Bellevue Smart City Strategy Overview

Presentation to Bellevue City Council

October 5, 2015

City Council Vision Embraces Smart City

Vision Statements:

- Infrastructure is ample and in excellent condition, including roads, rails, high-speed data, reliable electricity, and clean water
- A state-of-the-art, intelligent transportation system moves people through the city with a minimum of wait times and frustration
- Bellevue is a "Smart City" with a clean, high-quality environment and excellent and reliable infrastructure that supports our vibrant and growing city, including high-tech connectivity
- Our institutes of higher learning are connected physically and digitally
- Our residents live in a safe, clean city that promotes healthy living
- We have superb infrastructure to support growing businesses and desirable residential opportunities
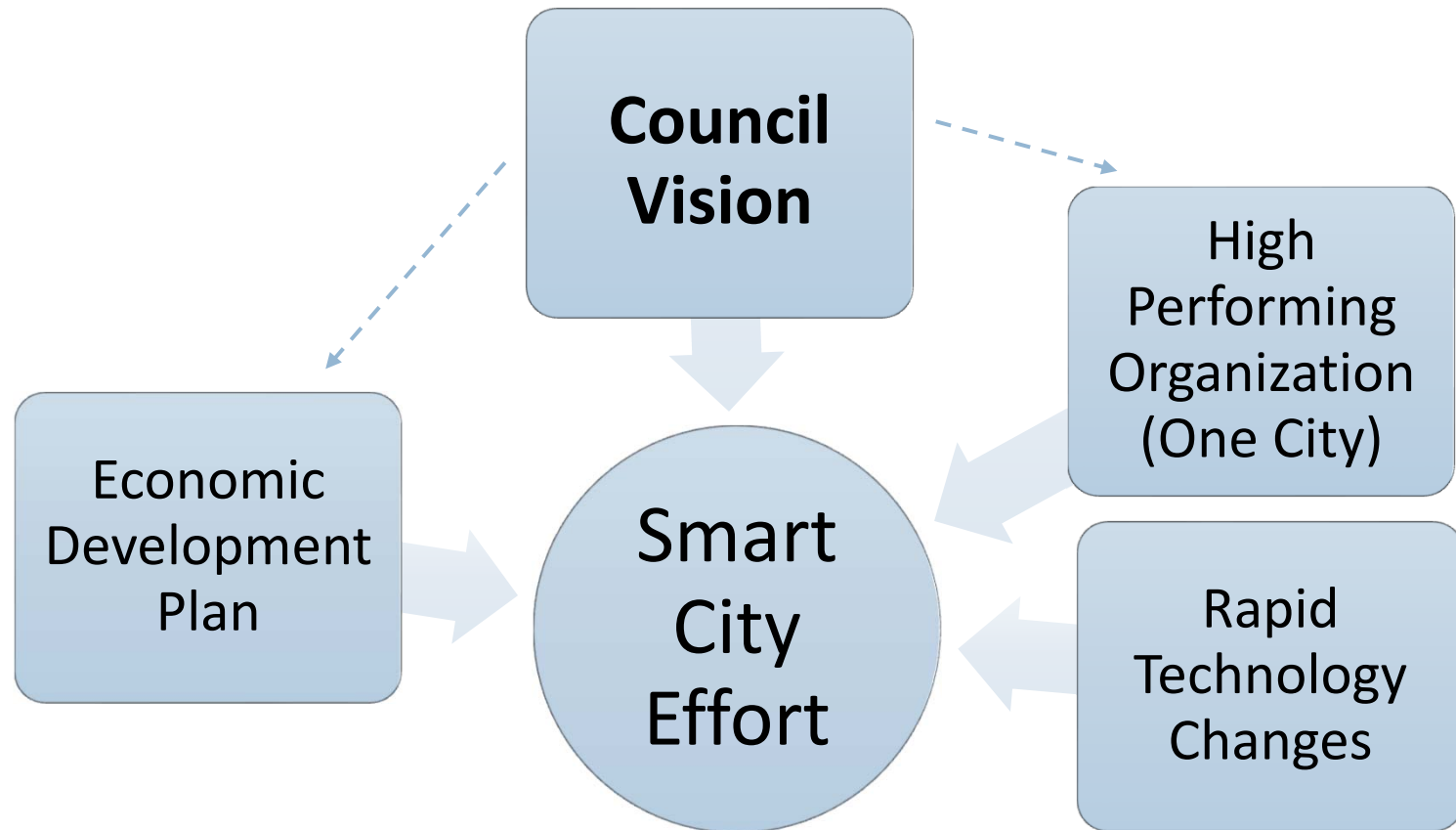
Two Year Priorities:

- Integrate our infrastructure planning with an economic development focus – departments should work collaboratively
- Develop the Smart City strategy to include high-speed data options to support business and residents and determine implementation steps
- Identify and implement technologies that improve customer service

What is a Smart City?

