless Networks

— Sensor Networking

— Alternative Fuel Charging

— Smart Street Design

— Video Analytics

— Fleet Monitoring

— Systemwide Monitoring and Analysis

— Wayfinding

— Go Vegas App

— Parking Application

— Participation in Consumer Electronics Show

Future Projects

The following table lists potential projects for consideration by the city team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

M-1	SEAV and Connected Vehicle mobility pilot in collaboration with a key MaaS provider (Uber, Lyft, Car2GO) in a multimodal environment	Short-term
M-2	Expand the driverless shuttle to other key commercial areas (Medical District, Arts District)	Short-term
M-3	Deploy additional electric charging stations with smart meters and power allocation	Medium-term
M-4	Pilot inductive charging stations around the Innovation District and expand beyond into other city wards	Long-term
M-5	Expand Go Vegas app to include consolidated trip planning and fare payments	Long-term
M-6	Explore and conduct pilots using robotics and AV in roadway and facilities maintenance, freight loading, food preparation, and janitorial services	Long-term
M-7	Launch improved processes for proposal intake, evaluation, performance monitoring, and implementation	Short-term
M-8	Partner with telematics providers and automotive OEMs on data sharing	Long-term
M-9	Explore enhanced corridor planning and roadway maintenance systems using real-time data and predictive analytics	Long-term
M-10	Create a business case to explore congestion pricing and road usage charges to fund transportation improvements along key corridors	Medium-term

Potential Stakeholders

Las Vegas residents and tourists

City management

MaaS providers

Transportation authorities and agencies

Centers for advanced mobility

Utility & Telecom providers

Media, data analytics, telematics, and technology companies

Autombile OEMs

Federal Agencies (USDOT, FHWA, NHTSA)

Workforce Development

Smart cities are designed to help people. It is critical that we equip our city's citizens with the knowledge, tools, and access to technology in public education, universities, and beyond.

Successfully implementing Smart Vegas will rely on citizens and businesses embracing and contributing to our initiatives. A well-informed and tech-savvy community allows us to all work together in addressing everyday City challenges.

Graduation rates in Clark County have increased in recent years, with 83 percent in 2017. Although 85 percent of Clark County residents are high school graduates, only 23 percent have a Bachelor's degree or higher.3 Our desire to attract technology-centric companies heightens the need for a highly-trained and well-educated workforce. While Smart Vegas currently leads several education-centric initiatives to improve the classroom experience and encourage knowledge retention, it can be further integrated into the classroom to encourage tech learning. Smart Vegas projects can be leveraged as a source for case studies that translate into STEM-related curriculum, and classroom discussions with Smart Vegas leaders can provide insight on key innovative technologies. Sponsoring industry brown bags and demonstrating new technologies with public schools will reinforce Smart Vegas' presence in the classroom. Additionally, offering student mentorship with the Smart Vegas team will encourage collaboration and a sense of contribution.

Key Considerations

Smart Vegas builds on the connection between people and technology, and integrating its projects into our community will promote smoother implementation as our residents embrace innovative change. To enable our citizens, Smart Vegas can promote tech-education by expanding partnerships between Smart Vegas staff and local schools, creating smart city based STEM curriculum for high schools and universities, and investing in virtual classrooms to promote a better learning environment. Funding for many of these initiatives can come from education grants through federal agencies — such as the Department of Education and the National Science Foundation — and private-sector partnerships with local schools.

Relevant Pillars

PUBLIC SAFETY

ECONOMIC GROWTH

MOBILITY

EDUCATION

SOCIAL BENEFIT

HEALTHCARE

Existing Relevant Projects

— **Systemwide Monitoring and Analysis**

— **Wayfinding**

— **Go Vegas app**

— **Participation in Consumer Electronics Show**

— **Connect Home**

Future Projects

The following table lists potential projects for consideration by the city team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

E-1	Collaborate with the Clark County School District to invest in technologies and tools to create virtual classrooms	Short-term
E-2	Promote Smart Vegas through classroom demonstrations and field trips to key projects	Short-term
E-3	Sponsor "Shark Tank" days with local high schools	Short-term
E-4	Create Smart Vegas-focused curriculum for high schools and local universities	Medium-term
E-5	Sponsor local high school hack-a-thons and crowdsourcing initiatives	Medium-term
E-5	Expand Apple TV Channel and Amazon Alexa projects to include smart city learning sources	Medium-term

Potential Stakeholders

Las Vegas residents	Clark County School District	Technology companies	Data analytics companies
City management	Universities	Telecom providers	Federal agencies (Department of Education, NSF)
		Media providers	

Neighborhoods

Successful smart cities must be cognizant of the social responsibility to its citizens. Providing access to innovative technology and services that benefit all members of society is crucial. Breaking the digital divide will open the door for a higher quality of life for all, regardless of their financial or socioeconomic position.

The City of Las Vegas is responsible for all of its citizens and is focused on providing tools and technologies to enhance the quality of life for everyone. Smart Vegas focuses on providing innovative City services and programs that reduce the disparity between social and financial inequalities and benefits all citizens, regardless of their demographic or financial positions.

