

# **TMSA Water and Wastewater Facility Plan**

## **Purpose and Scope**

### **1.1 INTRODUCTION**

On June 28, 2006, the Regional Planning Commission adopted RPC Resolution 06-06, which recommended adoption of proposed amendments to the 2002 Truckee Meadows Regional Plan including amendments related to an Annexation Settlement Agreement (ASA, August 22, 2005) between Washoe County, the City of Reno and the City of Sparks relating to the cities' annexation programs. This was followed by the July 27, 2006 action by the Regional Planning Governing Board to adopt Resolution 06-03 to formally approve these amendments.

One result of this Regional Plan modification is a change to the boundaries of the Truckee Meadows Service Areas (TMSA) and the Spheres of Influence for the Cities of Reno and Sparks. The modification also creates a new classification called Future Service Area (FSA), as well as outlining policies regarding facility plans for public infrastructure.

This facility plan has been prepared to assist the City of Reno and Washoe County in satisfying the requirements of the ASA. The project has received the majority of its funding from the Regional Water Planning Commission's Regional Water Management Fund.

#### **1.1.1 Population / Development Forecast**

This facility plan has been prepared to cover both the City of Reno (City) and Washoe County (County) portions of the TMSA. Each jurisdiction has provided its own projection of future growth through the year 2030 planning horizon. At the time of preparation of this plan, the only spatially distributed growth forecast model that was available for use and agreed to by both the City and County is the Regional Transportation Commission's (RTC) Traffic Analysis Zone (TAZ) model, which consists of a Geographic Information System (GIS) shapefile containing TAZ boundaries and a spreadsheet with future growth projected over time by TAZ. The City and County have each updated this model with their own projections for their individual jurisdictional areas. This updated model was used as the basis for this water, wastewater and flood control facility planning effort.

### **1.2 CONCEPTUAL LEVEL ANALYSES**

The TMSA Facility Plan consists of several components, including projected improvements for water, wastewater and flood control infrastructure improvements. The following sections describe the level of detail provided in this Facility Plan. It should be noted that the infrastructure sizes and locations are conceptual, and are based upon planning level information. It should be anticipated that the recommended sizes and locations of facilities will be further refined as more detailed information and development plans are available.

### **1.2.1 Water Facility Plans**

For this project, a Conceptual Level Water Facility Plan includes the following:

1. Identification of potentially available water resources to serve future growth based on the Water Resource Baseline in the adopted Regional Water Management Plan, or subsequent updates provided by the RWPC.
2. Documentation of land use assumptions.
3. Documentation of existing demands based on information provided by water purveyors, if available.
4. Projection of build-out water demands based on master planned land uses as provided by the City of Reno. Water demand factors are developed based on data for equivalent land uses from the relevant water purveyor in the region.
5. Identification of pressure zones and potential tank sites.
6. Identification of potential wholesale or in-basin water delivery locations, including qualitative descriptions of potential improvements to existing systems based on available information from the relevant water purveyor in the region.
7. Water transmission capacity needed to serve pressure zones in terms of “equivalent water transmission capacity”. Equivalent water transmission capacity is defined as the transmission capacity and pipe size required to serve build-out of a region. More detailed planning of the region in the future will likely result in the design of a more distributed network of smaller diameter pipes following detailed street/lot layouts that provide the same overall capacity.
8. Planning level facility cost estimates for major backbone infrastructure including transmission piping, tanks, wells, treatment, or pump stations, as appropriate, based on recent construction costs in similar conditions. Cost estimates include a 30% contingency, plus an allowance for engineering, permitting, and construction management.
9. Discussion of relevant policies from the adopted Regional Water Management Plan and their effect on water planning within the facility plan study area.
10. Identification of any known constraints affecting the water facilities in the facility plan study area.

## 1.2.2 Wastewater Facility Plans

For this project, a Conceptual Level Wastewater Facility Plan includes the following:

1. Documentation of land use assumptions.
2. Documentation of existing wastewater flows based on information provided by wastewater treatment providers, if available.
3. Projection of build-out wastewater flows based on master planned land uses as provided by the City of Reno. Wastewater flow factors are developed based on data for equivalent land uses from either the wastewater treatment provider in the region to be planned, or from the 208 Regional Water Quality Management Plan, as appropriate.
4. Identification of gravity wastewater collection areas and potential need for wastewater pump stations.
5. Identification of wastewater treatment plant locations to provide service (new or existing), and capacity needed, with consideration of information contained in 208 Regional Water Management Plan.
6. Discussion of existing effluent disposal methods and limitations and reference to information contained in the 208 Regional Water Quality Management Plan, as appropriate.
7. Wastewater interceptor capacity needed to serve collection areas in terms of “equivalent wastewater collection capacity”. Qualitative descriptions of potential improvements to existing systems will be included, based on available information from the relevant wastewater treatment provider in the region. Equivalent wastewater collection capacity is defined as the interceptor capacity and pipe size required to serve build-out of a region based on average slopes within the collection area. More detailed planning of the region in the future will likely result in the design of a more distributed network of smaller diameter pipes following detailed street/lot layouts that provide the same overall capacity.
8. Planning level facility cost estimates for major backbone infrastructure including gravity interceptor and force main piping, wastewater pump stations, treatment, and effluent disposal, as appropriate, based on recent construction costs in similar conditions. Land costs are not included in the estimates. Cost estimates include a 30% contingency, plus an allowance for engineering, permitting, and construction management.
9. Discussion of relevant policies from the adopted Regional Water Management Plan and their effect on water planning within the facility plan study area.
10. Identification of any known constraints affecting wastewater facilities in the facility plan study area.