Collect + Communicate + Crunch ➡ Smart City

What is shaping Smart City?

Value Proposition for Citizens
Increased safety and resiliency
Energy and water conservation
Transparency and greater choices
Engaged citizens
Convenience

Value Proposition for City
Efficient operations
Faster response
More proactive actions
More resilient systems
Better informed decisions

What benefits will Smart City bring?

Livability

- Improve health and safety
- Save time
- Improve economic competitiveness
- Provide better information

Sustainability

- Save resources
- Reduce waste
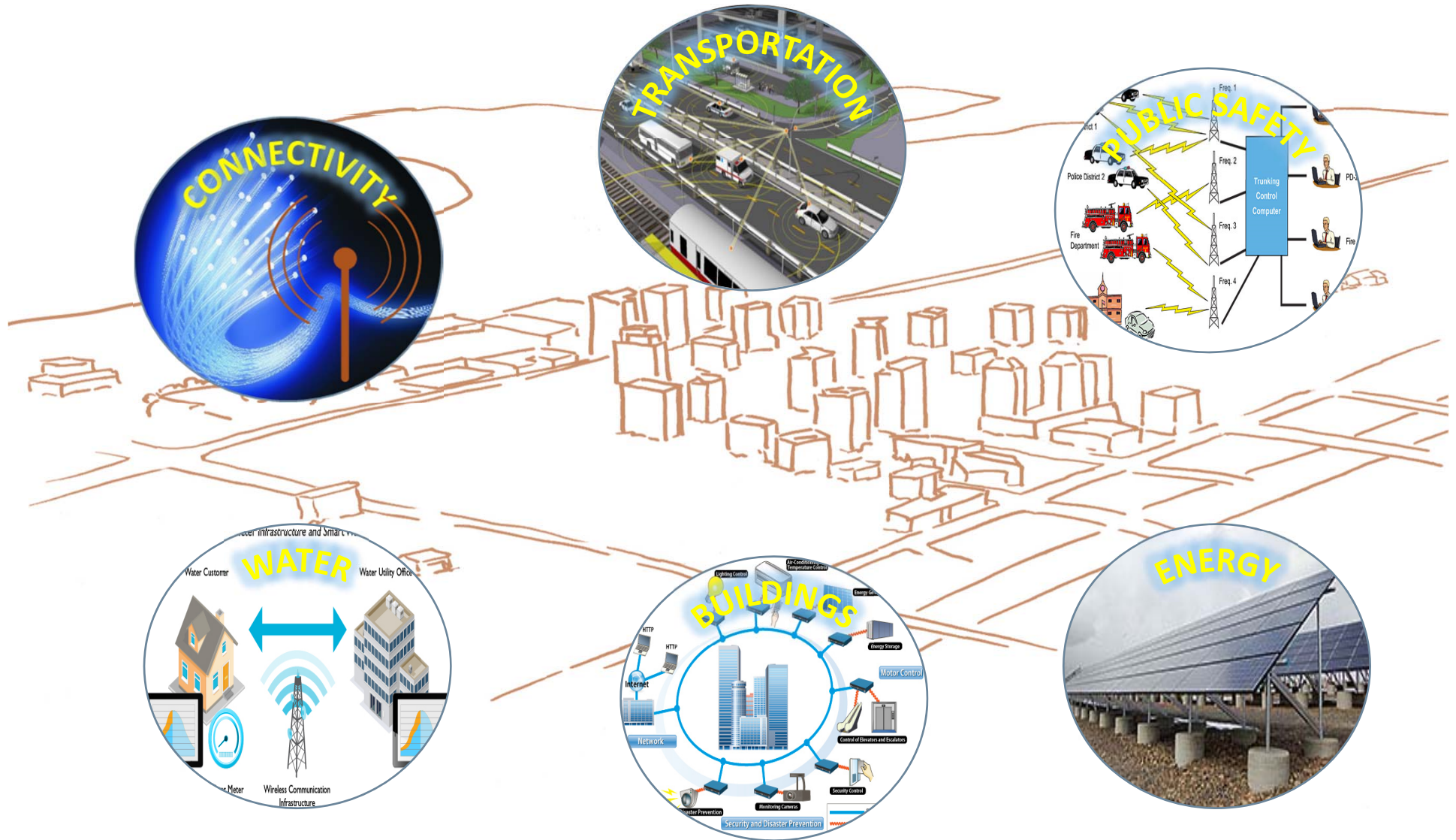- Increase operational efficiency
- Protect the environment

