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Santa Clara Area Plan

Green Infrastructure

August 20, 2025

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Green Infrastructure Master Plan Design Process

Work Flow

1. Referenced the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP)
2. Developed a Green Infrastructure (GI) option menu from SCVURPPP
3. Evaluated site conditions (flooding, foot traffic, groundwater)
4. Identified locations for GI mitigation strategies (conceptual plan)
5. Identified GI options for land use typologies (cross sections)

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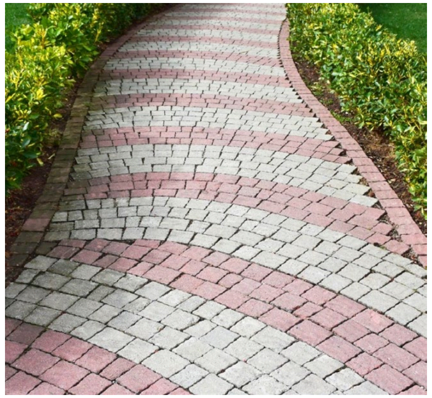
Green Infrastructure Elements

From SCVURPPP Stormwater Management Handbook

Pervious Pavement



Rainwater Harvesting (RWH)

Bioretention Area

Flow Through Planter Box

Tree Well Filter

Green Roofs

Subsurface Infiltration

Extended Detention Basin

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Green Infrastructure Elements

From SCVURPPP Stormwater Management Handbook

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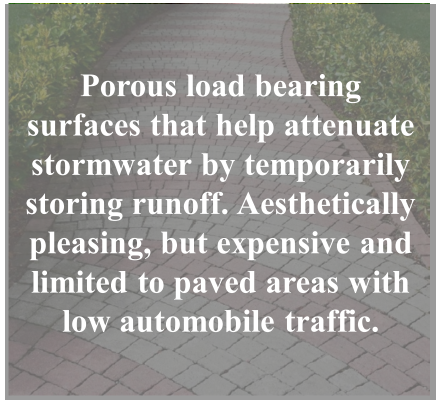

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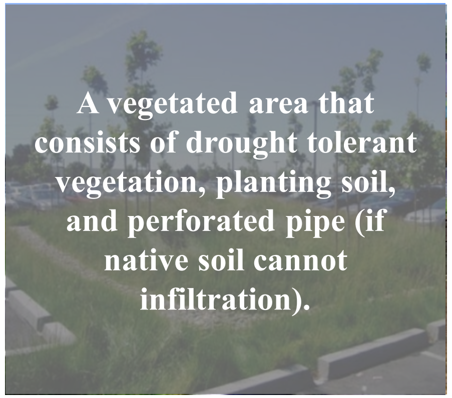

Flow Through Planter Box

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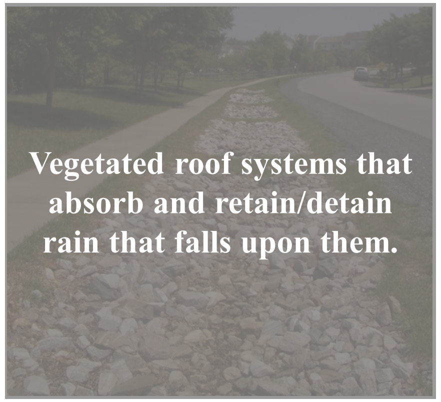
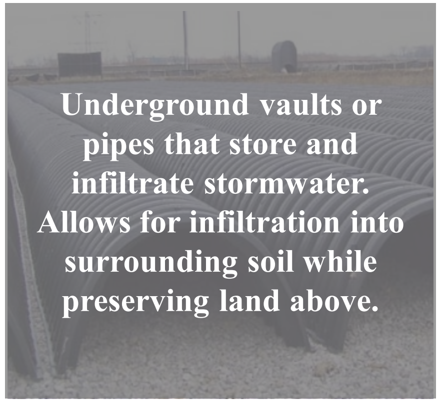
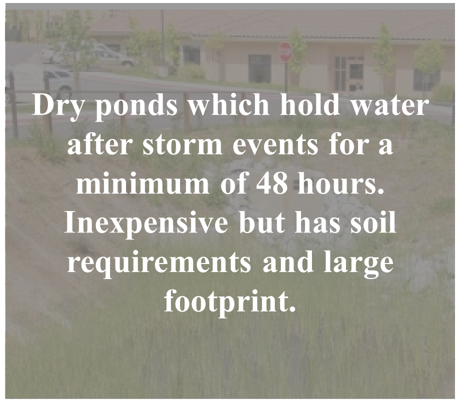


