

Water and Wastewater Quality Concerns

Water Quality Strategy

City of El Paso de Robles



City Council Meeting
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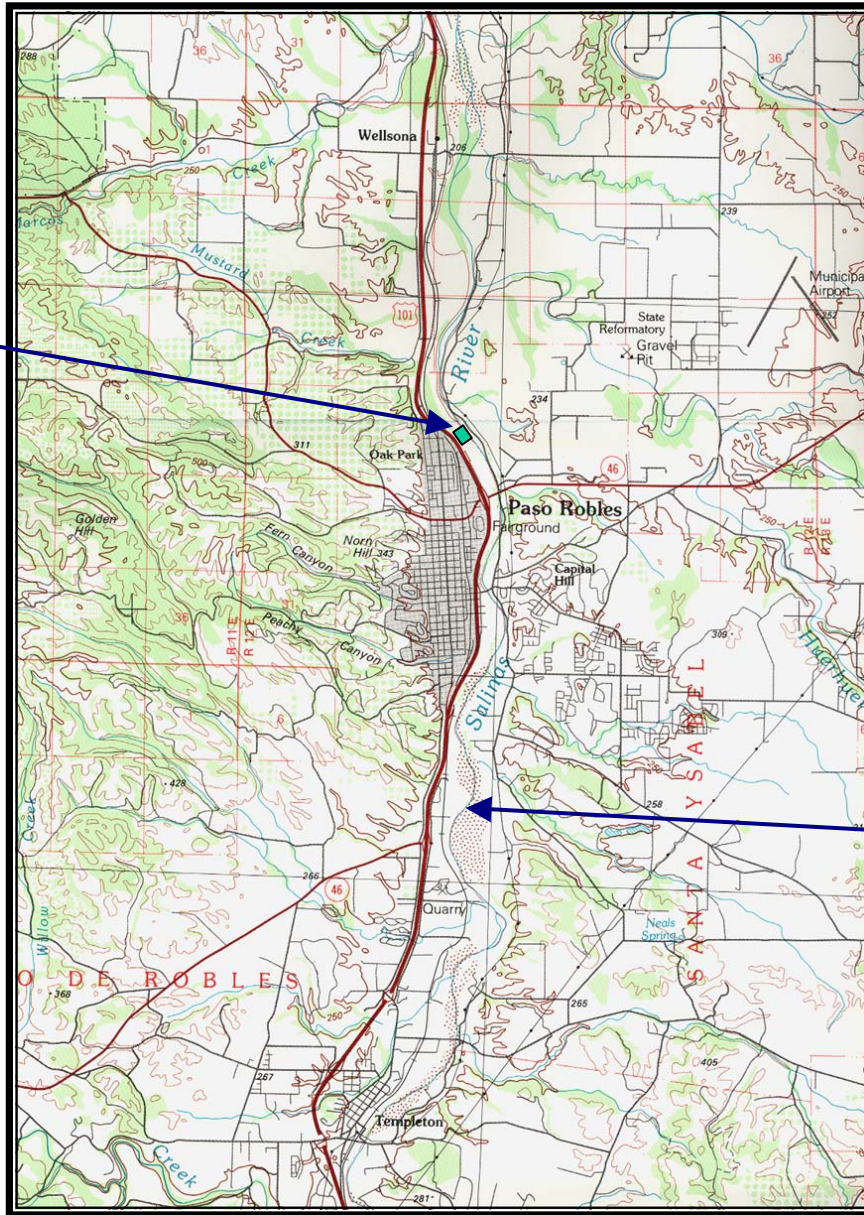


Background

- ❖ Difficulty in consistently complying with current wastewater discharge Total Dissolved Solids (TDS) limit of 1,100 mg/L.
- ❖ All treated wastewater effluent discharged into the Salinas River.
- ❖ RWQCB encourages (and may soon require) cessation of wastewater discharge into Salinas River.
- ❖ City's 26,000 customers served by 100% groundwater supply with high TDS concentrations.
- ❖ Projected City build-out water demand may exceed local sustainable groundwater supply.