Resiliency

- Better prepared for emergencies
- Improve recovery from disruptions
- Increase reliability

SMART BELLEVUE Elements

Devices   Sensors   Communications   Integration   Automation   Intelligence

Smart City Maturity Model

Maturity Level	1	2	3	4	5
Standard Scale	Ad-Hoc	Opportunistic	Repeatable	Managed	Optimized
Smart City Scale	Basic access to essential urban services	Efficient operations and service delivery using targeted performance measures to improve service delivery	Defined and measured processes and systems performance to consistently meet standards of services or performance benchmarks	Integrated systems focus with cohesive and optimized strategy, planning and execution to consistently exceed standards of services or performance benchmarks	Predictive, proactive and adaptive urban systems creating integrated feedback loops across systems for the highest levels of customer experience and resiliency from major disruptions
Transportation				? →	
Water			? →		
Buildings		? →			
Public Safety				? →	
Energy		? →			
Connectivity		? →			

SMART Connectivity Element

Aligned with Council Vision:
- Bellevue is a "Smart City" with a clean, high-quality environment and excellent and reliable infrastructure that supports our vibrant and growing city, including high-tech connectivity
- Our institutes of higher learning are connected physically and digitally
- *Two Year Priority: Develop the Smart City strategy to include high-speed data options to support business and residents and determine implementation steps*

Focus
1. High-speed consumer services (internet, cable, mobile) for the community
2. Connectivity needs of public institutions (schools, hospitals, university)
3. Communications networks for Smart City systems

Existing
Fiber/conduit/light pole network, public WiFi, Public Safety Radio, Internet, Cable, Mobile

Emerging
Small cell wireless, machine-to-machine networks, Expanded WiFi

SMART Transportation Element

Aligned with Council Vision:
- Transportation is both reliable and predictable. Mode choices are abundant and safe
- A state-of-the-art, intelligent transportation system moves people through the city with a minimum of wait times and frustration

Focus

Develop, operate and maintain ITS projects/programs that improve mobility and support alternative modes of transportation.

Existing

Adaptive traffic signals (SCATS), traffic camera system, Ethernet communication system

Emerging

Street light management, solid state lighting, transit signal priority, ITS system security, video analytics

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SMART Public Safety Element

Aligned with Council Vision:
- Our residents live in a safe, clean city that promotes healthy living.
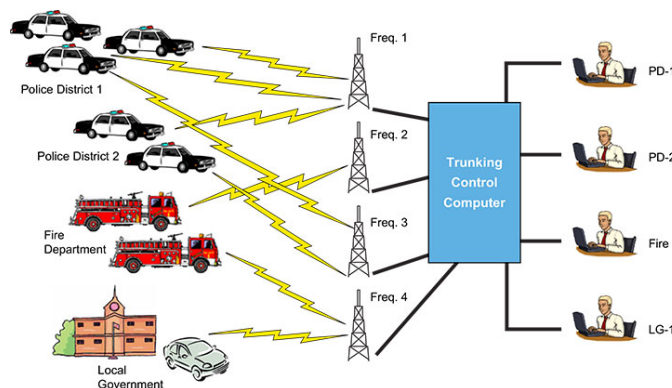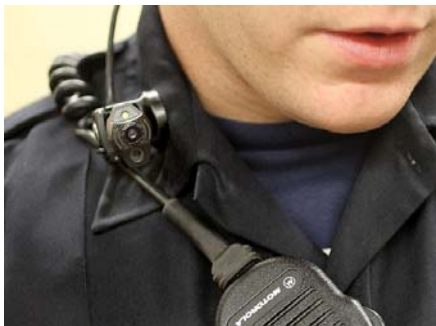- The perception of safety contributes to the success of businesses and neighborhoods.

