

BELLEVUE
SMART

Planning for a Smarter City

February 12, 2018

Intelligent Water Summit

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Desired Outcomes

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. The city has a connected multi-modal transportation system, which blends seamlessly with its buildings, plazas and parks.



- **Livability:** safety, health convenience, quality of life
- **Sustainability:** reducing waste, increasing efficiencies, protecting the environment
- **Resiliency:** effective emergency response, faster recovery

Smart City Elements

<p>Connectivity </p> <p>Improve consumer services and communications infrastructure, through an emphasis on increasing high-speed communications</p>	<p>Transportation </p> <p>Improve ways for people to move around the city safely and efficiently</p>	<p>Public Safety </p> <p>Further integrate infrastructure, services, agencies, and personnel that Bellevue calls on to keep residents and visitors safe</p>
<p>Water </p> <p>Ensure high-quality delivery of water services to homes and businesses to minimize disruptions and increase customer service</p>	<p>Buildings </p> <p>Enhance building systems and analytics to improve building systems performance, resource conservation and efficiencies</p>	<p>Energy </p> <p>Improve and integrate energy systems to ensure sufficient, efficient and reliable energy that power all systems our modern digital society uses</p>

Smart Water

Water



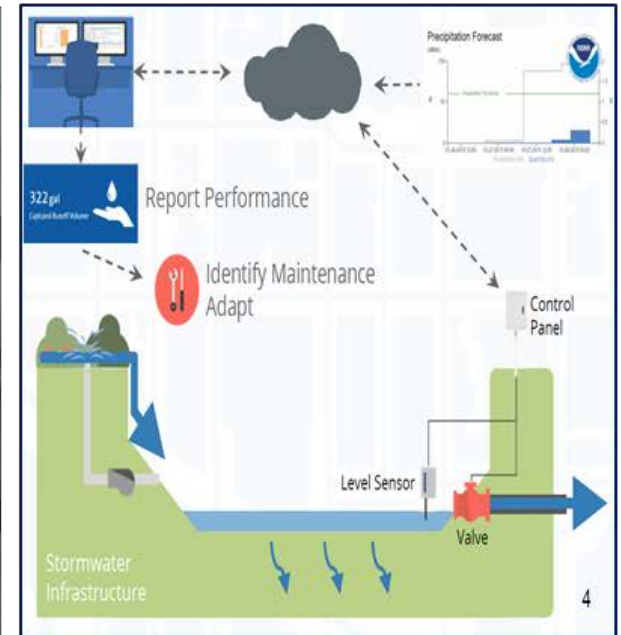
SMARTwater
BELLEVUE



Advanced Metering






Proactive Detection



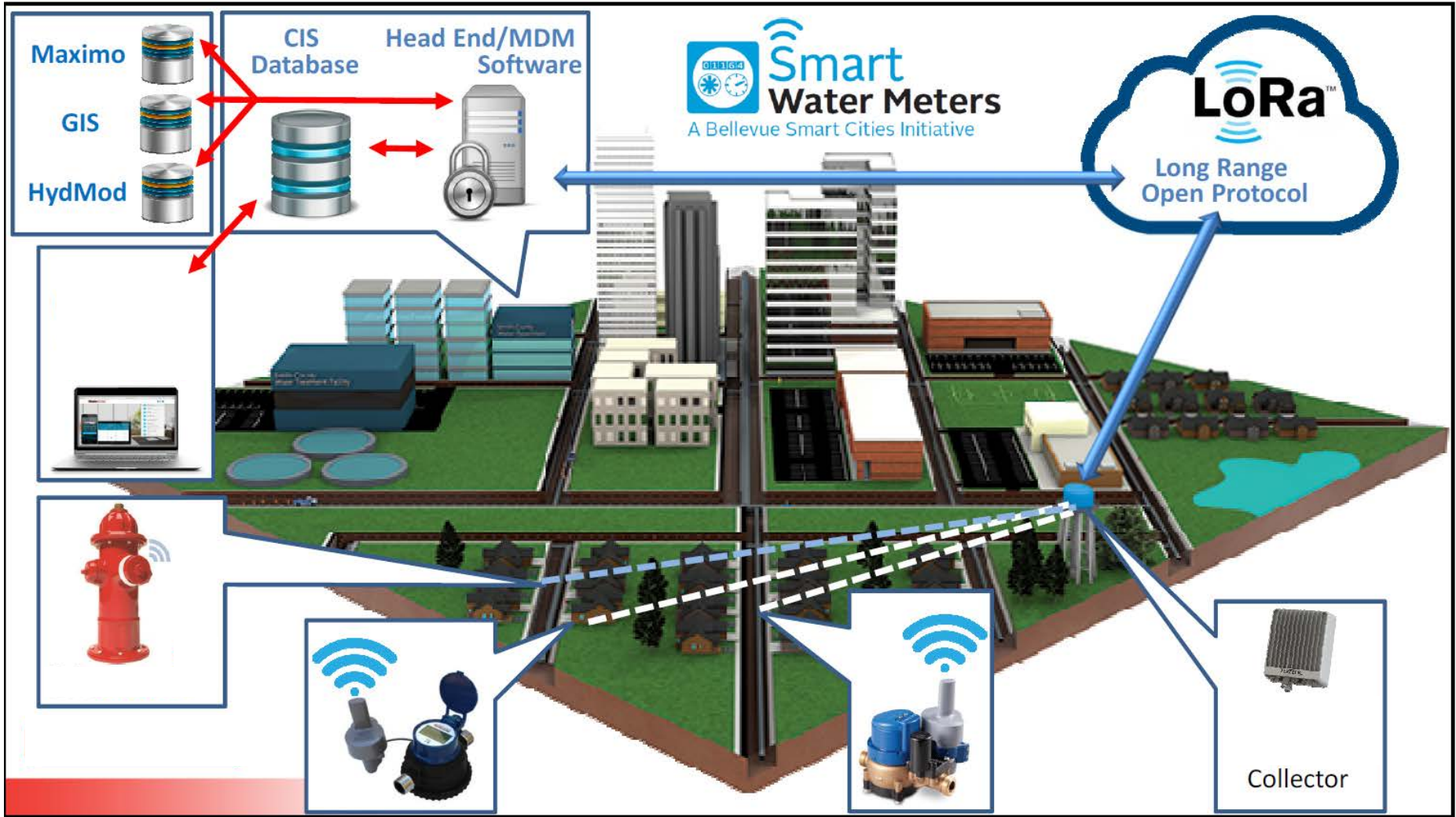
Predictive Operations

Smart Water Maturity Assessment

Maturity Index	1	2	3	4	5
Standard Scale	Ad-Hoc	Opportunistic	Repeatable	Managed	Optimized
Integrated Asset Management					
System Operation					
Metering					

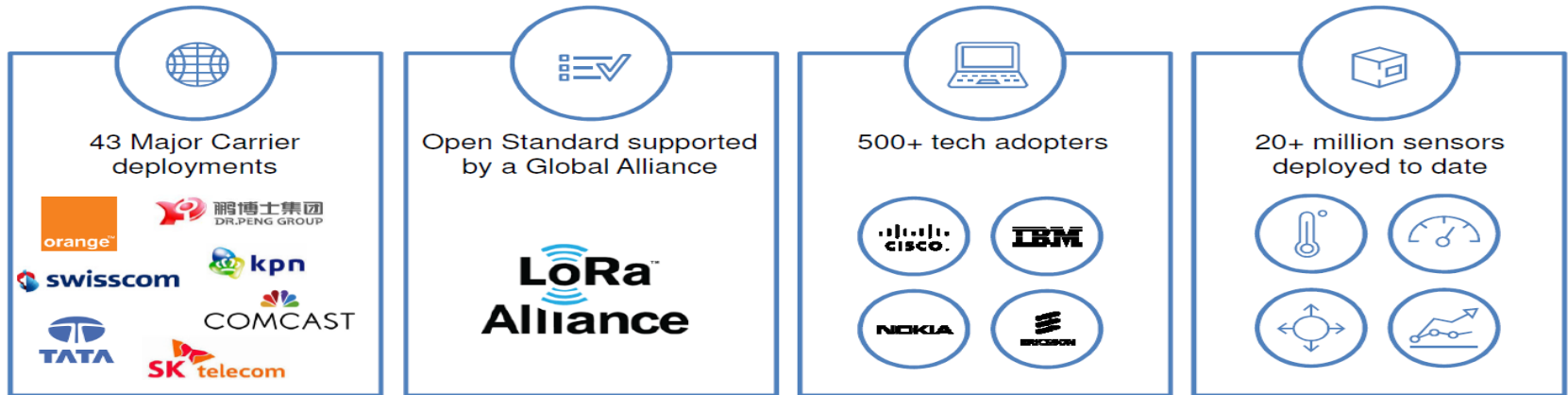
- We assess the Water Element as a Level 2 (Opportunistic), with a goal to achieve a Level 4 (Managed) in 3-5 years.
- This improvement still depends on the investment priority of budget and design, but the advancement may have chances to happen through investing real-time data collection and analysis tools, enhancing data sharing and system integration among multiple data sources, and interactive metering system to manage demand response and public engagement.

