EXECUTIVE SUMMARY

The City of El Paso de Robles faces two important wastewater discharge challenges. Specifically, the City's wastewater effluent to the Salinas River does not consistently comply with numerical permit limits for Total Dissolved Solids (TDS) and the individual constituents chloride, sodium, and sulfate. The Regional Water Quality Control Board (RWQCB) has also indicated that ceasing discharge to the river altogether will likely become a future permit requirement. In addition, the City faces a long-term water supply problem. It currently relies completely on local groundwater for its water supply, but localized overdrafting of the groundwater basin has been documented. The City's population and water demand are expected to grow by roughly 80% over the next twenty years. These factors indicate that the City would be prudent to secure a new source of water to preserve the local groundwater basin and increase long-term water supply reliability. The City realized that these wastewater quality/discharge and water supply issues were interrelated, but had only been partially studied, individually in response to particular regulatory requirements. The City commissioned Malcolm Pirnie to develop a water/wastewater strategy to provide the City with direction to address its multiple, interrelated issues related to wastewater quality and discharge compliance, water supply, and drinking water quality.

We first reviewed individual reports and documents pertinent to the City's wastewater discharge and water supply issues. These included regular City water and wastewater quantity and quality reports, and reports prepared by others addressing previous individual regulatory requirements (e.g., recycled water, urban water management). We prepared a summary of this available information for the City's use and to provide a foundation for the subsequent phases of this project. We next considered the potential benefits and impacts of importing surface water, both in terms of City drinking water and wastewater effluent quality. The final and key task of this project was the development and relative ranking of over a dozen alternatives the City could implement to address its interrelated water and wastewater issues. For comparative purposes, well and wastewater desalination alternatives were evaluated on an equal TDS basis; that is, target TDS values in the City's water and wastewater system were set equivalent to the levels that would result from importing surface water.

Our evaluation indicated that importing surface water would provide drinking water quality benefits with respect to hardness and salinity, as well as not pose any water quality problems related to blending, as long as the new water is introduced to the City's system gradually and common treatment steps such as pH adjustment and disinfectant matching are taken. The City has a wide variety of potential alternatives to consider to address its wastewater compliance and related water supply issues. These include reducing salt load from industrial/commercial facilities, importing surface water, desalinating City wells, and desalinating wastewater effluent to either meet immediate river discharge standards or future recharge/reuse applications. Capital costs for the alternatives requiring new facilities range from under $10 million to over $50 million, and each alternative has its pros and cons related to other important considerations for the City (e.g., water supply reliability, customer/stakeholder acceptance). We provided a comparison matrix that allowed ranking of all the alternatives under consideration. Each was first considered against the two primary project criteria, namely, whether it would (1) solve the City's immediate TDS problem and (2) allow the City to cease discharge to the Salinas River. Alternatives were further ranked against the ten other criteria of importance to the City. Those alternatives involving importing surface water earned the highest

overall scores, despite their relatively high costs, for providing a unique combination of benefits, including increased water supply reliability, improved drinking water quality, relief from local groundwater overdraft, and salt reduction across all TDS sources to the City's wastewater treatment plant.

The City must take action to address its immediate wastewater discharge concern – its current inability to regularly meet its numerical NPDES permit effluent limits for TDS and related constituents (chloride, sodium, and sulfate). Currently the City is at high risk for continuing to exceed its permit limits, which is not an acceptable situation. Malcolm Pirnie provided the City with recommendations to implement to address this high priority concern, as well as realize benefits relative to longer-term National Pollutant Discharge Elimination System (NPDES)/wastewater concerns and the City's long-range plans. These three specific recommendations were based on the comparative evaluation of alternatives discussed above, and were designed to be considered as a group of three complementary alternatives to most efficiently address the City's immediate TDS compliance need, as well as provide the foundation for future ceasing of discharge to the Salinas River and for ensuring adequate water supply for future growth. These recommendations are briefly summarized here.

1. ***Desalinate WWTP Effluent.*** This alternative is the most cost-efficient way for the City to meet its current numerical TDS and related constituent effluent limits, and is also a necessary step for the City to take to prepare for ceasing discharge to the Salinas River. Leasing desalination equipment may be desirable if the City's current TDS limit (1,100 milligrams per liter [mg/L]) remains in effect with its upcoming NPDES permit renewal, because either wastewater desalination or surface water imports alone (discussed below) would bring the TDS of the City's effluent comfortably below that level. If the RWQCB reduces the City's effluent limit to 900 mg/L or lower, it is recommended that the City purchase permanent desalination capability.

2. ***Import Lake Nacimiento Water.*** Whether the City accomplishes this via the raw or treated water options of the Nacimiento Project (or on its own), this alternative offers a unique set of benefits among the alternatives considered in this report. In addition to bringing the City's effluent into compliance with its current TDS limit, it would provide increased water supply reliability, improved drinking water quality, relief from local groundwater overdraft, and salt reduction across all TDS sources to the City's wastewater treatment plant. The benefits of the regional treated water option are that the City could rely on the regional system for its treated water and it would require the least degree of variation from current City operations. However, significant cost savings are possible if the City participates in the raw water option of the Nacimiento Project and treats its own water with a package plant. With its own plant, the City also gains control over staffing and operation of the plant, and may have the opportunity to sell water to other agencies during periods of low demand. This alternative can be implemented in conjunction with wastewater desalination if necessary to meet a more stringent TDS effluent limit if put into place by the RWQCB. Various treatment options are available for either a regional or City-dedicated treatment plant to produce high-quality water, and phasing in the new water source gradually in conjunction

with taking common treatment steps such as pH and disinfectant matching are recommended.

3. ***Achieve Greater Industrial and Commercial Discharge Quality Control.*** Although the mass salt loading from industrial/commercial facilities (and thus the potential benefit of this alternative) cannot yet be quantified based on available data, this alternative represents a relatively low-cost measure that the City can take in addition to others to further reduce the TDS loading to its wastewater treatment plant. This alternative may well provide a worthwhile incremental TDS reduction, and therefore (1) a greater margin of safety against future TDS violations, as well as (2) decreased operating costs and brine disposal for a future City wastewater desalination system. We recommend that the City perform an industrial/commercial wastewater flow monitoring program and collect flow-weighted composite wastewater quality samples to complement the City's existing salt monitoring data. Following these steps, mass loading of salt from these facilities in the City's wastewater service area can be quantified, and the City can begin more active cooperation and/or Sewer Code enforcement for those facilities responsible for the most significant salt loadings to the City system.