

Smart Cities & Service Improvements Committee

Citywide Data Architecture

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How we work

CHAMPION
THE
CUSTOMER

LEARN
THROUGH
DATA

ITERATE
TO
IMPROVE

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DATA



PATTERNS

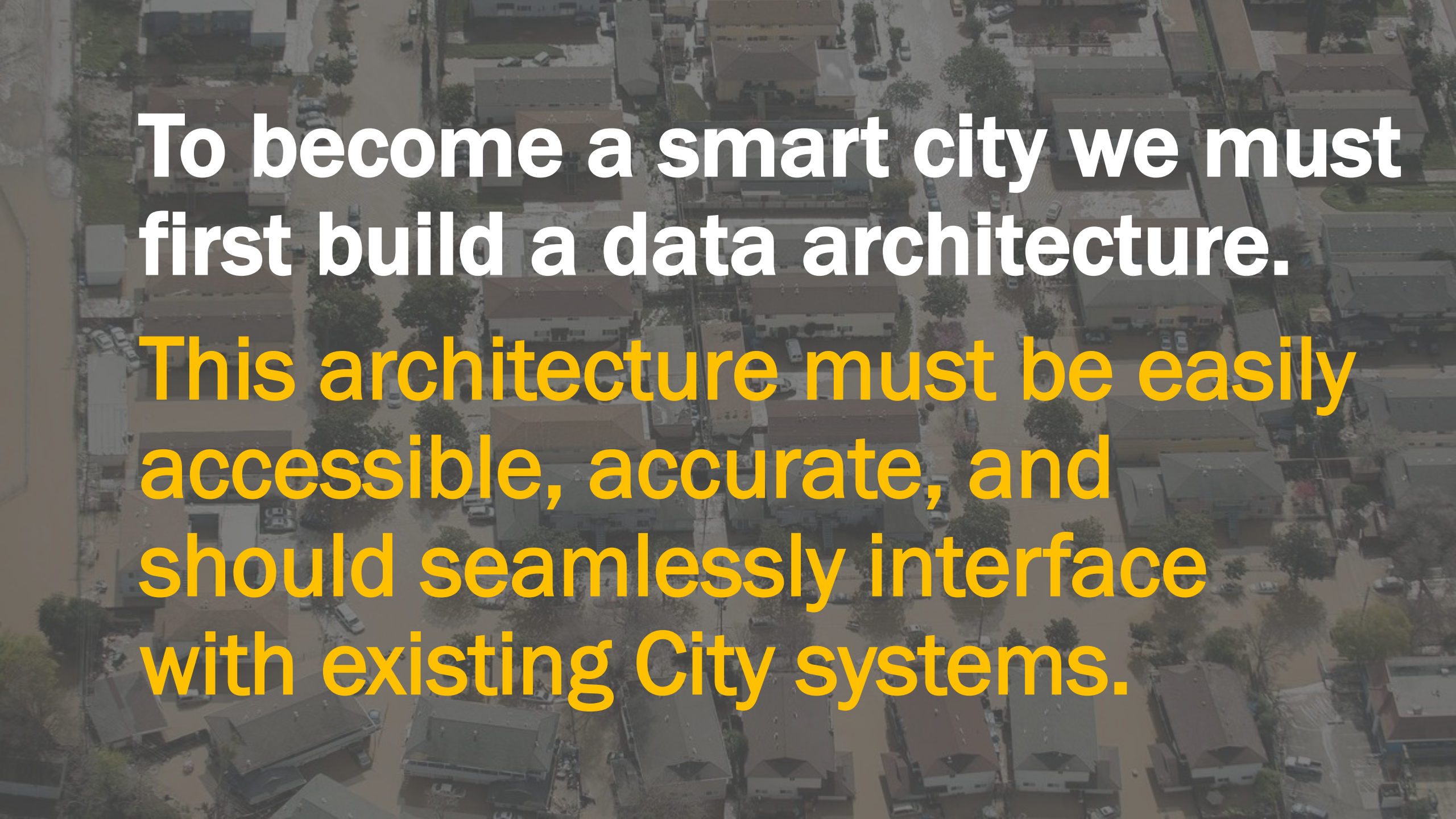


INSIGHTS



ACTION



An aerial photograph of a city street grid, showing rows of houses and trees. The image is semi-transparent, allowing the text to be clearly visible over it.

