



Accelerating Sidewalk Repairs with Data & Slicing

One City's approach to solving a sidewalk backlog through data
planning and strategic repairs





Table of Contents

- Introductions
- Session Goals
- The Problem
- Sidewalk Management
- Funding Strategies
- Data Collection
- Slicing Repairs
- Remove and Replace
- Strategic Asset Management
- Organizational Impacts
- Q&A

Meet the Presenters



Sean Smith

srsmith@sunnyvale.ca.gov

Deputy Director of Public Works Operations

City of Sunnyvale

Leads teams across Streets, Lighting, Fleet, and Facilities while driving process improvements, delivering capital projects, and fostering a culture of growth and success.



Joseph Ortega

jortega@pccnorcal.com

Vice President & Co -Owner

Precision Concrete Cutting (PCC) & DataWorks

Oversees business development and operations. With 17+ years' experience, he partners with cities on ADA compliance, asset management, and sidewalk safety programs.



Session Goals



Learn Data-Driven Planning

Discover how GIS technology and mobile data collection transform sidewalk management.



Master Cost-Effective Repairs

Combining multiple repair techniques to maximize budget and repairs.



Build Strategic Partnerships

Discover how strong public-private collaboration and effective project management tools can build lasting partnerships, streamline delivery, and make every dollar count.



City of Sunnyvale

Public Works Operations

Mission: Construct, maintain and improve City's facilities and infrastructure through the application of timely, effective and quality services to the citizens and businesses in Sunnyvale



Transportation
and Streets



Sidewalk
Maintenance



Facilities



Fleet



Project
Administration



Precision Concrete Cutting (PCC) & DataWorks

Precision Concrete Cutting

A recognized leader in sidewalk asset management.

- Leader in North America with 80 locations across 50 states
- Holds 11 Patents for US PTO in sidewalk trip hazard repair
- PCC CA: 6 Offices in State
- PCC NorCal: 3 locations, 25 years of experience, 100 dedicated employees



DataWorks

Specializing in advanced right-of-way asset management solutions.

- Provides asset management software paired with efficient field data collection
- Founded in 2022 as an affiliate of PCC
- Building on PCC's legacy, which began condition assessments in 2003
- 3 Patents Pending



The Sidewalk Crisis

Challenges Facing Municipalities

Lack of Funding – Most cities allocate less than 5% of infrastructure budgets to sidewalks

ADA Compliance – Legal mandates require accessibility upgrades with limited funding

Rising Liability Costs – Trip-and-fall claims cost municipalities millions annually

Limited Staff – Vacancies and a limited pool of staff strains project delivery

Perception of Poor Contractor Relations – Previous experiences can create hesitation and limit trust in partnerships

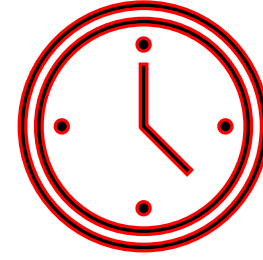
Non-Inclusive Project Teams – When collaboration is limited, innovation, efficiency, and shared ownership suffer



Sidewalk Damage Causes



Tree Root Damage



Infrastructure Age



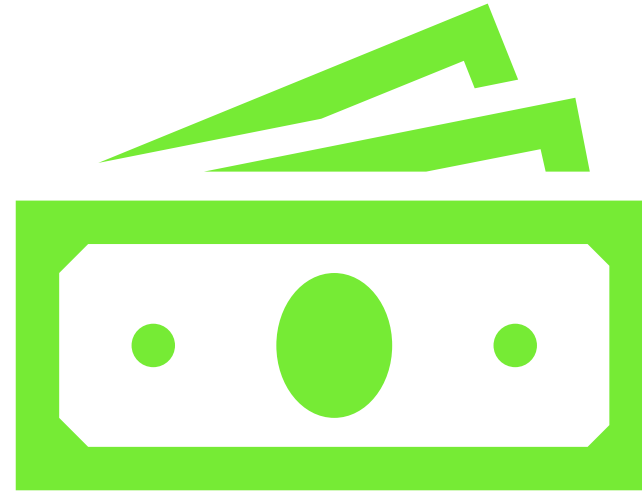
Environmental Factors



Sunnyvale's Challenge



5,000+
Addresses



\$50M
Estimated Cost



15-20
Years to Completion

**These numbers represent a common scenario facing municipalities nationwide —a maintenance backlog that grows faster than available resources can address it.*

Traditional Management

“Currently we are experiencing a backlog of more than 4,500 locations throughout Sunnyvale in need of repair.”
– City of Sunnyvale Public Works

No.	Date Reported	Zone	Street #	Street Name	Cross Street
1	09/29/14	1	1003	Borregas Av	Garner Dr
2	09/29/14	1	1005	Borregas Av	Garner Dr
3	09/26/14	1	1009	Borregas Av	Garner Dr
4	09/29/14	1	1013	Borregas Av	Garner Dr
5	09/29/14	1	1017	Borregas Av	Garner Dr
6	07/30/14	1	1058	Burntwood Av	Sandia Av
7	01/31/14	1	739	Calgary Dr	Meadowlake Dr
8	12/03/14	1	954	Colusa Av	E Duane Av
9	02/06/14	1	330	Hiddenlake Dr	Lakefair Dr
10	02/03/14	1	735	Lakebird Dr	Meadowlake Dr
11	08/14/14	1	1081	Lakebird Dr	Lawrence Ex
12	08/14/19	1	1252	Oak Creek Wy	Sandia Av
13	08/18/14	1	1260	Oak Creek Wy	Sandia Av
14	08/26/14	1	1261	Oak Creek Wy	Sandia Av
15	08/26/14	1	1265	Oak Creek Wy	Sandia Av
16	08/26/14	1	1269	Oak Creek Wy	Sandia Av
17	08/27/14	1	1206	Prescott Av	Fairwood Av
18	09/03/14	1	1210	Prescott Av	Fairwood Av

Traditional Approach

REPAIR STRATEGY

- No in-house resources
- Short-term fixes
- Concrete Grinding
- High costs of labor, materials, and contractor markups
- Bidding and scheduling delays
- Disruption to residents and access
- Limited contractor capacity

PROGRAM MANAGEMENT

- Manual Excel Tracking
- Paper Work Orders
- Reactive Solutions
- Complaint Driven work
- Unpredictable Budget
- Incomplete Hazard Logs
- No Measurable Performance Tracking



Date Entered	Zone	Street #	Street Name	Cross Street	Sw			Cg	Dw Sw			Apron			Park Strip	ADA	Tree Removal	Comments
09/23/14	10	1448	Dove Ln	Chesire Wy	9	4.5	40.5	33	9	4.5	40.5							9/10/24: Did not see location on 2023 Project List. Copied info from Dead Master List. Grind 5, Ramp 10. 9/10/24: Re-ramp 40.

Funding & Budget

1

Capital Improvement Programming

Integrate sidewalk repairs into 20-year CIP cycles with data-supported prioritization and cost projections.

2

Grant Opportunity Alignment

Leverage federal and state infrastructure funding by demonstrating ADA compliance and accessibility improvements.

3

ROI Documentation

Use comprehensive data collection to measure cost savings, liability reduction, and community impact metrics.

Data-driven approaches provide the documentation and metrics necessary to secure sustainable funding and demonstrate fiscal responsibility to elected officials and taxpayers.



The Hybrid Approach Overview

Sunnyvale's hybrid approach combines field data, GIS prioritization, slicing repairs, and targeted replacements to reduce backlog while maximizing funding.



Field Assessment Inventory

Comprehensive mobile data collection across 5,000+ addresses with real-time condition assessment and GPS-accurate documentation.



GIS Planning

Data-driven prioritization by severity, location, and budget constraints with integrated capital planning dashboard.



Precision Repairs

Strategic deployment of slicing techniques for 30% of addresses at dramatically reduced costs compared to replacement.



Targeted Replacement

Separate contractors who repair locations requiring full replacement with continuous workflow tracking.



Strategic Partnership

"It's amazing what you can accomplish when no one cares who gets the credit."
— **Bill Belichick**

Shared investment —
both teams equally
committed to project
success.

Collaborative mindset
— open exchange of
ideas and timely,
constructive feedback.

**Transparent
communication** — we
over-communicate to
stay aligned and
proactive.

**Challenging the status
quo** — exploring
innovative project
delivery methods.

Strategically aggressive
— focused on forward-
thinking solutions and
measurable outcomes.