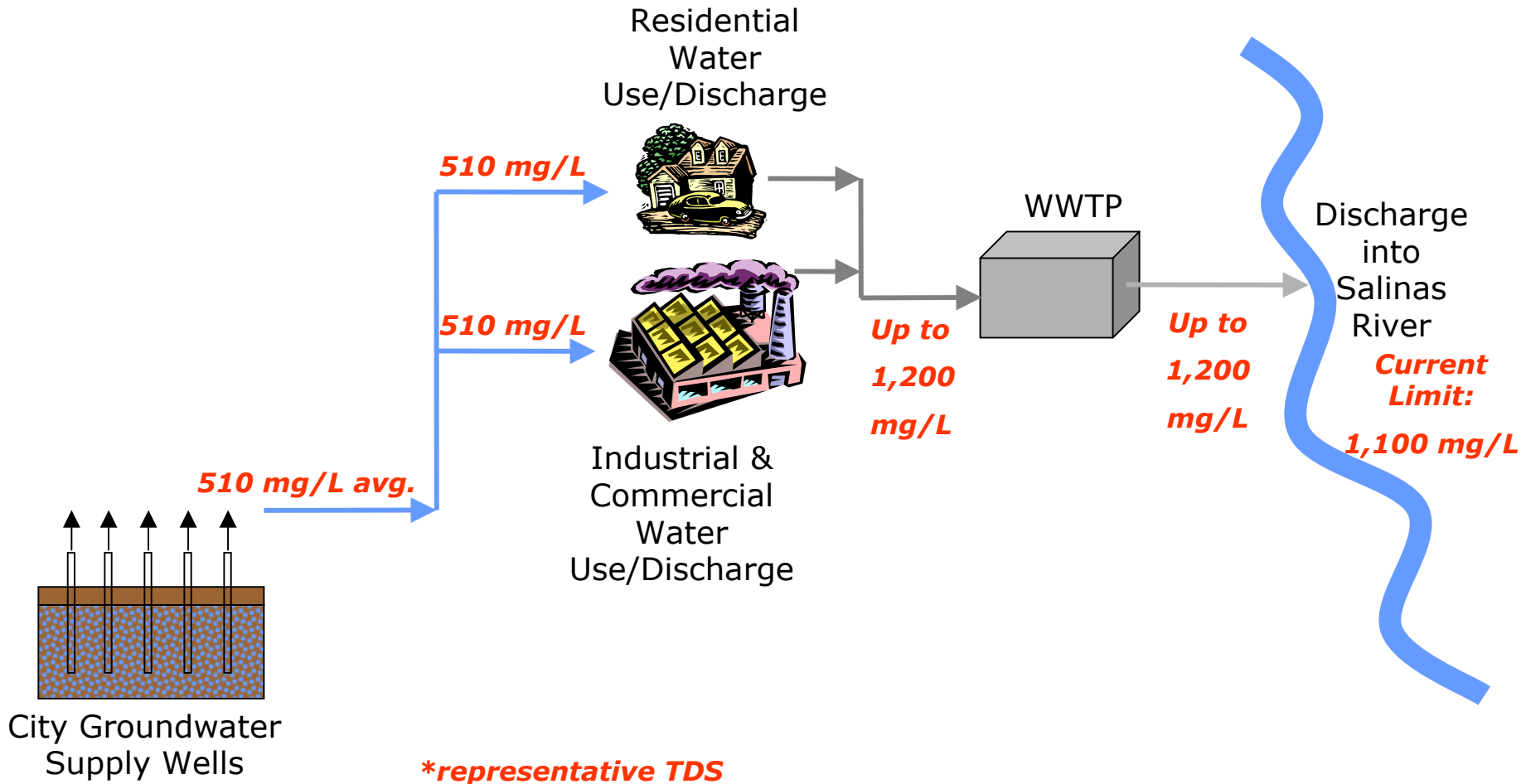
Paso Robles
Wastewater
Treatment
Plant



Salinas River



Existing System Overview and Compliance Situation



***representative TDS concentration**



Project Purpose

- ❖ Develop a comprehensive strategy that addresses present and future wastewater regulatory compliance issues, while optimizing benefits related to water supply and reliability.



Project Approach

- ❖ Integrate findings from previous separate reports based on an overall water/wastewater quality strategy perspective.
- ❖ Analyze benefits/blending issues of importing surface water.
- ❖ Develop and evaluate alternatives for addressing wastewater compliance and related issues.
- ❖ Make recommendations for the City's overall water quality strategy.



Major Documents Reviewed

- Groundwater Basin Study (2002)
- Lake Nacimiento Water Treatment Study & Water Quality Data (2002)
- Engineering Report – Nacimiento Project (2002)
- City Drinking Water Source Assessment (2002)
- City Salt Monitoring Results (2001/2002)
- City Water Division Production, Quality, and Monthly Reports (1992-2002)
- City Wastewater Treatment Plant Reports (1992-2002)
- Comprehensive Recycled Water Study (2001)
- Salt Management Study (2001)
- Estimated Nacimiento Project Costs by Reach (2001)
- Urban Water Management Plan (2000)
- Wastewater Permit/Correspondence (1998/1999)
- City Water and Sewer Atlases (1996)
- Water Master Plan (1993/1995)



Doing Nothing is Not an Option

TDS Regulatory Limits

- ❖ City does not have sufficient margin of safety to consistently meet current wastewater effluent TDS and TDS constituent (sodium, chloride, sulfate) regulatory limits.

