

Smart City Strategic Plan

City of Ann Arbor, MI

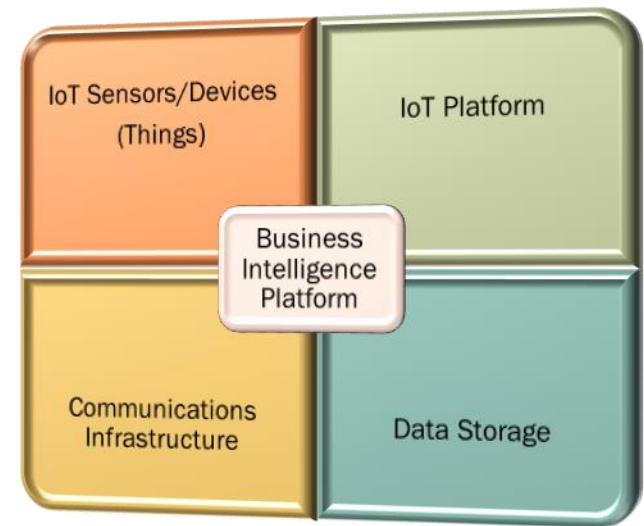
A Digital Transformation



What is a Smart City?

“A smart city utilizes modern technology and the collection of data to maximize operational efficiency, reduce costs, and enhance how we serve our community”

- ❑ There is no common definition for a Smart City. Every city is different.
- ❑ Smart City solutions discussed today may/or may not ever be implemented. It depends on future city/community needs.
- ❑ Our Smart City foundation and building block for what **is POSSIBLE**.
- ❑ **Core Smart City Elements:**
 - ❑ **Internet of “Things” (IoT) = Sensors/Devices:**
 - ❑ Streetlight heads, environmental sensors, parking meters, computers, RFID tags, etc.
 - ❑ **Communication Infrastructure/Network:**
 - ❑ Fiber, wired, wireless, cellular.
 - ❑ Connects all “thing”. Allows us to communicate with each other, control/monitor things, and collect data.
 - ❑ **Data Storage**
 - ❑ **IoT Management Platform:**
 - ❑ Control/monitor/troubleshoot the health of “things”.
 - ❑ Provides metrics, dashboards, and reporting.
 - ❑ Artificial Intelligence, Machine Learning.
 - ❑ Push-Pull data.
 - ❑ **Business Intelligence “Big Data” Platform:**
 - ❑ Advanced data analytics.
 - ❑ Central data aggregation.



What does a Smart City look like?

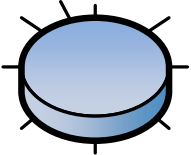
Thousands of “things” (sensors/devices) connected to a communications infrastructure performing various functions.



Use Cases:

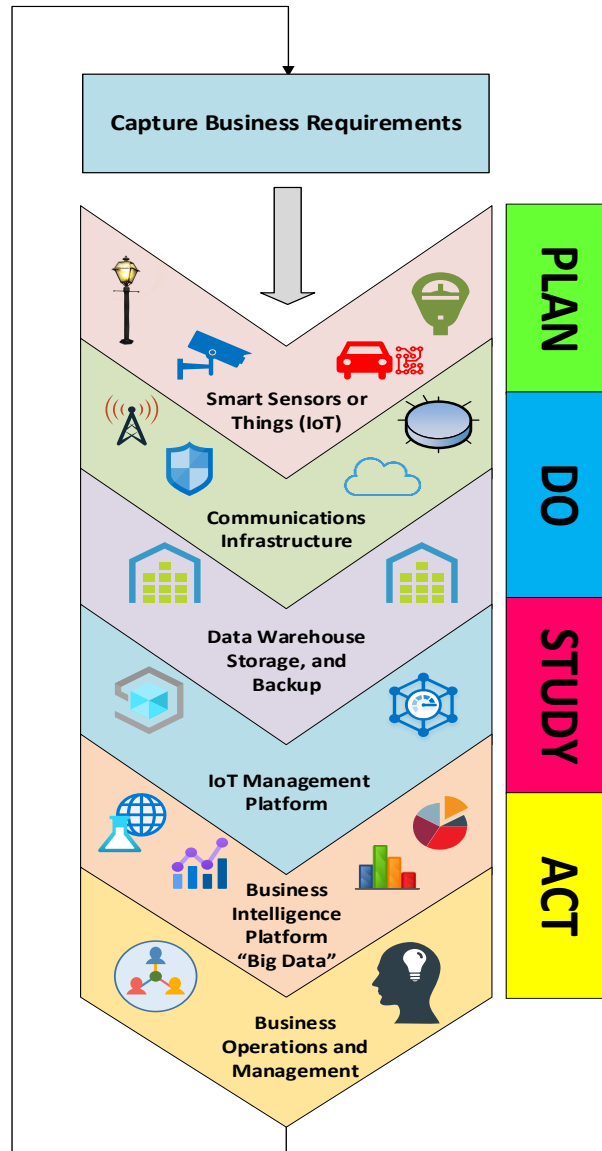
- Environmental
- Street Lighting
- Parking
- Connected vehicles
- River/water flow
- Trash/recycling bins
- Kiosks
- Signal Preemption
- Water/Storm sewer
- Building automation
- RFID tracking
- Golf carts
- Public Wi-Fi
- Dark Fiber
- City IT
- Etc.

