

General Plan Utilities (Public Works)



Workshop Series: Part 2a of 3

Part 1: Growth & The General Plan June 3, 2025

Part 2: Utilities & infrastructure June 10, 2025

Part 3: Funding Options & Next Steps: June 17, 2025



General Plan Utilities (PW)

Overview

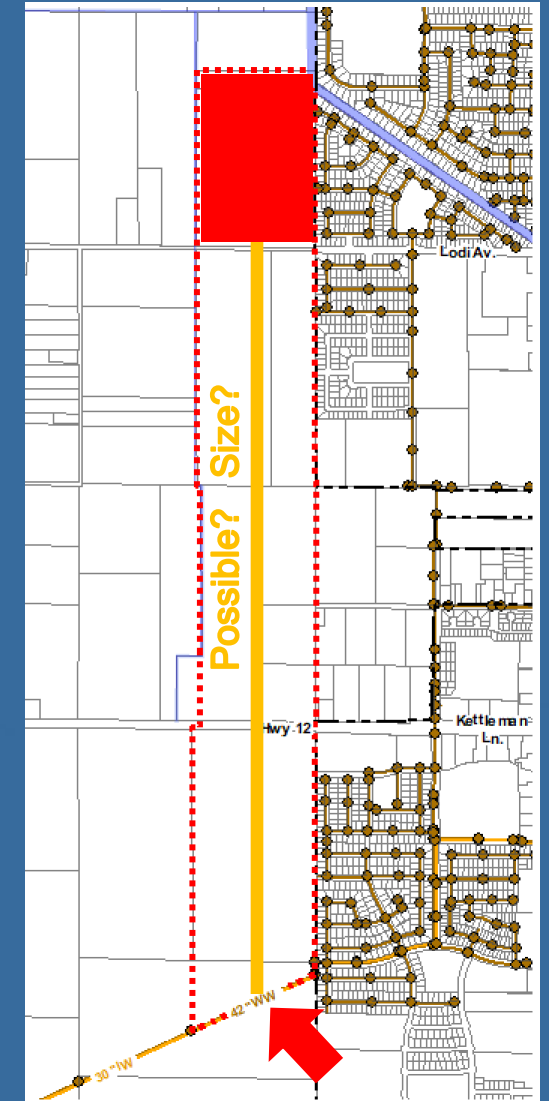
- **What are Utility Master Plans?**
 - Water
 - Wastewater (Sewer)
 - Storm Drainage
- **Current Master Plans (2012)**
 - Already Developed
 - Different Than Master Plan
- **Potential Updates**
- **Questions (Each Utility)**

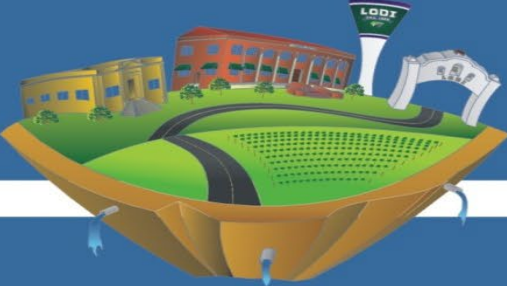


General Plan Utilities (PW)

What are Utility Master Plans?

- High-level look at how to serve future development
- Updated with the General Plan
 - Water: Production, Distribution
 - Wastewater (WW): Collection, Treatment
 - Storm: Collection, Storage/Discharge
- Other possible options to Serve?
 - South Wastewater Trunk Line
 - Storm Drainage Basins
- Quick WW Master Plan Example





General Plan Utilities (PW)

Determine Flow

- General Plan Land Uses
- Design Standards

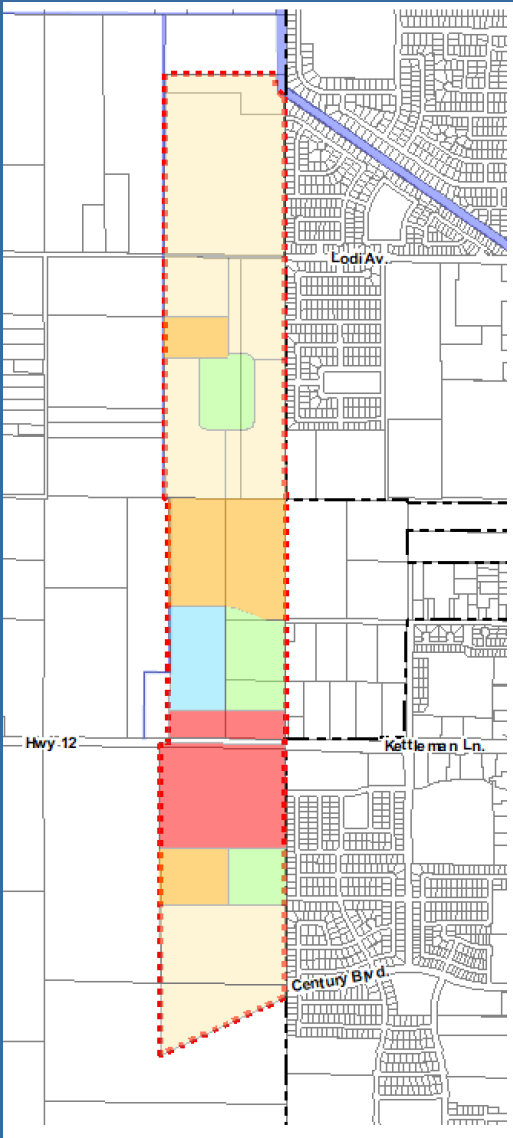
2.200 Design Flow

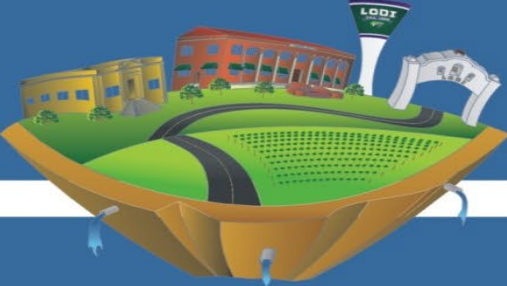
Wastewater lines shall be designed on a peak flow basis. Design peak flows shall be estimated by applying the appropriate peaking factor to the average flow.