Focus
Mobile apps for real-time incident info, integrated alerting on emergencies, hazards and accidents, dedicated public safety communications networks

Existing
911/CAD, mobile computers, vehicle tracking, mobile apps for building drawings, predictive analytics

Emerging
Next gen public safety communications

SMART Water Element

Aligned with Council Vision:
- Infrastructure is ample and in excellent condition, including roads, rails, high-speed data, reliable electricity, and clean water
- Identify and implement technologies that improve customer service
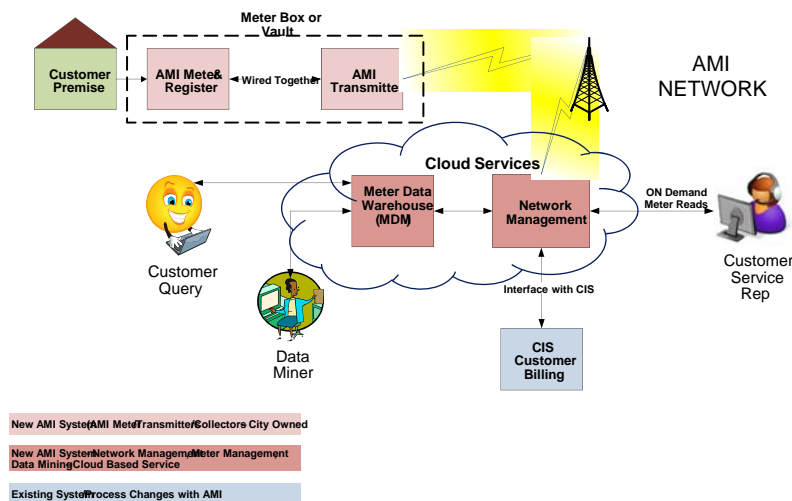
Focus
Efficient water operations, real-time meter reading, predictive analysis, mobile work crews, remote control

Existing
SCADA, GIS

Emerging
Advanced Meter Infrastructure

SMART Buildings Element

Aligned with Council Vision:
- Bellevue is a "Smart City" with a clean, high-quality environment and excellent and reliable infrastructure that supports our vibrant and growing city

Focus

Efficient, safe and comfortable buildings, networked/software-driven building systems, information to motivate behavior changes, integrated building systems for demand-management

Existing

Building systems (security, HVAC, lighting, etc.), smart electrical meters, Bellevue Urban Smart

Emerging

Smart water meters

Smart Energy Element

Aligned with Council Vision:

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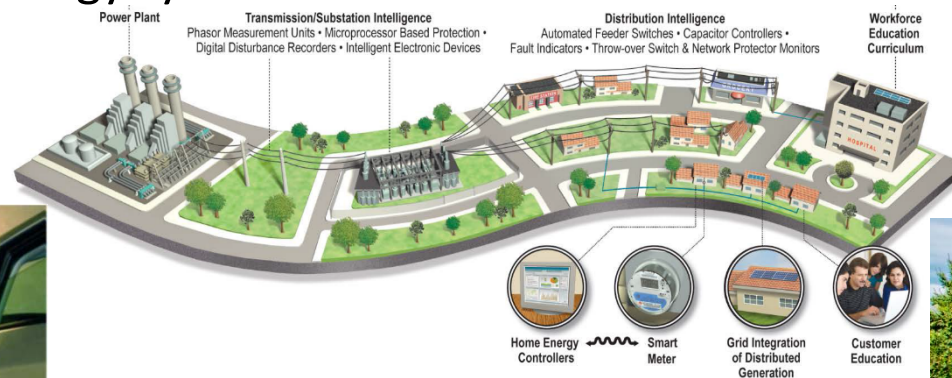
Focus

