



Stormwater Master Plan Update

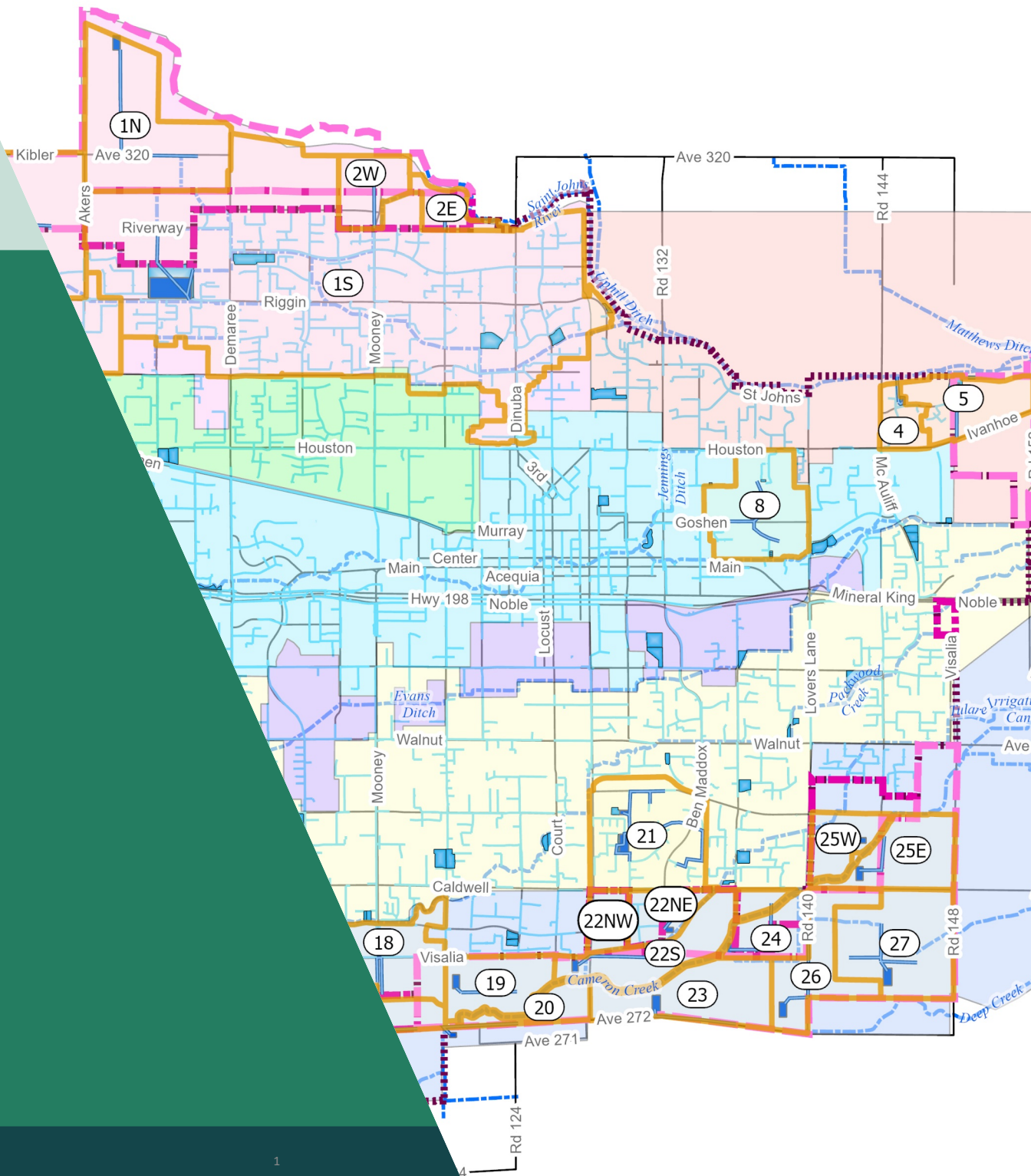


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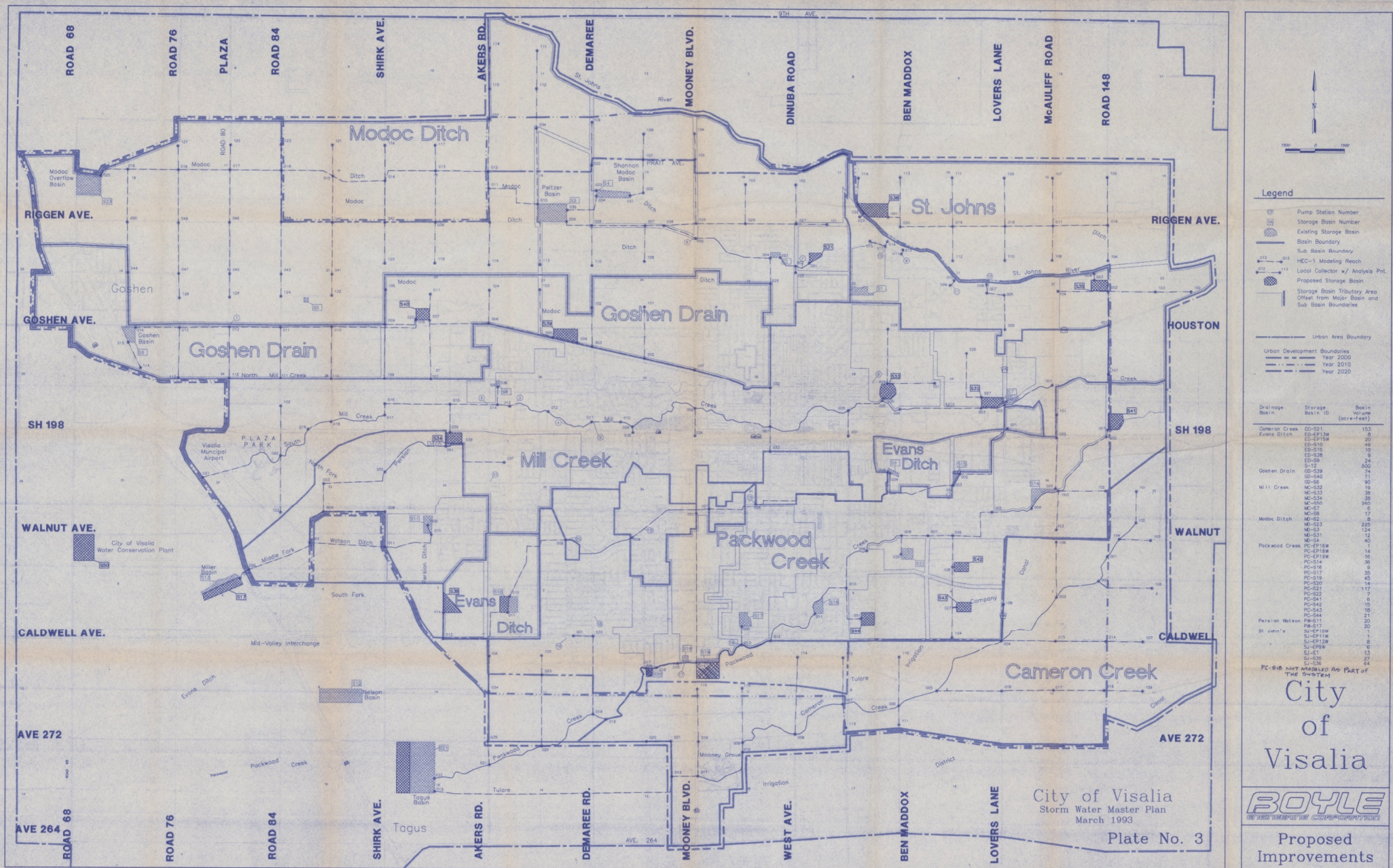
- 1 Purpose
- 2 Storm Master Plan Overview
- 3 Next Steps