For analysis of existing lines or where existing land use is higher than the zoning, flow shall be calculated based on an average sewage flow of 70 gallons per capita per day with a population of 2.85 capita per single family dwelling unit and 2.0 capita per multiple family or high density dwelling unit (see table below).

For lines serving new areas or where existing land use is lower than the zoning, the City zoning map and/or general plan shall be used to estimate average flow. The following table summarizes these criteria:

Zoning	Land Use	Pers/Unit	Units/acre	Pers/acre	Flow
LDR	Low Density Residential	2.85	6	17.1	0.00186 cfs/acre
MDR	Medium Density Residential	2.4	15	36	0.0039 cfs/acre
HDR	High Density Residential	2	25	50	0.0054 cfs/acre
C	Commercial	-	-	-	0.0031 cfs/acre
Ind	Industrial	-	-	-	0.0023 cfs/acre
n/a	School	-	-	-	0.000034 cfs/student





General Plan Utilities (PW)

Line 1 Sizing

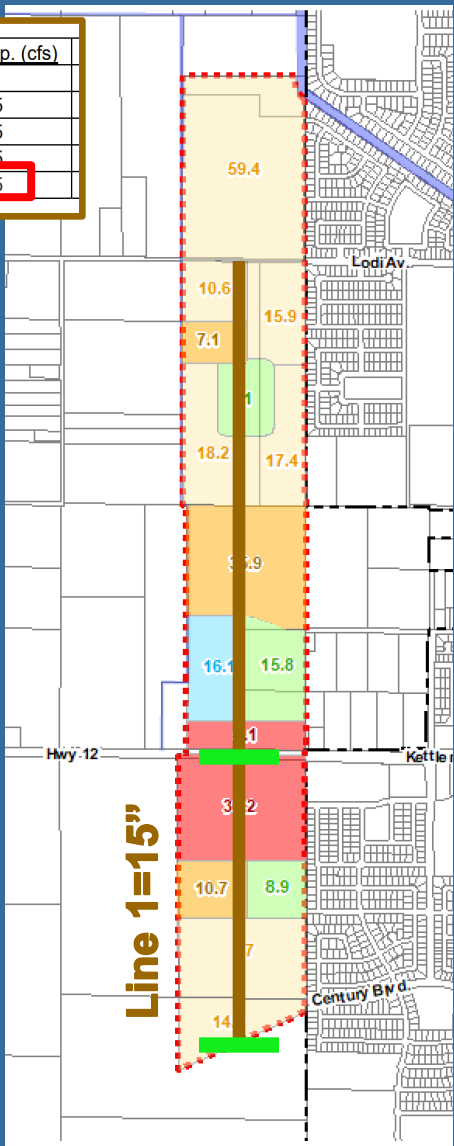
- Entire Section Areas

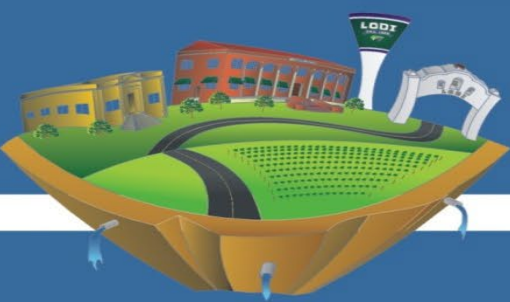
- LDR: 163.2 Ac
- MDR: 53.7 Ac
- C: 45.3 Ac
- PQP (School): 805 Students*

*Assuming 50 Students / Ac

Size	Minimum Slope (ft/ft)	Design Cap. (cfs)
6	0.0048	0.2
8	0.0033	0.35
10	0.0025	0.55
12	0.0019	1.45
15	0.0014	2.25

Peak Flows									
Use	Area / Units	Flow cfs / Acre (Un)	Total Avg. cfs	Pop.	Total Pop	Peak Factor	Peak Flows (CFS)	Total (CFS)	
C	45.3	0.003094	0.14018	N/A		3.2	0.449	2.066	
I	0	0.002321	0.00000	N/A		2.8	0.000		
HDR-Ac	0	0.005415	0.00000	0	4,724	3.0	0.000		
HDR-U	0	0.0002166	0.00000	0			0.000		
MDR-AC	53.7	0.003899	0.20938	1,933			0.628		
MDR-U	0	0.0002599	0.00000	0			0.000		
LDR-AC	163.2	0.001852	0.30225	2,791			0.907		
LDR-U	0	0.0003087	0.00000	0			0.000		
Senior Care	0	0.0001083	0.00000	0			0.000		
School (st)	805	0.000034	0.02740	N/A		3	0.082		