While interests and needs vary per citizen, Smart Vegas aims to ensure connectivity to a digital infrastructure is available throughout our community — regardless of economic or geographic position. Our projects will expand on this foundation by providing reliable mobility options to underserved communities, addressing crime — especially in areas of economic downturn— and promoting businesses and City services that enhance quality of life.

Smart Vegas will carefully consider how to promote social benefit across all demographic categories, and can leverage federal and privately funded grant programs geared towards promoting innovation and technology to underserved communities. Specifically, the NTIA's BroadbandUSA program promotes innovation and economic growth by supporting efforts to expand broadband connectivity.

Key Considerations

Smart Vegas will serve all citizens, regardless of their socioeconomic position. Breaking the digital barrier — providing broadband access to underserved neighborhoods — is critical to Smart Vegas implementation. Ensuring that all communities within the City — regardless of demographic, financial, social, geographic, or economic position — have access to free or subsidized broadband/WiFi and services will encourage a unified City that can grow together.

Relevant Pillars

PUBLIC SAFETY

ECONOMIC GROWTH

MOBILITY

EDUCATION

SOCIAL BENEFIT

HEALTHCARE

Existing Relevant Projects

— **GENIVI Vehicle to Infrastructure Communications**

— **City Automated/ Connected Vehicle Fleet Conversion**

— **Connected Corridors**

— **Connected Bicycle Pilot**

— **Wireless Networks**

— **Security Upgrades**

— **Video Analytics**

— **Sound Detection Crime Prevention**

— **Systemwide Monitoring and Analysis**

— **Air Quality Monitoring and Analysis**

— **Downtown Loop Free Shuttle Information**

— **Wayfinding**

— **Go Vegas app**

— **Amazon Alexa**

— **Apple TV Channel**

Future Projects

The following table lists potential projects for consideration by the city team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

SB-1	Expand City-provided WiFi coverage to all public parks, recreation areas, key commercial areas, and underserved residential communities	Short-term
SB-2	Deploy last-mile, City-regulated broadband to underserved communities and other residential areas	Medium-term
SB-3	Establish a voucher system to help economically underserved citizens with the costs of broadband connectivity	Medium-term
SB-4	Launch mobile virtual city service booths where citizens in underserved communities can access city services	Medium-term
SB-5	Launch a driverless shuttle between the Medical District and economically underserved communities	Medium-term
SB-6	Provide virtual GED and vocational classes to local homeless shelters	Long-term
SB-7	Incentivize technology businesses who start-up in economically underserved neighborhoods	Medium-term
SB-8	Establish a joint venture with social advocacy groups and private sector businesses to provide investments in technologies to underserved communities	Medium-term
SB-9	Provide robotic assistance and other technologies and services to ADA customers who reside in economically underserved communities	Medium-term
SB-10	Enhance wayfinding signs and the Go Vegas app with real-time information showing homeless shelter availability, numbers of open beds, menus, and available services	Medium-term

Potential Stakeholders

Las Vegas residents and tourists	Technology companies	Media providers	Federal agencies (HUD, Dept. of Commerce)
City management	Telecom providers	Data analytics companies	Non-profit service providers
		Social advocacy groups	

At-risk Populations

The smart city revolution will transform the City's transit, security, and infrastructure, which will have sweeping results in healthcare. Healthcare systems that promote collecting and sharing data, analysis, and research practices will usher in a new era for tackling modern day health problems.

Access to healthcare is a significant challenge for the region. A 2017 report from the Nevada Medical Center graded the state of Nevada with an "F" for access to primary care providers, and Nevada ranks last nationally for primary care physicians per 100,000 people. Additionally, Clark County scores poorly for environmental-related health risks.

However, innovation in healthcare presents endless opportunities for improved quality of life. A focus on personalized solutions, early prevention, and self-management has already transformed traditional models of care as digital technologies now bring those in need closer to the people who can help provide the appropriate care. Smart Vegas technology will offer more efficient, transparent, and citizen-centric services that will transform how citizens manage and coordinate healthcare services, ultimately providing greater choice, better accessibility, and overall improved quality of life.

Smart Vegas initiatives that focus on social and environmental improvements — reducing carbon emissions, offering alternative transportation modes, and supporting smart energy, water, and wastewater solutions — will also benefit our citizens by improving their overall health and quality of life, which minimizes their dependency on healthcare services.

Key Considerations

Smart Vegas serves our people, and ensuring their health is critical to a thriving, sustainable city that will grow for many years to come. Advancements in digital sensors and data analytics improve the diagnosis and treatment for patients. Coupled with improving options for citizens to live healthier lives (emissions reductions, recreational facilities, bike share, and others), the ability to proactively and effectively diagnose and treat health conditions is significantly improving. Ongoing collaboration with the Las Vegas Medical District on data sharing and analytics will help inform new programs that can provide telemedicine and virtual doctor services to citizens unable to travel to see a doctor. Grant programs from the National Institute of Health — such as the Smart and Connected Health program that supports advancements in healthcare — can help fund Smart Vegas projects with cutting-edge services.