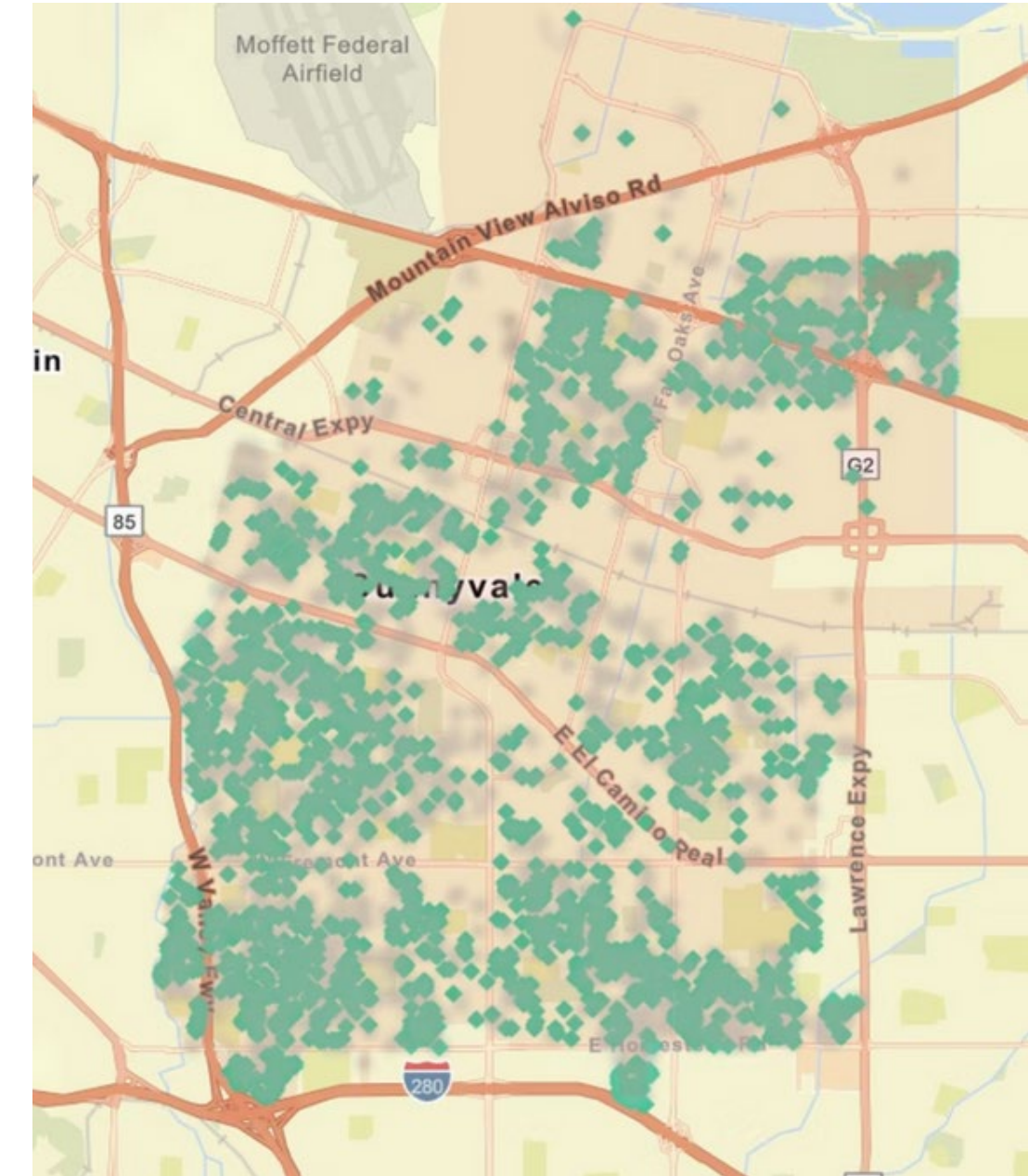
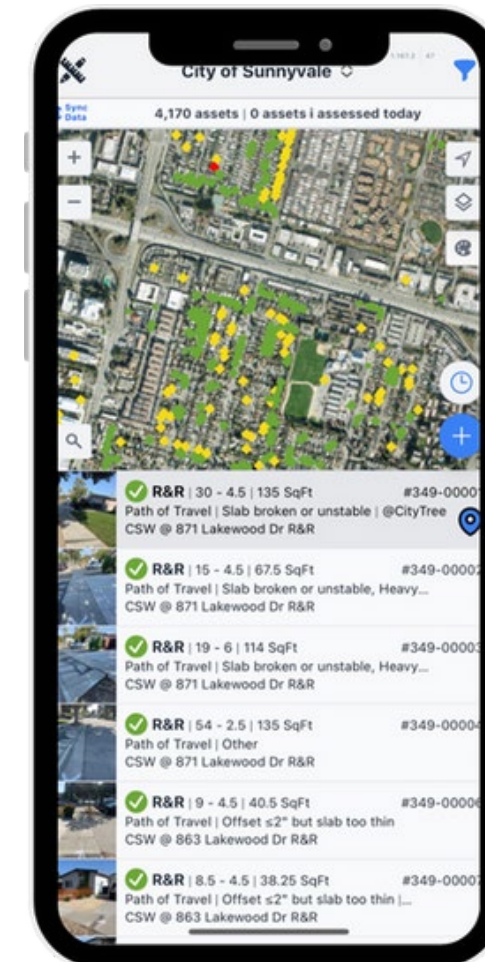
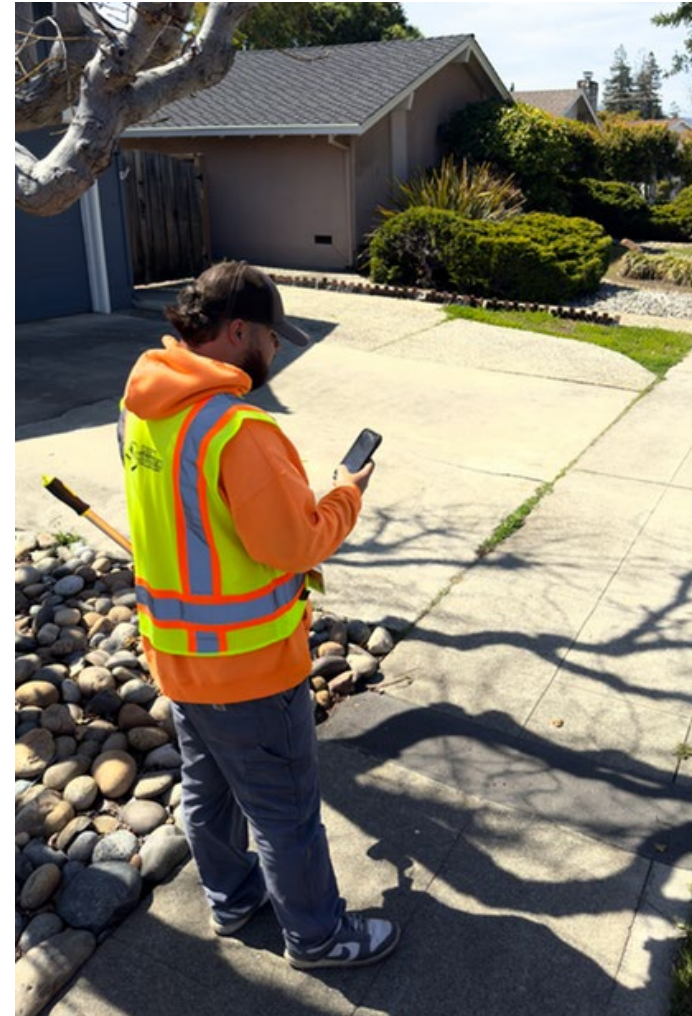
Data-driven connection
— information and
insights serve as the
common language
guiding decisions.



Data Collection

Initial Assessment

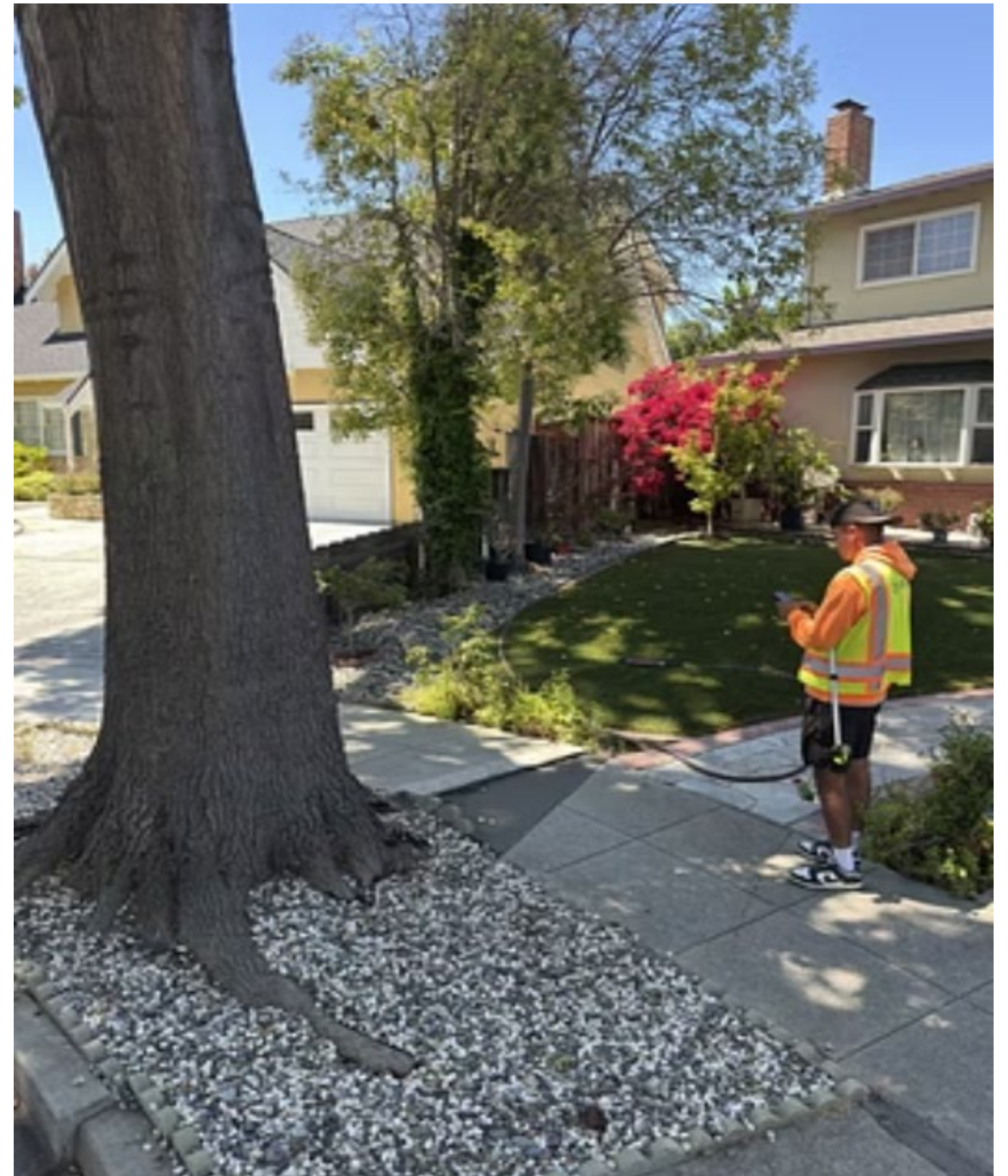
- 2,600 Locations
- Collect Repair Data
- Desktop Data Scrubbing
- Comprehensive Condition Analysis