Infiltration Trench



Subsurface Infiltration



Extended Detention Basin

Site Conditions: 100-Year Flood Map

City of Santa Clara Storm Drainage Master Plan (2015)

- 0.1-1.0 ft flood depth within parcels 1 to 13
- Natural pooling within green area for parcel 13
- Pooling within residential areas for parcels 1, 3, and 11
- Pedestrian/biking traffic expected around parcel 10 and along Benton St., Brokaw Rd, El Camino Real, & Franklin St.

Site Conditions: Proposed GI Plan

Conceptual Design

- Prioritized detention over infiltration due to the high groundwater table
- Assumed impermeable lining for detention in areas due to high groundwater, aim to promote infiltration without a liner if groundwater levels allow (requires site specific investigations to confirm)
- Innovative solutions showcased around the station
- RWH can be used for irrigation (no treatment, <5,000gal storage) or toilet flushing (filter & disinfection)

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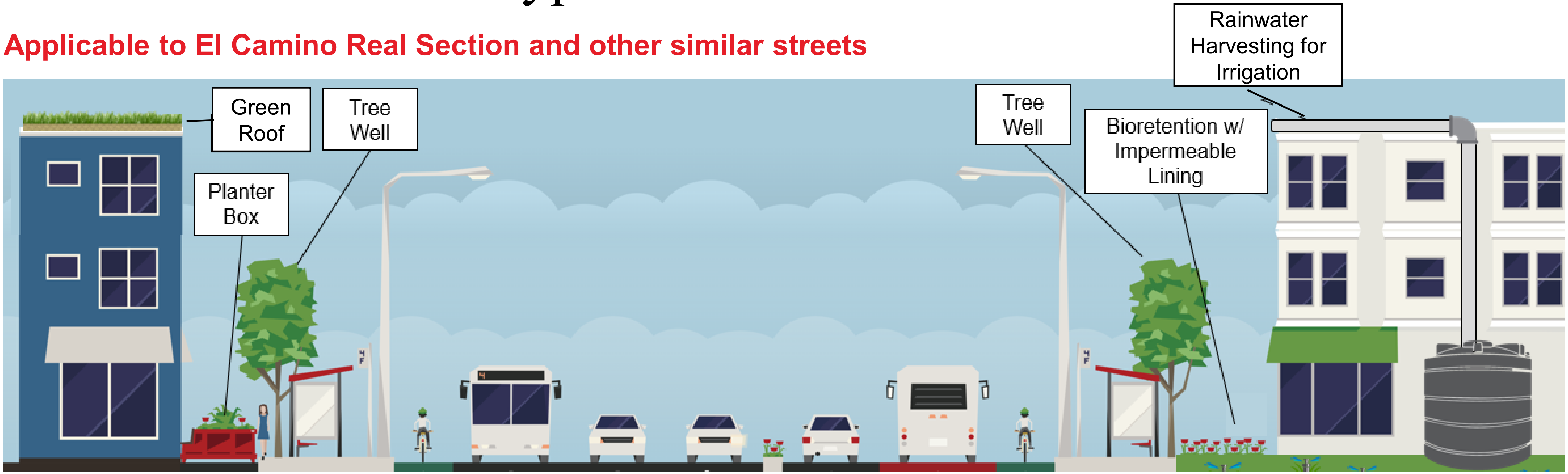
GI Identification for Typical Streets

Applicable to El Camino Real Section and other similar streets



- Focus on the resident (public transit, biking, pedestrians), including reducing urban heat island affect from asphalt.
- Moderate space constraints are anticipated.
- Tree wells, planter boxes, and bioretention have footprint and detention capacity tradeoffs to consider.
- Green roofs require less maintenance and reduce urban heat island affect compared to RWH.