Purpose

- **Maintain the Current Level of Protection**
- Model growth per 2030 General Plan land uses
- Assess capacity of the existing storm system
- Identify needed improvements to support growth per 2030 General Plan
- Provide direction for incoming development
- Provide costs for the update of the Storm Construction Developer Impact Fee

Storm Master Plan Redevelopment

- The adopted 1994 Storm Master Plan relies heavily on discharging directly to waterways
 - St Johns River, Modoc Ditch, Mill Creek, Evans Ditch, Packwood Creek, and Cameron Creek
 - Assumes space to enlarge waterway channels
- The 2026 Storm Master Plan focuses instead on regional retention basins



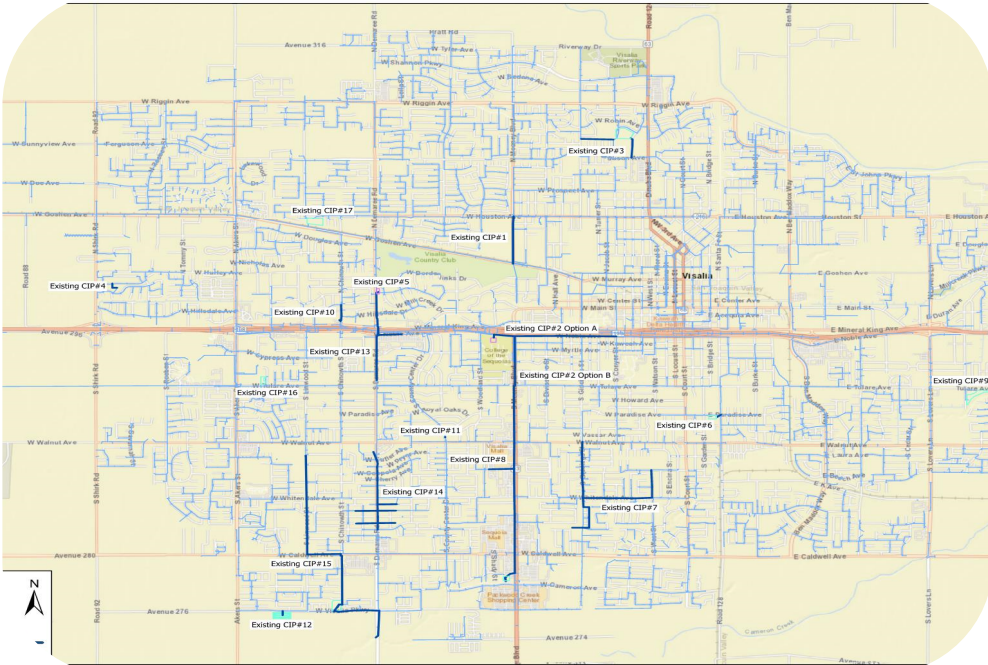
Evaluation of the Existing Drainage System

A Contemporaneous Approach

Contemporaneous Evaluation of the Existing Drainage System

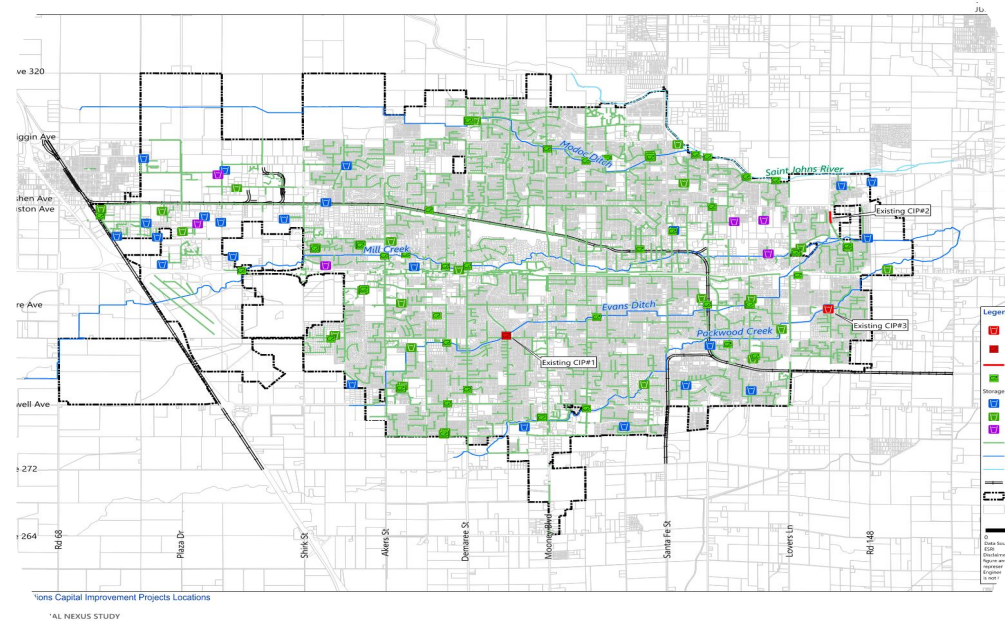
- Instead of evaluating the existing system based on the most current standards, evaluate the system based on the standards that applied *at the time of installation*
 - Avoids moving the goalposts

System Deficiency Projects



“Deficiencies” Identified Using a 10-year, 10-day “Modern” Design Storm

- 17 projects identified
- ~\$80 Million
- Increased discharges to waterways



Deficiencies Identified Using a 2-year Design Storm Representative of Historical Standards