Field Assessment

Condition Assessment

- Sidewalks
- Curb & Gutter
- Driveway Apron
- Park Strip



Field Assessment – Remove & Replace

Replacement Criteria

- Lifted > 2"
- Cracked & Spalling
- Structural Damage
- Drainage



Field Assessment – Slicing Criteria

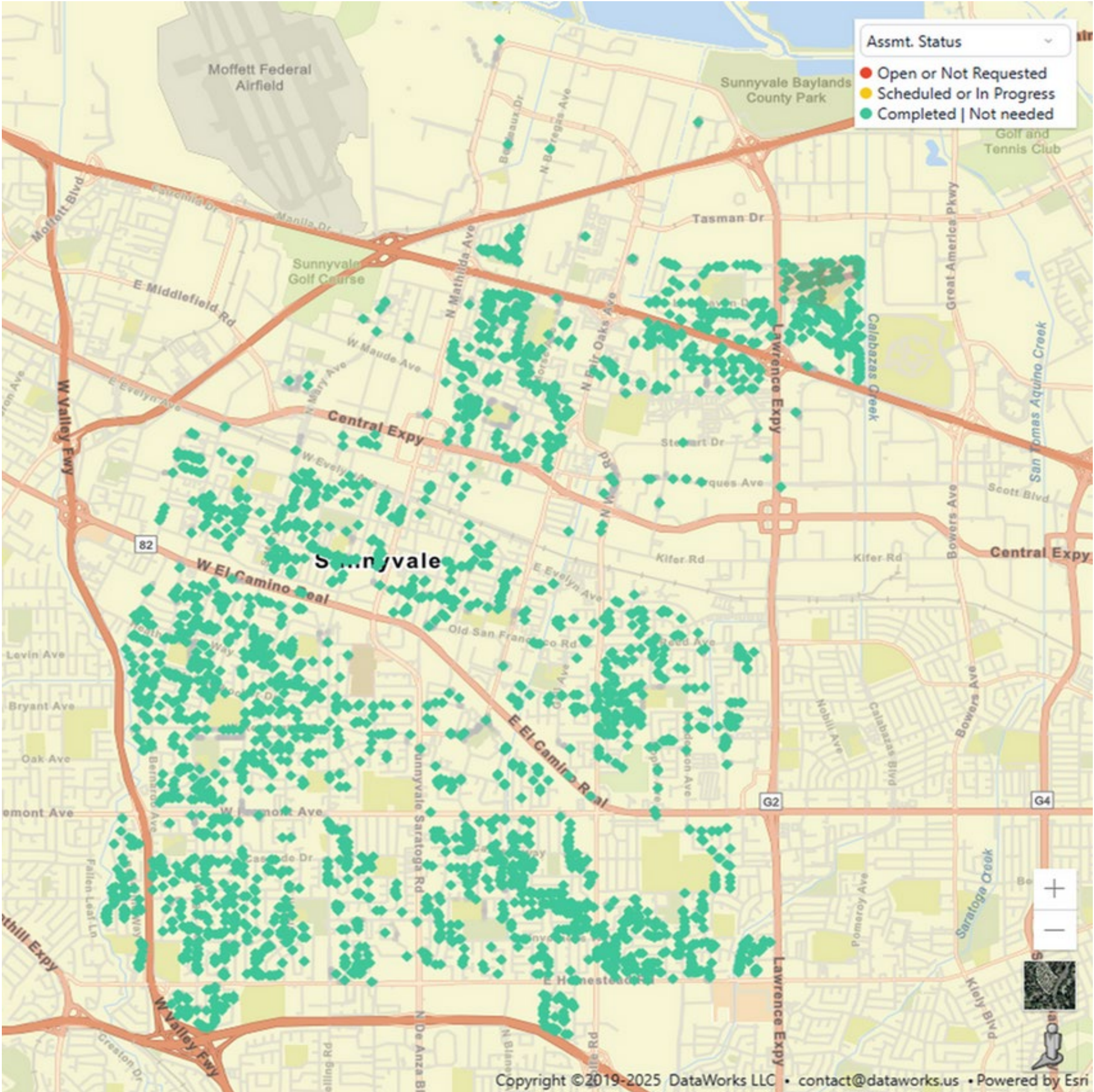
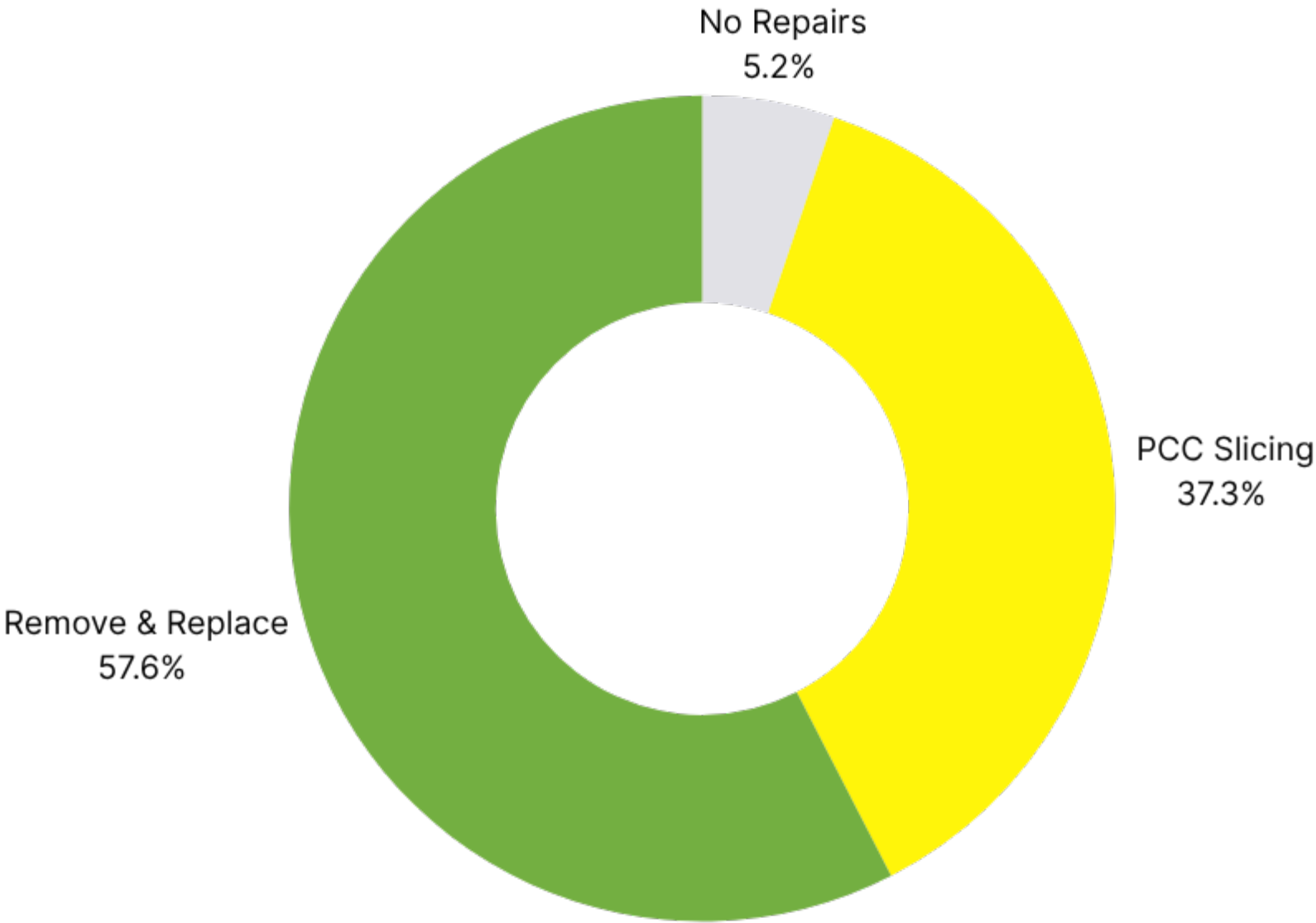
- Offsets 0.5" – 2.0"
- Stable and not cracked



Phase 1 - Assessment Results

Estimated Cost:

- PCC Slicing Cost: \$467,000
- Remove & Replace: \$7,000,000





Phase 1 – Slicing Data

1,036

Addresses

Locations repaired
using precision slicing

4,000+

Off - sets

Individual repairs
completed

\$467K

Total Cost

Investment in slicing
repairs

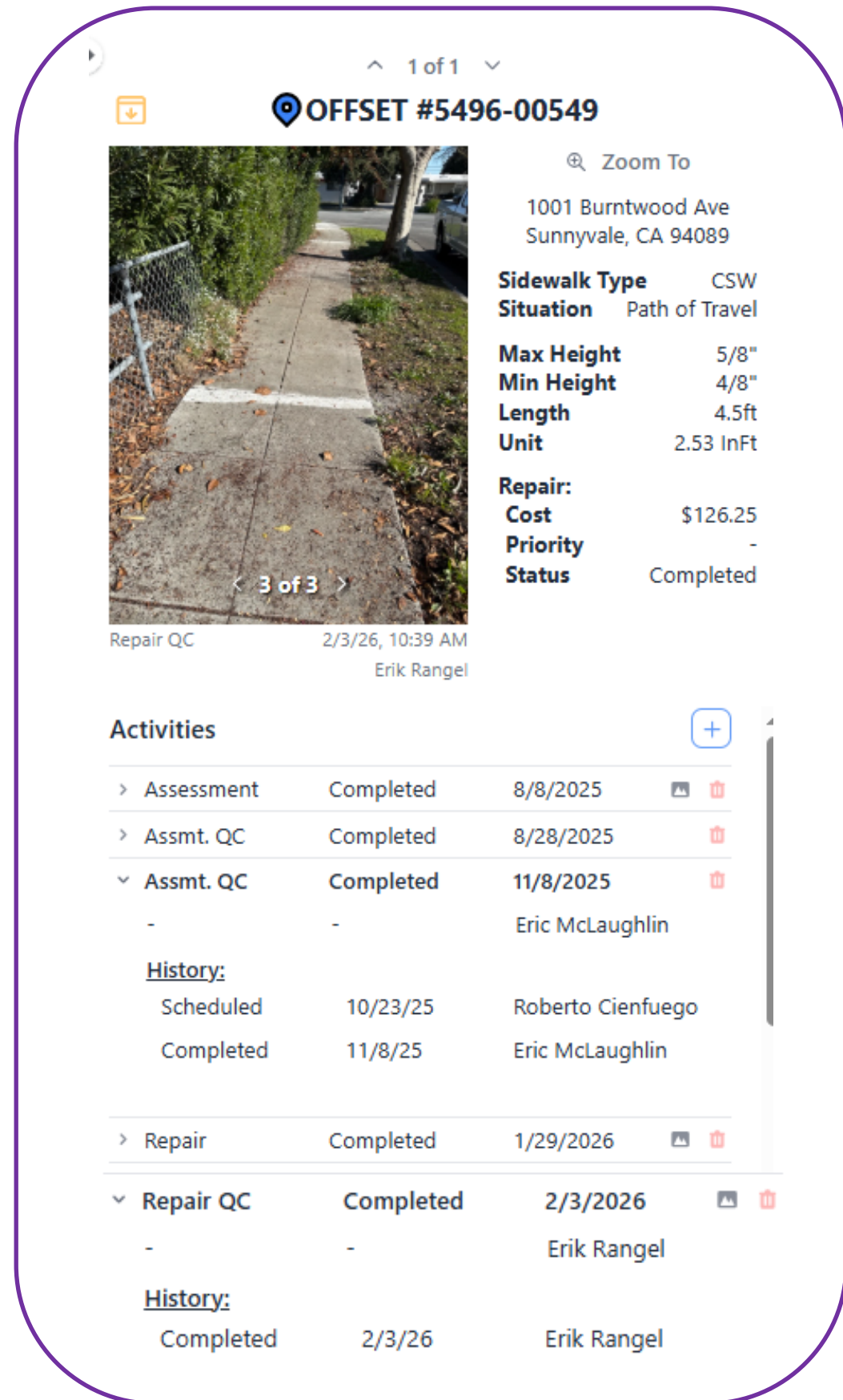
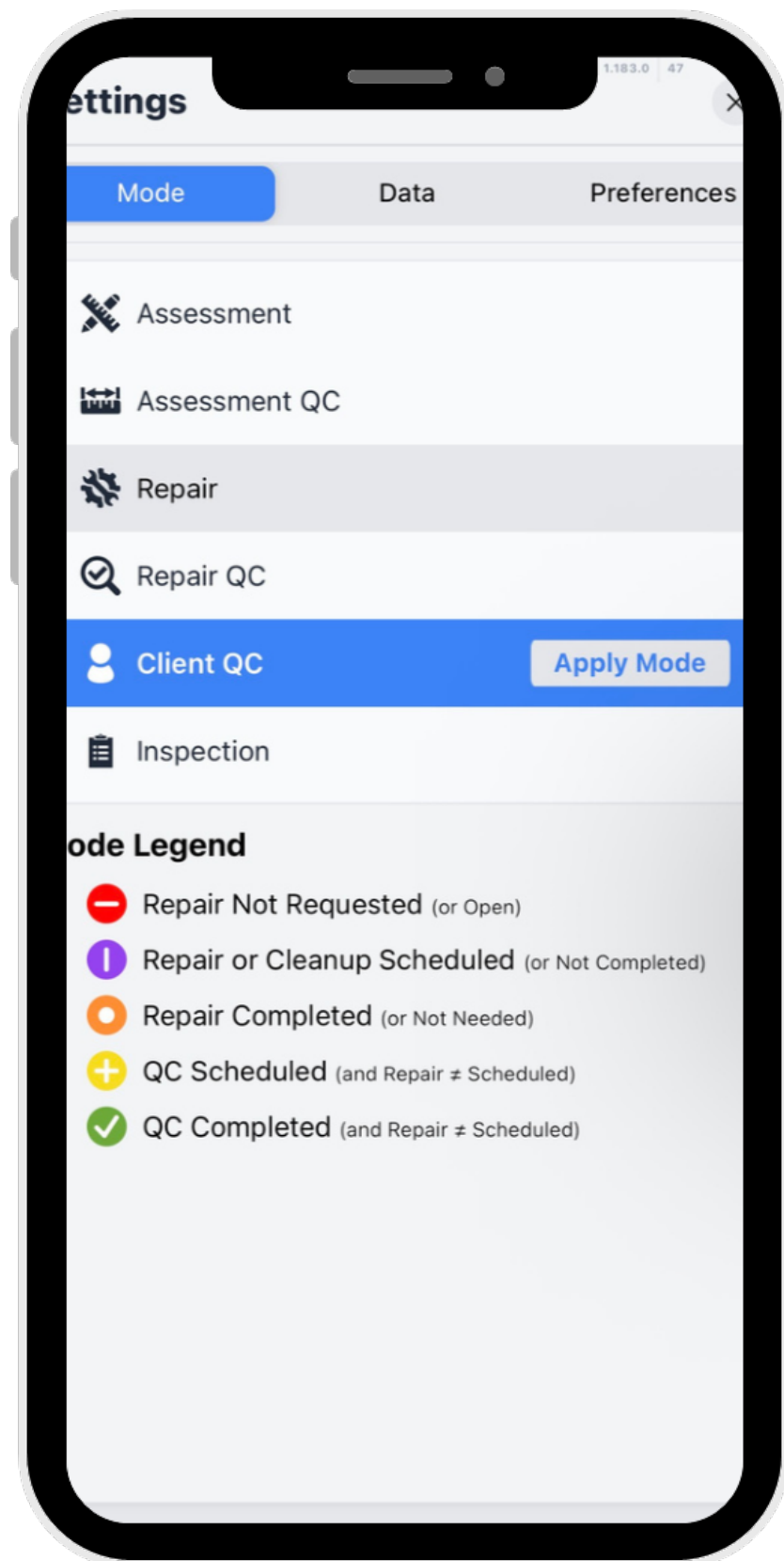
5

Months

Time to complete
Phase 1 slicing

How it works





Quality Assurance & Quality Control

- QC Desktop & Mobile App
- 75% Field QC
- 100% Office QC
- Multiple Modes App
- Issues flagged for follow up
- Inspection logs with photographs

Resident Feedback

Matthew –

Imagine my surprise when I came home from hiking in the Sata Cruz mountains yesterday and found all the sidewalks around my house (1018 Celilo Drive) had been ground flat. Wonderful. I am not sure why I have been selected for this special treatment, but it's great because there was one spot where the side walk was raised up by a tree by almost 4 inches.

Thank you!

Charlie



4 of 4

OFFSET #3956-00978

Zoom To

1018 Celilo Dr
Sunnyvale, CA 94087

Sidewalk Type CSW
Situation Path of Travel

Max Height 7/8"

