CAMP Meeting – Sidewalks, Ramps, and Trees

City of Livermore

February 9, 2017

Agenda

- Walls Recap
- Sidewalk
- Trees
- Curb ramps

Walls Recap

Wall Inventory (General Fund vs. LMD)

- Total 183,322 ft or about 35 miles

Material	General Fund		LMD	
	Feet	Miles	Feet	Miles
Brick	6,135	1.2		
Concrete Block	68,411	13.0	21,022	4.0
Concrete Panel	13,622	2.6	23,180	4.4
Slump Block	19,871	3.8	1,050	0.2
Steel	1,500	0.3		
Stone	1,830	0.3		
Veneer Stone	8,031	1.5	9,040	1.7
Wood	9,630	1.8		
Total	129,030	24.4	54,292	10.3*
Estimated Cost ($)	$80.7M		$32.6M	

*Although 10 miles in LMD, there is no replacement funds currently being collected

Estimated Cost to Replace (General Fund)

- Established level of service: Elimination of high risk walls
  - Highest risk: Poor condition walls in high pedestrian traffic area
  - high pedestrian traffic → gateway → arterial → collector → residential
- High consequence and high probability of failure (poor condition) walls:

CoF	PoF	Estimated Cost
CoF 4 & 5	Condition 4	$9.8 M
High Ped		$0.8 M
Gateway		$4.9 M
Arterial		$4.1 M
CoF 4 & 5	Condition 5	$2.6 M
High Ped		
Gateway		
Arterial		$2.6 M
	Total	$12.4 M

Condition 5

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Condition 4

Policy Discussions

- Private vs. public benefits
  - Private: Security, privacy, sound reduction
  - Public: Aesthetics
- Potential solutions
  - Get rid of it, knock it down → no more wall
  - Replace wall with landscaping
  - City replaces it (share costs?) → give it to property owners to maintain
  - City continues ownership and shares the cost of replacement
    - City 25% vs. property owners 75%

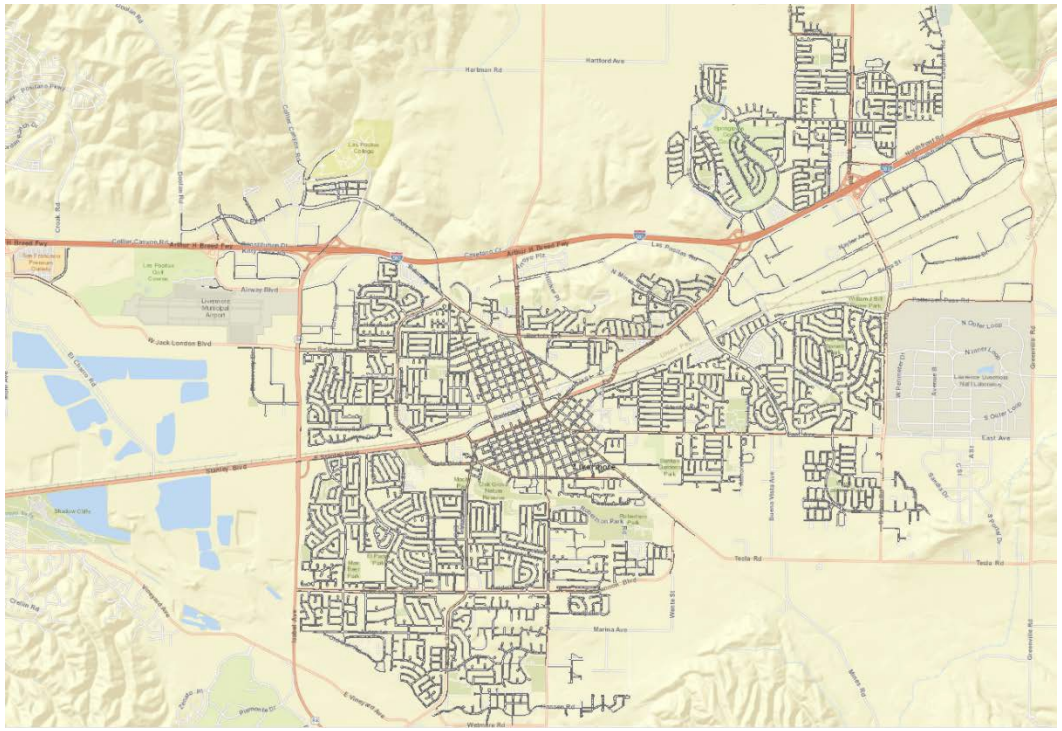
Policy Discussions

- Design standards for private walls
  - City mandated design
  - New development → 100% private responsibility
- Finding additional budget
  - Citywide infrastructure district
    - Town of Danville
  - Parcel tax → around $600 to $700 for parcels with walls

Sidewalk

Sidewalks

- The City has 16.2 million SF or about 3.6 million LF (682 miles) of sidewalks (estimate from GIS)
- Estimated total replacement cost: $194 million