- 3 projects identified
- \$1.4 Million
- Deficiencies observed by field staff

Storm Master Plan Development Approach

Geospatial analysis of existing land cover in Visalia



Correlation of land cover with General Plan land use



Forecasting anticipated impervious land coverage based on General Plan land use



Development of Storm Master Plan

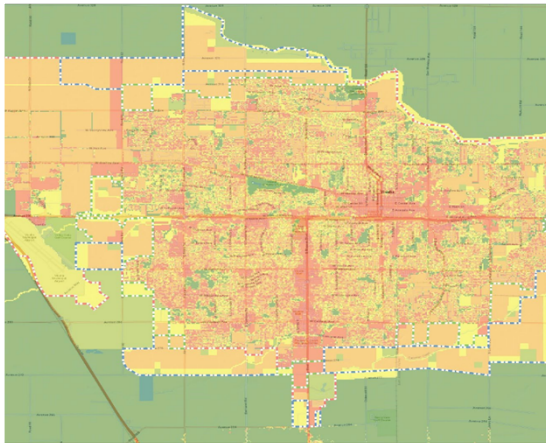
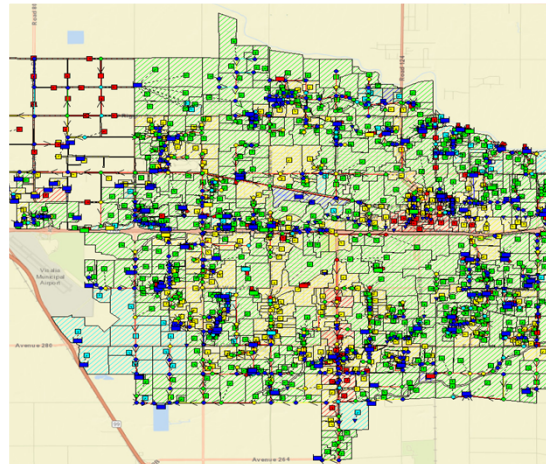


Figure 4-8 Future Conditions Percent Imperviousness

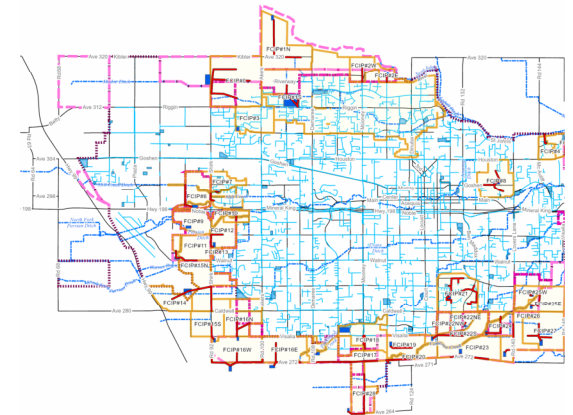
Forecast Land Cover



Model System During
Design Storm



Storm Drain Master Plan Future CIPs



Develop CIPs

Major Changes & Impacts

1. Increased Residential Runoff
2. Detention vs Retention – Standalone Retention Basins
3. Industrial Park Exclusion

Increase In Residential Runoff

- Estimated runoff for single-family residential land use for a given rain event have **increased** compared to the 1994 plan
 - Geospatial analysis of Visalia satellite imagery indicates low-density residential zoned lots are more impervious on average than assumed in the 1994 plan
 - Current development trends display increasing density