To become a smart city we must first build a data architecture.

This architecture must be easily accessible, accurate, and should seamlessly interface with existing City systems.

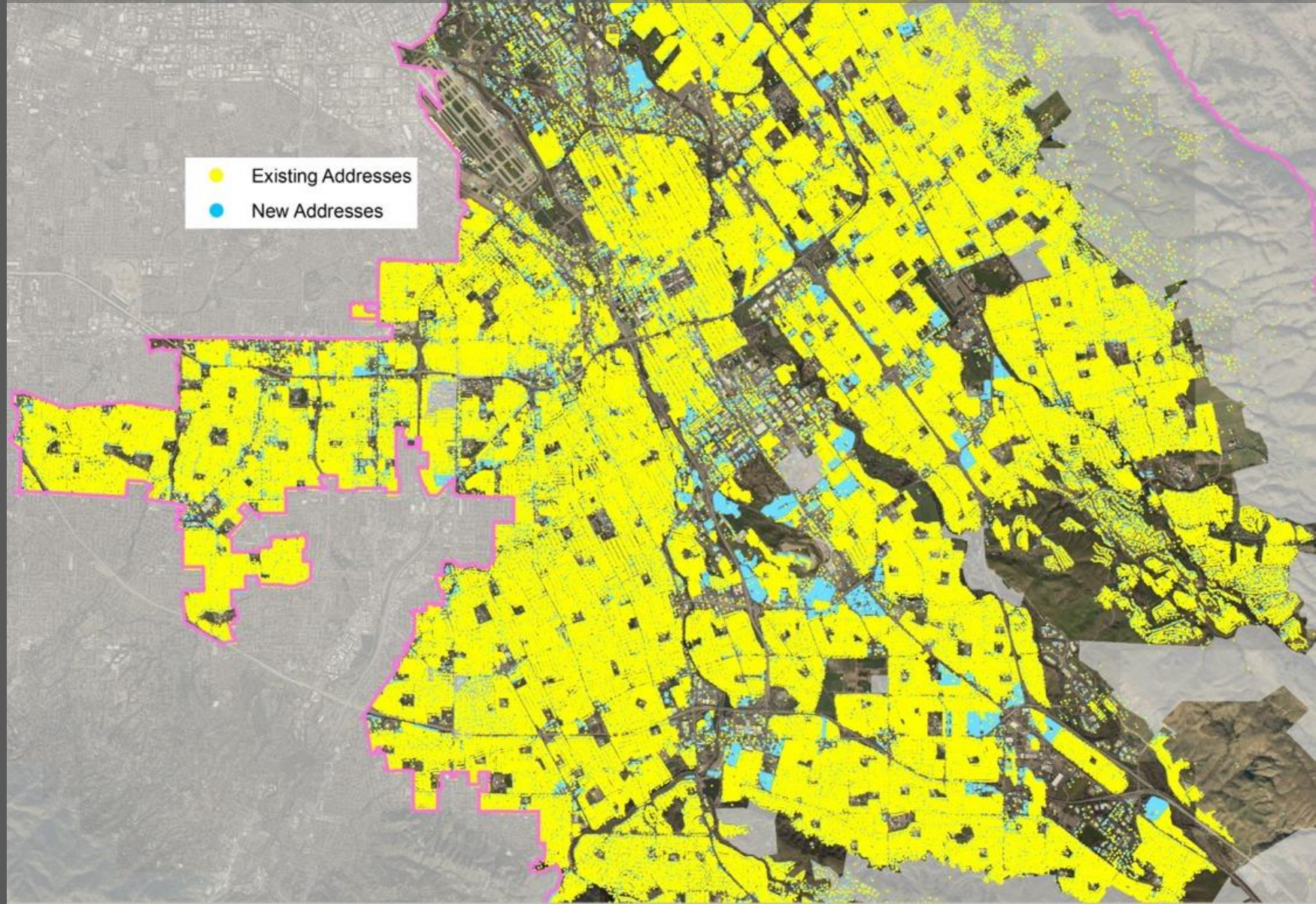
Over 100,000 new
addresses added
(39% increase)