Lower TDS – No River Discharge

- ❖ RWQCB may soon impose a lower TDS limit and/or require the City to cease river discharge of treated wastewater.



Overview – Evaluation of Alternatives

- ❖ Multiple alternatives developed by the City and Malcolm Pirnie.
- ❖ 14 alternatives considered:
 - Screened for viability and potential for addressing primary project criteria.
 - 10 of 14 can address immediate TDS compliance issue.
 - Only 3 of those 10 can enable cessation of discharge into Salinas River year-round.
- ❖ Matrix was developed to rank alternatives based on wastewater regulatory primary criteria and secondary criteria (e.g., water supply issues and cost).



Alternatives Evaluated

1. Do Nothing
2. Achieve Greater Industrial and Commercial Discharge Quality Control
3. Participate in Nacimiento Project (Treated Water Option)
4. Participate in Nacimiento Project (Raw Water Option) and Treat Water with City-Owned Plant
5. Import Lake Nacimiento Raw Water (Independent of Nacimiento Project) and Treat Water with City-Owned Plant
6. Participate in Nacimiento Project (Raw Water Option) to Recharge Salinas River Underflow
7. Desalinate Well Water Supply



Alternatives Evaluated

8. Recharge WWTP Effluent (Without Desalination)
9. Desalinate WWTP Effluent to Meet NPDES Discharge Limits
10. Desalinate WWTP Effluent for Irrigation Reuse with Storage
11. Desalinate WWTP Effluent for Irrigation Reuse with River Discharge
12. Desalinate WWTP Effluent for Community-Based Reuse with River Discharge
13. Desalinate WWTP Effluent for Recharge
14. Add East Side WWTP (Upstream Reclamation Plant)



Estimated Costs of Alternatives That Address Primary Criteria

Alternative	Total Capital Cost	Total Annual Capital Debt Service	Total Annual O&M for Year 1	Total Annual Costs (Debt Service + O&M)
3. Participate in Nacimiento Project (Treated Water Option)	\$59.60	\$5.63	\$1.41	\$7.04
4. Participate in Nacimiento Project (Raw Water Option) and Treat Water With City-Owned Plant	\$53.20	\$5.02	\$0.88	\$5.90
5. Import Lake Nacimiento Raw Water (Independent of Nacimiento Project) and Treat Water With City-Owned Plant	\$26.90	\$2.54	\$0.86	\$3.40
7. Desalinate Well Water Supply	\$20.00	\$1.93	\$0.61	\$2.54
9. Desalinate WWTP Effluent to Meet NPDES Discharge Limits	\$8.73	\$0.83	\$0.21	\$1.04
10. Desalinate WWTP Effluent for Irrigation Reuse with Storage	\$54.60	\$5.15	\$3.10	\$8.25
11. Desalinate WWTP Effluent for Irrigation Reuse with River Discharge	\$12.50	\$1.18	\$1.30	\$2.48
12. Desalinate WWTP Effluent for Community-Based Reuse with River Discharge	\$54.60	\$5.15	\$1.40	\$6.55
13. Desalinate WWTP Effluent for Recharge	\$21.70	\$2.05	\$0.53	\$2.58
14. Add East Side WWTP (Upstream Reclamation Plant)	\$34.50	\$3.26	\$0.56	\$3.82

(estimated costs shown are in millions of dollars)