Street Lighting



Use Cases

Smart City Elements



Use Cases

- ❑ Environmental Sensors/EV Chargers:
 - ❑ Report CO2 emissions, temperature, pollution, toxic gases, and rainfall data
 - ❑ Data collected will feed the A2Zero Climate Action Plan strategy
- ❑ Building Automation Systems:
 - ❑ Affordable Housing
 - ❑ Aging in place
- ❑ Sensors: Snow, solid waste, rain, etc.
- ❑ Connected vehicles/pedestrians:
 - ❑ Legacy implementation
 - ❑ UMTRI
 - ❑ Real time data
- ❑ Distributed Acoustic/Vibration Sensing (DAS).

A comprehensive solution will:

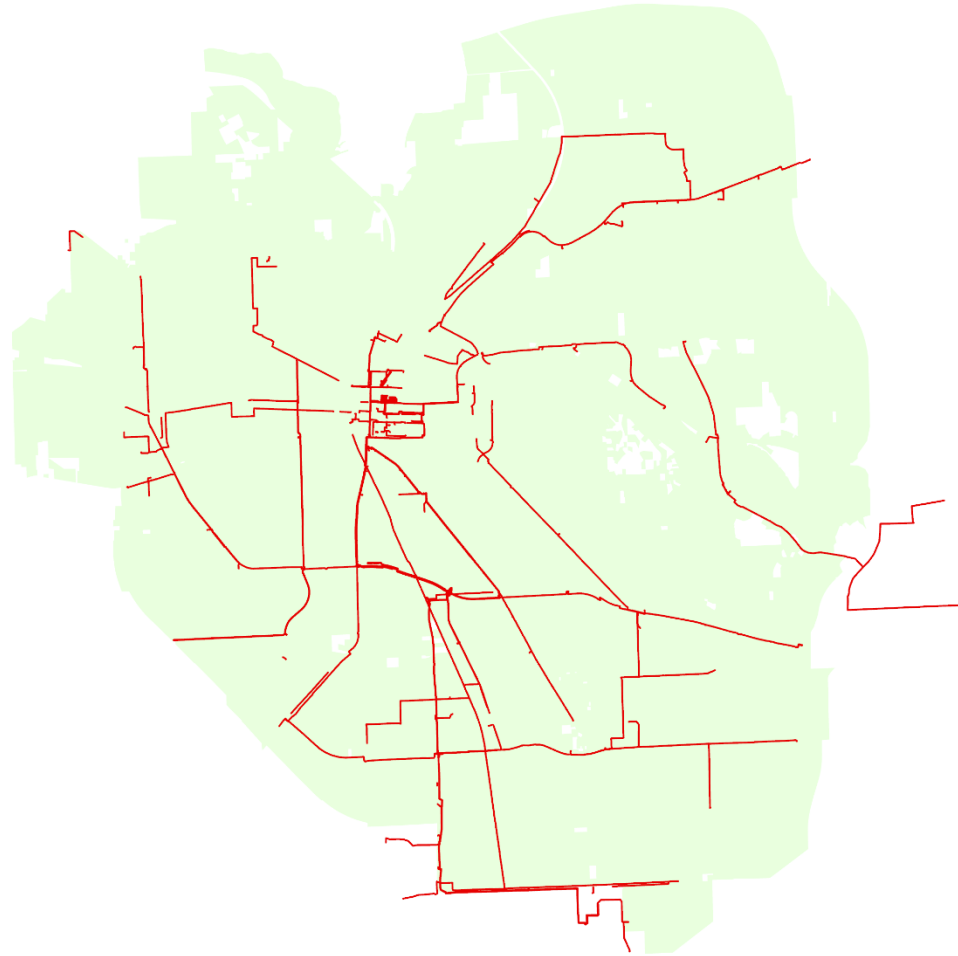
- ❑ Use all elements.
- ❑ Utilize our Project Delivery Methodology to reduce risk and increase success.
- ❑ Capture clear and concise:
 - ❑ Business requirements
 - ❑ Diversity, equity and inclusion needs
 - ❑ Security/privacy/transparency needs
- ❑ Capture and aggregate data.
- ❑ Analyze data and provide back to the business unit.
- ❑ Continuously improve (PDSA).