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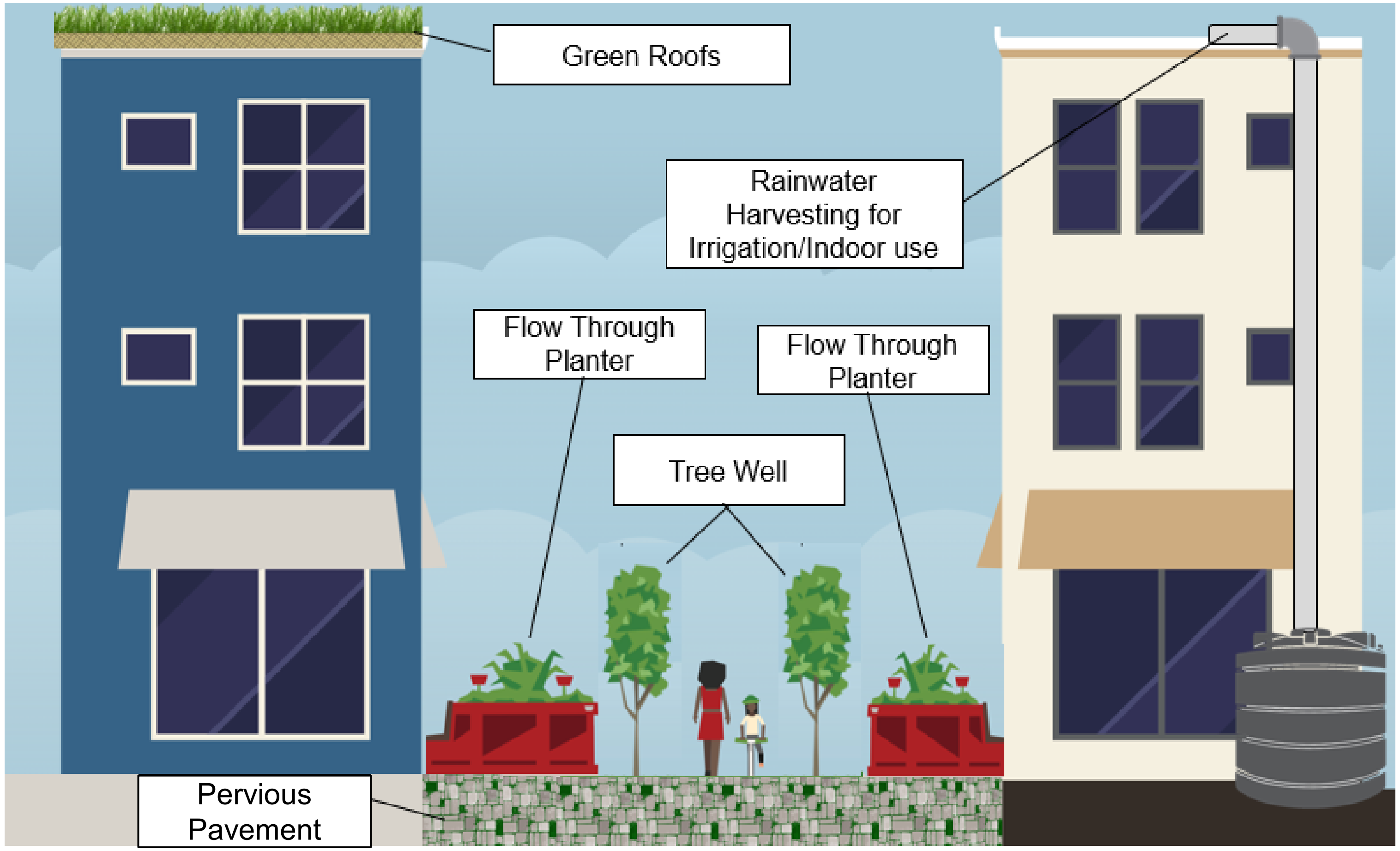
GI Identification for Mixed Use Development

Applicable to Parcel 9

- Focus on aesthetics for commerce and operational cost savings for buildings.
- Space constraints anticipated.
- Green roofs provide co-benefits of thermal insulation for offices and retail spaces.
- RWH can supply irrigation for landscaped areas and toilet flushing in high-occupancy buildings.
- Pervious pavement stores water in pores reducing flooding in retail seating areas.
- Tree wells to provide shade and stormwater detention (greater compatibility with roof interventions).