Residential Impervious Cover

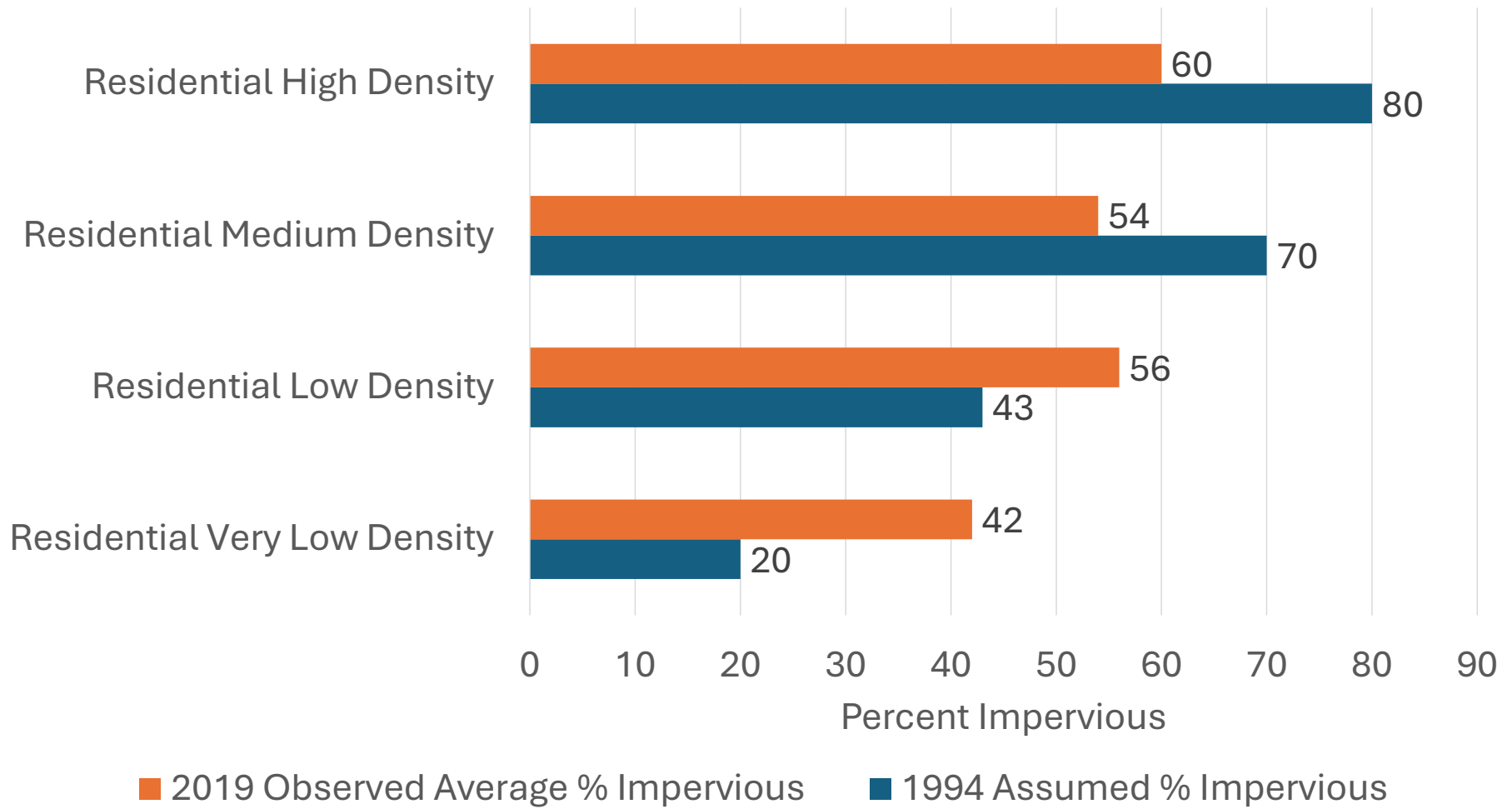
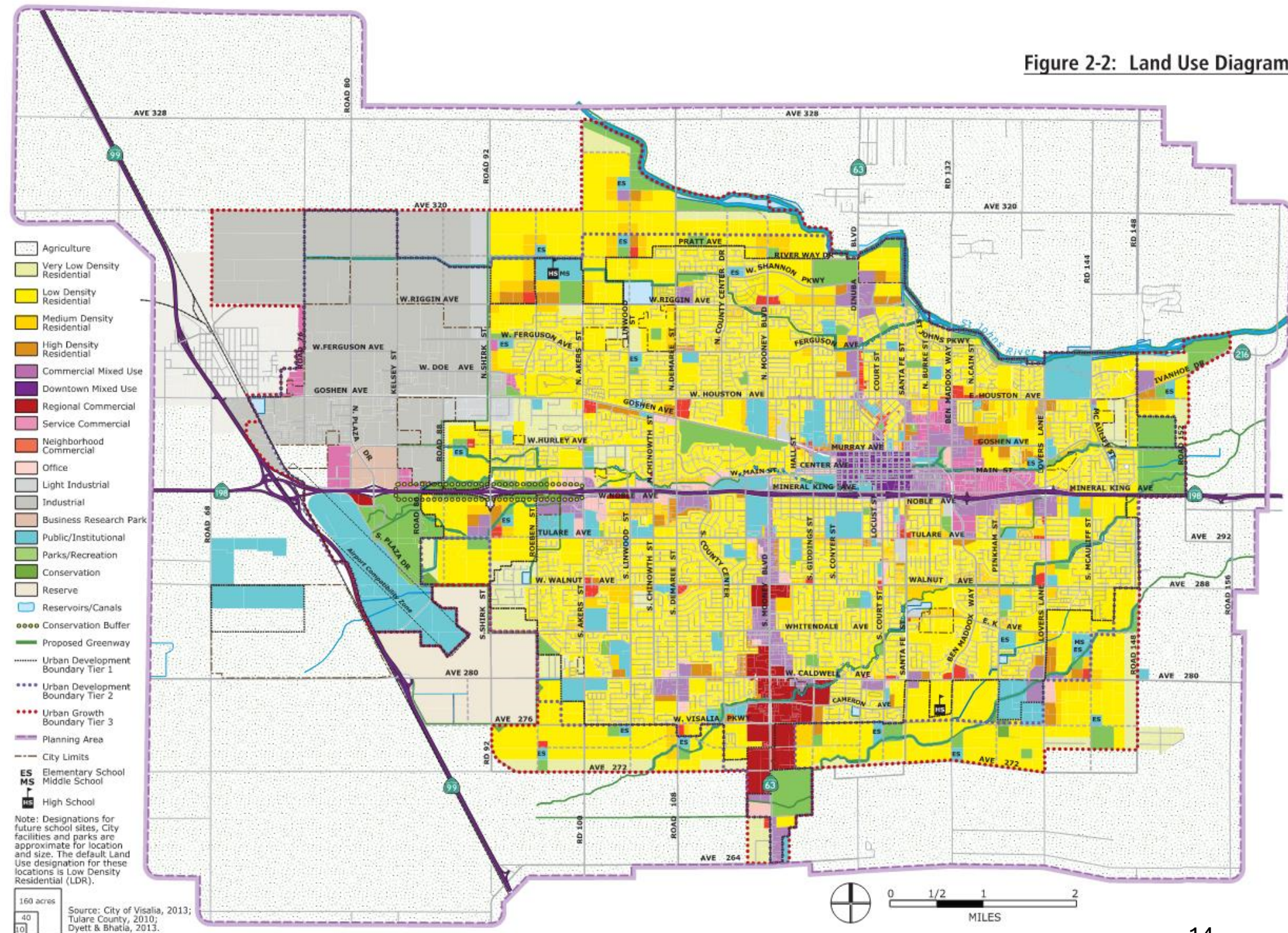


