



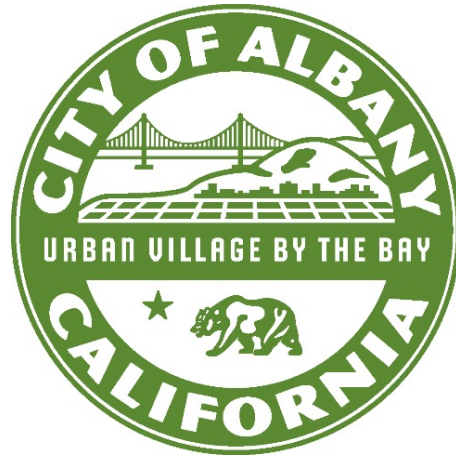
Sidewalk Repair Program

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

Transportation Commission
January 27, 2022

Beneficial Designs Survey

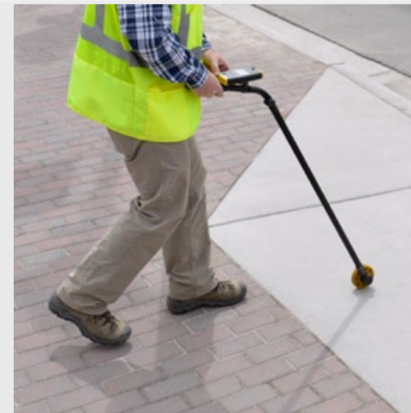
- Beneficial Designs contracted for comprehensive sidewalk survey
 - Specialized in ADA compliance for PROW
 - Survey performed in late 2020 / early 2021
 - Survey completed prior to Phase 4 repairs