Total of 367,000
reliable addresses

Standardized
format

Process for ongoing
maintenance

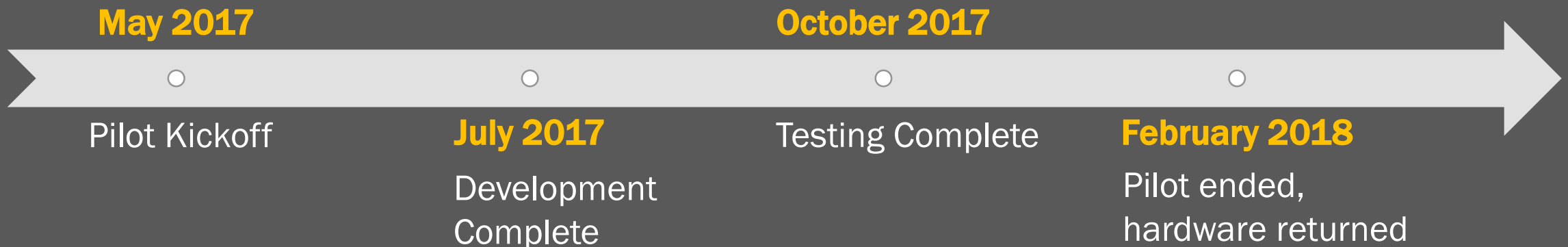
Master Address Database



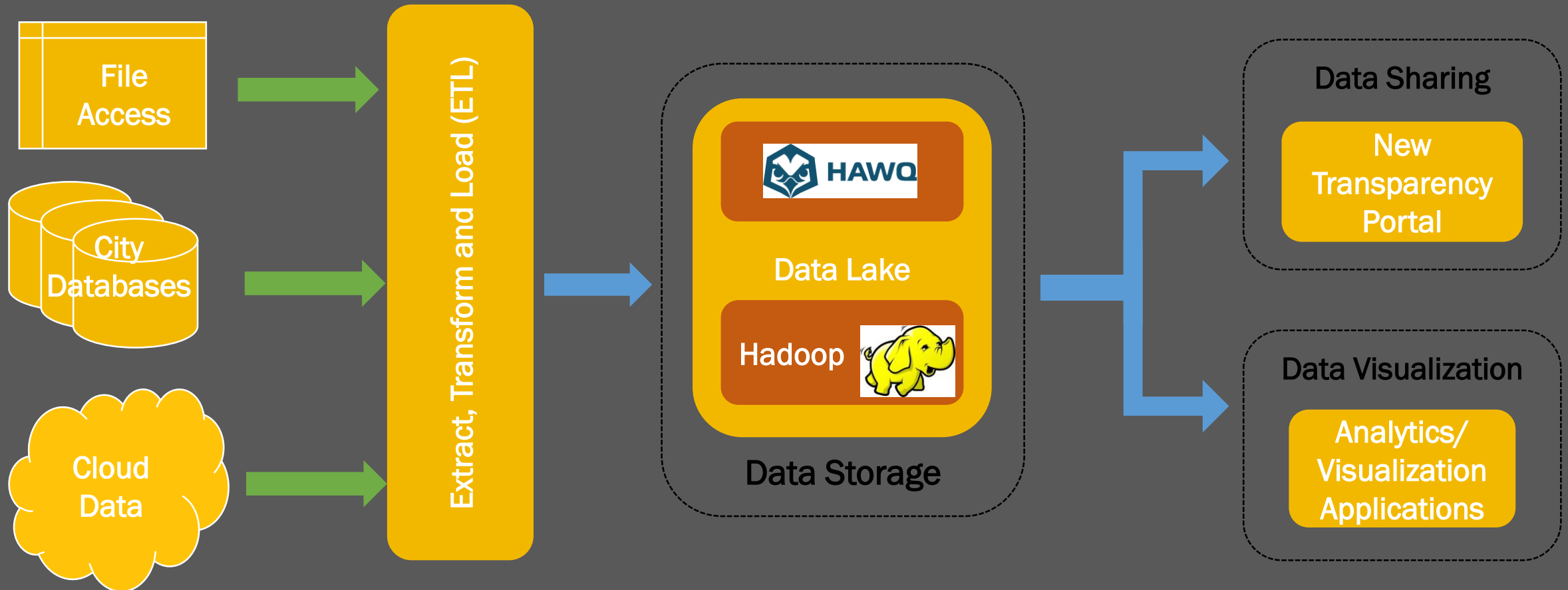
Our architecture must meet the needs of our growing data infrastructure.