Sidewalk Failure Modes

- Structural condition
- Sidewalk offset
  - A city can spend over $200K in settling fall injury
  - Average → $8 to $10K

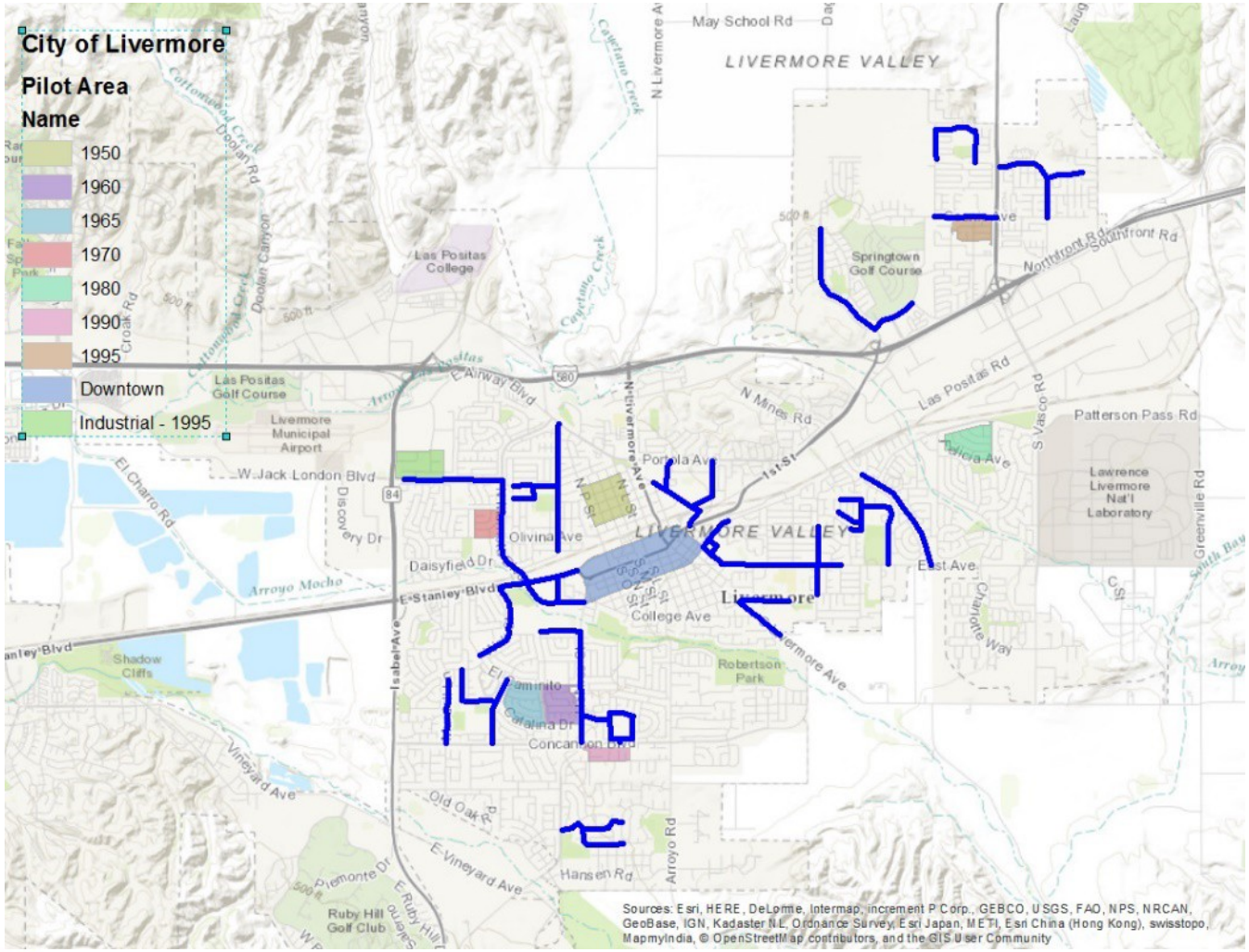
Sidewalk Assessment Methodology

- Sampling approach
- Understand trend (e.g., offset per feet, condition) by age
- Understand the cause
- Focus on problematic area
- Estimate cost of sidewalk repair
- Develop policies to sustain delivery
  - Based on risk
  - Based on life cycle cost