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



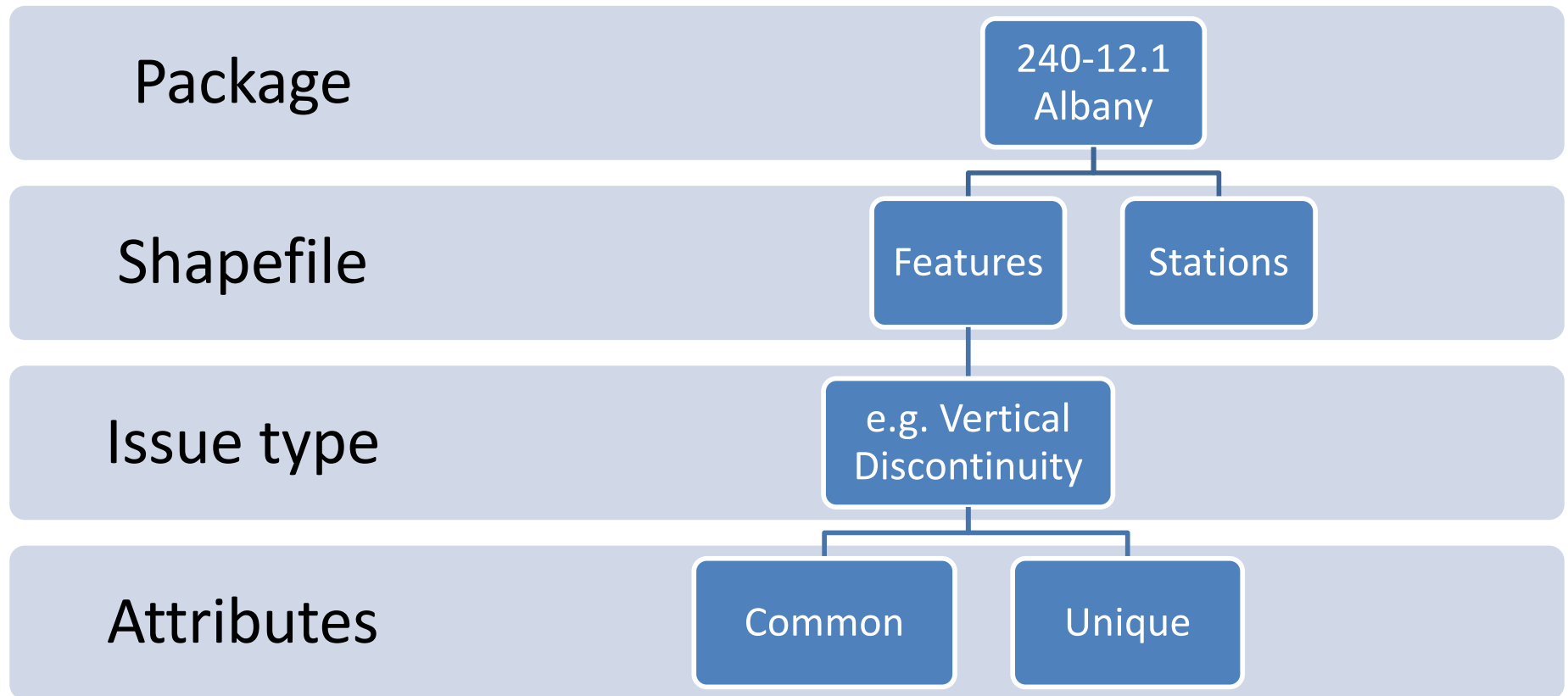
Linear Discontinuity



Drop-off

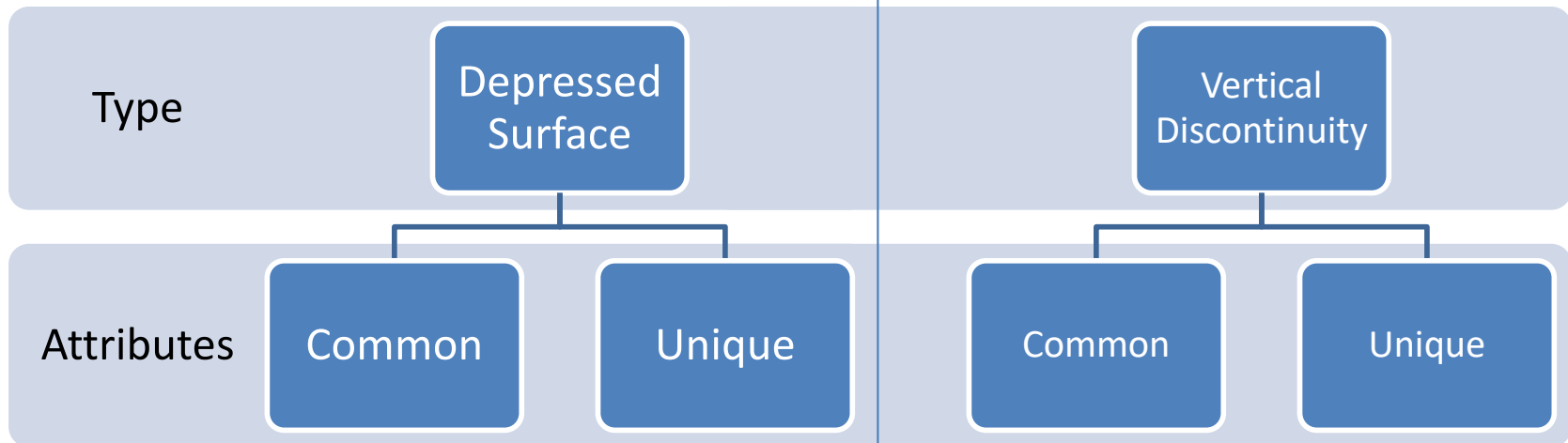


Data Features – Example



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

Data Attributes – Example

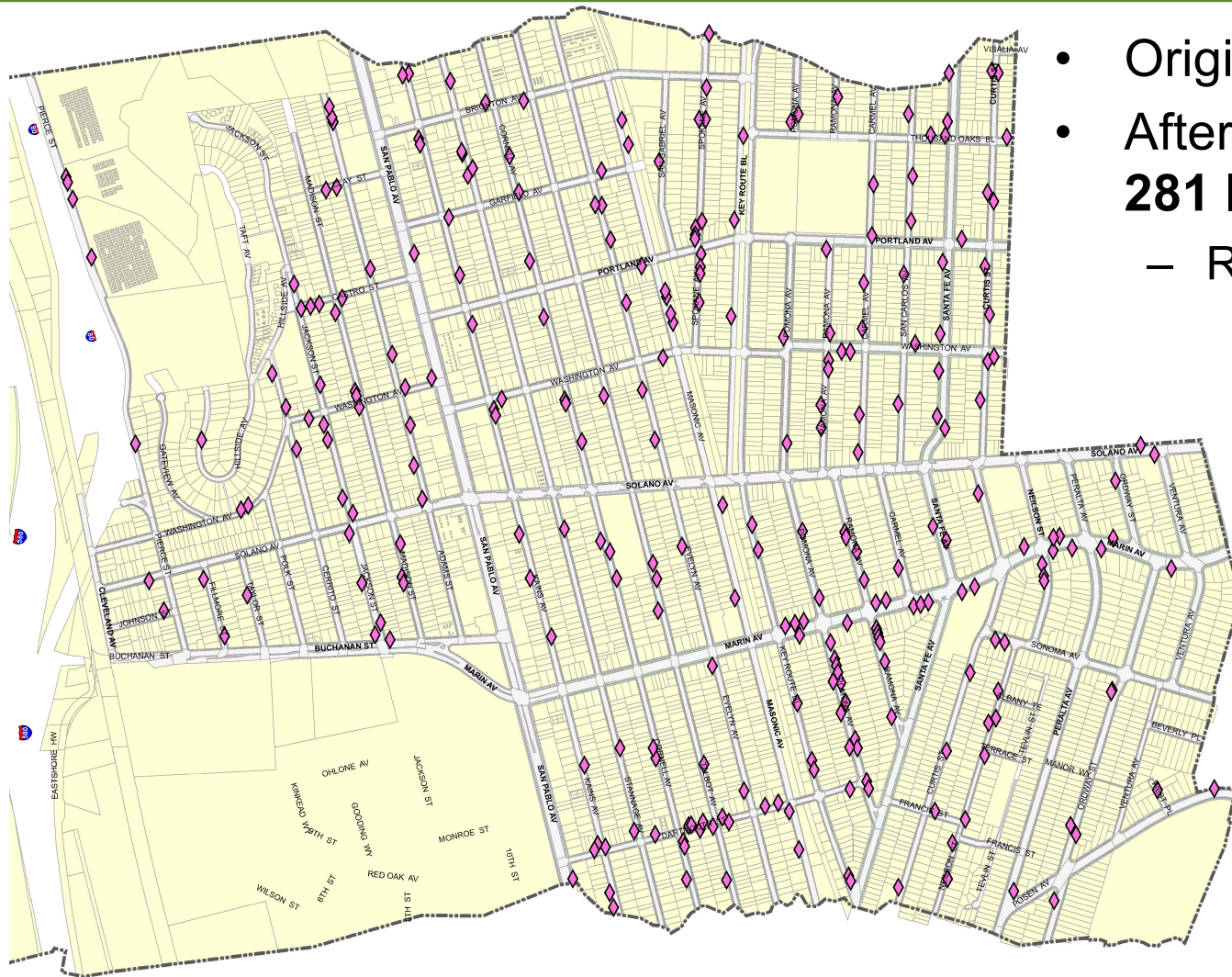


- Many unique categories
 - Observed...
 - Planar surface?
 - Perpendicular grade break?
 - Transition cross-slope, grade, length
 - Compliant width?
 - Direct approach (left/right) cross slope, grade, width
 - And 20+ more categories
- Single unique category
 - Height (in) of discontinuity

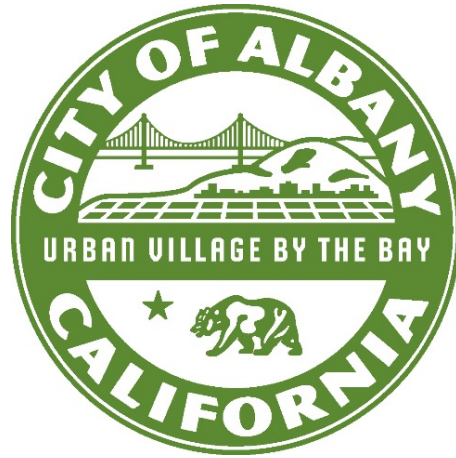
Unique Features

- 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

Transportation Commission
January 27, 2022

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

(1)

- **Preliminary scoping**

- ❖ Combine special needs complaints & safety issues with most hazardous locations via GIS

(2)

- **Field verification**

- ❖ Verify preliminary locations' survey data & take photos

(3)