Length 4ft

Repair:
Cost \$87.33
Priority -
Status Complete -

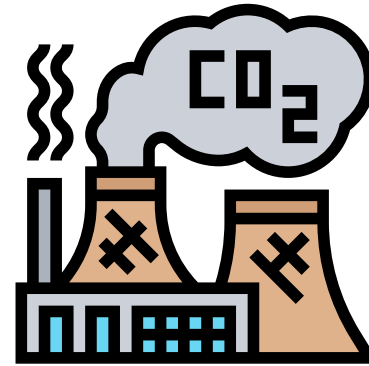
< 2 of 2 >

Repair 7/18/25, 11:41 AM

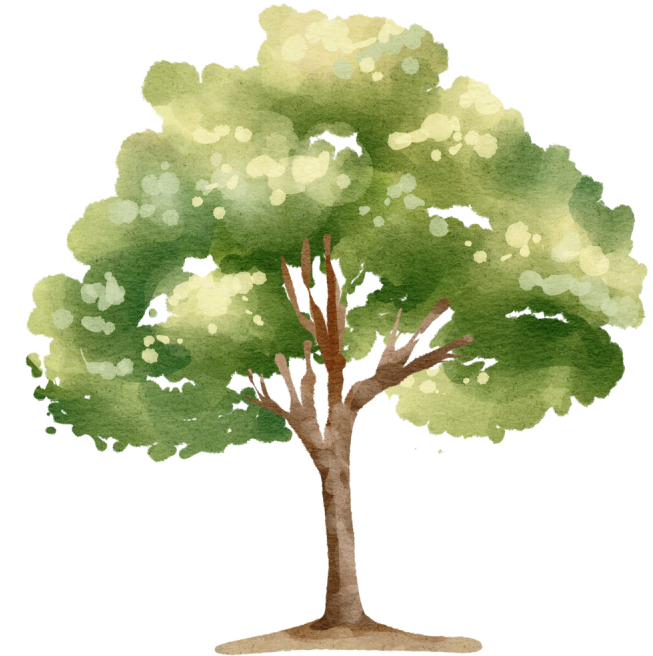
Phase 1 – Slicing Savings



Cost Saving 90%



296 Metric Tons



582 Trees



88 Truck Loads



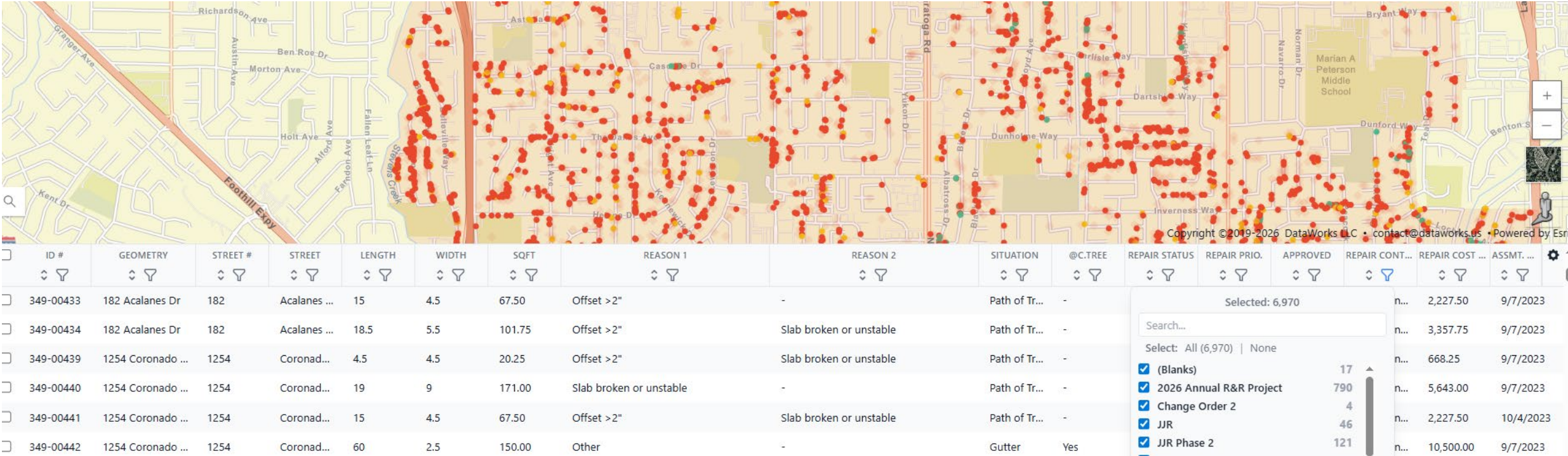
26,000 Gallons of Water



1,765 Tons of Concrete

R&R – Prioritization and Planning

STRATEGY	TACTIC
SEVERITY-BASED CLASSIFICATION	PRIORITZE BY HAZARD LEVEL AND SAFETY RISK
GEOGRAPHIC CLUSTERING	GROUPS REPAIRS BY LOCATION FOR EFFICENCY
BUDGET OPTIMIZATION	MAXIMIZE IMPACT WITHIN FISCAL CONSTRAINTS





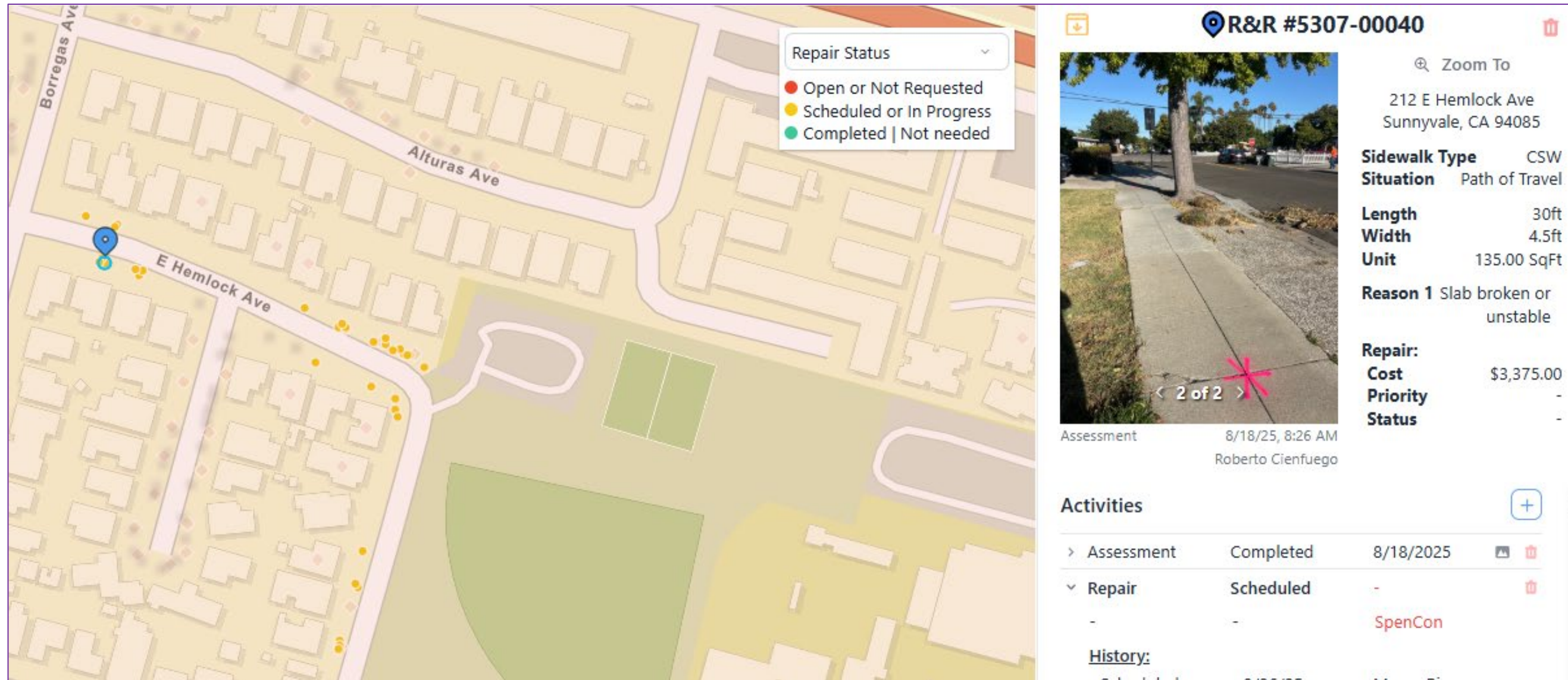
Verification Process

Accuracy

Update
Quantities

Field Mark

Prepare for
Contract
Assignment

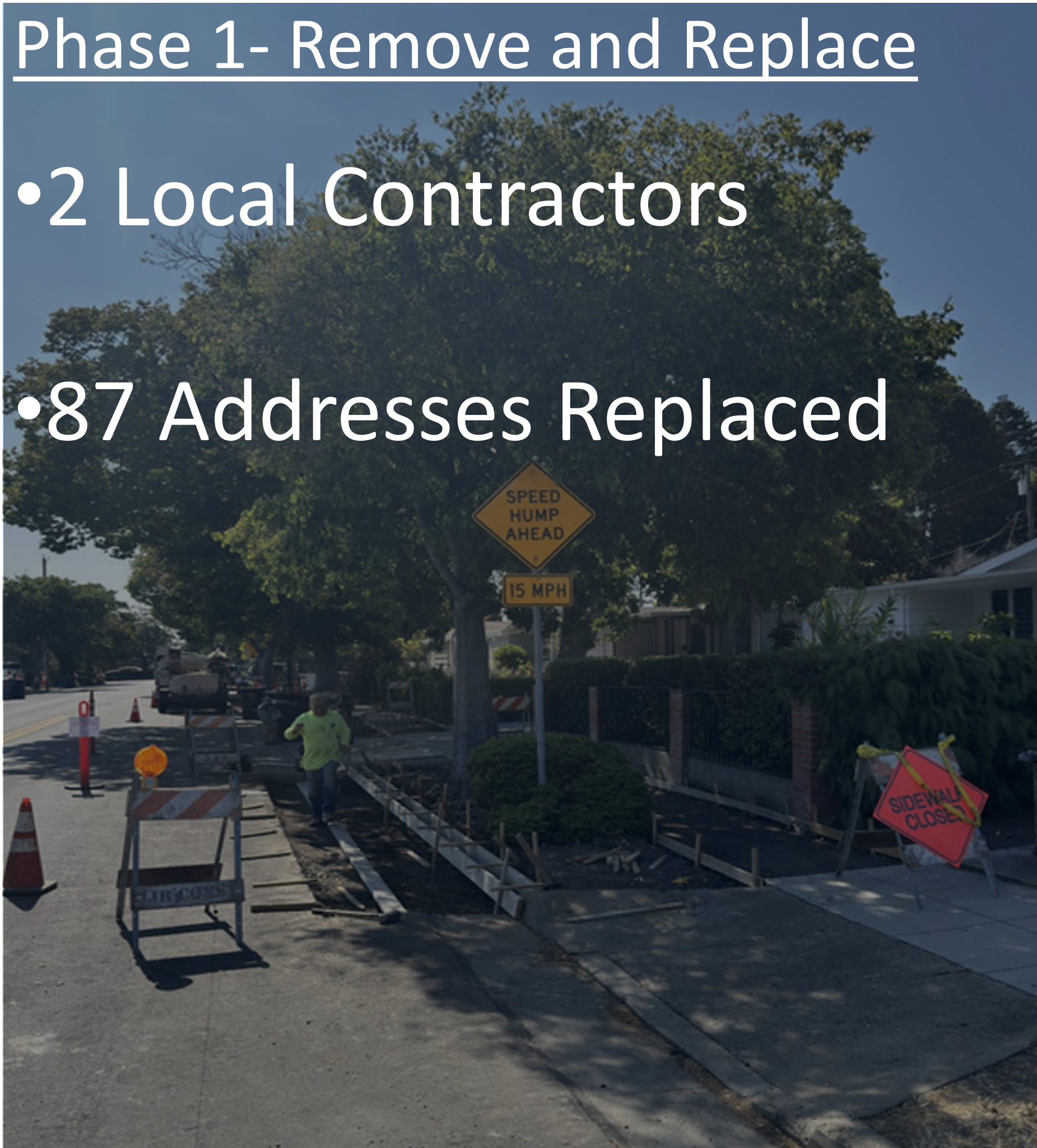


Assigning Work to a Contractor

DataWorks streamlines contractor assignments for faster distribution and real-time tracking.