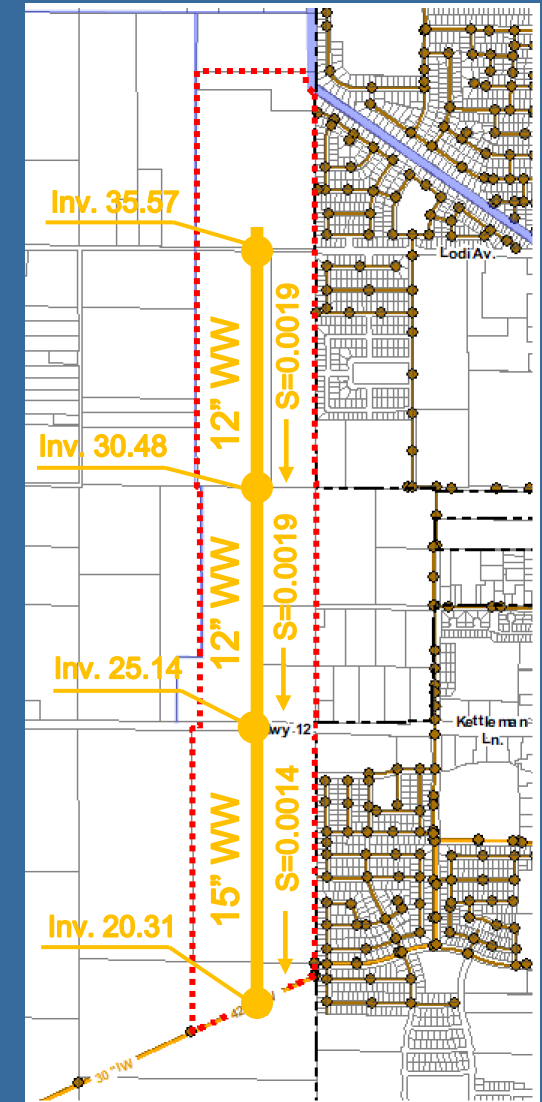




General Plan Utilities (PW)

WW Master Plan Example

- Downstream Capacity
- Treatment Plant Capacity
- All by Gravity? Pump Station?

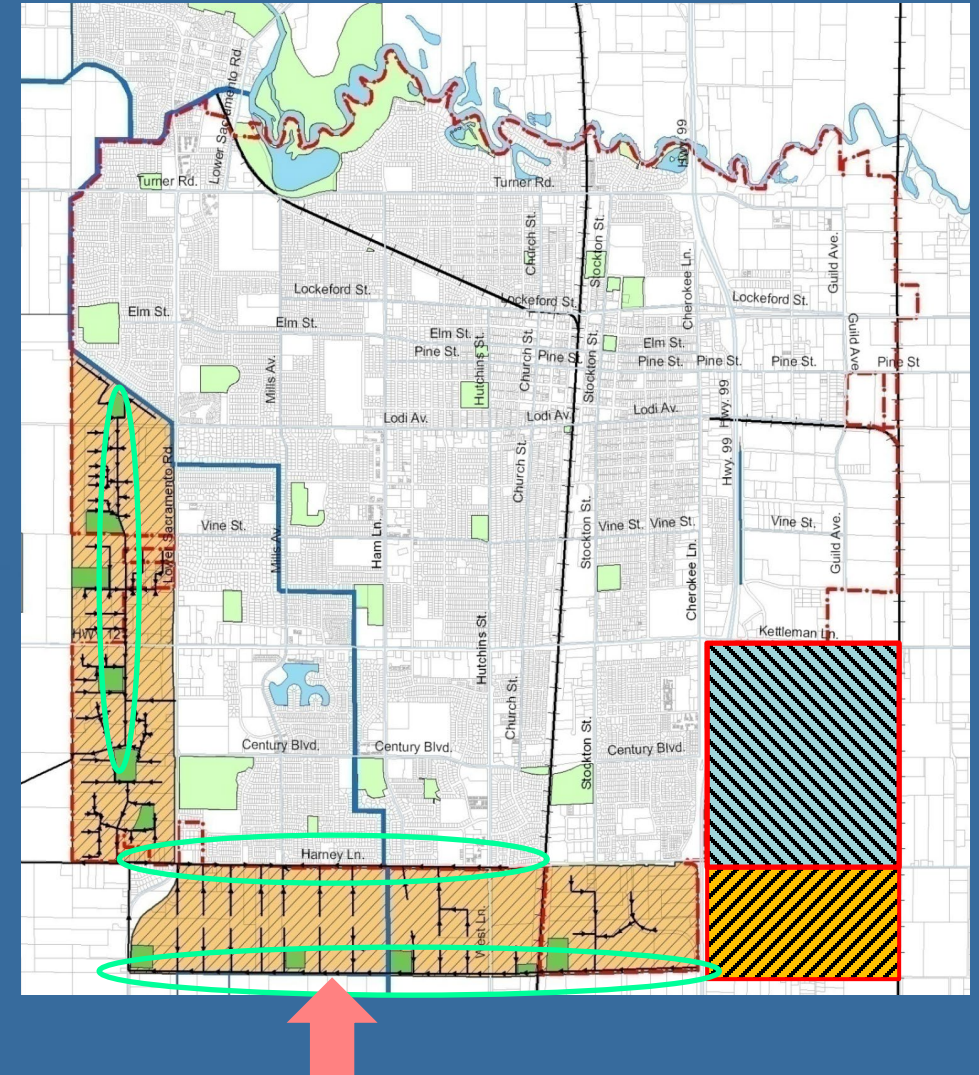




General Plan Utilities (PW)

Current Master Plans (2012)

- Wastewater (2018 Amend)
 - Same Study Area as Water
 - Included in Existing Trunk Lines
 - Portion of the Eastside Industrial
- Major Components
 - Westgate Trunk Line
 - Harney Trunk Line
 - South Wastewater Trunk Line
- Changed
 - South Wastewater Trunk Line (SWTL)