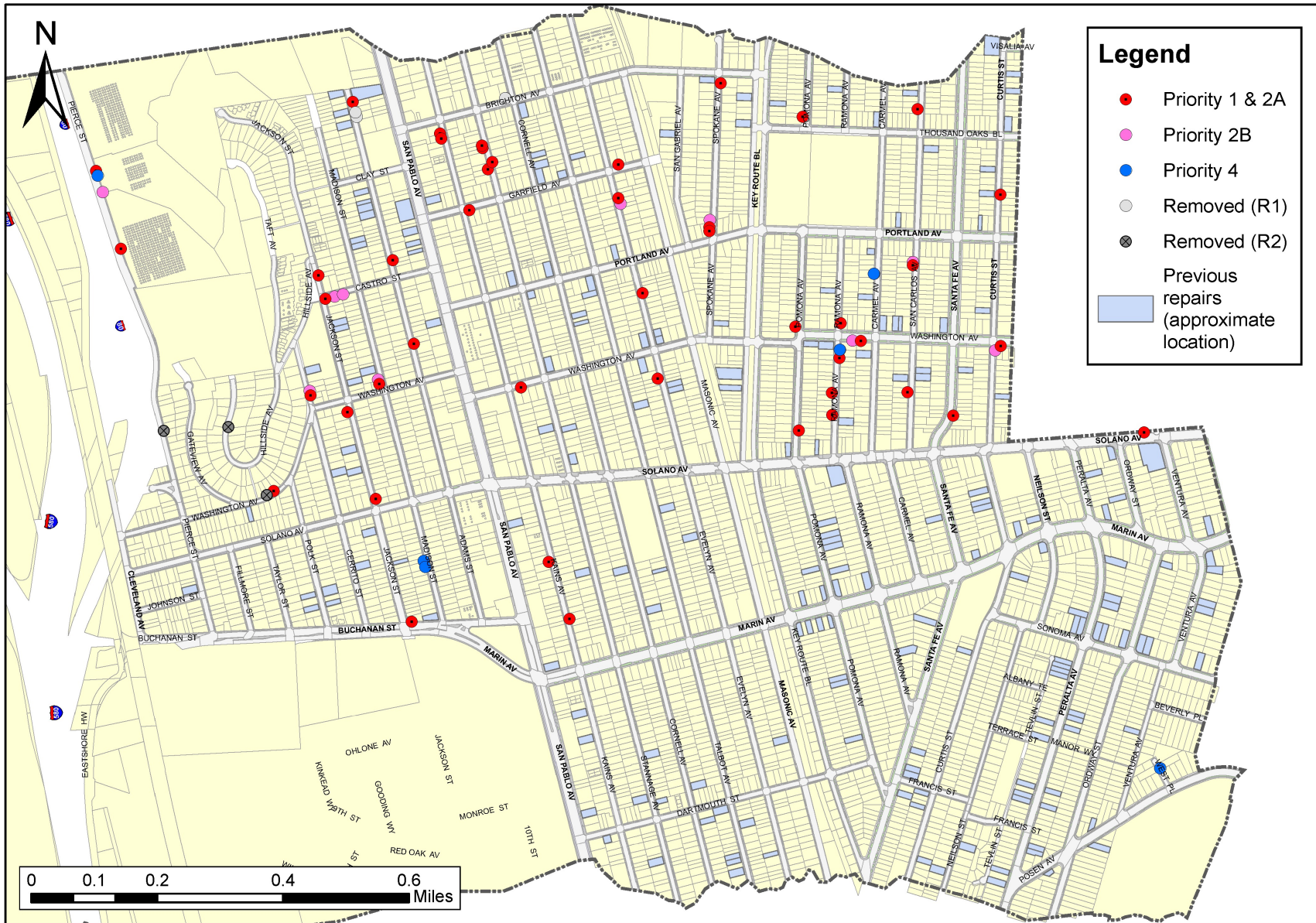
- **Final ranking**

- ❖ Adjust preliminary ranking & remove locations as needed

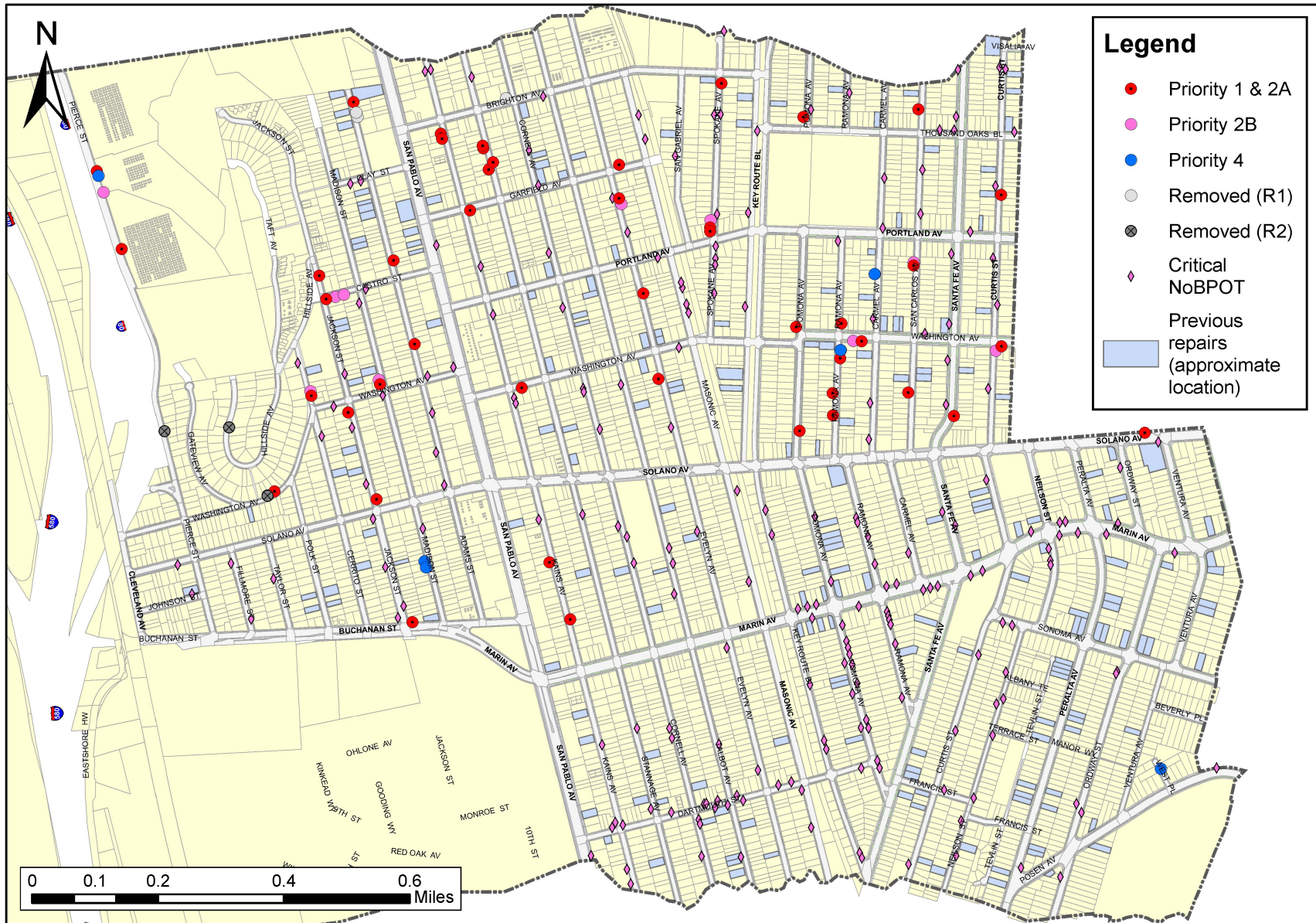
Repair Ranking – Phase 5

| 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