Phase 1- Remove and Replace

- 2 Local Contractors
- 87 Addresses Replaced





“Small wins are
a *steady* application
of a small advantage.

Charles Duhigg

Phase 1 Remove & Replace Summary

- **Locations: 87 locations**
- **Area: 20,000 SF**
- **Total Cost: \$850,000**
- **Project Duration: 4 months**





1003 Duncan Ave
Sunnyvale, CA 94089

Sidewalk Type CSW
Situation Path of Travel
Length 32ft
Width 4.5ft
Unit 144.00 SqFt
Reason 1 Buckled slabs
Repair:
Cost \$5,601.60
Priority Very high
Status Complete

Assessment QC 7/31/25, 8:40 AM
Roberto Cienfuego

Activities

> Assessment	Completed	6/9/2025		
> Assmt. QC	Completed	7/31/2025		

Documentation

Digital documentation tracks before, during, and after conditions, strengthening accountability and quality control.

Economics

Cost per address



Phase 1 Success



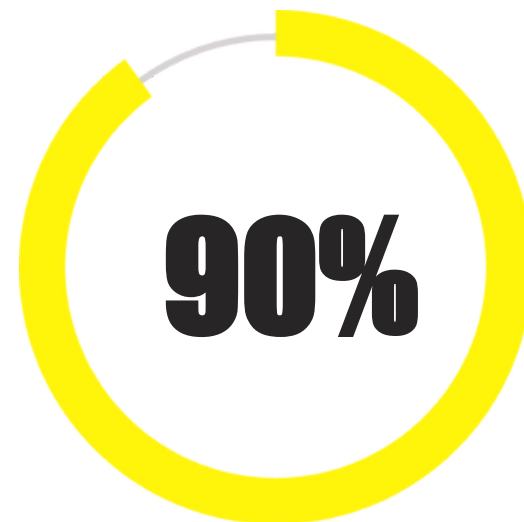
Locations Assessed

Comprehensive field inventory completed in first phase



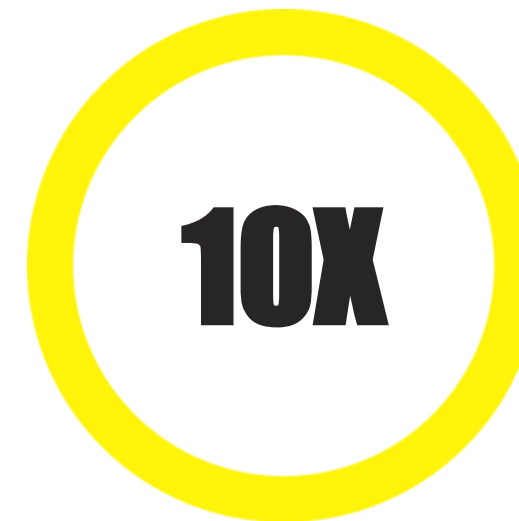
Addresses removed from backlog

Successfully addressed through precision slicing and replacement



Cost Savings

Achieved on slicing repairs compared to traditional replacement methods

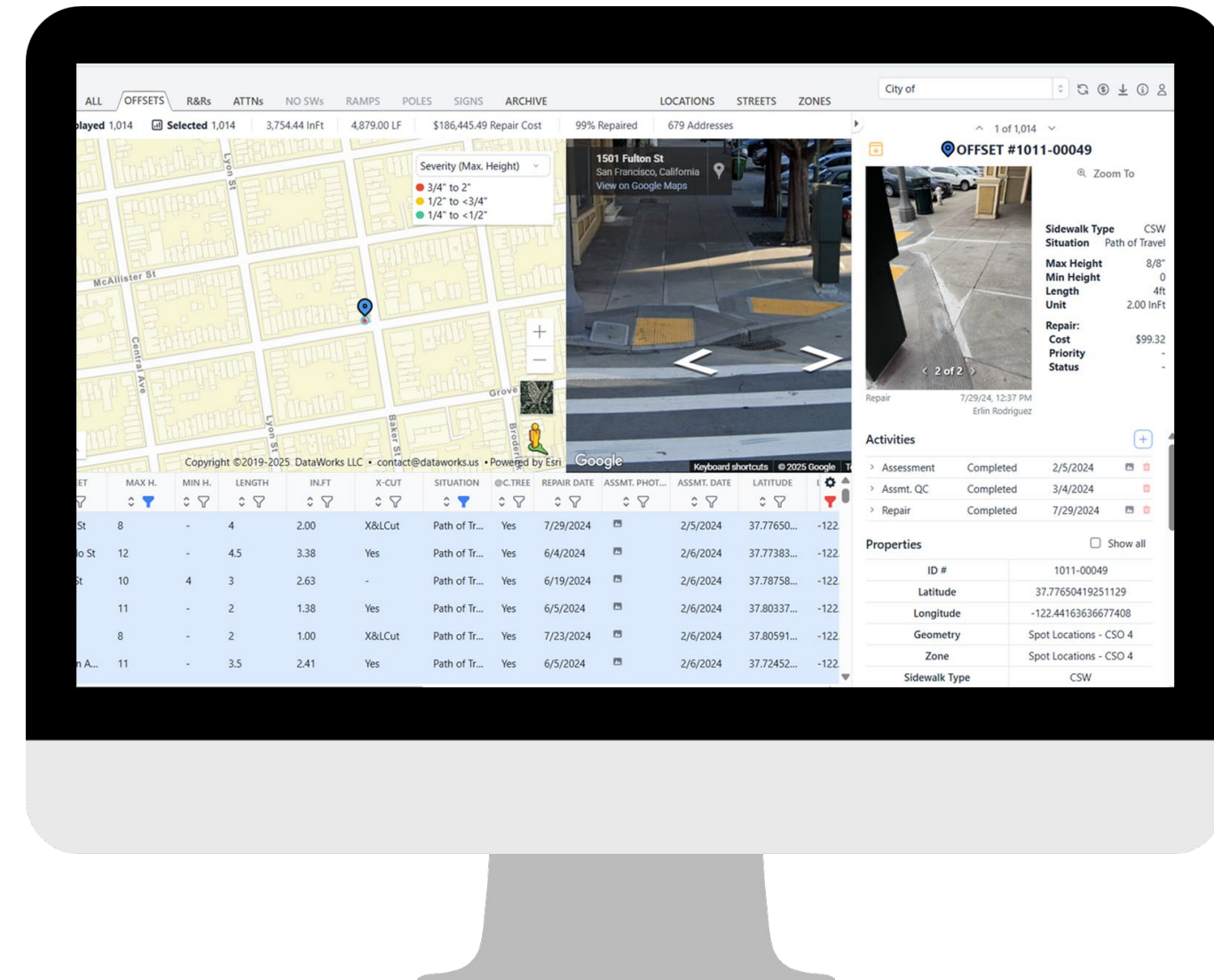
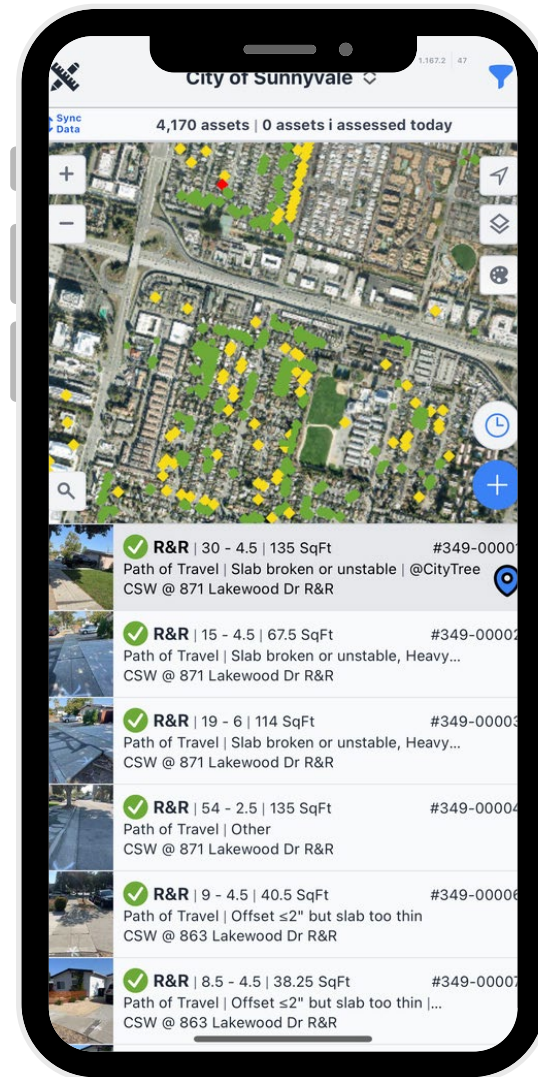


Accelerate

By combining slicing with concrete replacement able to repair 10 times as many locations

**Phase 1 results exceeded expectations, demonstrating the viability and scalability of this hybrid approach for municipal sidewalk management programs nationwide.*