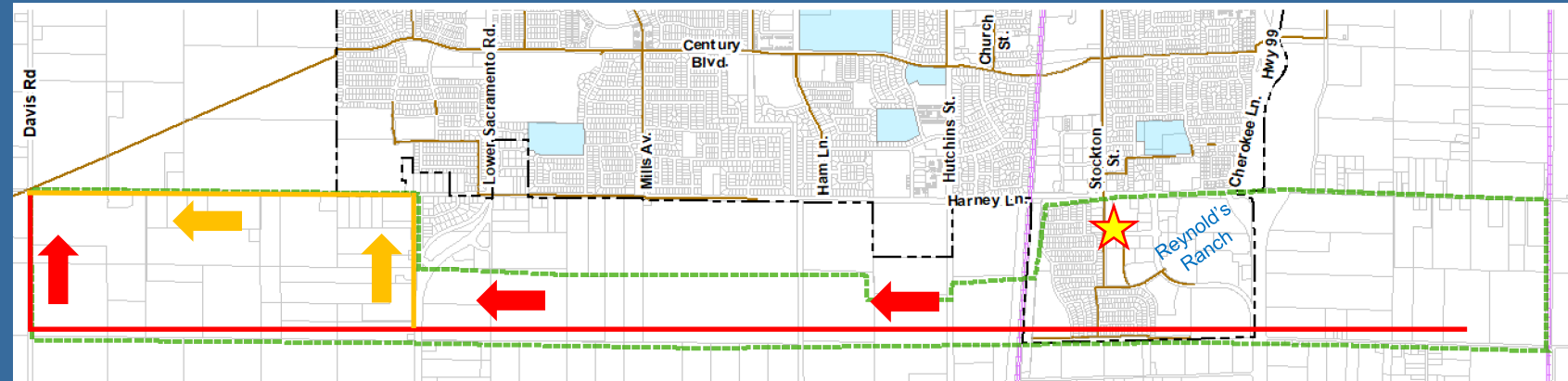


General Plan Utilities (PW)

South Wastewater Trunk Line (SWTL)

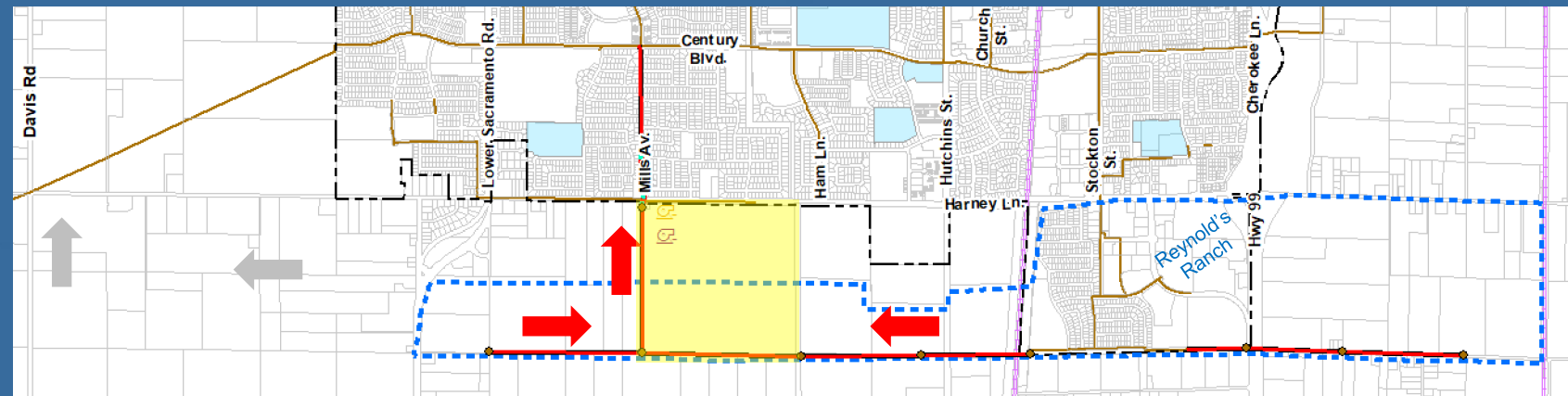
2008

- Reynold's Ranch (RR) / Costco
- Connection @ Harney & Davis
- Gravity System (~5 Miles of Pipe)
- Required 16 Easements
 - Interim Pump Station in Reynolds Ranch
- 2012 MP Adjusted to Lower Sac.