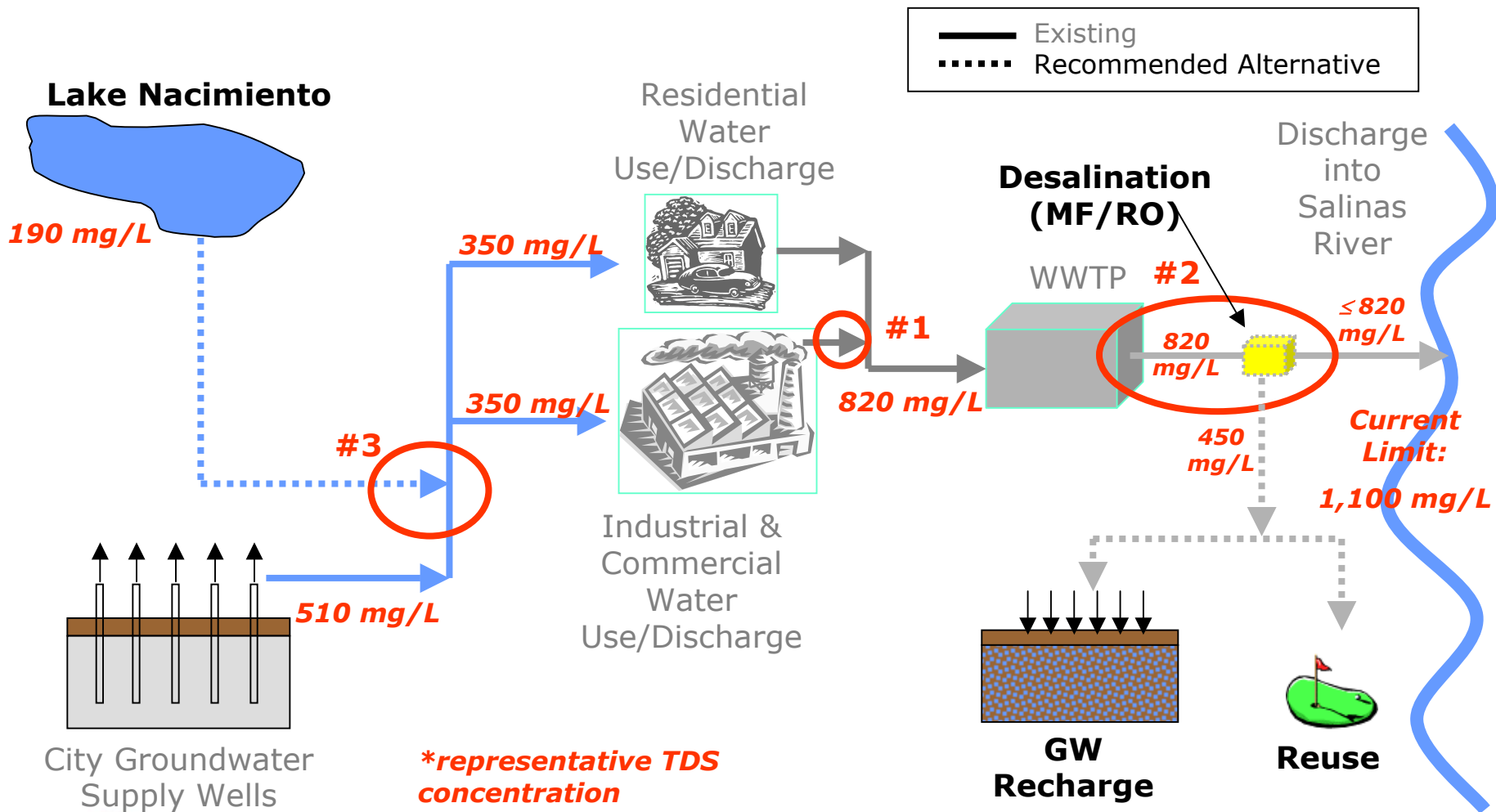


Main Conclusions & Recommendations

- ❖ No single alternative can address both wastewater compliance issues and related water supply concerns.
- ❖ Three complementary alternatives recommended:
 - Achieve greater industrial and commercial discharge quality control.
 - Desalinate WWTP effluent.
 - Import Lake Nacimiento water.



Recommended Alternatives and TDS Benefits



Recommendations – *#1 of 3 Complementary Alternatives*

- ❖ Achieve greater industrial and commercial discharge quality control.
 - TDS concentrations well in excess of City sewer code standards found in sewer system.
 - Relatively low-cost measure to reduce TDS loading to WWTP – no major capital improvement required.
 - Implement wastewater flow monitoring program to quantify benefits and facilitate Sewer Code enforcement.



Recommendations – *#2 of 3 Complementary Alternatives*

❖ Desalinate WWTP effluent.

- Most cost-effective way to meet immediate wastewater TDS and related constituent regulatory limits.
- Short-term solution with problem recurring with increased population.
- Necessary step towards ceasing discharge into Salinas River – can be implemented modularly to allow wastewater recharge or reuse.
- Can be implemented temporarily prior to surface water imports, or in conjunction to meet lowered TDS limit and/or recharge/reuse standards.



Recommendations – *#3 of 3 Complementary Alternatives*

❖ Import Lake Nacimiento water.

- Participate in either the Nacimiento Project treated or raw water option, or import water independently.
- Desalination of well water or wastewater addresses current TDS compliance issue, but participation in the Nacimiento Project (raw or treated) is most favorable from water supply, regulatory, and risk perspectives.
- Unique set of benefits among alternatives considered:
 - Reduction of TDS loading across all sources.
 - Increased water supply reliability.
 - Improved drinking water quality.
 - Relief from local groundwater overdraft.



Questions / Comments?