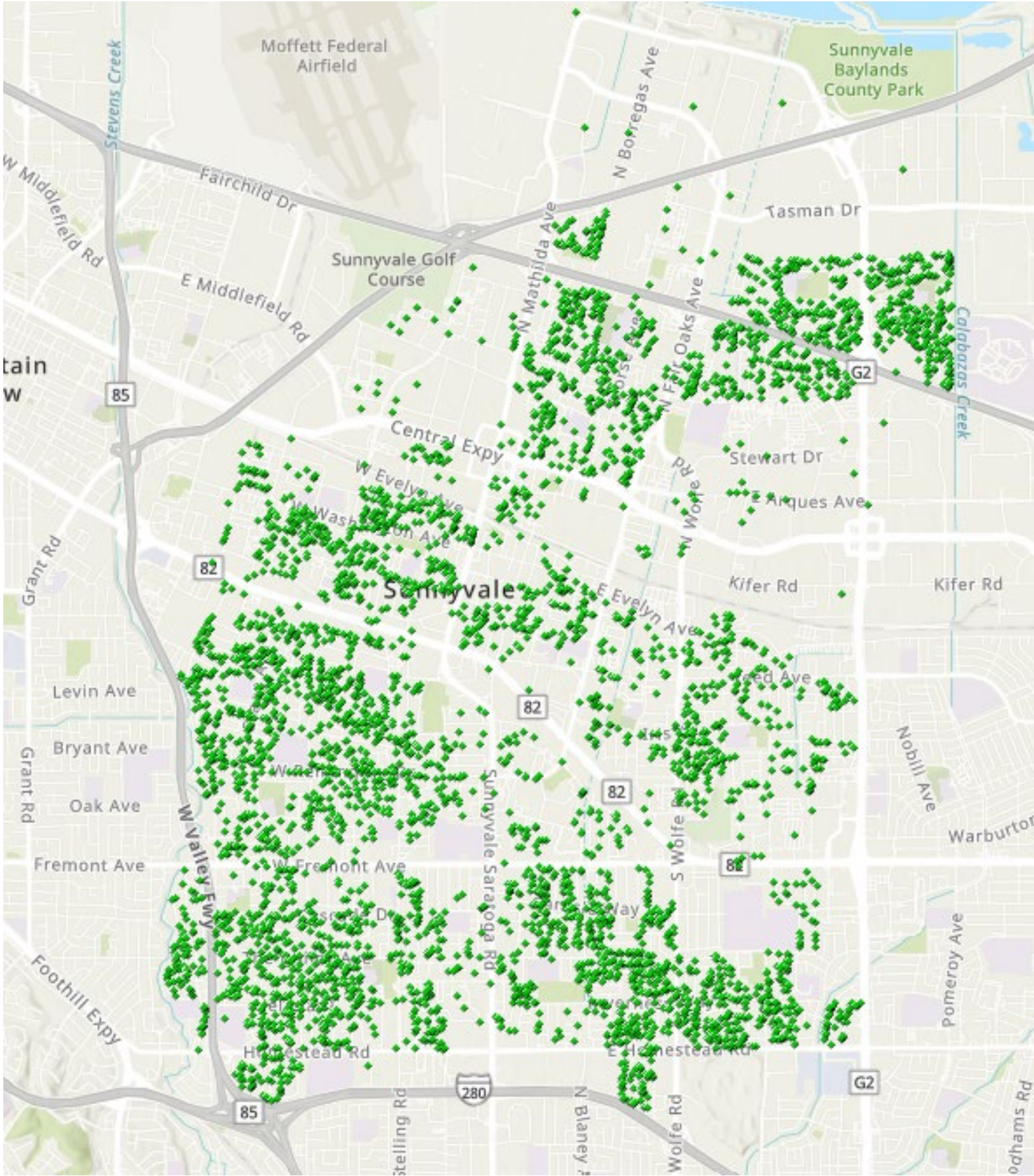
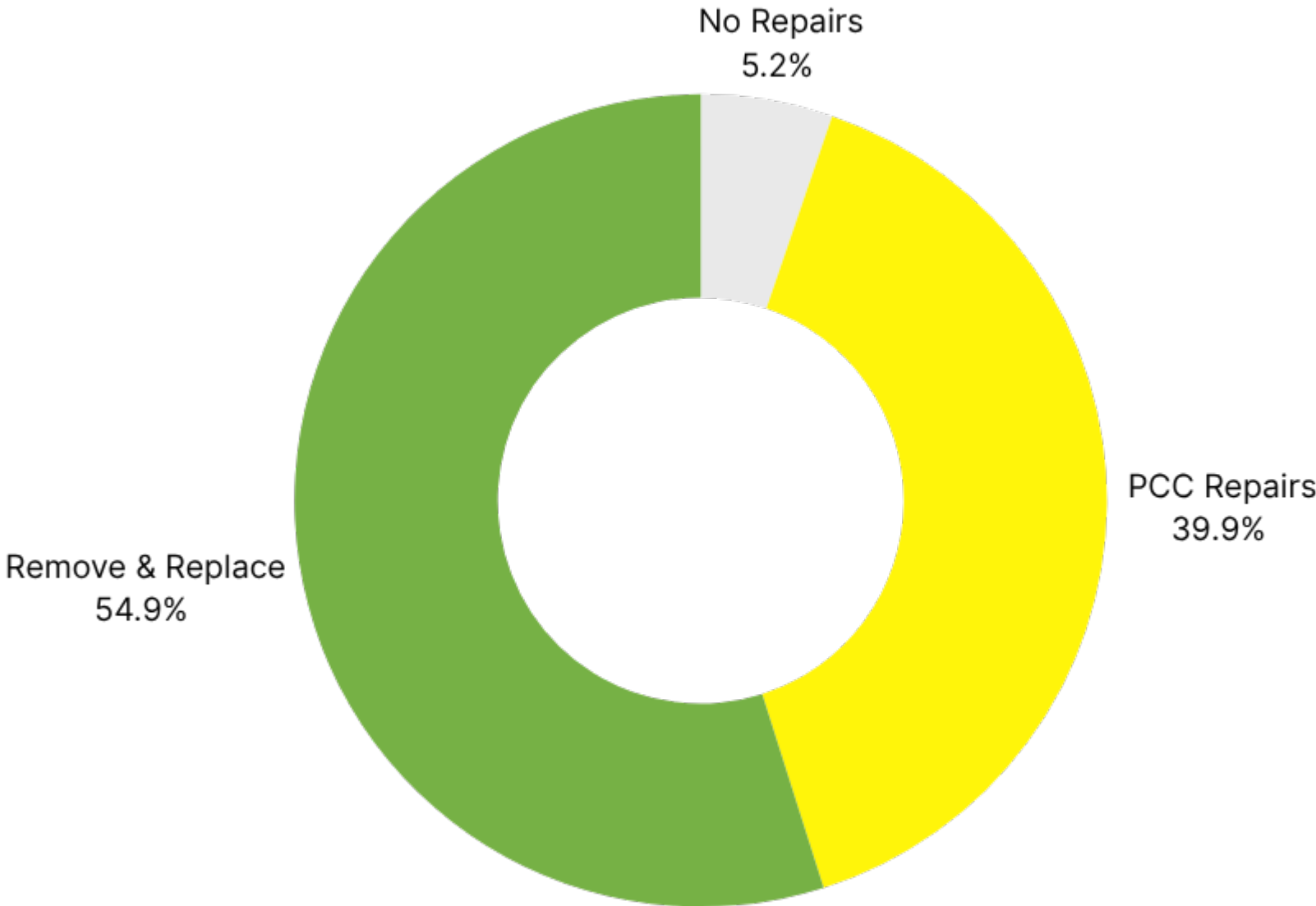
DataWorks



- Data Collection
- Real-time GIS mapping
- Repair Planning
- Budgeting
- Remove & Replace Quantities for Bidding
- Tracking and Record Keeping