2018 Amendment

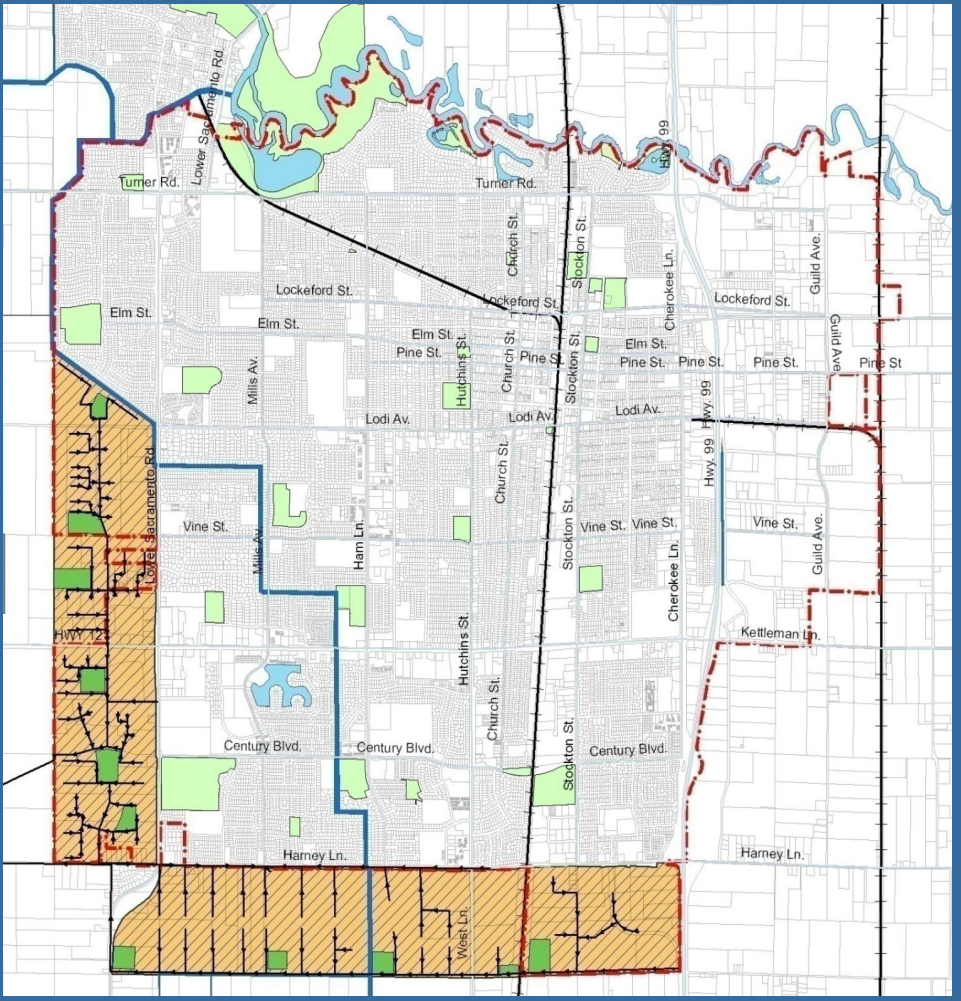
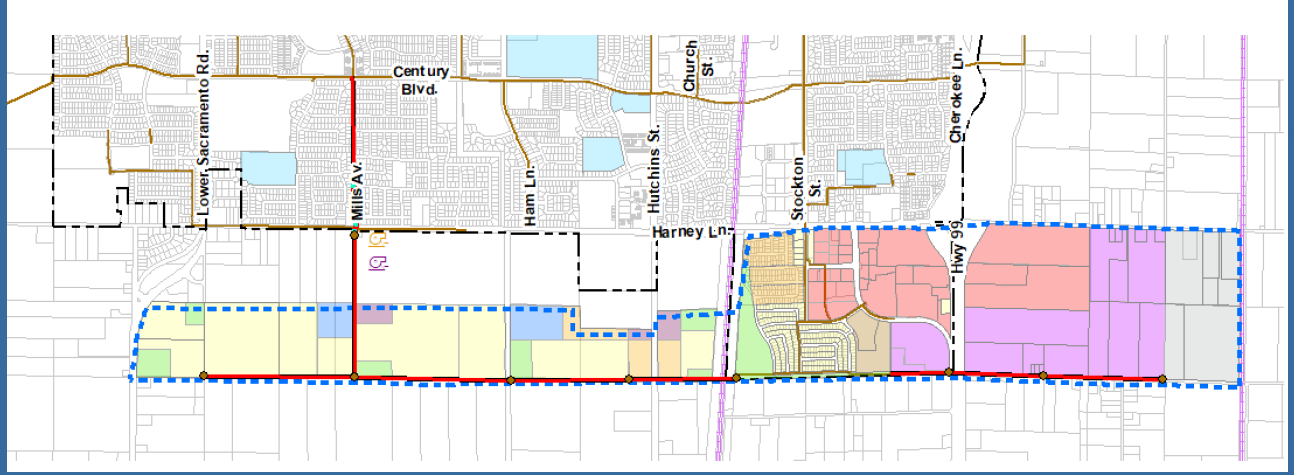
- Smaller Boundary
- Pump Station @ Harney & Mills
- Connection @ Mills & Century
- Reduced Overall Cost (~15%)
- Minimal Easements
 - Easier to Develop





General Plan Utilities (PW)

Wastewater Questions?