Our Approach

- ❑ Holistic and Community focused:
 - ❑ Complex, many stakeholders, and numerous moving parts to consider, organize and maintain.
- ❑ **MUST** align with the city organizational strategies.
- ❑ Customized to the Ann Arbor community.
- ❑ The art of possible.
- ❑ Must cater to the hybrid infrastructure in Ann Arbor.
- ❑ No big capital expense request:
 - ❑ Many of the foundational components have been built as part of other projects.
- ❑ The foundation is in place. We will pursue opportunities as they arise.
- ❑ Employ Smart City concepts, sustainability, equity, inclusion, privacy, and transparency into all future project/opportunity.
- ❑ Designed to remove barriers, solve problems and address opportunities to benefit the community.
- ❑ No vanity projects because it's COOL! Solutions need to add real value.
- ❑ Long-term and sustainable, Futureproof.
- ❑ Work closely with stakeholders to bridge the gap between operational needs and technology.
- ❑ Dig-Once.
- ❑ Sustainable and scalable.



Fiber and Conduit Communications Infrastructure





Goal 1: The Most Desirable City to Live, Work, and Play

Objectives:

- ❑ Enhance City Services
- ❑ Smart Transportation and Mobility
- ❑ Promote a Technology Park/Innovation District
- ❑ Promote Affordable Housing
- ❑ Bridge the Digital Divide
- ❑ Economic Development



Goal 2: Improve the Quality of Life

Objectives:

- ❑ A Safe Community
- ❑ A Healthy and Environmentally Friendly Community
- ❑ An Equitable and Inclusive Community



Goal 3: Build and Maintain a Modern, Innovative, and Sustainable Smart City Ecosystem

Objectives:

- ❑ Disciplined Telecommunications Strategies, Standards, and Best Practices
- ❑ Promote and Support Enterprise Data Driven Decision Making
- ❑ Build Strong Community Relationships

Challenges

- ❑ Security
- ❑ Privacy
- ❑ Fear of change
- ❑ Politics
- ❑ Legal
- ❑ Shared vision
- ❑ Prioritization
- ❑ Sustainable
- ❑ Safety



Keys to Success

- ❑ Build community trust.
- ❑ Build and maintain a quality, sustainable, and scalable Smart City ecosystem.
- ❑ Systematic approach.
- ❑ Proactive and effective communications and collaboration.
- ❑ Break down silos.
- ❑ Fiber and conduit infrastructure needs to be treated as “critical” infrastructure.
- ❑ Provide choices and eliminate barriers.
- ❑ Utilization of Data (Knowledge) – Data Sciences:

Smart City ecosystem is comprised of complex and interrelated system components

The success of the system relies on orchestrating and balancing each component for optimization

Profound knowledge generally comes from external or outside sources

A system cannot understand itself without help from an outside system



Questions?