### 1.2.3 Flood Control Facility Plans

For this project, a Conceptual Level Flood Control Facility Plan includes the following:

1. Review of existing available documents and studies of the area, including previous development analyses and plans, previous master plans, and readily available site specific scientific studies.
2. Documentation of the extent of known flooding and high water levels.
3. Field visits to record and photo document general observations of topography and geomorphology, location of existing natural channels, potential for channel migration, playa conditions and potential behavior, civil infrastructure that may need upgrade, replacement or removal, and assistance with interpretation of project specific and other available mapping. Engineering judgment will be exercised on which areas to visit due to the number of facilities.
4. Conceptual level studies as necessary to quantify hydrologic flow potential, estimate extent of flood plains and order of magnitude for required structures, and recommended locations for conveyance and storage facilities.
5. Calculation methods to be used for analysis may vary include stochastic or deterministic modeling as appropriate commensurate with the level of accuracy needed to answer planning level questions. Facilities may not be analyzed to the point that specific sizes are provided, but when needed, sizes that are provided will be based on simple estimation techniques. Any model produced for analysis of a flood control facility plan will be made available to the City for use as a planning tool for future development.
6. Coordination with the Truckee River Flood Project planning effort. Flood facility planning will incorporate elements from the “Local Sponsor Plan” alternative and a discussion on the Army Corps of Engineer’s alternative when available.
7. A discussion of flood management strategy and potential alternatives for each area.
8. Planning level facility cost estimates for major backbone infrastructure including channel stabilization, structural channel improvements, flood storage and recharge infrastructure, and other major structural upgrades such as culverts and bridges, as appropriate, based on recent construction costs in similar conditions. Cost estimates include a 30% contingency, plus an allowance for engineering, permitting, and construction management. Facility sites may be identified to the extent of the required amount of land area, but not to the extent of individual parcels. Land costs are not included in the estimates.

### 1.3 HOW TO USE THIS REPORT

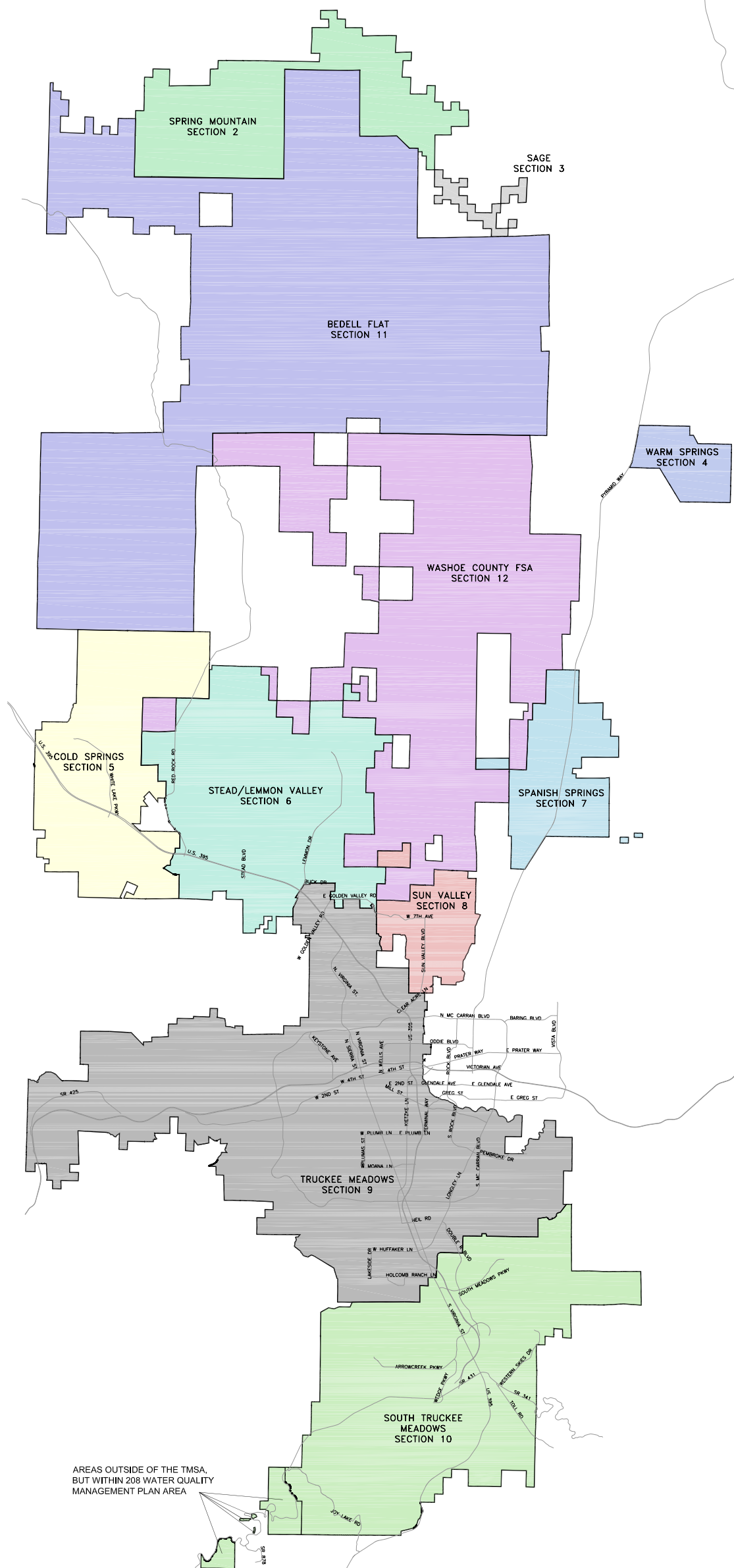
Water, wastewater and flood control infrastructure improvements are presented in this TMSA Facility Plan. Reno's portion of the TMSA is subdivided into several planning areas, including Spring Mountain, Sage, Cold Springs, Stead and Lemmon Valley, Truckee Meadows, South Truckee Meadows and Bedell Flat. Section 10, which covers the South Truckee Meadows portion of the TMSA, is incomplete as of this date. Washoe County provides the water and wastewater service to the majority of this area. Washoe County's portion of the TMSA Facility Plan, which includes the water, wastewater and flood control infrastructure improvements for the South Truckee Meadows area of Reno, is scheduled to be complete by October 2007.

