



Sidewalk Repair Program

GIS Data Overview & Phase 5 Scope

Transportation Commission
January 27, 2022

Meeting Agenda

- GIS data overview
 - Beneficial Design's 2021 survey overview
 - Data package overview
 - Data examples
 - Important data features
- Phase 5 Scope
 - Revised selection criteria
 - Development of repair list
 - Repair list & map
 - Task list



Sidewalk Repair Program

Part I

GIS Data Overview

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Beneficial Designs Survey

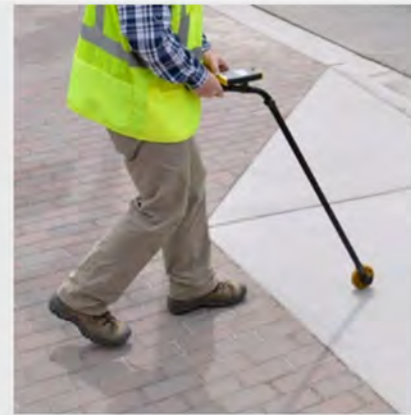
- Beneficial Designs contracted for comprehensive sidewalk survey
 - Specialized in ADA compliance for PROW
 - Survey performed in late 2020 / early 2021
 - Survey completed prior to Phase 4 repairs



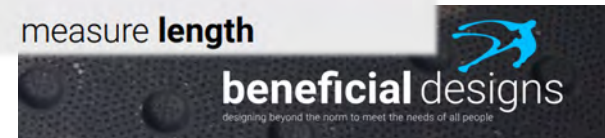
assessment **cart**



measure **height**



measure **length**



Beneficial Designs Data Package

- Shapefiles + corresponding Excel data
 1. Stations
 - “Line” data
 - General information on sidewalk segments
 - Length, elevation change, grade, cross slope, tread width
 2. Features
 - “Point” data (~11,700 points)
 - Detailed information on sidewalk issues
 - 21 different issue types
 - Each issue type has unique attribute categories
- **Features** will be used in analysis and scoping

Data Features – Overview

- **Deficiencies (59%)**
 - 1. **Vertical Discontinuity** 41%
 - 2. **Horizontal Opening** 15%
 - 3. Linear Discontinuity
 - 4. Drop-off
- **Curb Ramps (5%)**
 - 6. Depressed Surface
 - 7. Parallel
 - 8. Perpendicular
- **Protrusions (2%)**
 - 8. Object
 - 9. Object Maintenance
 - 10. Post-mounted
- **Ped Access Routes (1%)**
 - 11. No PAR
 - 12. No Transition
 - 13. Obstruction
 - 14. Unstable
- **Other (<1%)**
 - 15. Driveway crossing
 - 16. Grate
 - 17. Hazardous vehicle area
 - 18. Reduced vertical clearance
- **Utility Box Lids (21%)**
- **No Best Path of Travel (10%)**
- **Non-planar PAR (1%)**