Pilot Area

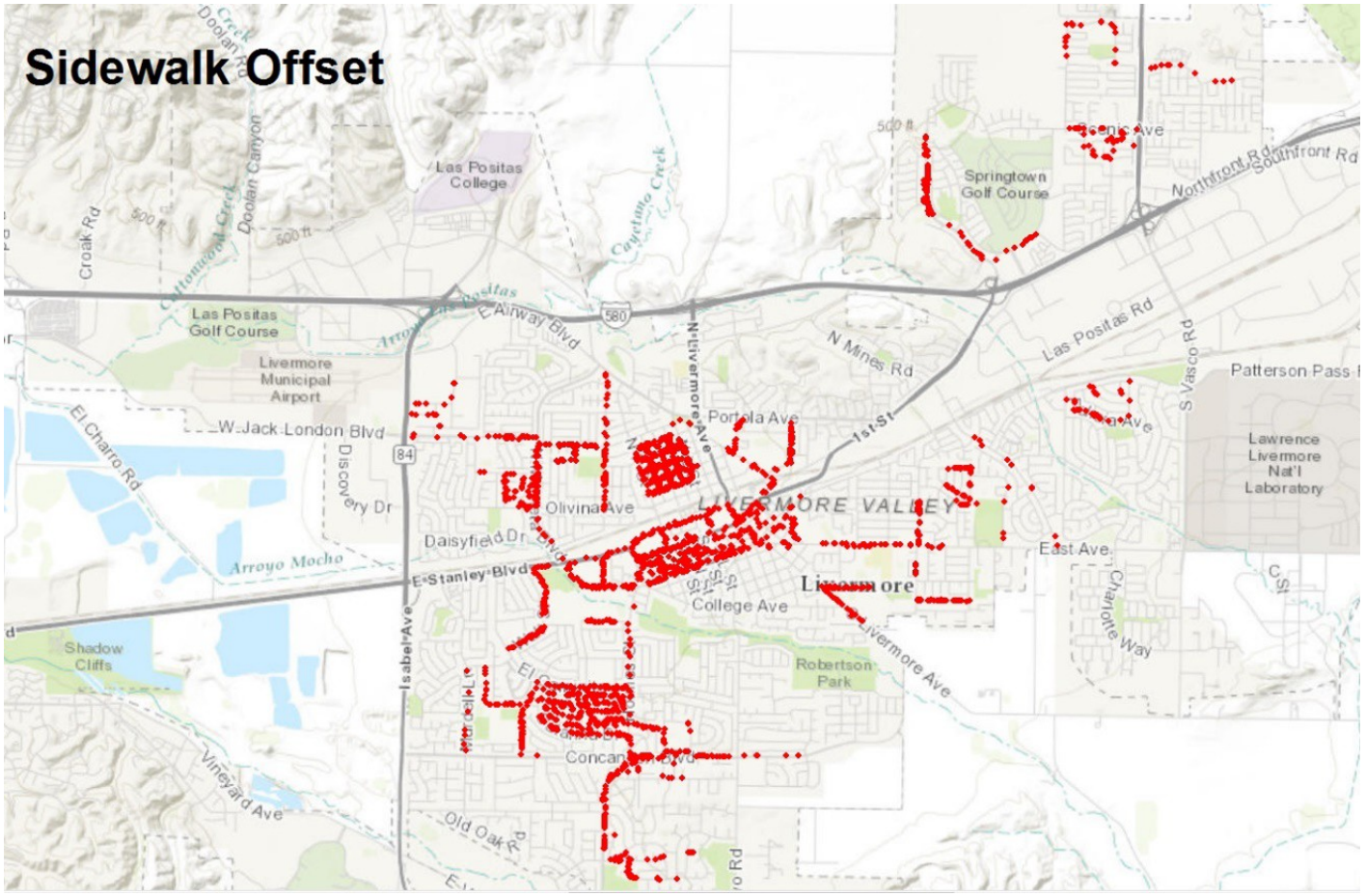
- Pilot area selected by decade (e.g., 50's, 60's, 70's, 80's, 90's, 00's) and high pedestrian area (i.e., downtown)
- Total pilot area 671,000 sq. ft. or about 28 miles (about 4% of total)

Pilot Area


City of Livermore
Pilot Area
Name
1950
1960
1965
1970
1980
1990
1995
Downtown
Industrial - 1995
May School Rd
LIVERMORE VALLEY
Springtown Golf Course
Northfront Rd
Southfront Rd
Las Positas College
Las Positas Golf Course
Livermore Municipal Airport
E Airway Blvd
N Mines Rd
Las Positas Rd
S Vasco Rd
Patterson Pass Rd
Lawrence Livermore Nat'l Laboratory
Greenville Rd
W Jack London Blvd
El Charro Rd
Discovery Dr
Olivina Ave
Portola Ave
N P St
N L St
N Livermore Ave
1st St
East Ave
Daisyfield Dr
E Stanley Blvd
College Ave
Livermore
Arroyo Mocho
Robertson Park
Shadow Cliffs
Isabel Ave
Vineyard Ave
E Vineyard Ave
Old Oak Rd
Hansen Rd
Arroyo Rd
Piemonte Dr
Ruby Hill Golf Club
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

