SECTION 1. DEFINITIONS

1.1. ***Asset Management Plan*** **– A plan developed for the management of one or more infrastructures, systems, subsystems, and/or assets that combines multi- disciplinary management techniques (including technical & financial) over the life cycle of the asset in the most cost effective manner to provide a specific standard of service.**

1.2. ***Infrastructure*** **– a set of fixed physical assets that form a large network that provides a service that is necessary for the health and safety of the public, and continuation and growth of economic activity in the City of Crossville. Infrastructure as a network has an indeterminate life although the assets, subsystems, and systems that comprise it may have a life. Infrastructure is further subdivided into systems, which is further subdivided into subsystems.**

1.3. ***Water Infrastructure*** **– the set of all fixed physical assets grouped into systems and subsystems that are required to provide potable water service to the customers of the City of Crossville.**

1.4. ***Wastewater Infrastructure*** **– the set of all fixed physical assets grouped into systems and subsystems that are required to provide public wastewater collection, treatment, and disposal services for the customers of the City of Crossville.**

1.5. ***Telecommunications Infrastructure*** **– the set of all fixed physical assets grouped into systems and subsystems that are required to provide telecommunication services to the customers of the City of Crossville.**

1.6. ***Transportation Infrastructure*** **– the set of all fixed physical assets, owned and controlled by the City of Crossville, grouped into systems and subsystems that are required to provide transportation services to the public.**

1.7. ***Electrical Infrastructure*** **– the set of all fixed physical assets grouped into systems and subsystems that are required to provide electrical power service to the customers of the City of Crossville.**

1.8. ***Solid Waste Infrastructure*** **– the set of all fixed physical assets grouped into systems and subsystems that are required to provide collection and disposal of solid wastes and recyclables for the residents of the City of Crossville.**

1.9. ***System*** **– A set of fixed physical assets and/or subsystems that provides a common and distinct function within the larger infrastructure network.**

1.10. ***Subsystem*** **– A set of fixed physical assets that form a subsystem within a larger system that provides the distinct function of its parent system within a physical boundary.**

1.11. ***Asset*** **– A physical component that is a component part of the entire system or subsystem that it comprises a portion of and that can be individually tracked and replaced as a unit.**

1.12. ***Asset Class*** **– A hierarchical classification of fixed physical assets that groups assets that are similar in physical construction, provide a similar function, and statistically have the same life.**

1.13. ***Eligible asset*** **– An asset that is a component of a subsystem or system that has been designated in accordance with this plan to be eligible for asset management and the modified approach to depreciation in GASB 34 and meets the Tier imposed constraints.**

1.14. ***Critical asset*** **– An asset that is integral to the sustained performance of a subsystem or system. Failure of a critical asset would have significant consequences in costs, socially, economically, or environmentally. The criticality of an asset shall be defined in the critical score of the asset. The most critical asset shall have the highest critical score.**

1.15. ***Asset failure score*** **– A numerical score assigned to the likelihood of failure for an asset.**

1.16. ***Cost benefit analysis (CBA)*** **– A systematic process, as a form of economic analysis, which is based on calculating and comparing benefits and costs of a project to determine if it is a sound investment or decision and to provide a basis for comparing projects. In cost benefit analysis, all benefits are monetized.**

1.17. ***Cost-effectiveness analysis*** **– A systematic process, as a form of economic analysis, which compares the relative costs and outcomes (effects) of two or more courses of action to determine the relative costs of actions and their effectiveness at addressing a condition. The option which produces the desired outcome at the lowest cost is indicated by a cost-effectiveness analysis.**

1.18. ***Cost-utility analysis*** **– A quantitative systematic process, as a form of economic analysis, that estimates the relative costs and utility of two or more courses of action to determine the relative effects of each alternative.**

1.19. ***Improvement / Expansion*** **– capital construction or any activity that is performed on a system or subsystem of infrastructure that increases the capacity of that infrastructure system or subsystem.**

1.20. ***Preservation*** **– a customer-focused program of activities undertaken to provide and maintain serviceable systems including reconstruction, rehabilitation, and preventive maintenance. Preservation seeks to address deficiencies before they occur and to reduce the rate of deterioration.**

1.21. ***Reconstruction*** **– capital construction or any activity that is performed on a system or subsystem of infrastructure that replaces an asset or assets so as to extend the life of the system or subsystem.**

1.22. ***Rehabilitation / Renovation*** **– capital construction or any activity that is performed on a system or subsystem of infrastructure that extends the life of the affected assets by eliminating the effects of deterioration thus returning the asset or assets to a "like new" or "near new" condition.**