Figure 1-1 shows the different Reno and Washoe County planning areas, and which sections of the Facility Plan detailed information can be found regarding the recommended water, wastewater and flood control improvements. Each planning area and its associated figures, represents a portion of the overall TMSA, which may include a portion of Reno's TMSA, a portion of Washoe County's TMSA, or both. As development occurs within the TMSA, more detailed information and project specific plans will be generated. With this additional information, the level of detail of the facility plans will increase based on site specific conditions.

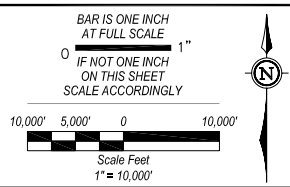
The facility recommendations presented herein are intended to provide the foundation for subsequent detailed planning and design. The City of Reno, Washoe County and the water, wastewater and flood control service providers having jurisdiction are the final authority regarding necessary infrastructure improvements. Preparation of updated facility plans will be necessary based on current information and the specific needs of the development at that time. These future planning efforts will further refine and define the exact facility requirements presented in this plan.

In general, it is anticipated that future planning and design will substantially conform to the TMSA Facility Plan. However, it is reasonable to foresee recommended changes to the TMSA Facility Plan as more detailed information is developed. When considering whether or not a refinement of the recommended facilities conforms with the TMSA Facility Plan and ultimately the Regional Water Management Plan and Truckee Meadows Regional Plan, the basic question to be answered is, "Does the design intent of the proposed facility (capacity, service function, construction phasing of major improvements, general location, design criteria, significant impact to other water related issues, etc.) substantially conform with the Regional Water Management Plan and the design intent of the applicable water, wastewater and flood control facility plans presented in this Plan?"

The Regional Water Management Plan includes Policy 4.1.a: Facility Plans and Infrastructure Studies, for determining whether a proposed revision to the TMSA Facility Plan is of such a kind or size that affects the working of the Regional Water Plan, and is in conformance with the Regional Water Plan. The Regional Water Planning Commission will ultimately determine whether a proposed revision to the TMSA Facility Plan requires a review for conformance with the Regional Water Plan.



NOTE: FSA AND TMSA BOUNDARIES CURRENT AS OF FEBRUARY AND MAY 2007



MAP SYMBOLS

COLD SPRINGS	SPANISH SPRINGS	SUN VALLEY	BEDELL FLAT
SAGE	SPRING MOUNTAIN	TRUCKEE MEADOWS	WASHOE COUNTY FSA
SOUTH TRUCKEE MEADOWS	STEAD	WARM SPRINGS	

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TMSA/FSA FACILITY PLAN - FIGURE 1-1			
TMSA/FSA INDEX MAP			
COUNTY OF WASHOE, NEVADA			
REV NO.	REVISION	BY	
JOB #	WCUD07-001	DESIGNED	JPE/CVB
DATE	SEPT 2007	DRAWN	JBW
SCALE	1" = 10,000'	CHECKED	CVB