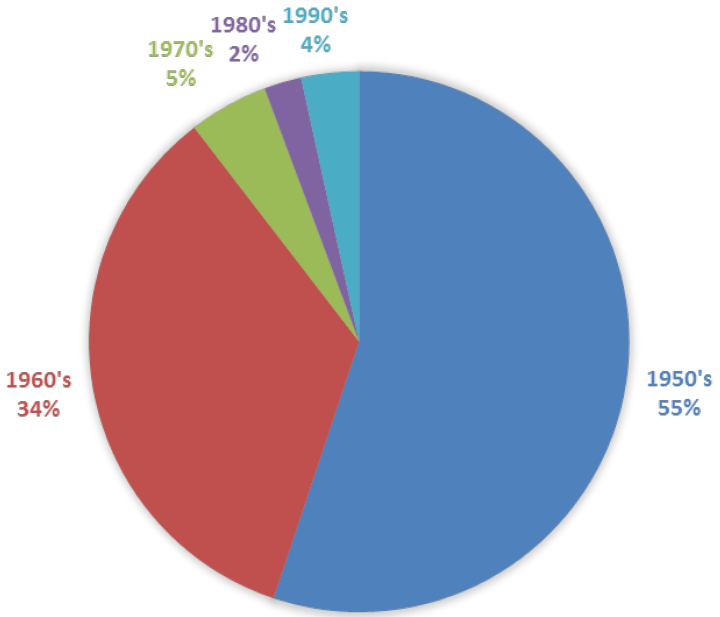
Sidewalk Offsets

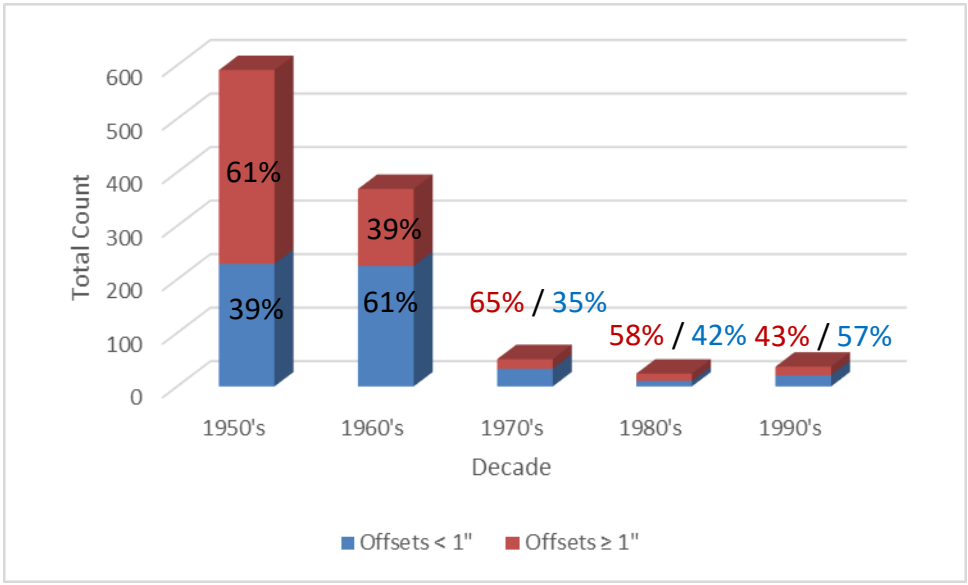
- Total 2,971 offsets found



Sidewalk Assessment Findings

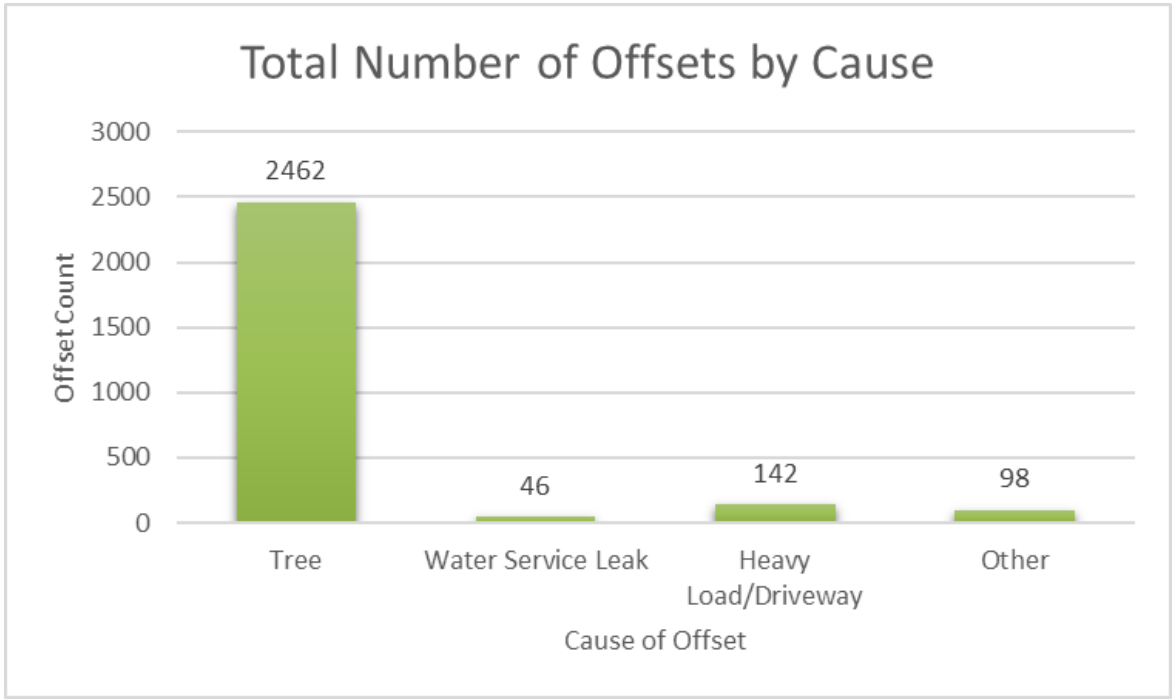
- Sidewalks are not failing from condition or age
- Offset frequency and intensity