Photos of Deficiencies

Vertical Discontinuity



Horizontal Opening



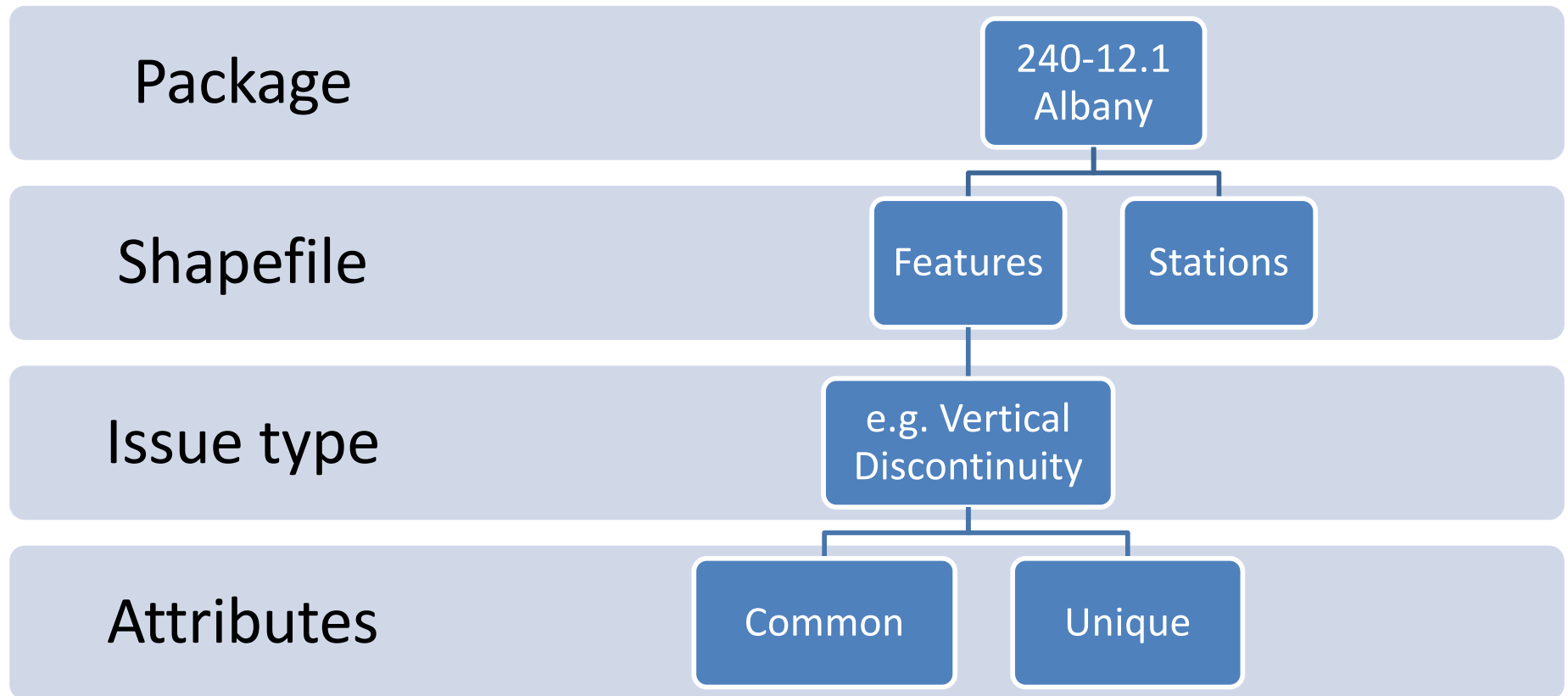
Linear Discontinuity



Drop-off

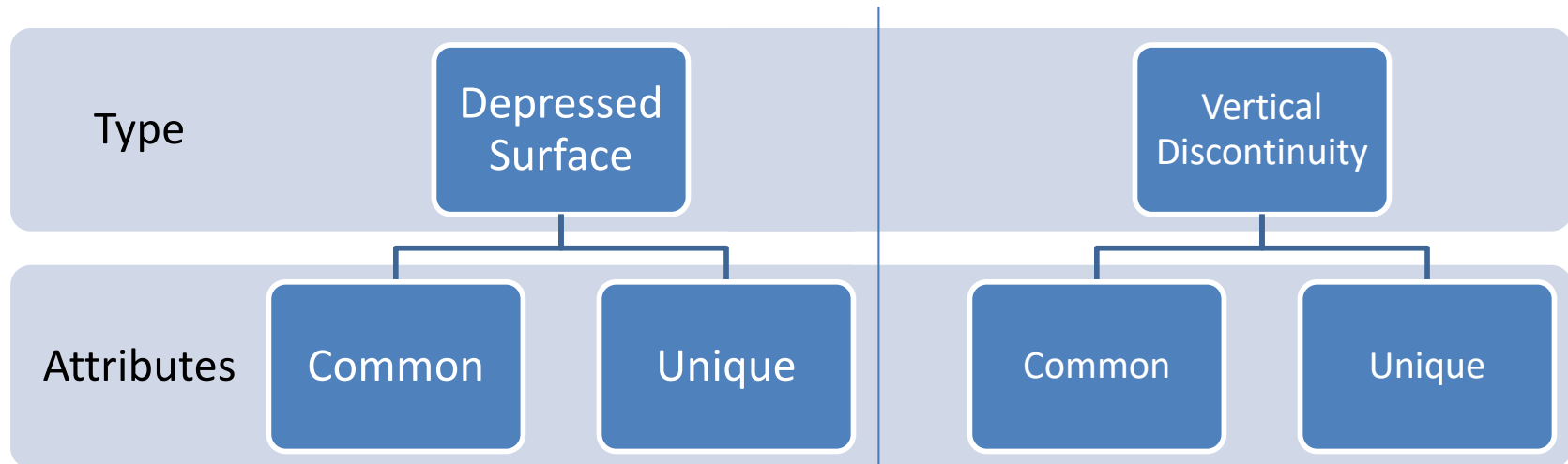


Data Features – Example



- Common attributes include information such as...
 - Unique ID
 - X,Y coordinates
 - Comment
 - Image file location