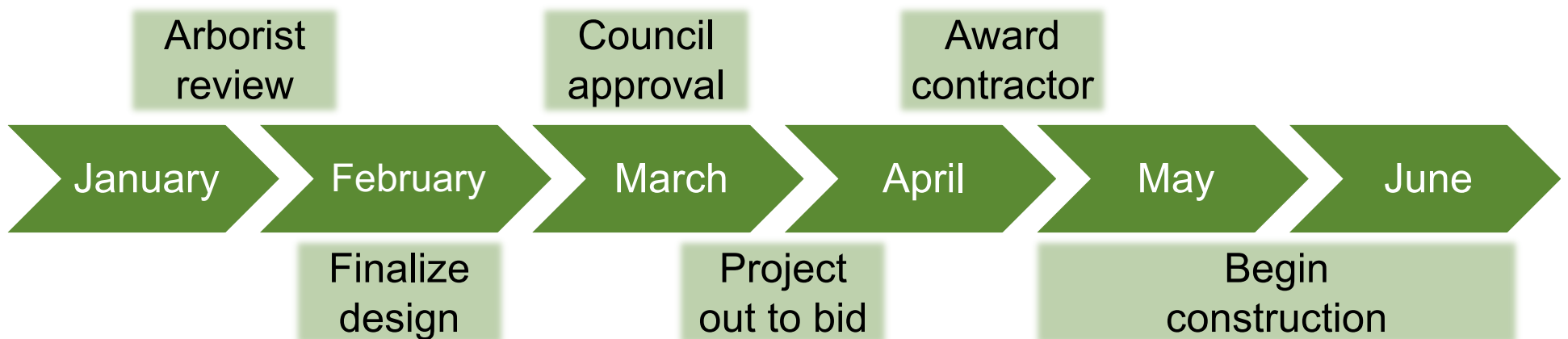
Repair List – Phase 5

- 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

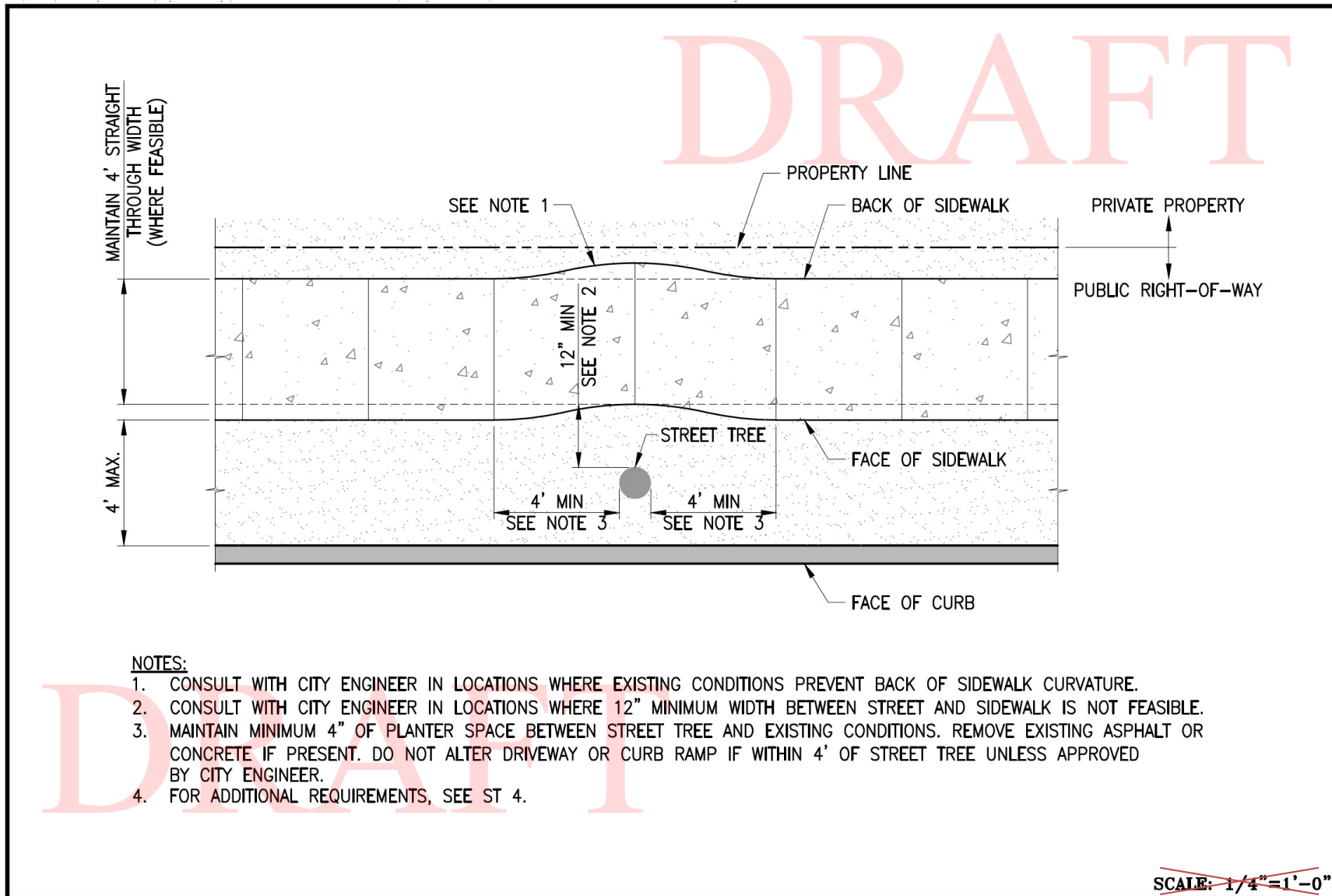
- Budget for FY21-22: \$450,000
- Estimated for Phase 5: \$253,000 (53 locations)
- Phase 4 Cost Comparison: \$217,000 (58 locations)

- 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 (≥ 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



QUESTIONS?