1.23. ***Preventive Maintenance*** **– capital construction or any activity that is performed on a system or subsystem of infrastructure which has as a primary objective to extend the life of an asset or assets without renovating the asset or reconstructing the asset.**

1.24. ***Level of Service (LoS)*** **– Level of Service, also known as Standard of Service, are the established level of service requirements set by the asset management plan for the system or subsystem that must be maintained.**

1.25. ***Minimum condition grade*** **– A minimum condition grade is the minimum condition assessment score that an asset can have that is acceptable within this asset management plan.**

SECTION 2. ASSET MANAGEMENT PLAN

2.1. Asset System Description

2.1.01. Introduction and Overview

This asset management plan shall constitute the policy of the City of Crossville to address management of certain infrastructure systems and the requirements of GASB 34 as it pertains to the Modified Approach contained within GASB 34. The policy shall apply to all City of Crossville infrastructure systems as identified within this plan. This plan and the system to implement it shall be referred to as the Asset Management System.

2.1.02. Primary Goals

The Asset Management System is being implemented to provide the following primary goals.

A. Reduce life-cycle costs for infrastructure to achieve economy in the management of utility funds

B. Extend service life of existing infrastructure.

C. Improve decision-making capabilities and emergency response related to the management of infrastructure.

D. Improve ability to plan and pay for future repairs and replacements

2.1.03. Secondary Goals

The Asset Management System is being implemented to provide the following secondary goals.

Aggregate data related to infrastructure systems into a meaningful compilation to aid in the decision-making process.

Minimize risk associated with failure of infrastructure systems.

2.1.04. Infrastructures and Systems

The City of Crossville currently owns and maintains the following infrastructures:

City of Crossville Infrastructures

Water Infrastructure
Wastewater Infrastructure

City of Crossville Infrastructure	Systems	System Function
Water Infrastructure	Water Supply System	To provide raw water for treatment that is suitable for potable water once treated.
	Water Treatment System	To convert supplied raw water into potable water complying with regulations and ready for delivery.
	Water Storage System	To store potable water in such a manner that quality is not degraded below regulatory requirements.
	Water Distribution System	To deliver potable water between treatment system, storage system, and consumers or customers.

City of Crossville Infrastructure	Systems	System Function
Wastewater Infrastructure	Wastewater Collection System	To collect wastewater from customers and deliver to treatment system.
	Wastewater Treatment System	To treat wastewater to a level to comply with regulatory disposal requirements.
	Wastewater Disposal System	To dispose of wastewater components in accordance with established regulations.

2.1.05. Implementation Schedule

Water Infrastructure	FY 2013-2014
Water Supply System	All subsystems
Water Treatment System	All subsystems
Water Storage System	All subsystems
Water Distribution System	All subsystems that construction was completed after January 1, 2000 with a capital cost over $200,000
Wastewater Infrastructure	**Phase One FY 2013-2014**
Wastewater Collection System	All subsystems that construction was completed after January 1, 2000 with a capital cost over $200,000
Wastewater Treatment System	All subsystems
Wastewater Disposal System	All subsystems

2.1.06. Eligible Assets

Eligible assets are those assets which are a component of a system defined in the Asset Management System and meet the requirements of the Eligible Asset Implementation Schedule. The Eligible Asset Implementation Schedule is defined in order to gain the greatest benefit early in the implementation of the system by addressing assets with a higher cost.

Eligible assets shall be individually tracked within the Asset Management System.

2.1.07. Eligible Asset Implementation Schedule

The eligible assets to be included in the Asset Management System shall be included at implementation.

2.1.08. Capabilities of Asset Tracking System

The Asset Management System shall include an asset tracking system. The asset tracking system shall be capable of providing the following functions:

A. Maintain a catalog of all eligible assets. The catalog shall include a detailed description of the asset, classification of the asset by infrastructure, classification of the asset by system, the asset by subsystem, the location of the asset, the age of the asset, the value of the asset, and estimated replacement cost of the asset.

B. The asset tracking system shall maintain an estimate of the life of the asset based upon condition assessments of the asset and statistical evaluation of the asset class.

C. The asset tracking system shall estimate the asset failure score or the likelihood of failure based upon statistical evaluation of the asset class, the condition of the asset, and indicator parameters established in the system. The failure score of an asset shall be assessed on a scale of one to ten. The scale shall be evenly distributed based on the statistical likelihood of failure such that a score of one corresponds to a 10% or less chance of failure within the next year; while a score of ten corresponds to a 90-100% chance of failure within the next year.