Sidewalk Assessment Findings

- Offset cause
  - 90% due to tree root



Other: Cable, PG&E, Telephone, etc.

Estimated Sidewalk Offset Repair Cost

- Extract our findings from pilot areas to estimate cost for Citywide

- Estimated cost to repair sidewalk offset: $12.3 million
  - Offset less than 1 inch: Grind/plane → $100
  - Offsets greater than 1 inch: Remove and replace → $750
  - Offsets caused by tree: Remove and replace; cut root; install root barrier → $1000

Asset Risk

- Probability of Failure
  - Structural condition
  - An offset of greater than ½ inch exists or not
- Consequence of Failure
  - Size of offset
  - High pedestrian traffic area
  - Street Class: Residential > Collector > Arterial

CoF Rating Scale

- CoF Rating
  - CoF 5
    - Offsets greater than an inch in high pedestrian area
  - CoF 4
    - Offsets less than an inch in high pedestrian area
    - Offsets greater than an inch in residential area
  - CoF 3
    - Offsets less than an inch in residential area
    - Offsets greater than an inch in collectors
  - CoF 2
    - Offsets less than an inch in collectors
    - Offsets greater than an inch in arterials
  - CoF 1
    - Offsets less than an inch in arterials

City of Livermore Sidewalk Inspection Program

City Objective

Implement an effective, sustainable program to repair and maintain sidewalks.

Documenting Deficiencies

- Annual planned inspections & call ins
- Prioritize Deficiencies Based on Use, Location, Pedestrian Volume
- Notify Fronting Property Owners Regarding Deficiencies

Annual Capital Improvement Project - $225,000 (Transportation Funds)

- Over the past 8 year City has repaired ~ 135 locations per year (current list is about 850 locations)
- An additional 135 new sites to the list each year.
- Shared costs with homeowners paying 75% of construction cost.
- High admin costs due to noticing reqt's and documentation procedure

Liability and Risk Management

- California Street & Highways Code – Sidewalks are Unique!
  - Section 5610 of the California Street & Highways Code places the responsibility of maintaining sidewalks in a safe condition on fronting property owners.
- Currently homeowners have some liability exposure but it is limited to the cost of repair of the sidewalk.
  - Liability for injury is with the City unless we adopt an ordinance shifting liability to property owner
- Claims paid by the City in the last 10 years- approximately $500,000
  - On the average $8K to $10K per incident

Other Agencies

- How Do Other Agencies Manage Sidewalk Repair?
  - Surveyed Nearby Bay Area Agencies – Alameda, Alameda County, Berkeley, Danville, Dublin, Fremont, Oakland, Pittsburg, Pleasant Hill, Pleasanton, Rancho Cordoba, Sacramento, San Jose, San Leandro, San Ramon, Tracy, Vallejo and Walnut Creek.
    - Majority of agencies (10) place 100% responsibility of maintenance with property owners.
    - Some agencies (3) cover all costs.
    - Remaining agencies (6) have cost sharing programs.
    - All agencies have limited budgets and must operate within the limitations of their budgets.
- Agencies who have ordinances placing full liability on property owners
  - San Jose, Sacramento, Walnut Creek

Level of Service

- Level of service
  - Mitigate high risk

Methodology for Mitigation

- Root barriers
- Structured soil
- Horizontal planing vs. grinding
- Tree species
- Updated design standards