- ✓ Highly Adoptable: Open Source
- ✓ IoT Scale: Hadoop and Big Data
- ✓ Secure: At all levels
- ✓ Sharing: Cataloging and Publishing

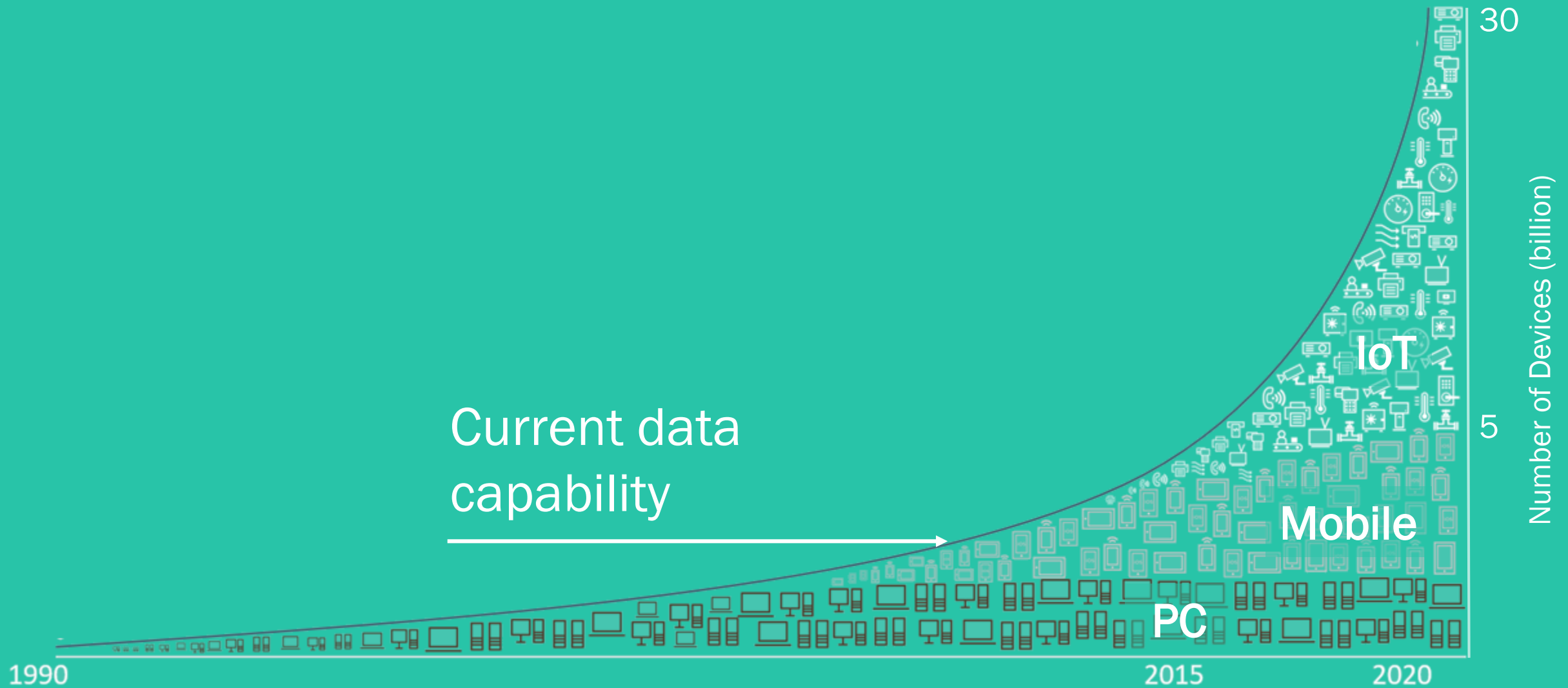
Data Architecture Proof of Concept Pilot Timeline



