

# Smart Planning for Smart Cities

Before adopting smart-city technologies, communities should make sure they have processes in place to ensure the success of their projects. American Planning Association research identifies best practices in this emerging field.

By Kathleen McMahon / *Applied Communications*

The next time you hear the term “smart city,” consider the following: Creating a successful smart city requires understanding complex systems and balancing opposing interests that compete for limited budget resources to invest in technology that may be outdated in a few years. These challenges may seem insurmountable. If a city can navigate this difficult task, however, it can reap benefits for years to come. The way to accomplish this feat is through smart planning.

In 2013, the American Planning Association (APA) created a task force to identify potential benefits and challenges of smart-city technologies. The resulting white paper also explored how technologies could advance other city goals, such as sustainability and equity. The task force report, released in 2015, defined smart cities as follows: “Smart cities use information-communication technology (ICT) to engage citizens, to deliver city services and to enhance and connect urban systems.” Figure 1 illustrates the different components of smart cities.

To be truly effective, a smart city must be more than just the sum of its parts. It must also include certain attributes that contribute to innovation and to the seamless integration of such technologies into city operations. Key attributes for a network that will enable smart-city applications include interoperability, redundancy, asset optimization and cybersecurity. Attributes that should be incorporated into software applications include transparency, ease of user interfaces, support for real-time decision making and ethical use of big data. In designing either a smart-city network or the applications that will run on it, the ultimate goal should be to provide technologies that will add value to a community, improve services to all citizens and promote sustainability.

Since the release of the white paper, the task force has continued the discussion on various smart-city issues as they relate to city planning. It has conducted research, and offered webinars, on autonomous vehicles, big data, broadband,

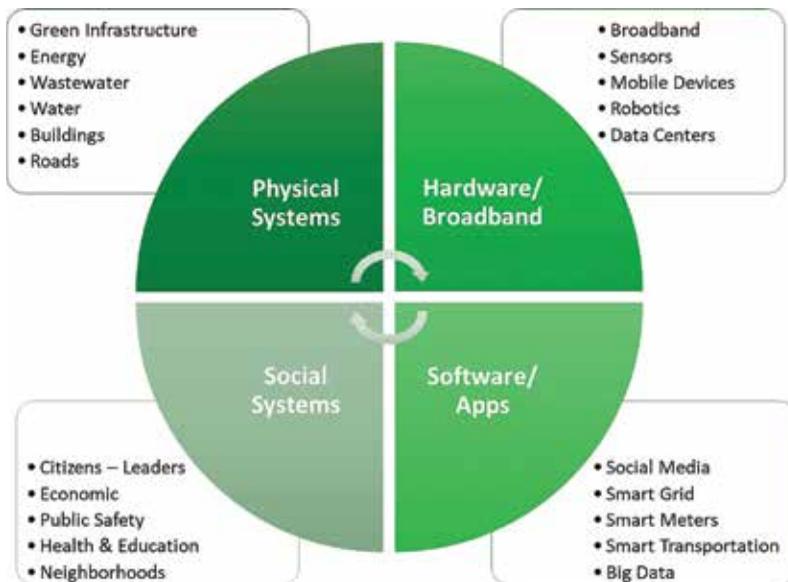


Figure 1: Components of smart cities

social media applications and many other topics. In addition, APA has acknowledged best practices in the adoption of smart city technologies through awards at the national planning conference. APA has partnered with the Smart Cities Council, National League of Cities, Federal Highway Administration and other organizations to establish policies that will help cities realize the benefits of smart cities and avoid potential pitfalls.

### **POLICIES FOR SMART CITIES**

Most recently, APA undertook research to identify underlying policies that will result in smart planning for smart cities. It reviewed planning publications and city plans to compile recommendations for policies and best practices for adoption of smart-city technologies. Sources included APA reports, smart-city awards and case studies. Web searches of smart-city initiatives by Google Fiber cities, United States Department of Transportation smart-city grant finalists and other technology websites also yielded useful information. As a result of this review, the APA identified the following smart-city principles:

- Plan streets that provide for infrastructure components such as fiber optics, conduits, sensors and charging stations.
- Reduce carbon footprints with innovative technologies that conserve energy, such as smart buildings, electric vehicles, smart street lighting, smart grids and energy-efficient data centers.
- Promote smart water practices such as smart water meters, intelligent monitoring systems and technologies that result in water conservation.
- Provide for “new economy” jobs that utilize nontraditional work arrangements such as telework, innovation districts, flex space, public spaces with Wi-Fi access and co-work spaces.
- Provide for an affordable, robust and redundant broadband and communications network.
- Plan for autonomous vehicles to expand access, safety and mobility for people of all ages, abilities and incomes, and consider the impacts

## Citizens should be involved in smart-city planning because they are the ultimate users.

of this innovative technology on transit-dependent populations.

- Use big data analytics to predict areas of high crime and fire risks, and plan for public safety investments accordingly.
- Use health informatics to incorporate evidence-based recommendations when considering the health impacts of urban design.
- Address issues of privacy and cybersecurity when using technology tools such as online surveys, social media, web-based decision support tools, GIS applications, video and other innovative methods for electronic communication.
- Incorporate use of scenario planning software, GIS modeling and big data analysis into the planning and decision-making process.
- Create online tools to enhance public involvement through new smartphone apps and tools such as crowdsourcing, gaming, sentiment analysis, social media, augmented reality and online interactive programs.
- Evaluate and maintain the quality and ethical use of data to appropriately inform decisions and to promote transparency and accountability through the provision of digital information (open data) to the public.
- Establish benchmarks and performance metrics for smart-city technologies such as intelligent transportation, smart water, smart grid and autonomous vehicles.
- Provide for ongoing monitoring and testing of urban and natural systems using technologies such as the internet of things, GPS, drones, predictive analytics, greenhouse gas inventories, energy audits and big data analysis.

Cities are beginning the important work of establishing these and other policies to guide their adoption

of smart technologies. Cities as diverse as Cary, North Carolina; Chattanooga, Tennessee; Chula Vista, California; Henderson, Nevada; San Diego, California; and Schenectady, New York, all adopted smart-city frameworks or smart-city plans. Louisville, Kentucky, and Austin, Texas, have specific plans to address issues regarding digital equity.

Boston and Austin, Texas, developed smart transportation plans to focus on intelligent transportation infrastructure. These types of plans include policies for real-time information that helps drivers avoid traffic jams as well as car-to-car communications (connected vehicles) to reduce congestion and improve safety. Other intelligent transportation applications include provision for shared mobility (Uber/Lyft) and freight delivery management systems to optimize routes and reduce fuel consumption. Cities are already starting to plan for the introduction of autonomous vehicles.

Smart-city technologies are evolving rapidly and will require an ongoing effort by government agencies, industry organizations and technology companies to conduct research and monitor potential issues with the adoption of these technologies. Smart-city best practices should be incorporated into college curricula and professional development training. Communities should adopt policies that will provide frameworks for smart investment in smart cities. Most important, citizens should be engaged in such decisions because they are the ultimate consumers and beneficiaries of this revolutionary technology. ❖

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