Policy Discussions

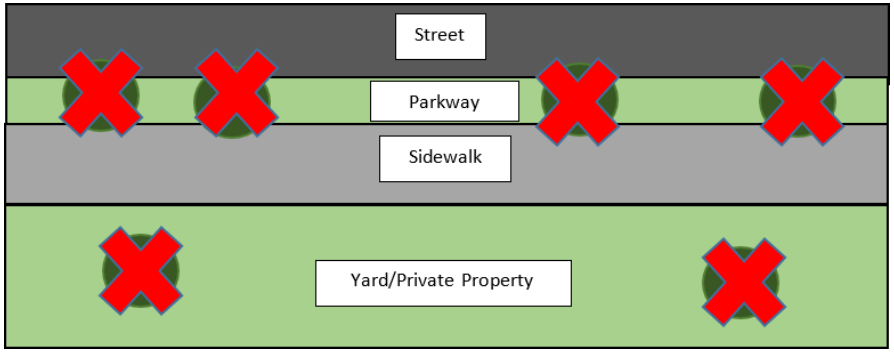
- Who is responsible for maintenance
  - Public, private, or shared
- Who is responsible for injury
- Property owners fully responsible for sidewalk maintenance by passing ordinance
  - Reference: California Street and Highway Code 5610
  - Divest maintenance responsibility of sidewalk from City over 10 years to property owners
- Property owners must repair sidewalks before changing ownership
- Shift full liability to property owners
  - Over time vs. immediate
- Tree replacement
  - Replace tree to new standard at sidewalk time of repair and/or at sale

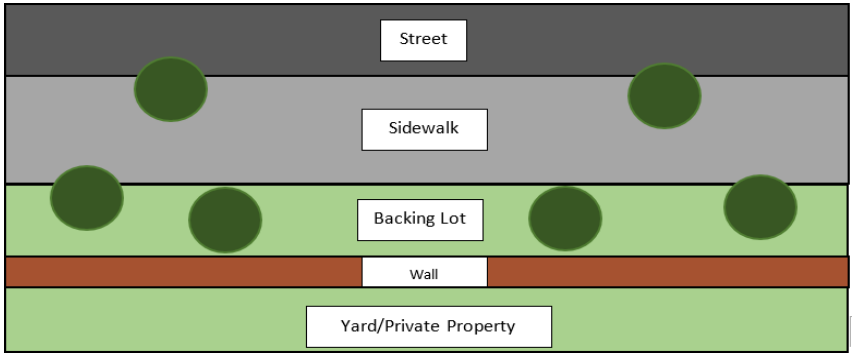
Trees

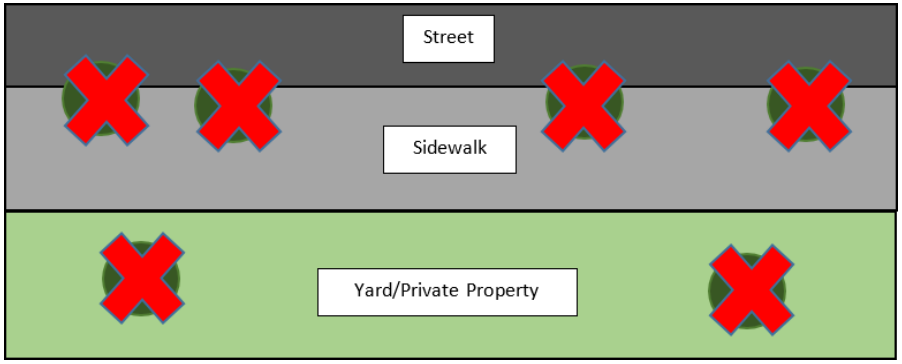
Data Collection Methodology

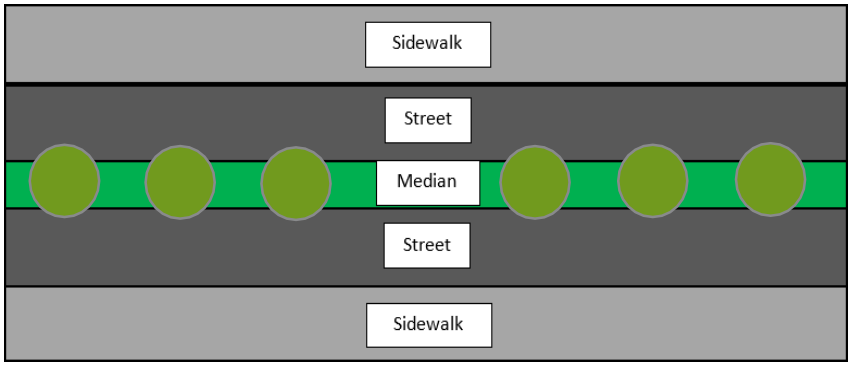
- Locations
  - Parks
  - Buildings
  - Downtown area
  - Pilot areas
  - Streets
    - All arterials
    - Some collectors
    - Medians
- Tree types
  - Evergreens
  - Deciduous
  - Palm
  - Eucalyptus
  - Stump
  - Dead/dying

Data Collection Methodology









City Trees by Type

- Trees inventoried: 13,573
- Estimated citywide: 14,823

Tree Inventory		
	Counted	Estimated Citywide
Deciduous	11,746	12,828
Eucalyptus	203	222
Palm	16	17
Evergreen	1,487	1,624
Stump	17	18
Dead Trees	104	114
Total	13,573	14,823