GI Identification for Residential Land Use

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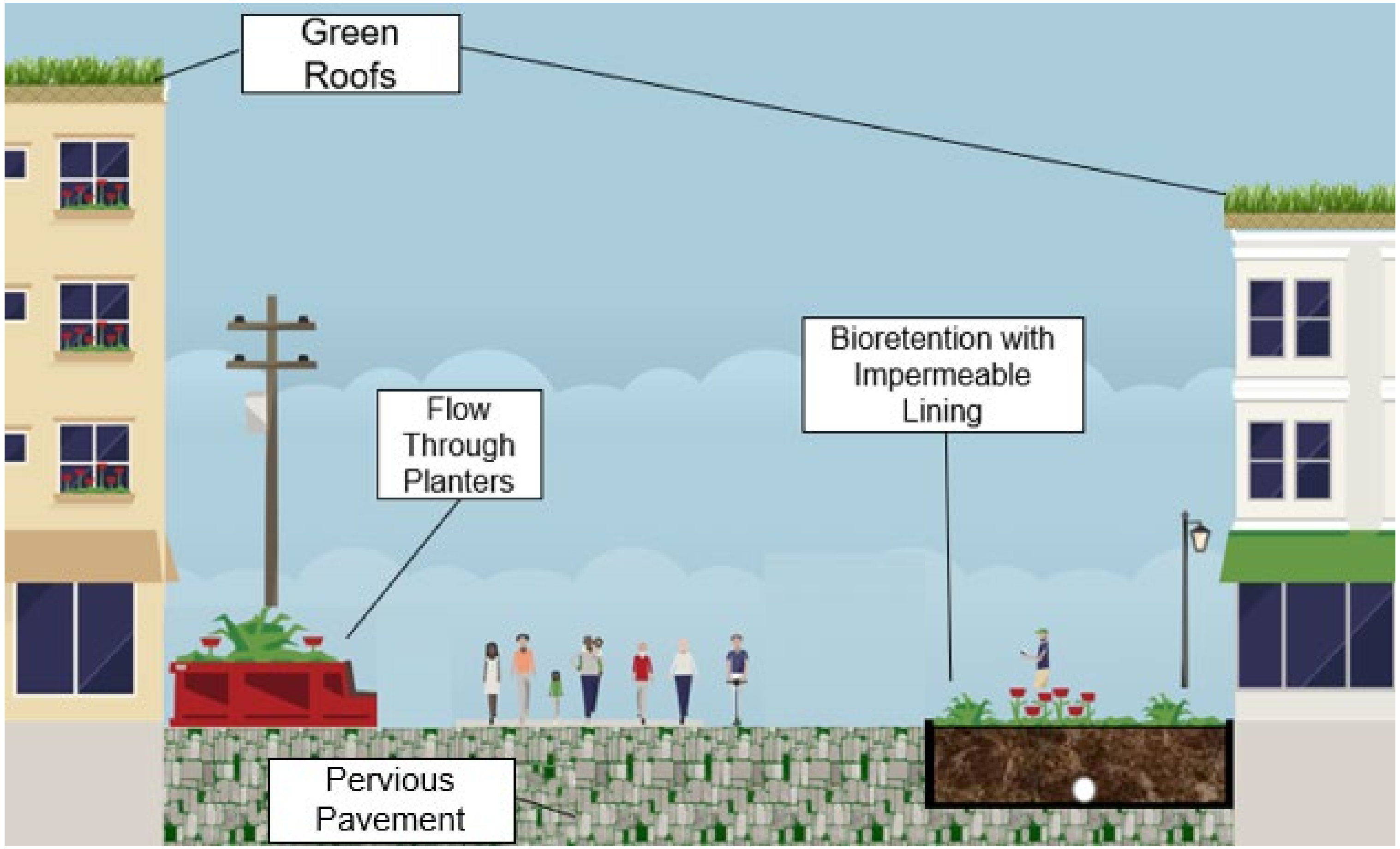
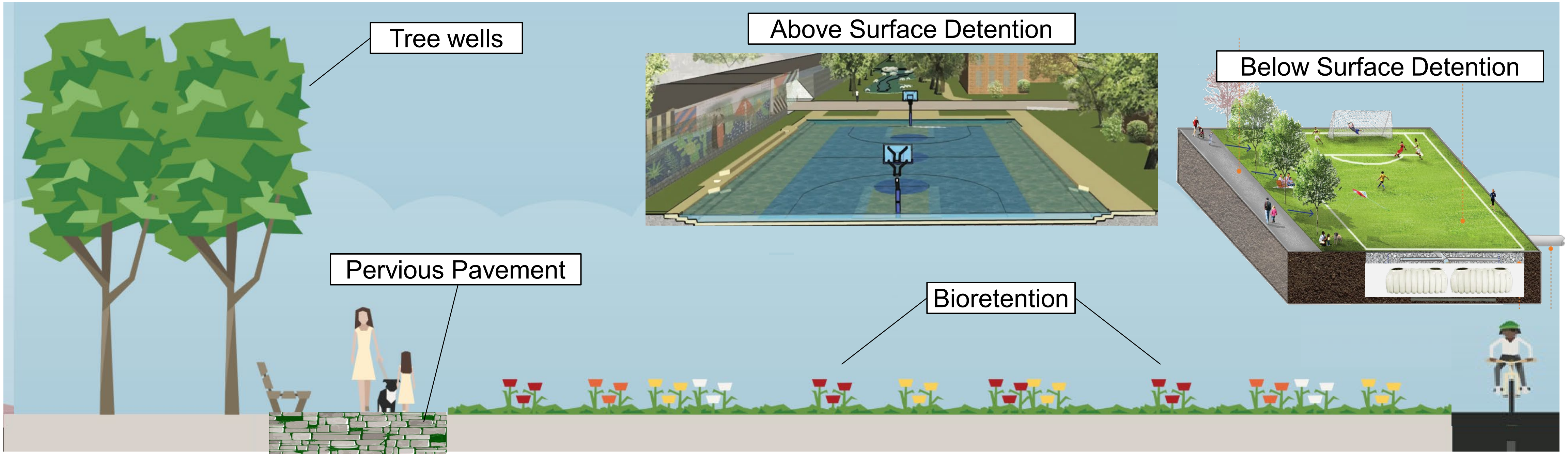
Applicable to Parcels 1 & 3