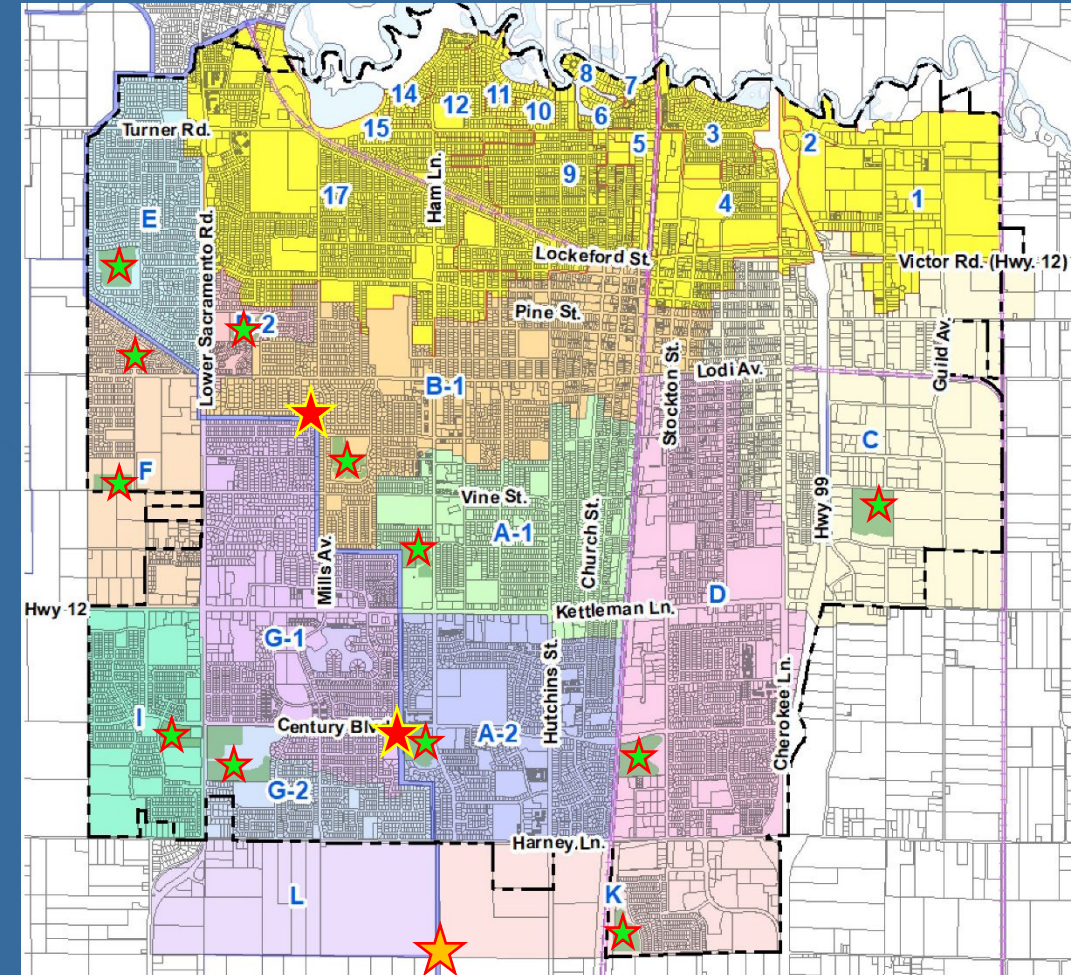


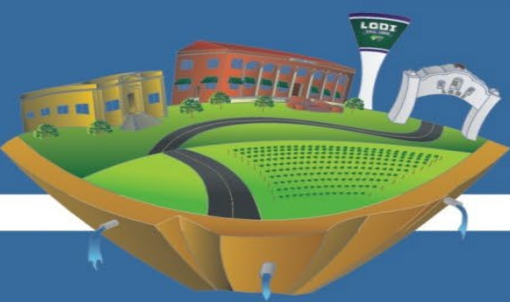


General Plan Utilities (PW)

Current Master Plans (2012)

- Storm Drainage
 - 17 River/Lake Outlets (#s)
 - 12 Basins (Letters) ★
 - 2 WID Outlets ★
 - Possible 3rd WID Connection ★
- Changes Since 2012 MP
 - I-1 & I-2 Combined (I-2)
 - Design Standards Update (2024)
 - Future Basins Larger
 - WID 3rd Connection Requirements