The Target Citywide Data Architecture streamlines our data journey for easy ingestion, transformation and extraction.



Our current data capability is not sufficient given expected growth in devices.



We need a Citywide Data Strategy to deliver efficient and effective services.

Comprised of three elements:

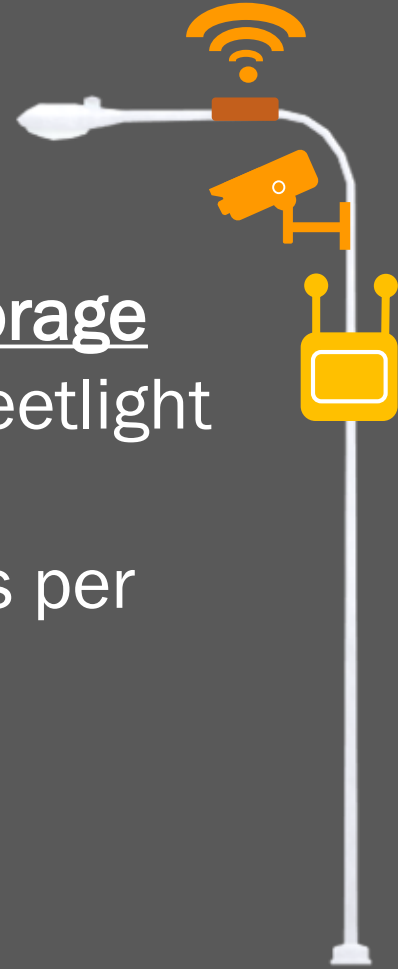
- (1) Data Infrastructure and Storage,**
- (2) Data Visibility and Analytics,**
- (3) Data Governance.**

Data Infrastructure and Storage

- Invest in Big Data Storage
 - On-Premise
 - Off-Site (Cloud)
- Maintenance and Support
- Single Extract Transform and Load tool
- Training
- Hiring advanced skill levels

Example of Sensor Data Storage

50 GB/year/streetlight
69K streetlights
3.5M terra bytes per
year



Data Visibility and Analytics

- Share Data internally and externally
- Tell Data Stories
- Consolidate Data Portals
- Advanced Analytics Tools and Machine Learning
- Training

Data Governance

- Data Privacy
- Data Security
- Data Policy
- Data Standardization
- Data Stewardship
- Data Audits and Compliance

DATA



PATTERNS



INSIGHTS



ACTION



The background of the slide is a photograph of a modern, multi-story building with large windows and balconies. The building is partially obscured by lush green trees and bushes in the foreground. The overall scene is bright and sunny, suggesting a pleasant urban environment.

**Advanced analytics shows us
how to become a smarter city.
We can take action to prevent
loss of life and property for our
most at risk population.**

The model performed 8% better in identifying buildings with violations.



Current Strategy Inspections



Inspections Selected by Model

We need investment to deliver efficient and effective services through data.

Data storage, data insights, data governance = \$2M-3.5M