

City of Riverside

**WASTEWATER COLLECTION AND TREATMENT
FACILITIES INTEGRATED MASTER PLAN**

**VOLUME 12: ASSET MANAGEMENT
CHAPTER 1: STRATEGIC VISION**

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STRATEGIC VISION

1.1 PURPOSE

The purpose of this chapter is to describe and define the key components of asset management as they will be carried out in the Integrated Master Plan, and describe how the asset management data from the Maintenance Tactical Plan and the Integrated Master Plan can be integrated by the City of Riverside (City).

The City has developed a strategic vision for implementing asset management within their Regional Water Quality Control Plant (RWQCP). The City's stated goals, per the Maintenance Tactical Plan that was developed by the City in June of 2006, are to improve internal and external communication, improve infrastructure, increase the quality and quantity of reusable resources, and improve employee motivation, recognition, and opportunity for advancement. The intent of implementing asset management is to better support and achieve these goals in the vision and mission statements developed for the RWQCP. The City is therefore embarking on asset management, as both part of the Integrated Master Plan, as well as part of their Maintenance Tactical Plan.

1.2 CONCLUSIONS AND RECOMMENDATIONS

- The asset management component of the Integrated Master Plan will ensure that the proposed CIP includes existing facilities and supports the City's asset management initiative by providing initial data for SPL, a complete asset assessment/valuation database specifically designed for asset management, and a basic decision framework to more effectively manage the long term planning for the City's capital assets.

1.3 MAINTENANCE TACTICAL PLAN

The Maintenance Tactical Plan is intended to identify, focus, and optimize the RWQCP maintenance activities in pursuit of a proactive, rather than reactive, mode of operation, in order to support the asset management initiative. The goal is to focus on life cycle asset management, risk management, and capital equipment replacement. The Maintenance Tactical Plan will support asset management through a variety of avenues including the SPL Enterprise Asset and Work Management System, which involves the development of a Master Equipment List and subsequent data collection and population; availability of appropriate maintenance facilities, equipment, and tools; reorganization of maintenance (preventative, corrective, and predictive) planning and scheduling; more efficient purchasing and warehousing; training and qualification of maintenance personnel; and better control of maintenance activities.

1.4 ASSET MANAGEMENT IN THE INTEGRATED MASTER PLAN

The intent of the asset management component of the Integrated Master Plan is to provide repair/replacement recommendations for the existing facilities for the overall Capital Improvement Plan (CIP) that is produced as a result of the work completed in the Integrated Master Plan. This asset management component is also intended to support the asset management efforts undertaken as part of the Tactical Plan by providing initial asset data in the form of major asset inventory and classification, condition, and other assessment information including photographs, useful lives, and cost data. If desired, the City can use this information to populate their SPL system. Additionally, a preliminary decision framework will be established to select assets for inclusion of projects in the CIP. The specific asset management tasks within the Integrated Master Plan are as follows:

1. Define an asset.
2. Develop a major asset inventory and classification system.
3. Perform asset assessments on the identified major assets.
4. Develop replacement costs and other valuation data.
5. Populate all data in Carollo Engineer's (Carollo's) Water/Wastewater Asset Manager™ (WAM™) software application.
6. Develop specific recommendations for the CIP.

1.5 ASSET MANAGEMENT STRATEGY

There are several asset management definitions and components for both the Maintenance Tactical Plan and the Integrated Master Plan. Asset management involves defining an asset so an inventory may be created for an assessment that assigns condition values and collects data. Parameters developed from the assessment and estimated financial valuations are used to compile a CIP. Each component in this process is integral to the overall asset management strategy. This section describes the key definitions and components from both plans and how they may be integrated by the City.

Defining an "asset" determines the level at which the City's facilities will be managed. The Integrated Master Plan's "asset" is a major component and can be defined as a complete physical component of a facility that enables service to be provided, is critical to plant operation, and/or has a value greater than \$25,000. Examples would include a pump, a major Electrical/Instrumentation and Controls (I&C) item such as a Motor Control Center (MCC) or flowmeters, a rapid mixer, or a Heating, Ventilation, and Air Conditioning (HVAC) system. It would not include a sample pump, valve actuator, or pump motor. This definition is fairly consistent with the SPL "assembly" level and is appropriate for managing capital assets. SPL further divides an "asset" into its respective components to effectively manage them at a maintenance and operations level.

The inventory component determines which items are major assets and is developed based on site layouts, flow schematics, existing knowledge of City facilities, and available SPL data from the City. Additions to the inventory are made based on assets identified in the field, and from Operations and Maintenance (O&M) staff knowledge. The inventory is classified based on processes within the facility. This inventory can be used to further develop and populate the asset list in SPL.

The asset assessments are used to develop specific parameters around which a framework can be developed and specific decisions can be made. These assessments involve data collection and the calculation of a variety of attributes, including condition and specific comments based on condition. These comments may include descriptions of corrosion, spalling, vibration, and noise; rankings for criticality, vulnerability, risk, and level of service; calculations for remaining useful life, evaluated remaining useful life, and economic remaining useful life; and documentation of installation year and original useful life. Digital photos taken of each asset also contribute to the assessment. Most of this data can be used to further populate SPL. WAM™ ranking systems can be converted to SPL ranking systems to make the data in the two different systems compatible and consistent.

The condition ranking system (1 to 5) in WAM™ is based on the percentage of the value of the asset that needs to be invested in order to return the asset to excellent condition. The condition rating within SPL can also be configured to be on a 1 to 5 scale and be based on the user-defined percentage of the asset that is new. This ability to configure the condition rating in SPL will allow for consistency with the ranking given in WAM™. Additionally, both WAM™ and SPL allow specific comments related to condition so the comment data within WAM™ can be easily transferred to SPL. Original useful lives are user defined in both WAM™ and SPL, which enables compatibility between the two systems. The remaining useful life is calculated using the same equation in both WAM™ and SPL to maintain consistency. Criticality in WAM™ is based on four components, for which each has been assigned a value, and the four values are added to develop one overall criticality score. SPL has four criticality ratings. The WAM™ scores can be divided into four groups, from low to high, and each grouping can be associated with one of the SPL ratings to ensure compatibility between the two applications.

Financial valuations are developed to accurately budget for the funds that will be required in the future, and to optimize decision making in terms of the tradeoffs between capital and O&M spending. Replacement value, repair cost, book value, annual and cumulative depreciation, evaluated value, current value, and estimated acquisition value are all developed as part of the asset management work within WAM™. Of these valuations, acquisition cost, book value, and cumulative depreciation are available within SPL and calculated in a similar manner to ensure consistency.

Based upon the assessment and financial information, a decision framework is developed in order to define parameters around which to make recommendations for the CIP. Assets with any or all of the following are included in the development of the CIP: high risk, poor

condition, low economic remaining useful life, and high cost. This component of the CIP will then be discussed with O&M staff to verify the validity for the inclusion of the assets.