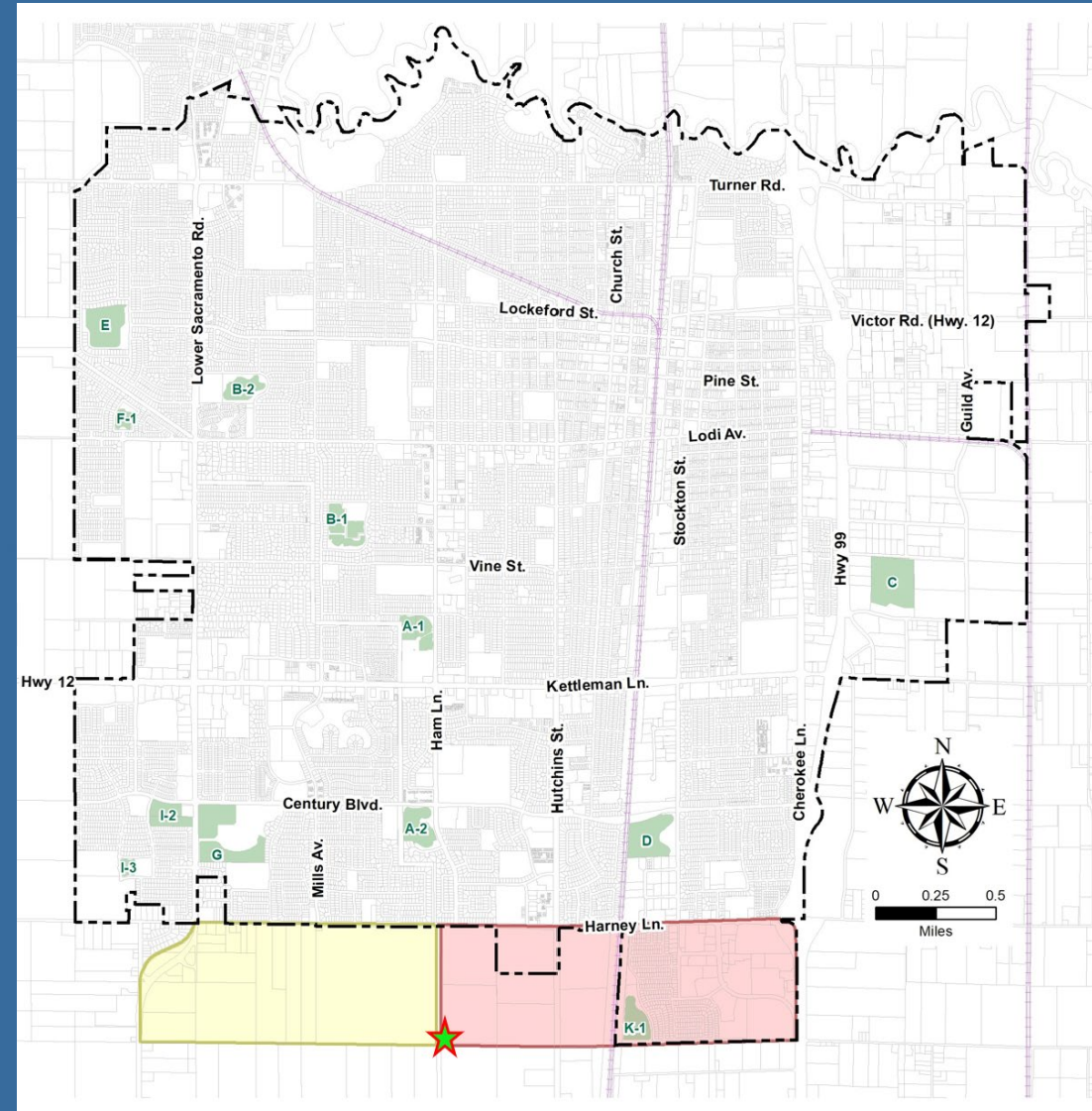


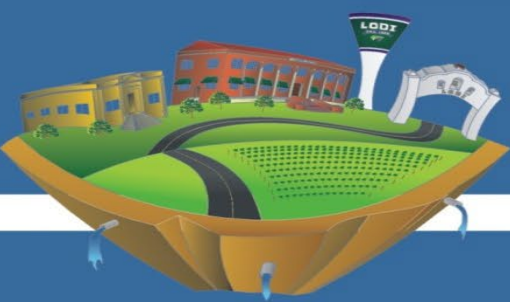


General Plan Utilities (PW)

Storm Drainage

- Drainage Basin Basics
 - 100-Year, 48-Hour Rain Event
 - 4.8" of Rain
 - 200% Required without Outlet
- WID Connections
 - Shade Acres PS: 3 Basins
 - Beckman PS(2): 9 Basins
 - Future PS (South): 5 Basins
- WID Discharge Agreement
 - Original: 1921
 - Current: 1993, Expires in 2033
 - 160 CFS Max Discharge (60 Per)

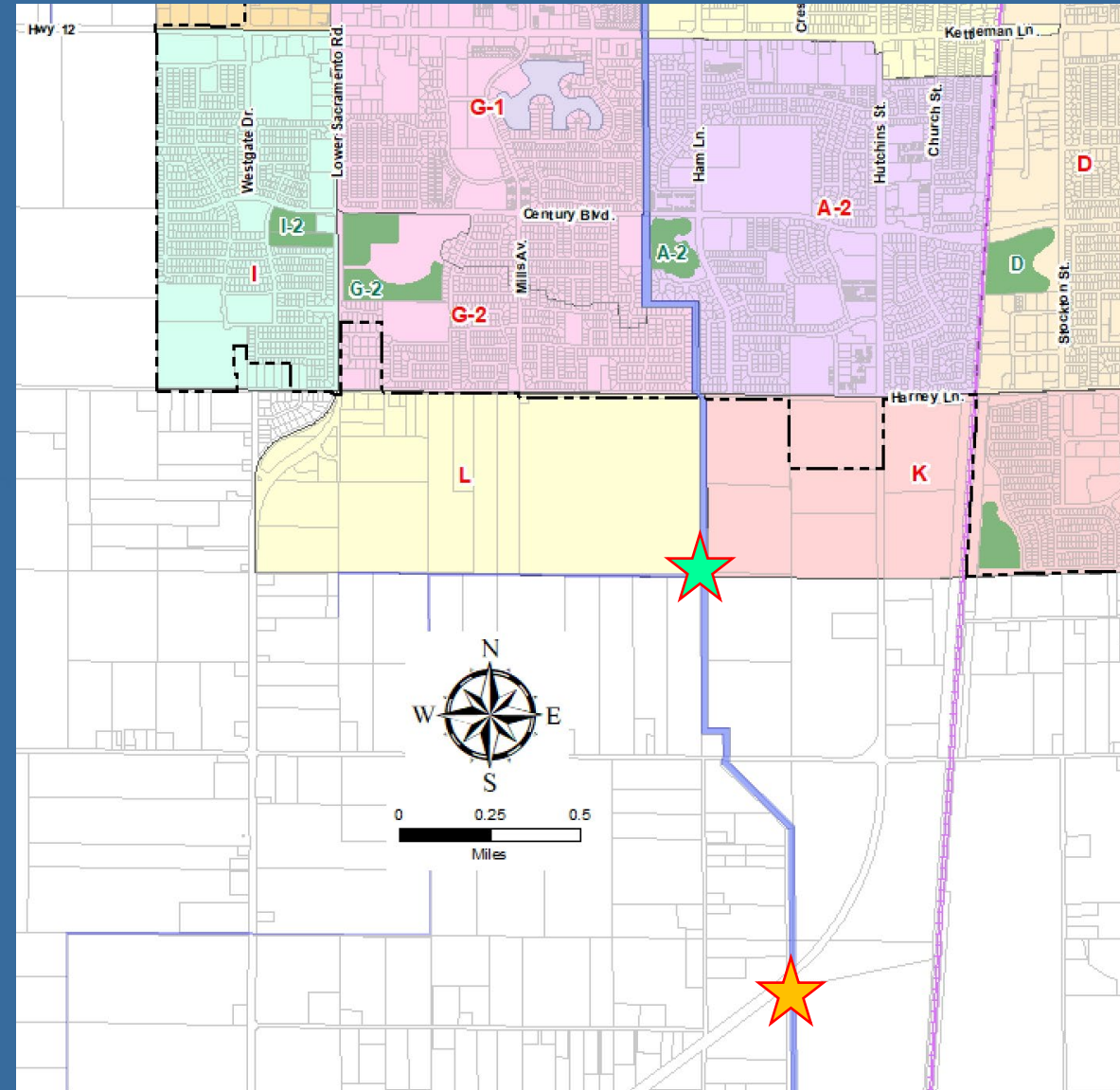




General Plan Utilities (PW)

WID Discussions

- WID Concerns
 - Discharge Water Quality
 - Stockton Drinking Water
 - Downstream Capacity
- Potential Solutions
 - Trash Capture Device @ Shade Acres (2015)
 - Pixley Slough Pipe Design ★ (2018) - **Not Practical**
 - Previous Location
 - Modified Basin Design and/or ★ Treatment (2024)