Data Attributes – Example



- Many unique categories
 - Observed...
 - Planar surface?
 - Perpendicular grade break?
 - Transition cross-slope, grade, length
 - Compliant width?
 - Direct approach (left/right) cross slope, grade, width
 - And 20+ more categories
- Single unique category
 - Height (in) of discontinuity

Unique Features

- Unique BD-created features for repair prioritization
 - No Best Path of Travel (NoBPOT)
 - Surfaces that had ≥ 2 issues
 - Denotes surfaces that include ≥ 2 " vertical discontinuity
 - 1,207 locations; ~320 with ≥ 2 " vertical discontinuity
 - Non-planar Pedestrian Access Route
 - "...capture some of the most hazardous surfaces." – BD
 - Typically used at tree upheaval sites
 - Quick review of BD photos show many locations in good to fair conditions
 - If using non-planar PAR, suggest prioritizing w/ **cross-slope** attribute
 - 97 locations; ~37 with $> 2\%$ cross slope

No Best Path of Travel (NoBPOT) locations with $\geq 2''$ vertical discontinuity



- Originally ~320 locations
- After data review, **281 locations**
 - Removed locations:
 - Phase 4 repairs
 - homeowner repairs
 - future repairs in separate CIP



Sidewalk Repair Program

Part II

Phase 5 Scope

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Phase 4 Prioritization Criteria

Priority	Criteria
A	<ul style="list-style-type: none">• Special access needs
B1	<ul style="list-style-type: none">• Offset >3" or structural failure
B2	<ul style="list-style-type: none">• Offset >2" or major alligator cracking
B3	<ul style="list-style-type: none">• >60 sf of major alligator cracking
C	<ul style="list-style-type: none">• Offset >1/2" and <2" within Priority Sidewalk Network (ATP)

Revised Prioritization Criteria

- Continue to prioritize special needs
- Remove Priority Sidewalk Network (ATP) ranking
- Utilize Beneficial Designs' survey data
 - Complaint-driven database → comprehensive, Citywide database
 - Now able to identify most hazardous conditions