City Trees by Location

Tree Inventory		
	Counted	Estimated Citywide
Arterial	6,174	6,174
Collector	498	1,317
Local/Residential	178	609
Downtown	1,334	1,334
Median	3,087	3,087
City Park	1,238	1,238
City Building	1,064	1,064
Total	13,573	14,823

City of Livermore Tree Ordinance

- Street trees are City property
  - “Street tree” means any plant form planted and maintained within the public right-of-way
  - The property owner or occupant of any premises having street trees in front of or adjacent to such premises are responsible for trimming trees
    - Trimming guidelines are provided
  - Application to the City is required prior to trimming, root pruning, or removal of street trees, in or upon any street right-of-way, parkway strip, sidewalk, park, landscaped area, playground, or other public area in the City

Tree Replacement Cost and Maintenance

- Management Strategy

Tree Type / Location	Useful Life	Replacement Cost ($)	Maintenance Frequency (Event/Yr)	Maintenance Cost ($) / Event
Deciduous	50	1,750	3	84
Eucalyptus	50	1,750	3	245
Palm	50	1,750	1	24
Pine	50	1,750	3	180
Stump	125	975	50	1,250
Deciduous-Park	125	1,750	3	84
Palm-Park	125	1,750	1	24
Pine-Park	125	1,750	3	180

- Replacement Cost: $26M (does not include street trees)
  - Removal: $975
  - New tree: $775

Risk

- Probability of Failure
  - Age, type, environment
  - Condition (Dead/dying)
- Consequence of failure
  - Combination of safety (type, size, pedestrian activity, proximity to parking) and aesthetics
    - High pedestrian area, high parking area, downtown area
    - Gateway
    - Arterial
    - Collector
    - Residential

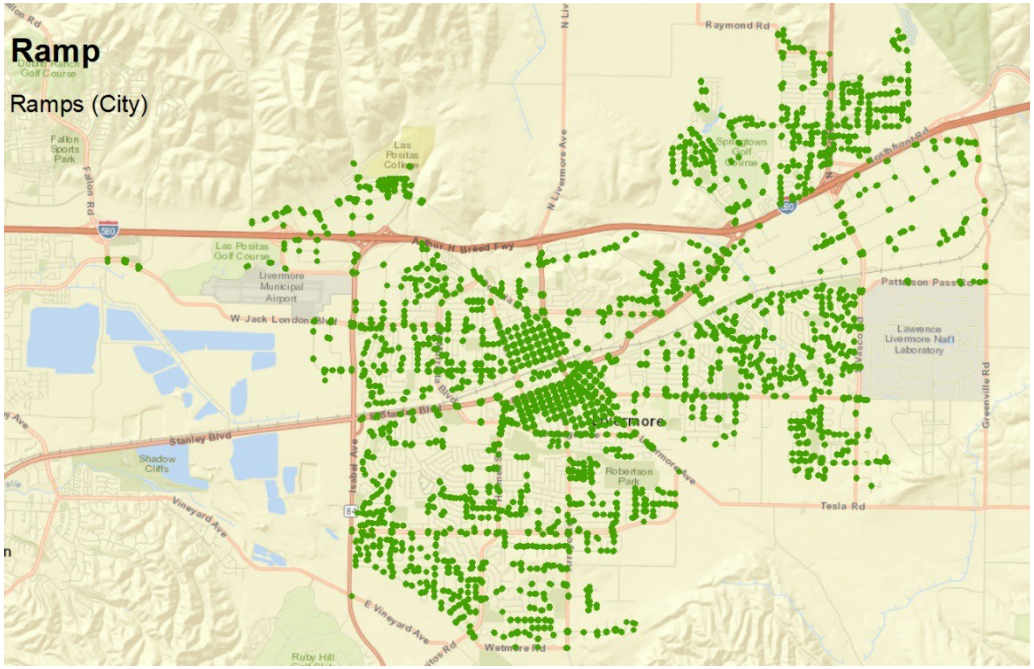
Policy Discussions

- Who is responsible for trees?
  - Need to revisit City ordinance
    - Damage vs. maintenance
  - Need to revisit street tree plan

Curb Ramps

Curb Ramps

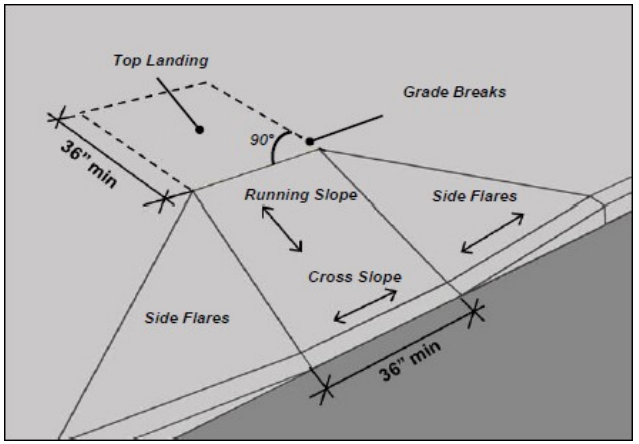
- It is estimated that the City has about 8,000 ramps or locations where the ramps should be
- Estimated replacement cost of each ramp: $6,000
- Estimated Total Replacement Cost: $48 million