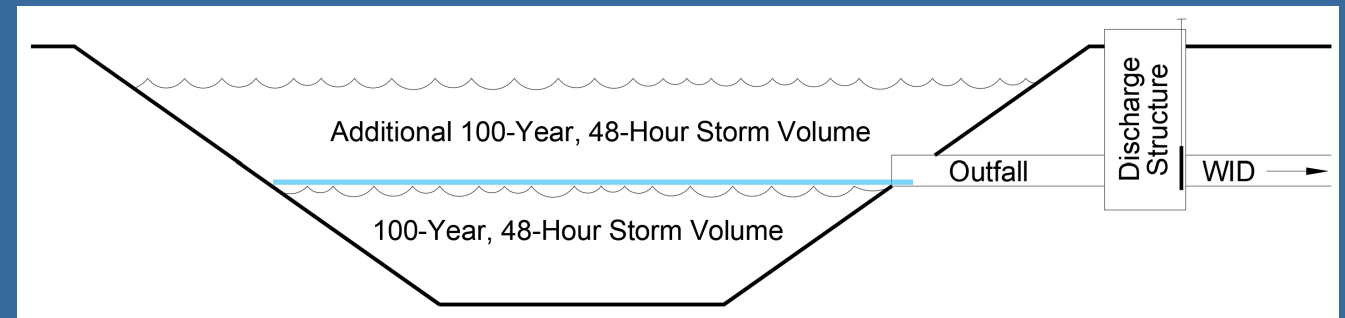




General Plan Utilities (PW)

WID Discussions

- **Modified Basin Design**
 - 200% Capacity
 - Outlet @ 100% Level
 - Discharges Rare
 - Bioswale Treatment
 - Alternative Filtration
 - Combination
- Ongoing Discussions w/ WID
- Current Backup Plan = Additional Overflow Storage

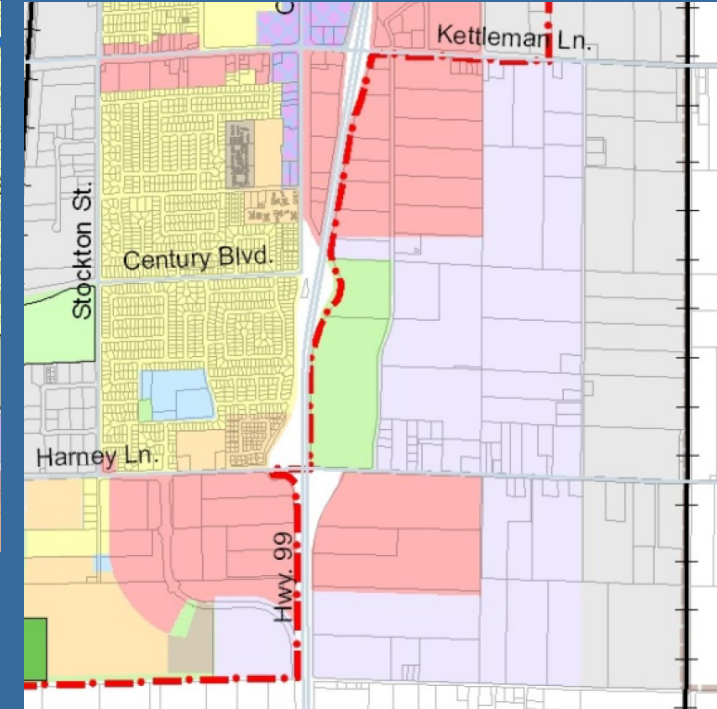
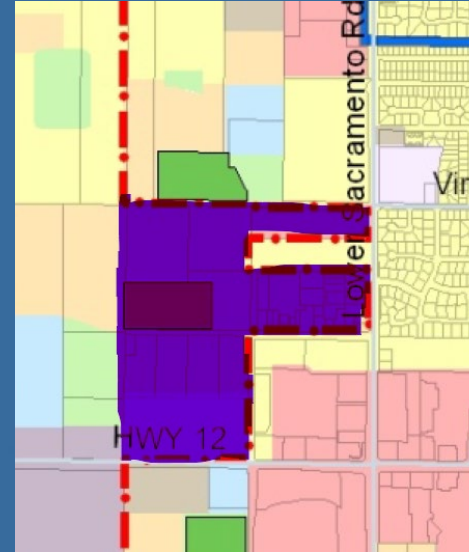


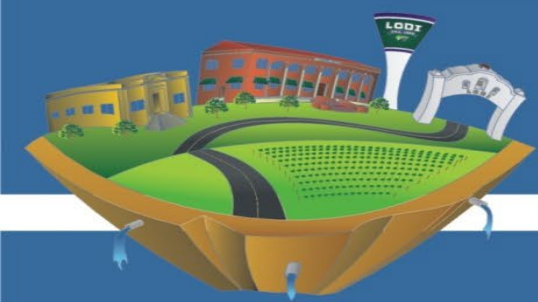


General Plan Utilities (PW)

Takeaway's

- **Westside (Include “F”) Area**
 - Water: 2012 MP
 - Wastewater: 2012 MP
 - Storm: 2012 MP
- **South Area**
 - Water: 2012 MP
 - Wastewater: 2012 MP/SWTL
 - Storm: 2012 MP / WID Option / Backup
- **East Industrial Area**
 - Water: Need to Study. Likely Well and/or Tank
 - Wastewater: Existing & SWTL (s/ Harney)
 - Storm: Need to Study. Likely 2 Basins





General Plan Utilities (PW)

Water, Wastewater or Storm Drain Questions?