Figure 2-2: Land Use Diagram



Detention vs Retention

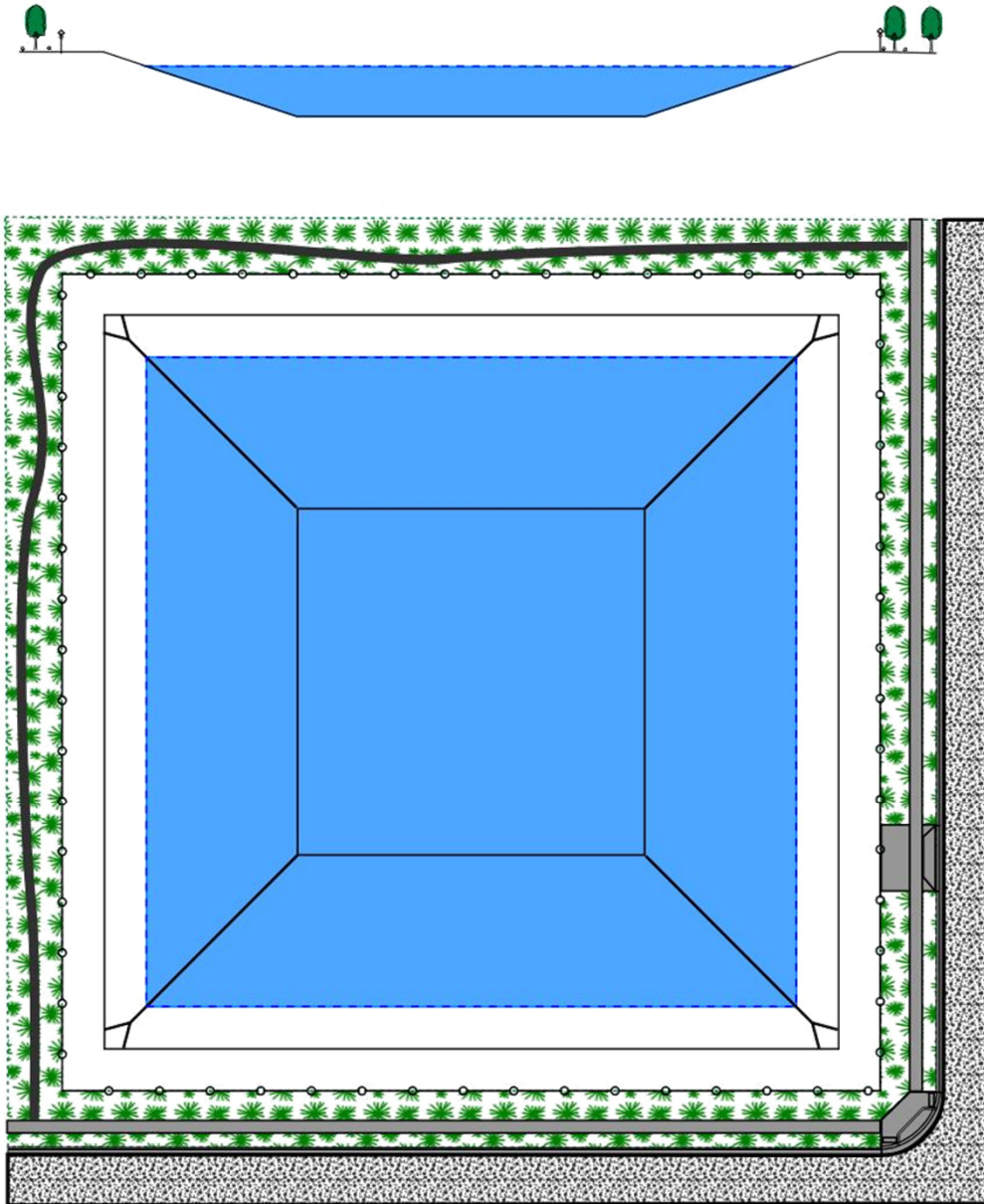
1994 Detention Approach

- Detention = Discharge
 - Relies on waterway capacity
 - Basins designed and sized to only temporarily hold stormwater → smaller, multipurpose

Current Retention Approach

- Retention = Recharge
 - Not dependent on waterway capacity
 - Basins designed and sized to hold stormwater until it infiltrates or evaporates → larger, single-purpose

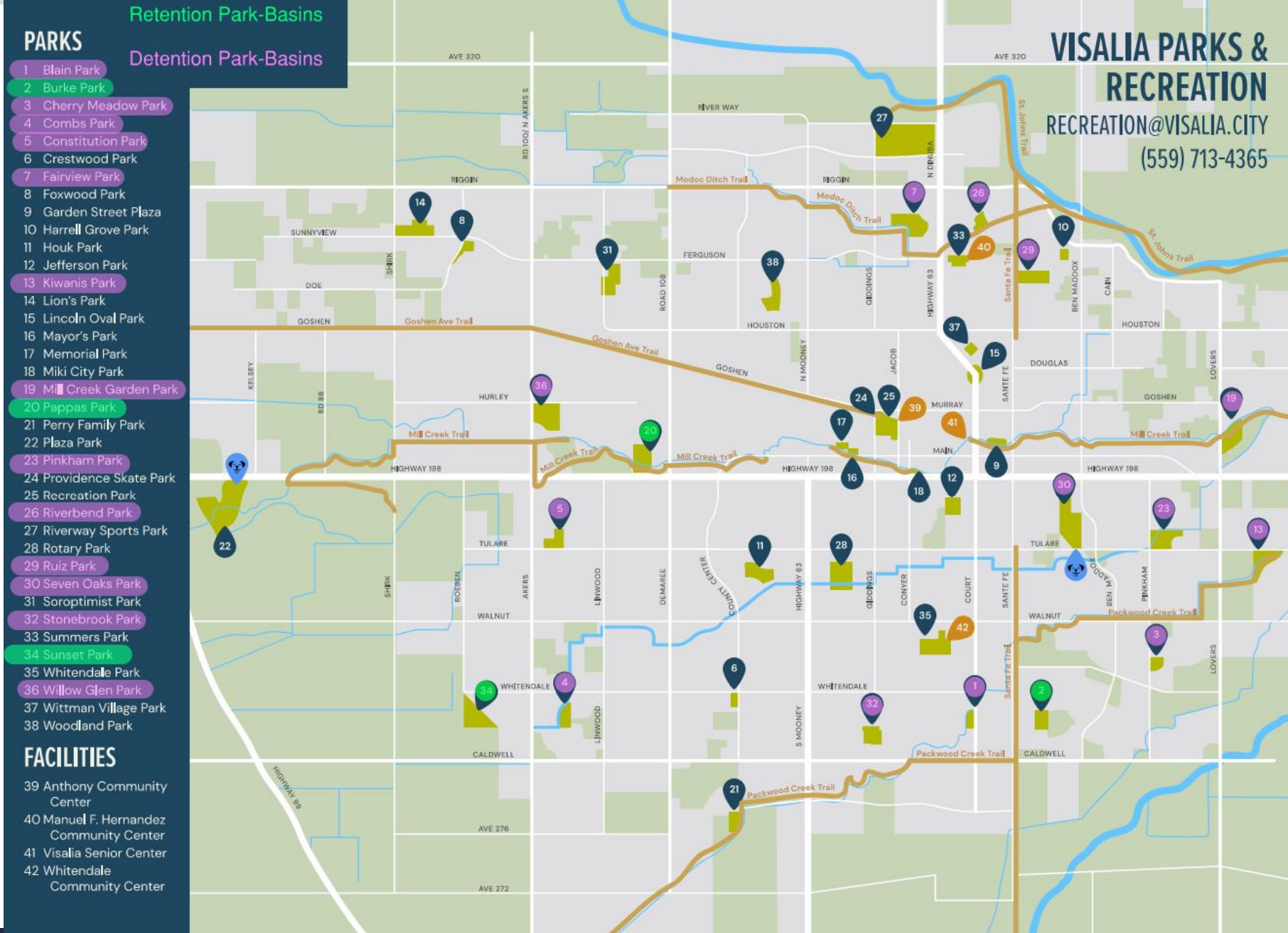
Standalone Retention Basins



Planning-Level Design

- 23' total depth
- 18' design water depth
- Perimeter fencing & landscaping
- Master plan CIP costs include frontage improvements on 2 sides