Energy conservation, renewable energy generation, efficiency incentives, near-zero waste, influencing Smart Grid efforts
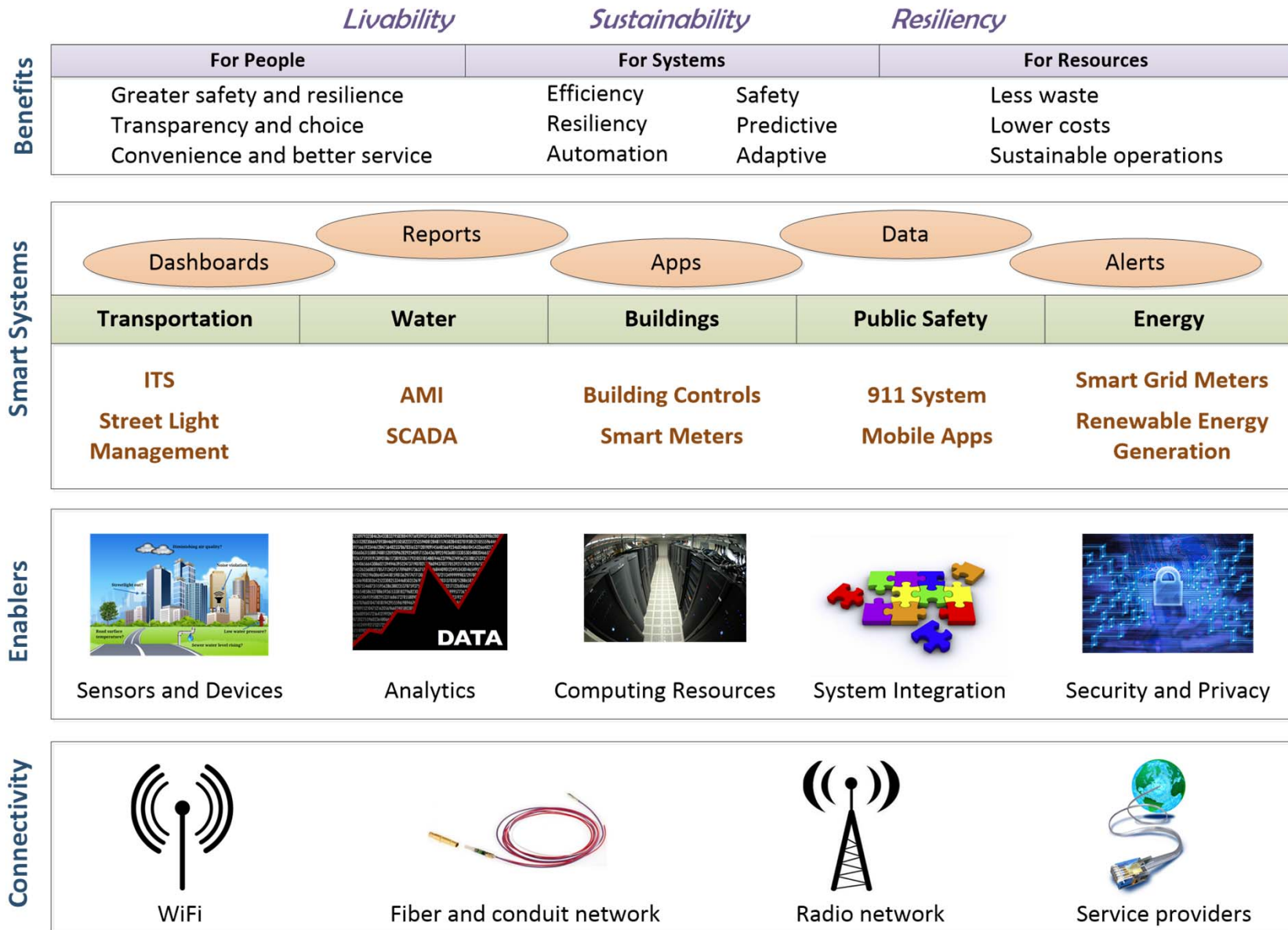
Existing

Smart Grid meters, Solarize Bellevue
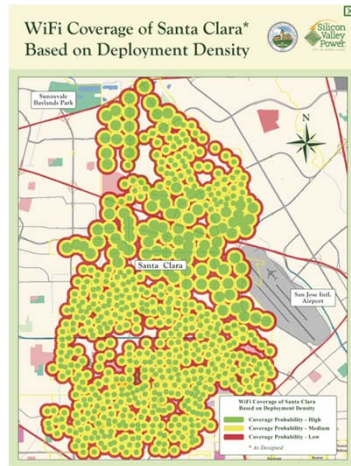
Emerging

Renewable energy systems

Putting it all together…

Benefits

	Livability	Sustainability		Resiliency
For People	**For Systems**		**For Resources**	
Greater safety and resilience	Efficiency	Safety	Less waste	
Transparency and choice	Resiliency	Predictive	Lower costs	
Convenience and better service	Automation	Adaptive	Sustainable operations	

Smart Systems

Dashboards · Reports · Apps · Data · Alerts

Transportation	Water	Buildings	Public Safety	Energy
ITS
Street Light Management	AMI
SCADA	Building Controls
Smart Meters	911 System
Mobile Apps	Smart Grid Meters
Renewable Energy Generation

Enablers

Sensors and Devices · Analytics · Computing Resources · System Integration · Security and Privacy

Connectivity

WiFi · Fiber and conduit network · Radio network · Service providers

Where should Bellevue be on the Smart Continuum?

Silicon Valley Power advanced metering and free WiFi in Santa Clara

Rio de Janiero Integrated Operations Center

Seattle WhichBus app

Smart systems in place that meet performance benchmarks

Predictive, integrated, real-time adaptive systems and operations that exceed benchmarks

Basic access to urban services

Next Steps

- Regional Workshop
- Refine Smart City Maturity Model
- Develop Project Portfolio
- Draft Smart City Strategy
- Follow Up Discussions with Council