- Focus on detention capacity relative to other typologies.
- Greater space for GI relative to other typologies.
- Green Roofs provide insulation & detention with co-benefits for air quality & property value.
- Bioretention reduces localized flooding and is low maintenance.
- Flow through planters offer a low footprint alternative to bioretention.
- Pervious Pavement provides retention in pores and is a durable low-maintenance surface for residential walkways surface, preventing puddling & ice formation.



GI Identification for Parks/Open Spaces

Applicable to Parcels 6 & 13



- Bioretention is a cost-effective detention solution that is compatible with park landscapes, providing detention & habitat value.
- Extended Detention (Above Surface) is floodable park space that can double as area for recreation (i.e. depressed basketball courts, ponds). It is more expensive than bioretention but offers greater attenuation.
- Extended Detention (Below Surface) would store runoff in storage tanks below ground. This ensures that recreation space is available more readily following storm events but has the greatest capital cost.

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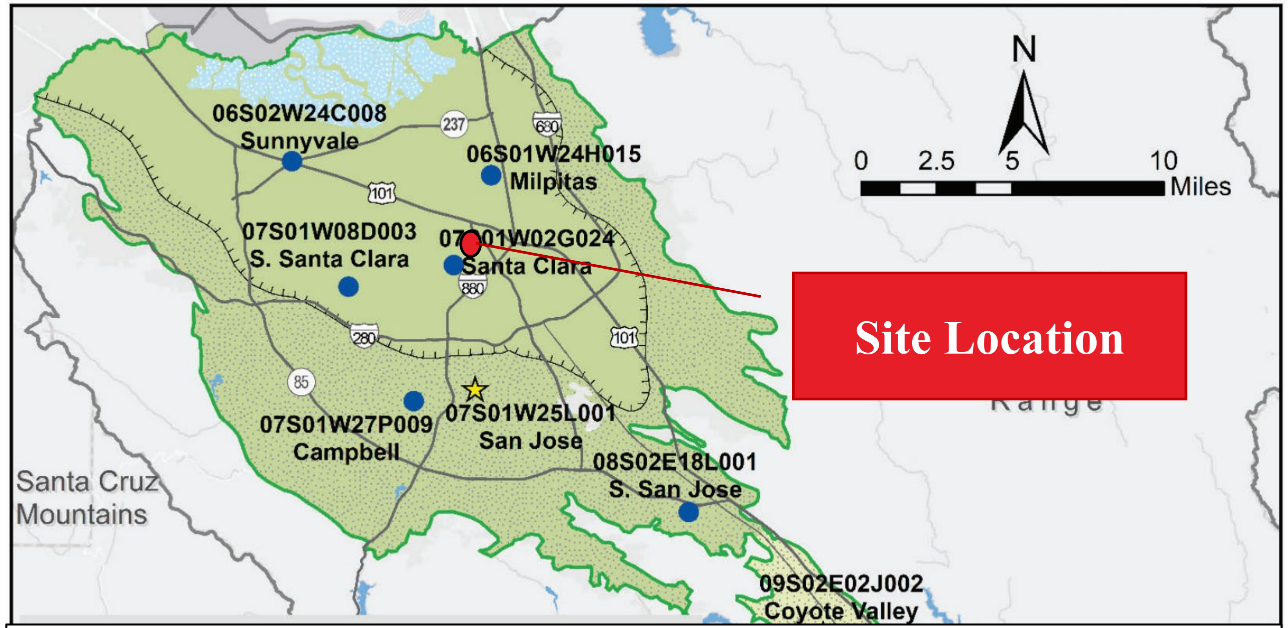
Appendix

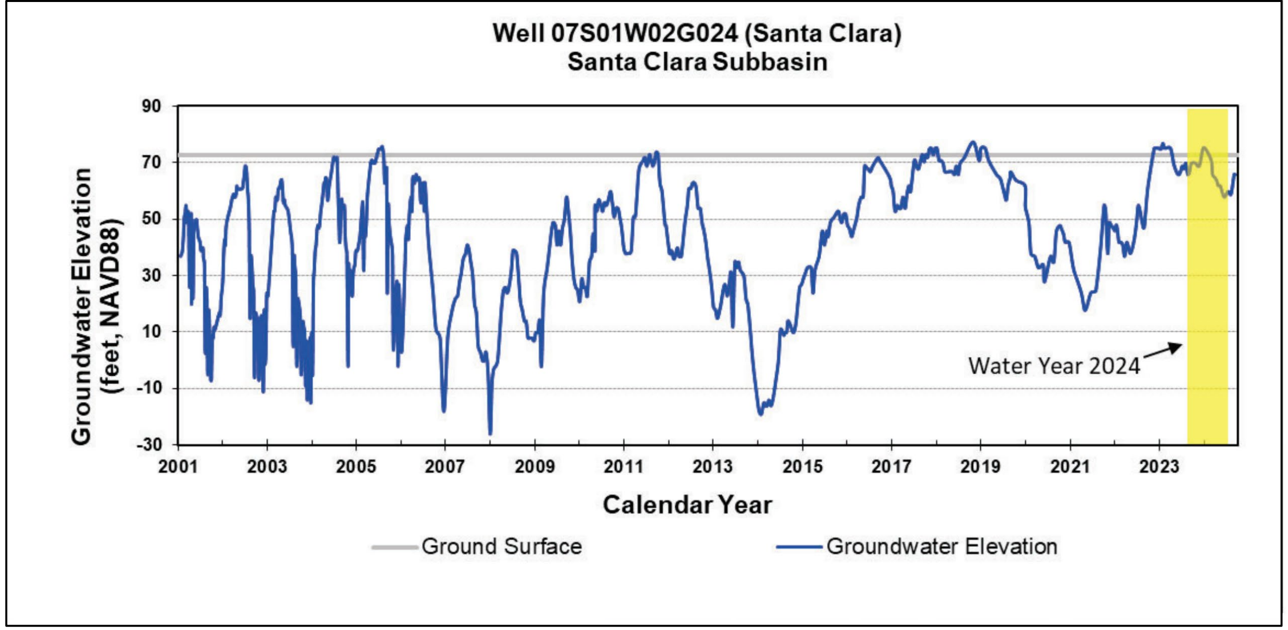
Groundwater Elevation

[Valley Water Annual Groundwater Report (2024)]