Understanding Visalia's Existing Park-Basins



Detention Park Basins

The “Overflow Only” Design

- No separate basin section
- Storm drain runs under depressed park
- Only fill when the pump station can't keep up with the inflow

The “Part Basin” Design

- Include a deeper basin portion, typically fenced
- Pumps only kick on when water may encroach into park portion

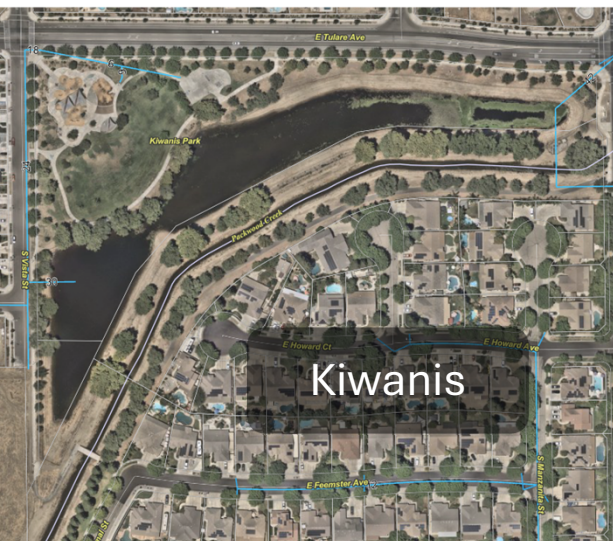
“Overflow Only” Detention Park Basins

Mill Creek Garden Park



Blain Park

“Part Basin” Detention Park Basins



Switching From Detention to Retention For New Regional Basins

Detention Basins

- Temporarily detain stormwater for flood control purposes before releasing it to waterway