Revised Prioritization Criteria

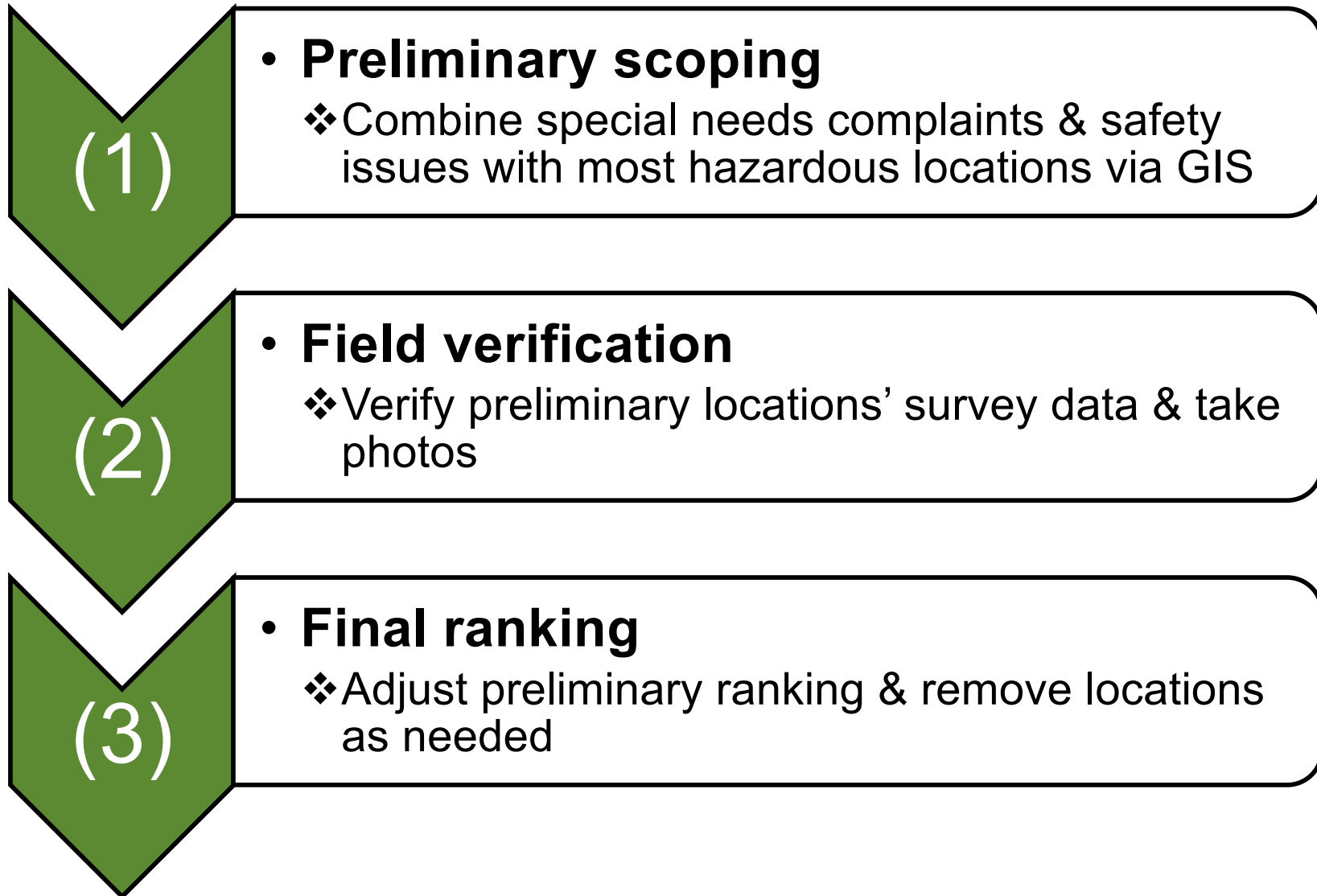
Repair Program	Maintenance Program	Encourage Homeowner Repair
<ul style="list-style-type: none">• Special needs access issue• Safety issue• No Best Path of Travel• Vertical discontinuity ≥ 2"• Severe alligator cracking	<ul style="list-style-type: none">• Vertical discontinuity ≥ 0.25" and < 2"• Shaving ONLY	<ul style="list-style-type: none">• Issue does not meet repair or maintenance criteria

- Repair program to focus on most hazardous conditions first
 - **“Critical NoBPOT”** i.e. NoBPOT ≥ 2 " vertical discontinuity
- Public Works able to better identify whether sidewalk will be repaired within the next few years

Prioritization Criteria – Phase 5

Priority	Criteria
1	<ul style="list-style-type: none">• Special access needs
2A	<ul style="list-style-type: none">• Safety issues via council/staff• Critical NoBPOT >2" vertical discontinuity
2B	<ul style="list-style-type: none">• Where adjacent to 2A repairs...<ul style="list-style-type: none">○ Critical NoBPOT = 2" vertical discontinuity OR○ >2" vertical discontinuity (non-NoBPOT)
3	<ul style="list-style-type: none">• Critical NoBPOT >2" vertical discontinuity <u>on low use streets</u> (e.g. dead-ends with few residents)
4	<ul style="list-style-type: none">• Miscategorized (actual conditions differ from survey data)• Removed from current scope; rank accordingly in future phases