- 07S01W02G024 Santa Clara is within 300ft of the station (inside parcel 10)
- Water table rose above ground level 5 times in last 10 years
- Level varies 0ft to 35ft below ground level
- Two additional wells within the site boundaries, but private wells so no public data available

Figure 12. Regional Groundwater Elevation Monitoring Wells





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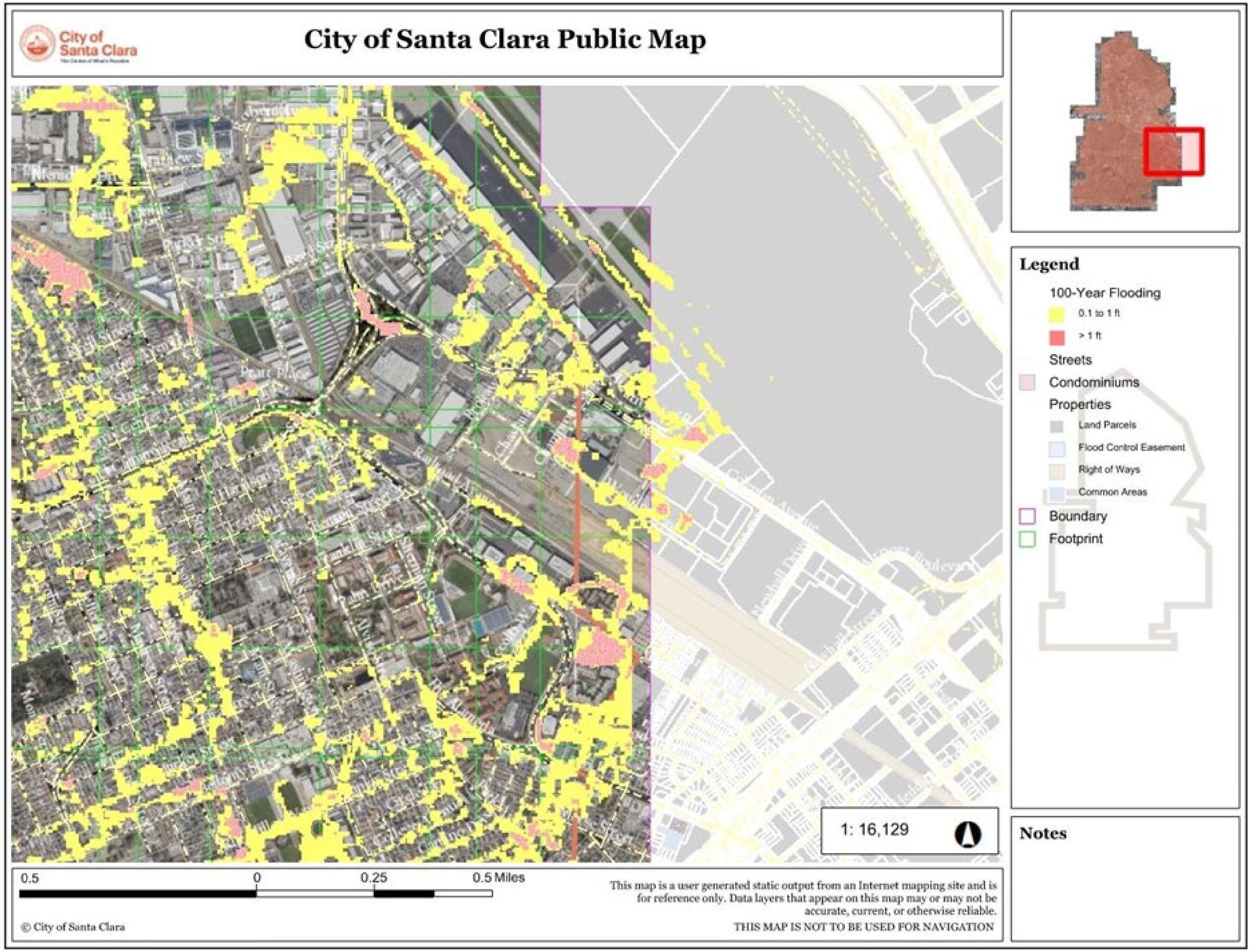
Existing Conditions

Existing isolated flood areas per City of Santa Clara Storm Drainage Master Plan, 2015



Existing Conditions

FEMA flood zones in the vicinity of Santa Clara Station