Retention Basins

- Retain stormwater until it infiltrates, evaporates, or is used by plants

Detention = Discharge

Retention = Recharge

Retention Park Basins

Burke Park Basin



Sunset Park Basin

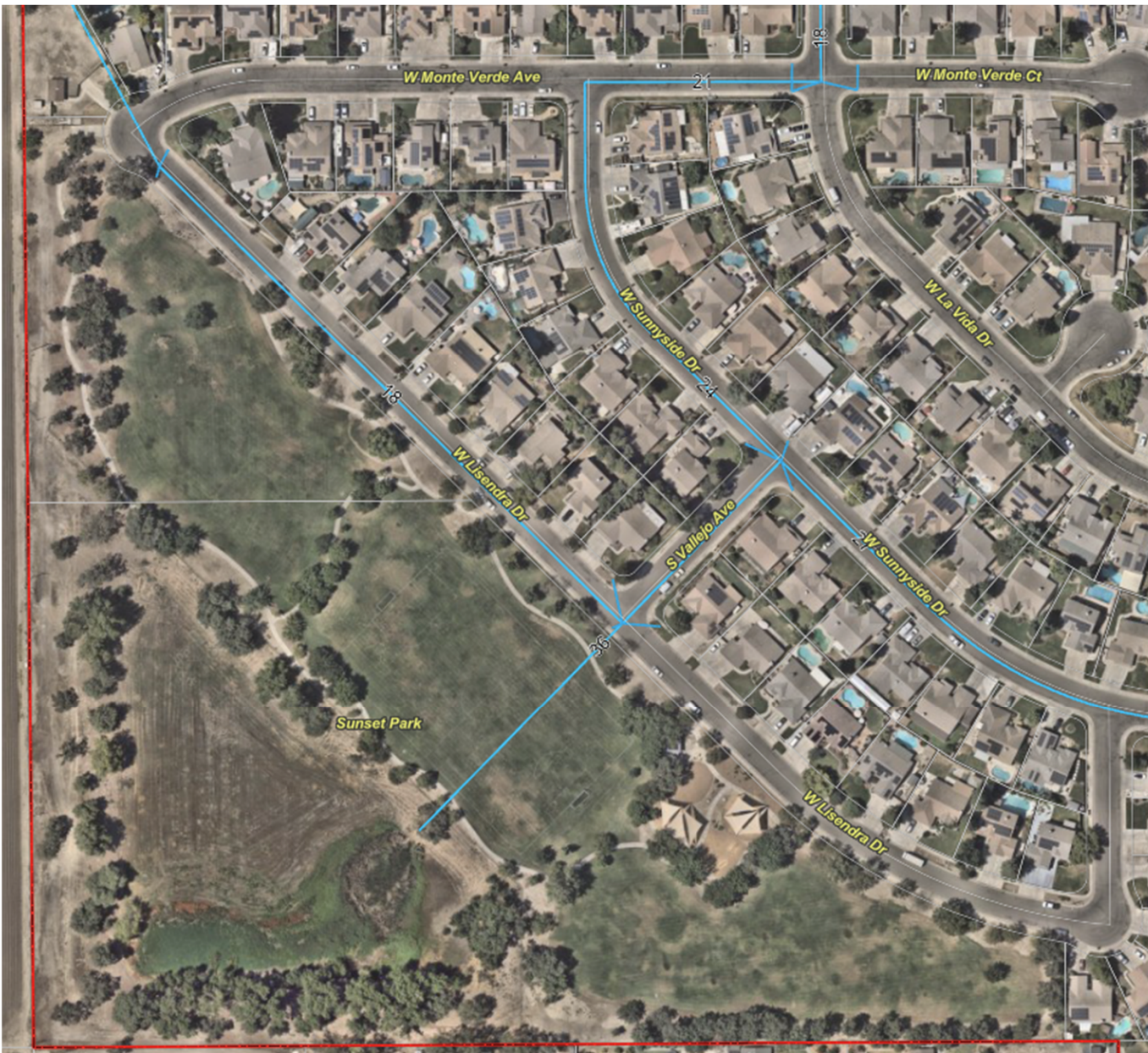


Burke Park: the Retention Park Basin



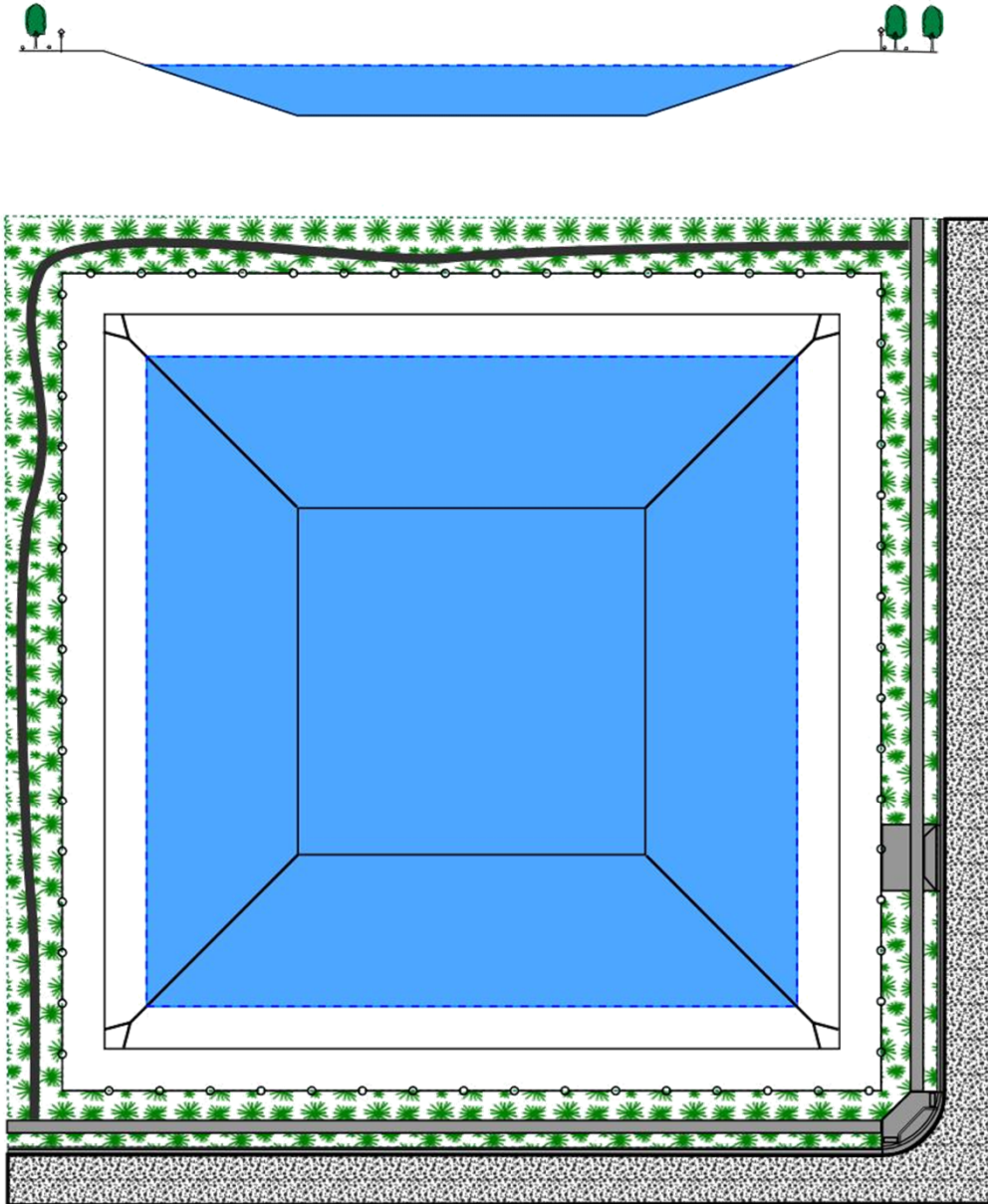
March 2023

Sunset Park: Park *With* Retention Basin



- Basin area sized to hold entire required volume
- Likelihood of park flooding is very, very low

“Standalone” Retention Basins

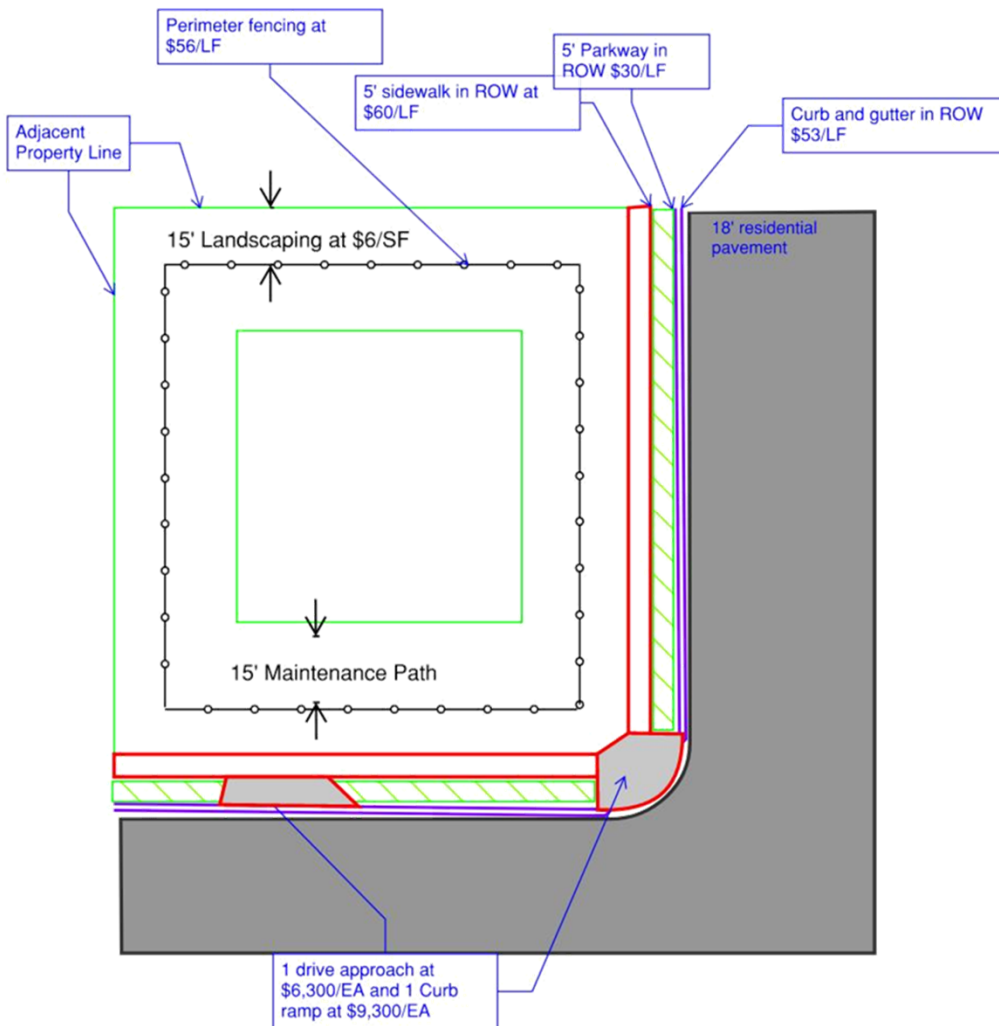


Future basins are planned as standalone facilities for **sizing** and **impact fee** purposes.