Advanced Metering System Overview



LoRa Communications Network

Leading global carriers and technology companies have adopted LoRa as the open standard for the IoT creating a vibrant ecosystem of connected devices and applications



LoRa is an internationally recognized communications protocol for battery-based devices that support the industrial internet of things (Smart City) applications

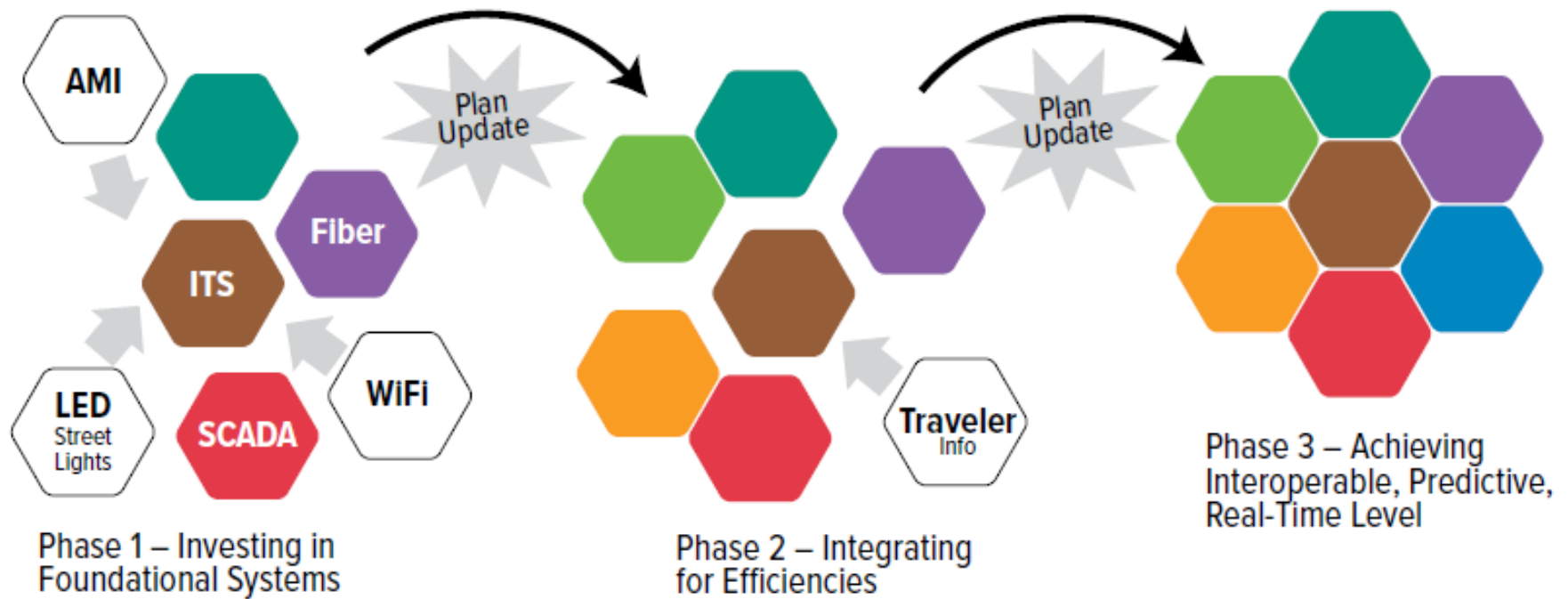
Courtesy: Mueller/Comcast



Open standards based platform for Smart Cities

Leak Detection, Pressure & Flow	<ul style="list-style-type: none"> Remotely monitor status of water delivery infrastructure VALUE: Receive early detection of leaks before they cause major damage or public disturbance 	
Manhole Monitoring	<ul style="list-style-type: none"> Identify when manhole covers are opened VALUE: Avoid dangerous pedestrian conditions and security risks 	
Waste & Recycling	<ul style="list-style-type: none"> Equip dumpsters and trash bins with fill-level sensors VALUE: Optimize collection from waste vendor; avoid overflow 	
Parking	<ul style="list-style-type: none"> Sensors monitor occupancy in space/lots and enable metering VALUE: Identify available spaces and monitor for enforcement 	
Outdoor Lighting	<ul style="list-style-type: none"> Monitor for outages and control luminosity of LED Lighting VALUE: Realize cost savings from reduced energy consumption and operational efficiencies, in addition to public safety awareness 	
Rodent and Pest Control	<ul style="list-style-type: none"> Traps send real time notification of "capture" events VALUE: Reduce staff time required to check traps and avoid negative resident/customer experiences 	

Integrating Smart City Systems



↑ Current Phase

Smart City Dashboard

Bellevue Dashboard

107.20.242.230/app/?landingview

Atlantis

Dashboard | Map View | Reports

City: Bellevue

Online Water Quality Management

Smart Parking

Building Management

Smart Lighting

Energy Saving

Air Quality

Water Distribution

Leaflet | Powered by Esri | City of Bellevue, City of Burien, City of Kirkland, City of Renton, City of Seattle, County of Kitsap, County of King

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Questions?



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BellevueSmart Plan

https://bellevuewa.gov/UserFiles/Servers/Server_4779004/File/pdf/IT/mc2352A-Smart-Cities-Strategic-PlanWEB.pdf