D. The asset tracking system shall estimate the risk of an asset. The risk of an asset is the product of the critical score and the failure score for the asset. Therefore, risk shall be defined on a scale of 1 to 100.

E. The asset tracking system shall maintain records of all condition assessments of the asset, failures of the asset, all preservation activities and their costs performed on the

asset, and key parameters that are defined to assist in the estimation of the asset life and failure score.

F. The asset tracking system shall maintain a list of all customer complaints for water and wastewater infrastructure; whether or not the complaint is related to an eligible asset; including the date and time of the complaint, the customer's contact information, a log of the measures taken by personnel, and the responses to the customer in relation to the compliant.

G. Estimate the annual cost to maintain and preserve the asset at the level necessary for the infrastructure to meet the established minimum level of service established by City Council.

2.2. Level of Service

The minimum level of service established by this Plan, commonly referred to as level of service, shall be met for the assets included within the Asset Management System. The level of service may be written as any number of conditions but shall be considered to establish a single level of service in which all conditions must be satisfied for the level of service to have been met. Each infrastructure implemented into this Plan shall have an established level of service. The level of service may only be altered by amending or modifying this Plan.

2.2.01. Water Infrastructure Level of Service

The established water infrastructure level of service is

City of Crossville Asset Management System
Water Infrastructure Level of Service

Water Infrastructure System	Level of Service Components
Water Supply System	All dams shall maintain a minimum condition grade of 70 which would comply with State regulations.
Water Treatment System	Maintain a design treatment capacity to comply with state regulations. Water Supply and Treatment Systems shall be operable and capable of meeting average daily demand.
Water Storage System	System shall provide design storage for the average daily demand to comply with state regulations. All storage tanks shall maintain a minimum condition grade of 70 which will comply with all state regulations.
Water Distribution System	Any subsystem shall be limited to a number of breaks per mile per year.

2.3. Current Asset Performance

No quantitative condition assessment of existing assets has been performed. The Asset Management System is designed to first incorporate newer or recently renovated assets into the system and any newly constructed assets. These assets have the best condition in the infrastructure.

2.6 Asset Management Practice

Asset management practices shall incorporate financial and technical expertise in the evaluation of the techniques to manage the assets.

The primary practices to be employed in the management of assets shall be:

A. The assets with the lowest condition assessment score shall be considered first in the expenditure of any available funds for planned activities.

2.7. Condition Assessment Practices

Condition assessment practices shall be performed in compliance with the following guidelines:

A. Condition assessments shall be performed on each asset or a statistical sample of an asset class or subset of an asset class every three years.

B. All condition assessments shall be quantitative but may give consideration to qualitative values. The scores shall be statistically standardized on a scale of 1 to 100 utilizing the following general guidelines.

Score	Description of Score
90-100	Asset is new or in like new condition
80-90	Asset is in good operating condition with minor blemishes that do not affect the operating properties of the asset.
70-80	Asset is in average operating condition but is in need of minor repairs.
60-70	Asset is in poor operating condition and is in need of significant repair or is functionally obsolete.
Below 60	Asset is in a failing condition or is unable to allow the system to be in compliance with any state or federal regulations.

C. The condition assessment method shall be identical for each asset in an asset class

2.7.01. Water Main Condition Assessment Practices

Water mains shall be condition assessed based upon the number of main breaks per mile per year excluding breaks caused by outside sources. Water mains which have excessive breaks shall be assessed using available technology to assess the condition of the asset in regards to the type of failures which have been observed in the main. Since the type of failure is indicative of the causes of failure and the advancement of technology is constantly providing improvements in the non-destructive testing of pipeline assets, the Asset Management System shall not limit the use of the best available technology to assess these pipelines.

2.8. Improvement and Monitoring

The Asset Management System is being implemented with the full understanding that there is always improvements that can be made in the monitoring and decision making processes in an effort to reduce the lifecycle costs of infrastructure. The City of Crossville holds paramount a desire to minimize the costs of infrastructure while meeting the needs of the local economy. The Asset Management System should be monitored by the effected Departments and any Recommendations for the improvement of the Asset Management System should be presented to the City Manager.

2.9. Amendment of Plan

This Plan may be amended from time to time by the majority affirmative vote of the Mayor and City Council of the City of Crossville. The Plan is binding upon the operations of the infrastructure systems and is not alterable in any form without the express amendment of the Plan by the majority affirmative vote of the Mayor and City Council.