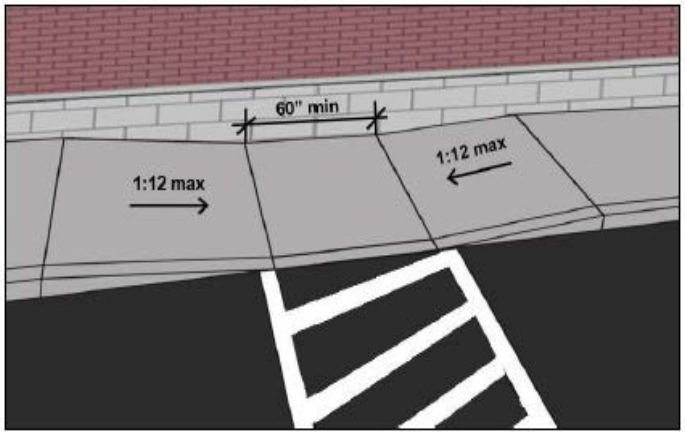


Failure Modes

- Structural
- Level of Service
  - ADA regulatory compliance

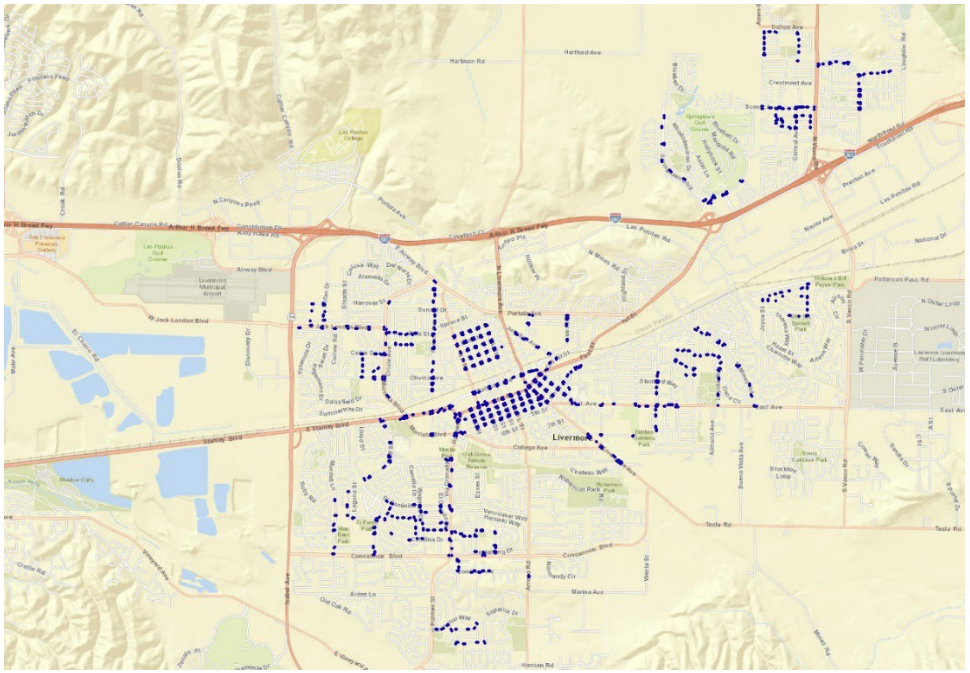
ADA Requirements





Curb Ramps Evaluated

- Sampling Approach (Pilot Areas)
- 1,187 ramps inventoried and assessed (about 15% of the estimated total)



Curb Ramp Assessment

Area	Count	Percent
Compliant	333	28%
Non-Compliant	704	59%
Non-Existent*	150	13%

*Locations where pedestrians would be expected to cross the street

Estimated Curb Ramp Compliance Cost

- Extract our findings from pilot areas to estimate cost for Citywide

- Estimated cost to retrofit/construct curb ramps: $18.4 million
  - New ramp construction: $6,000
  - Retrofit existing ramp: $6,000 → *in order to change the slope and width, you pretty much have to rebuild it*
  - Add detectable warning surface: $500
  - Smooth out transition: $150

Risk

- Probability of Failure
  - Structural condition
  - Meet ADA requirements or not
  - Existence of ramp
- Consequence of Failure
  - High pedestrian traffic area (downtown)
  - Street Class: Residential > Collector > Arterial

Policy Discussions

- Prioritize construction of non-existing ramps vs. retrofit of existing ramps?
  - Based on pedestrian risk?
  - No ramp before other ramps
- Low hanging fruit first?
  - Partial compliant ramps first
- Should the City retain management of ADA ramps or transfer to property owners (inline with sidewalk policies)?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