Entire Backlog Analysis

Estimated Cost:
PCC Slicing Cost: \$1,000,000
Remove & Replace: \$25,000,000

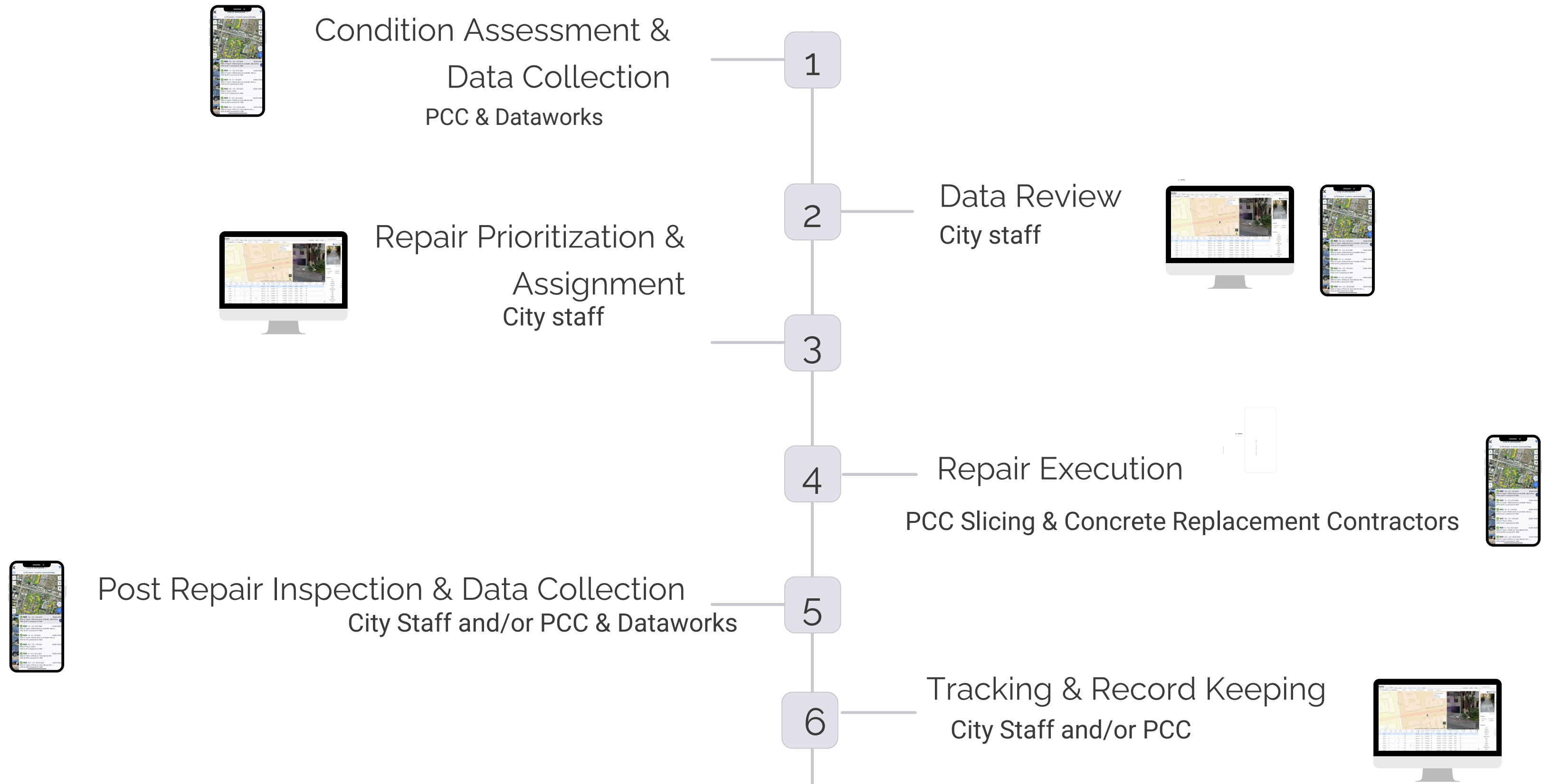




Strategic Approach to Clearing the Backlog

CONTRACT	ADDRESSES COMPLETE	TOTAL COST
JJR Construction	19	\$250K
SPENCON Construction	33	\$250K
JJR Construction CCO #1	80-100	\$500K
SPENCON Construction CCO #2	100-120	\$500K
Annual CIP Replacement Project	350	~\$3M
Precision Concrete Cutting	1884	\$1.1M
TOTALS:	~2,450	\$5.6M

Summary of Workflow



Asset Mangement



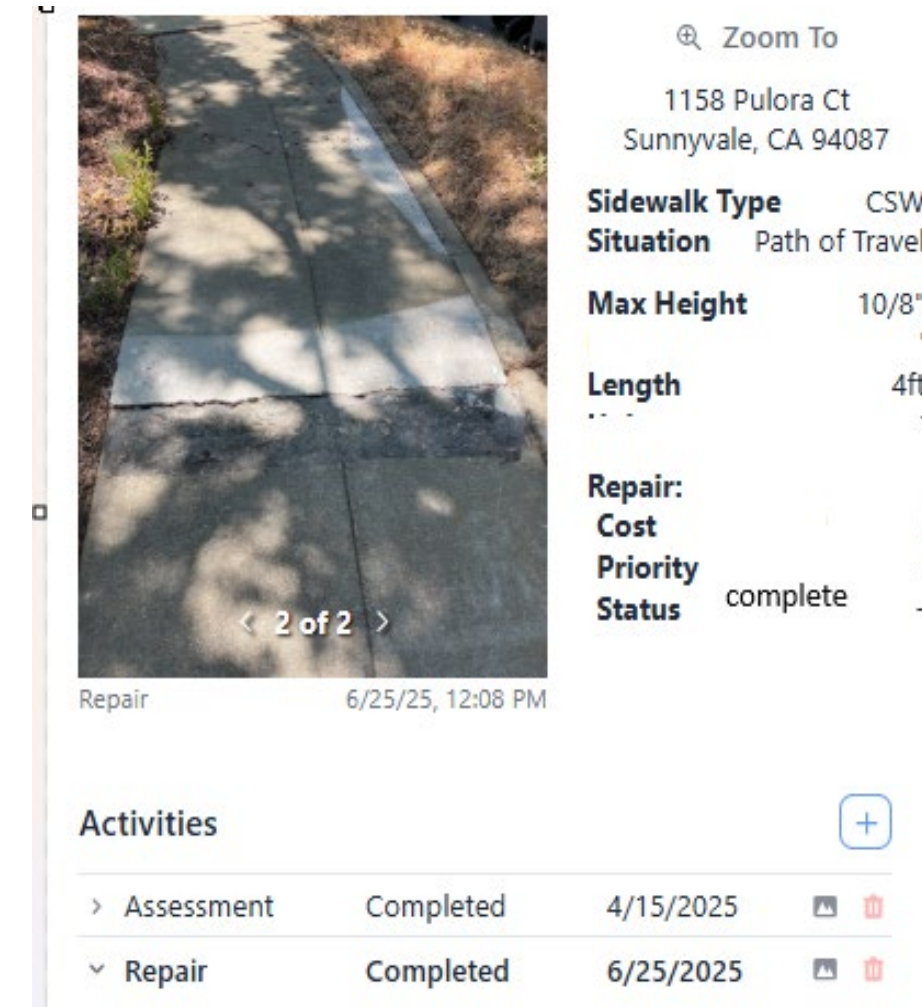
Replace



Inspect



Slice



Maintain Asset
Profile

Organizational Impacts



ADA Defensibility



Increased Transparency



Accelerated Backlog
Reduction



Accurate Data

Key Takeaways for Your City

Embrace Strategic Partnerships

Public-private collaborations can provide specialized expertise and technology capabilities that municipalities cannot develop internally.

Invest in Data - Driven Planning

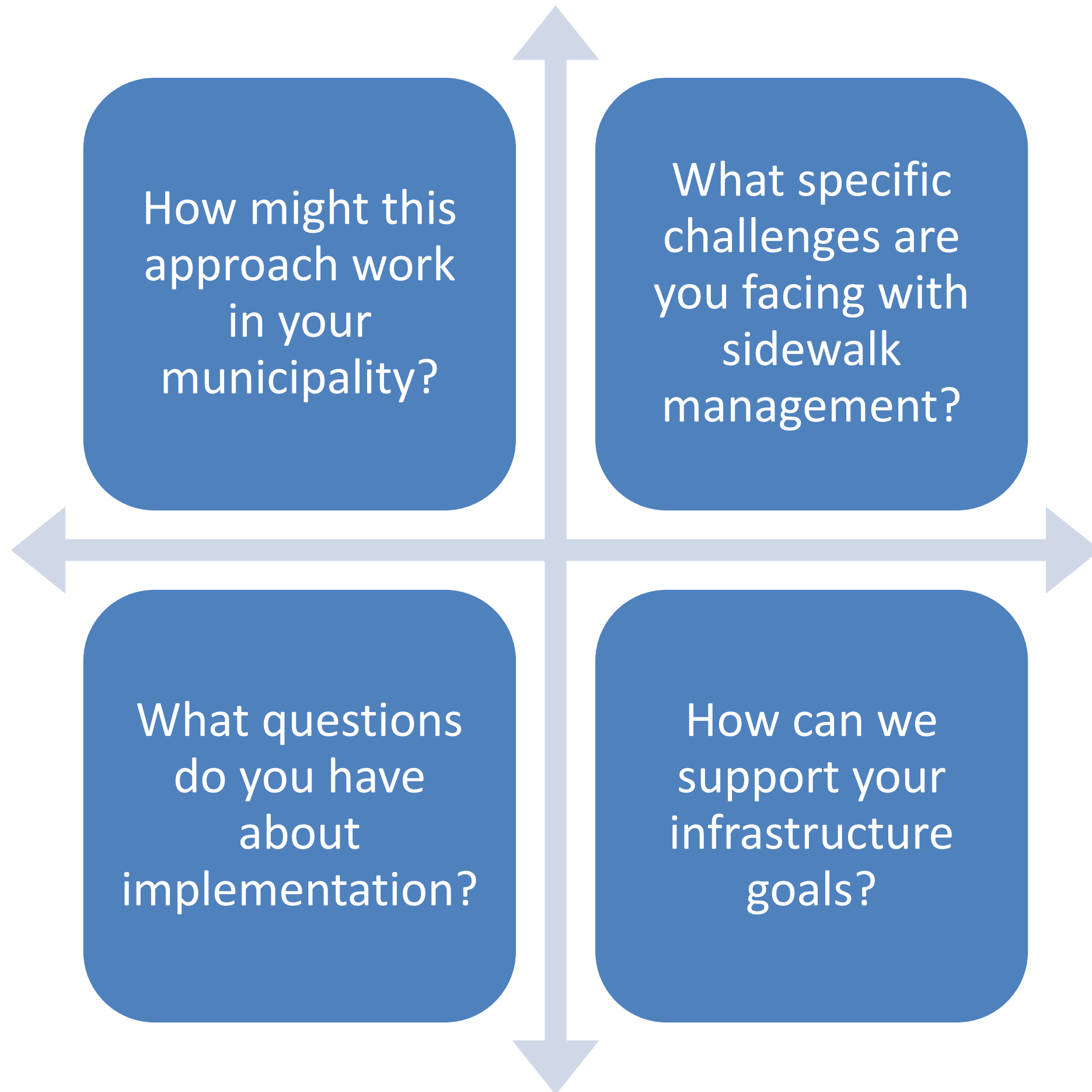
Comprehensive field assessment and GIS -based prioritization transform reactive maintenance into proactive infrastructure management.

Diversify Repair Strategies

No single solution addresses all sidewalk hazards —successful programs combine multiple techniques based on specific conditions and constraints.



Questions



Contact Information

Sean Smith

City of Sunnyvale

srsmith@sunnyvale.ca.gov



Joseph Ortega

Precision Concrete Cutting & DataWorks

jortega@pccnorcal.com



DataWorks
Right-of-Way Asset Management