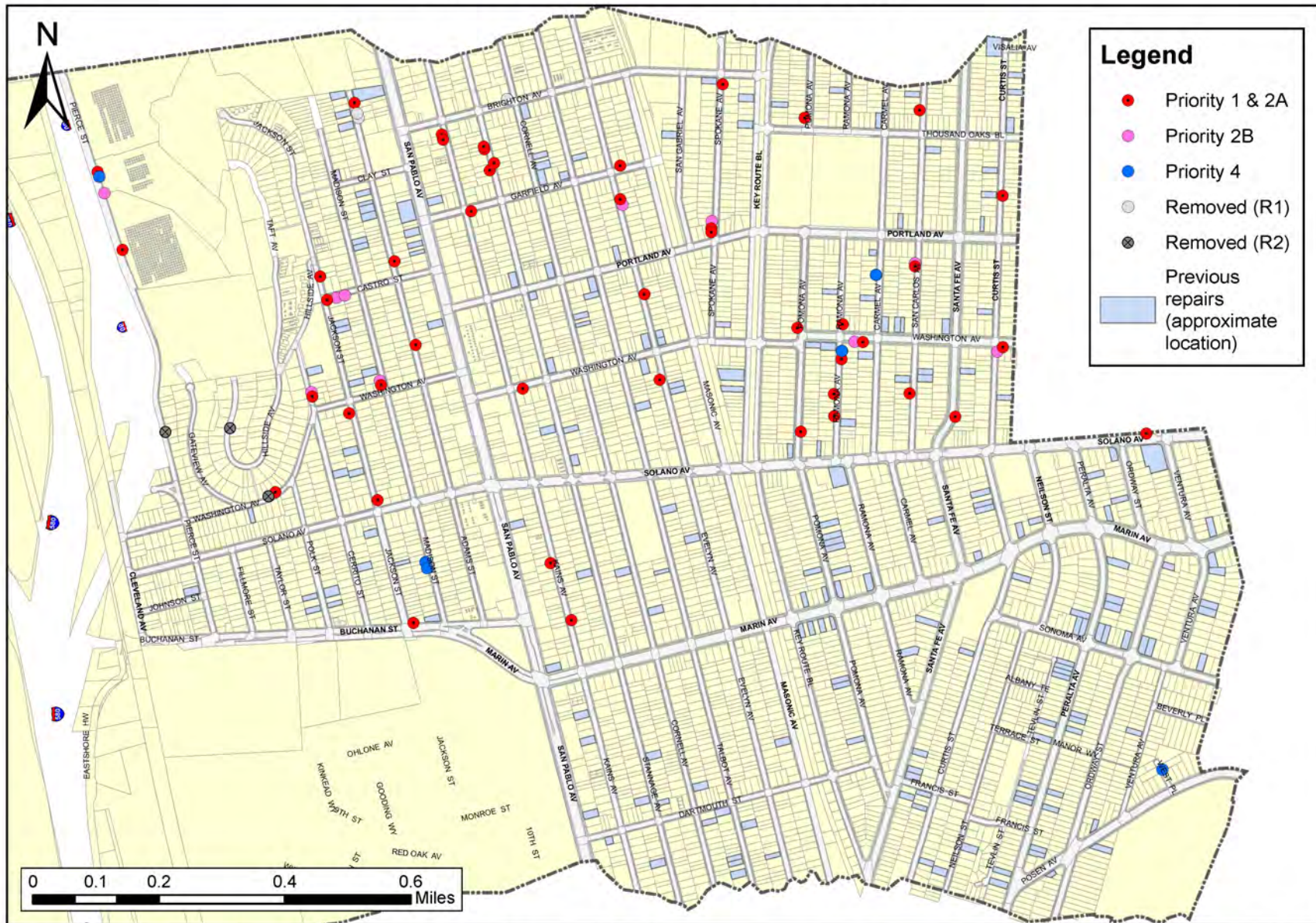
Repair Ranking – Phase 5



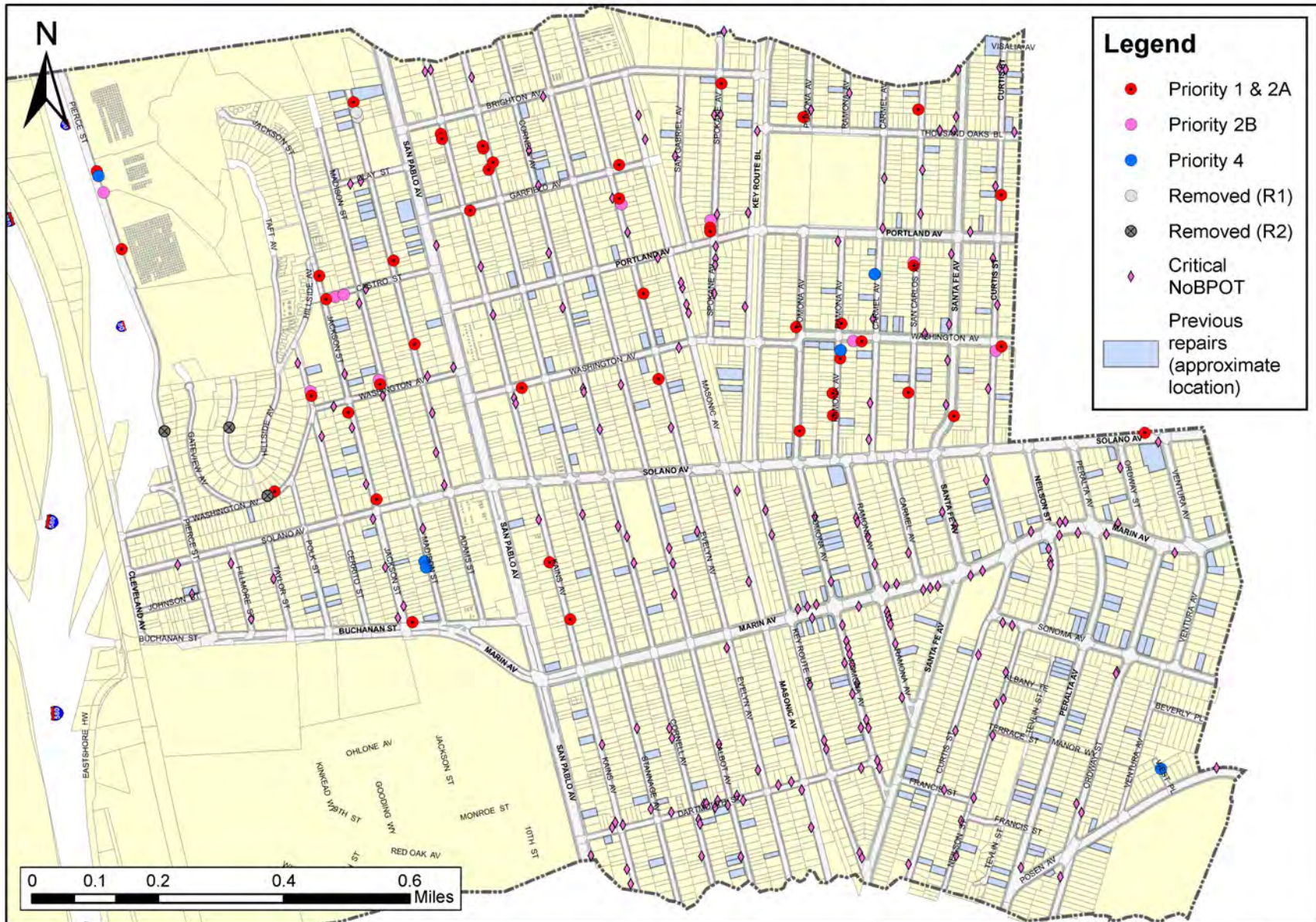
Repair Ranking – Phase 5

Priority	# of Locations	Note(s)
1	3	<ul style="list-style-type: none"> Includes one Phase 4 location not repaired in 2021
2A	42	
2B	8	
3	0	<ul style="list-style-type: none"> Preliminary P3 locations removed or moved to P4
4	6	<ul style="list-style-type: none"> To be considered in future repairs
R1	3	<ul style="list-style-type: none"> Removed from scope; to be addressed in separate CIP
R2	3	<ul style="list-style-type: none"> Removed; significant alteration on private parcel required for sidewalk repair to meet ADA standards