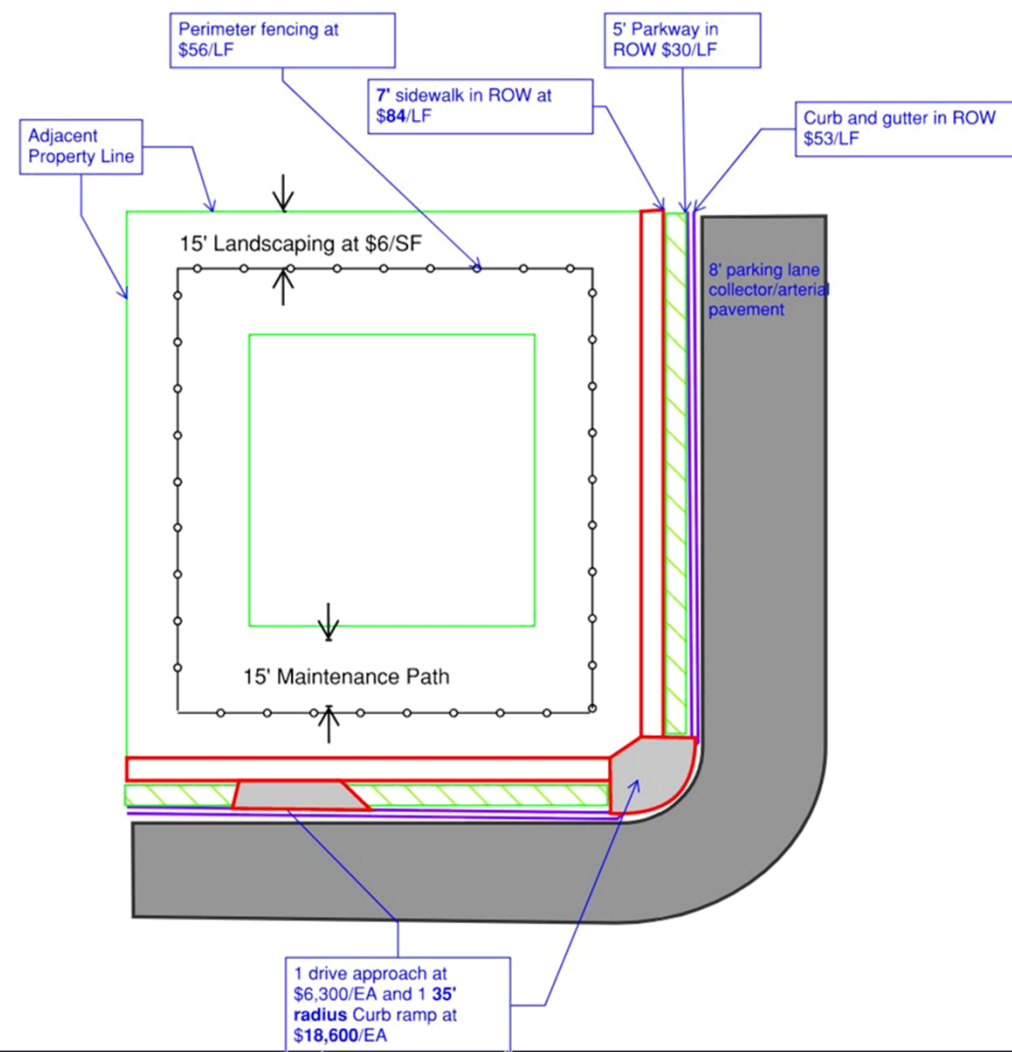
The City can still plan on locating regional basins adjacent to parks.

Basin Improvement Cost Assumptions

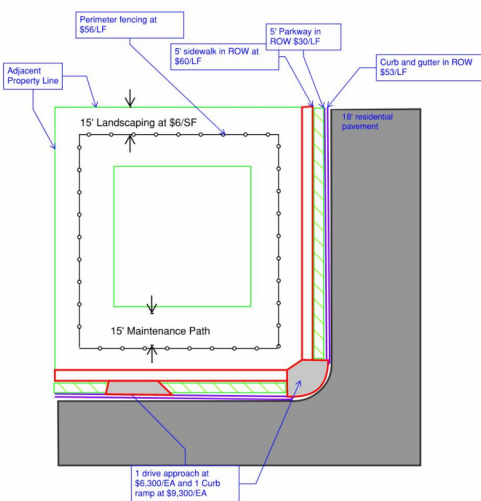
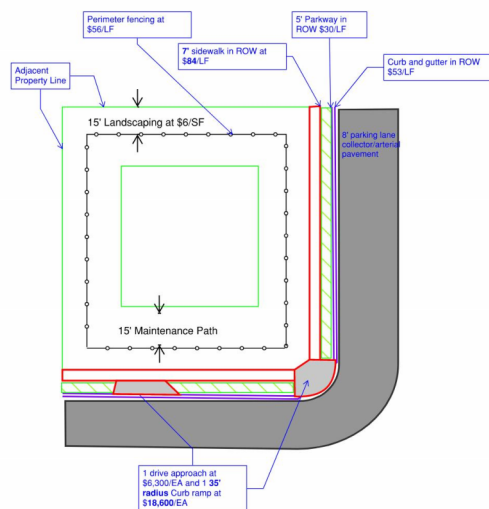
Local/Local Corner Lot



Collector/Arterial Corner Lot



Basin Improvement Cost Assumptions



Element

Unit Cost

Land Acquisition

\$150,000 / acre

Perimeter Fencing

\$56 / linear foot

Perimeter Landscaping

\$6 / square foot

Parkway, sidewalk,
curb/gutter, pavement
frontage

\$232 / linear foot of
frontage

Drive approach & corner
improvements

\$21,000 / basin

Basin Excavation

\$33 / cubic yard

Industrial Park Exclusion

- The Stormwater Master Plan CIPs do not address the Industrial Park
 - Industrial-zoned parcels are required to retain stormwater onsite

Legend

Basin & Conveyance

Basin Only

Conveyance Only

Future Storm Trunks

Tiers

Urban Development
Boundary Tier 1

Urban Development
Boundary Tier 2

Urban Growth Boundary
Tier 3

Proposed Basins

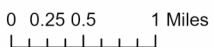
Existing Basins

STORM FORCE MAIN

STORM MAIN

Major Streets

Waterways



Next Steps



Storm Master Plan
Report will be available
on the City Website



Return to Council 9/21
for master plan
approval and adoption



Kickoff Storm Nexus
Study & Rate Study



Thank you
for your time.