Relevant Pillars

- PUBLIC SAFETY
- ECONOMIC GROWTH
- MOBILITY
- EDUCATION
- SOCIAL BENEFIT
- HEALTHCARE

Existing Relevant Projects

— Wireless Networks

— Smart Street Design

— Air Quality Monitoring and Analysis

— Wayfinding

— Go Vegas app

— Amazon Alexa

Future Projects

The following table lists potential projects for consideration by the city team and the suggested timeframe for implementation. Actual projects will be developed and prioritized by city stakeholders and management.

H-1	Establish data sharing agreements and analytics development with medical providers to determine if any citywide issues are contributing to heightened health concerns	Short-term
H-2	Deploy interactive walking tours along iconic Las Vegas attractions	Short-term
H-3	Expand research into alternative fuel vehicles	Short-term
H-4	Expand research into industrial and transportation-related carbon emission reduction	Short-term
H-5	Deploy a driverless shuttle throughout the Medical District	Medium-term
H-6	Deploy a driverless shuttle circulator to popular city parks and recreational facilities	Medium-term
H-7	Provide mobile healthcare clinics to underserved populations	Long-term
H-8	Provide a virtual telemedicine program for homeless shelters and underserved communities	Long-term
H-9	Provide free WiFi to all city parks and recreational facilities	Medium-term
H-10	Collaborate with UNLV to explore ways robotics can be used to support healthcare programs	Short-term

Potential Stakeholders

Las Vegas residents and tourists	Technology companies	Media companies	Environmental impact groups
City management	Telecom providers	Data analytics companies	Professional organizations
UNLV	Healthcare providers	Social advocacy groups	

THE
ROAD
AHEAD

For Smart Vegas to succeed and achieve our vision of an integrated and efficient city, we must focus on addressing the most important needs for our region and citizens. The City of Las Vegas identified its top priorities through regional and local planning initiatives that drew on input from a wide variety of stakeholders. Smart Vegas is built on the priorities created in 2018 in the Citywide Comprehensive Strategic Plan and will use key performance indicators to track and measure change.

The initiatives, processes, and resources presented in this document are the culmination of many different plans, policy reports, and previous projects. The City of Las Vegas has already made considerable progress towards its vision of Smart Vegas, and this plan will further our mission to address the city strategic priorities. We will establish policies that promote technology and create a supportive administrative environment that seeks management efficiencies. Compared to other smart cities, the City of Las Vegas has a strong showing of innovative projects either in development or currently deployed. Our city remains proactive in its evolution to Smart Vegas, and will keep an eye towards the future as we transform into a leading city of tomorrow.

Acronyms

ADA	Americans with Disabilities Act of 1990		**IT**	Innovation Team
ATCMTD	Advanced Transportation and Congestion Management Technologies Deployment		**ITA**	United States International Trade Administration
AV	Automated Vehicle		**KPI**	Key Performance Indicator
CAD/AVL	Computer Aided Dispatch & Automated Vehicle Location		**LiDAR**	Light Detection and Ranging
CES	Consumer Electronics Show		**MaaS**	Mobility as a Service
CV	Connected Vehicles		**NCAM**	Nevada Center for Advanced Mobility
DMV	Department of Motor Vehicles		**NHTSA**	National Highway Traffic Safety Administration
DOD	United States Department of Defense		**NIH**	National Institutes of Health
DOE	United States Department of Energy		**NIST**	National Institute of Standards and Technology
DOJ	United States Department of Justice		**NSF**	National Science Foundation
DOT	Department of Transportation		**NTIA**	National Telecommunications and Information Administration
EMS	Emergency Management Services		**OEM**	Original Equipment Manufacturer
EPA	United State Environmental Protection Agency		**OST-R**	Office of the Assistant Secretary for Research and Technology
ETISC	Executive Technology and Innovation Steering Committee		**P3**	Public Private Partnership
FAST	Freeway and Arterial System of Transportation		**RADAR**	Radio Detection and Ranging
FBI	Federal Bureau of Investigation		**RTC**	Regional Transportation Commission of Southern Nevada
FEMA	Federal Emergency Management Agency		**SEAV**	Shared Electric Automated Vehicle
FHWA	Federal Highway Administration		**SEMA**	Specialty Equipment Market Association
GDP	Gross Domestic Product		**STEM**	Science, Technology, Engineering, and Mathematics
GED	General Equivalency Diploma		**UNLV**	University of Nevada Las Vegas
HUD	United States Department of Housing and Urban Development		**USDOT**	United States Department of Transportation
IC	Interdepartmental Committee		**V2I**	Vehicle-to-Infrastructure
			V2V	Vehicle-to-Vehicle

Credits

Mayor Carolyn Goodman

Mayor Pro-Tem Lois Tarkanian

Councilman Steven G. Seroka

Councilman Bob Coffin

Councilman Stavros S. Anthony

Councilman Cedric Crear

Councilwoman Michele Fiore

Scott Adams, City Manager

Jorge Cervantes, Chief Operations and Development Officer

Gary Ameling, Chief Financial Officer

Michael Sherwood, Director Information Technologies

Joanna Wadsworth, Information Technologies Department

Don Jacobson, Information Technologies Department