Map of Repair Locations



Map of Repair Locations



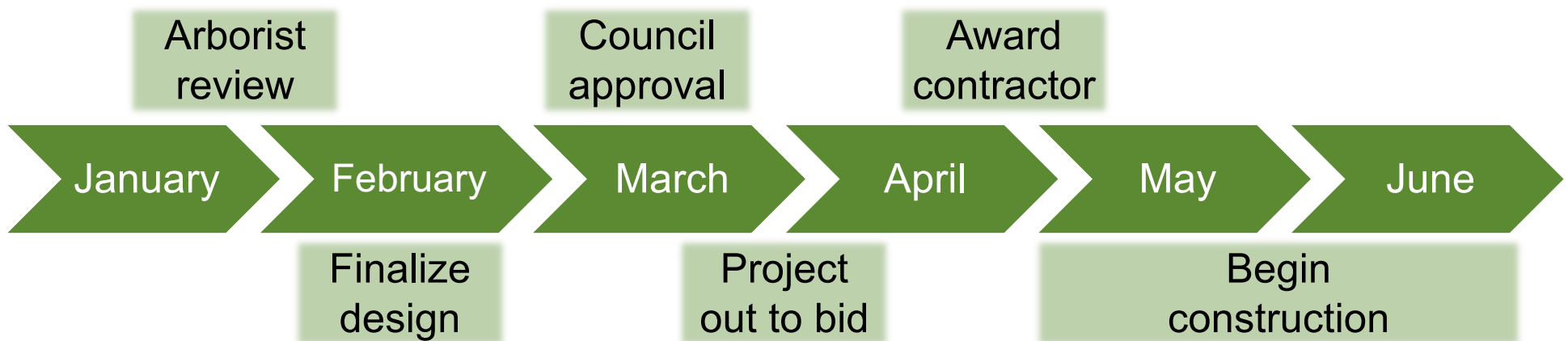
Repair List – Phase 5

- 500 Adams
- 647 Adams
- 731/737 Adams
- 1114 Brighton
- 1280 Brighton (on Spokane)
- 921-925 Buchanan
- 741 Cerrito
- 743 Cerrito
- 625 Curtis
- 801 Curtis (on Washington)
- 801 Curtis
- 609/611 Evelyn
- 611 Evelyn
- 717/719 Evelyn
- 814 Evelyn
- 1235 Garfield
- 643 Jackson
- 701 Jackson (on Castro)
- 806 Jackson
- 508 Kains
- 601 Kains
- 950 Kains
- 967 Kains
- 746/748 Madison
- 748 Madison
- 545 Pierce (2 locations)
- 555 Pierce
- 532/536 Pomona
- 740 Pomona
- 843 Pomona
- 1261 Portland
- 805 Ramona (on Washington)
- 809 Ramona
- 824 Ramona
- 832 Ramona*
- 512 San Carlos
- 706/708 San Carlos
- 708 San Carlos
- 824 San Carlos
- 841/843 Santa Fe
- 935 Solano (on Jackson)
- 1619-1623 Solano
- 676 Spokane
- 518 Stannage
- 520 Stannage
- 527 Stannage
- 530 Stannage
- 1435 Thousand Oaks (on San Carlos)
- 847 Washington
- 1134 Washington
- 1335 Washington (on Ramona)
- 1350 Washington

* From Phase 4 scope; property owner notified in 2020 but location missed in 2021 construction

Task List – Phase 5

- Completed:
 - Field verification
 - Ranking
 - Preliminary design
- Next steps:



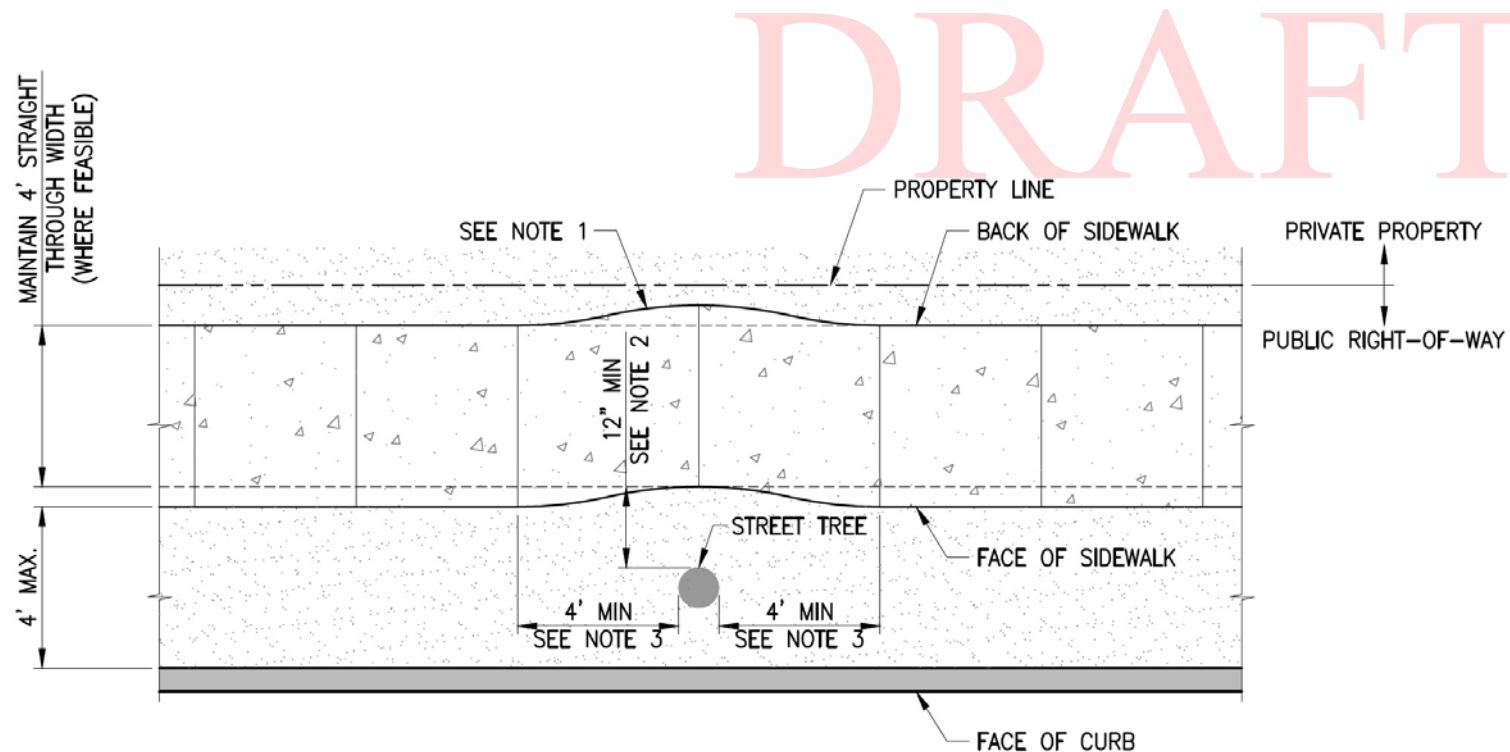
Budget – Phase 5

- Budget for FY21-22: \$450,000
- Estimated for Phase 5: \$253,000 (53 locations)
- Phase 4 Cost Comparison: \$217,000 (58 locations)
- Higher estimated cost per location for Phase 5 due to...
 - Inflation
 - Extent of repair
 - Several require >300 sf repair (up to ~1,000 sf)
 - Several with multiple sections of repair
 - Inclusion of incidentals

Looking forward...

- Phase 5 to repair all Critical NoBPOT ($>2''$)
- Next phase to continue repairs of Critical NoBPOT ($=2''$) vertical discontinuity
 - Approx. 225 locations remaining
 - Prioritize “clusters” of issues (e.g. Dartmouth, Pomona)
 - Consider including severe vertical discontinuities ($\geq 3''$)
- Continue to avoid large contracts
 - Each repair location is unique & time-intensive
 - Larger contract = loss of quality on design/repair
- Finalize “curvature around street tree” Standard Detail

New City Standard Detail



NOTES:

1. CONSULT WITH CITY ENGINEER IN LOCATIONS WHERE EXISTING CONDITIONS PREVENT BACK OF SIDEWALK CURVATURE.
2. CONSULT WITH CITY ENGINEER IN LOCATIONS WHERE 12" MINIMUM WIDTH BETWEEN STREET AND SIDEWALK IS NOT FEASIBLE.
3. MAINTAIN MINIMUM 4" OF PLANTER SPACE BETWEEN STREET TREE AND EXISTING CONDITIONS. REMOVE EXISTING ASPHALT OR CONCRETE IF PRESENT. DO NOT ALTER DRIVEWAY OR CURB RAMP IF WITHIN 4' OF STREET TREE UNLESS APPROVED BY CITY ENGINEER.
4. FOR ADDITIONAL REQUIREMENTS, SEE ST 4.

~~SCALE: 1/4"=1'-0"~~

QUESTIONS?

