Tactical Asset Management Plan (TAMP)

Asset Class – Parks

El Paso County Asset Management – Infrastructure, Strategic Plan

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The contents of this document were derived based on communications with El Paso County and represent a snapshot in time of that information, to the extent that it was made available to this work. This work is based on a desktop review of information and was not scoped to involve field observations. Any cost estimates provided in this document should not be considered of an accuracy greater than Class 5 as defined by the Association for the Advancement of Cost Engineering (AACE). This document is not technically exhaustive. All information provided is intended to provide planning-level information to support future investment discussions. As projects are further planned, a high recommendation is made that detailed feasibility, design, and estimating efforts be completed that specifically consider required actions, determine scope, identify necessary code and regulatory compliance requirements, costs, priorities, and sequence, and identify the most efficient implementation approach.

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Acronym List

AM	Asset Management
BOCC	Board of County Commissioners
CAD	Computer Aided Design
CI	Condition Index
CIP	Capital Improvement Program
CoF	Consequence of Failure
FO	Functionally Obsolete
GIP	Government Investment Pool
GIS	Geographic Information System
ISO	International Standards Organization
KPI	Key Performance Indicators
LCC	Life Cycle Cost
LoS	Levels of Service
OAB	Original Adoption Budget
O&M	Operations and Maintenance
PoF	Probability of Failure (i.e., Probability)
RoF	Risk of Failure (i.e., Risk)
SAMP	Strategic Asset Management Plan
SME	Subject Matter Experts
SoGR	State of Good Repair
TAMP	Tactical Asset Management Plan
TRV	Total Replacement Value

Executive Summary

El Paso County Parks & Community Services Department (Parks) currently manages a multimillion-dollar park system consisting of over 1,300 assets in its inventory. This department and its assets serve a population of over 735,000 people in the County. Parks needs a systematic approach to help Parks keep assets well-maintained and meet the parks and recreation needs of the large and growing community that it serves within the available resources. Asset management (AM) is an important enabler to accomplish this while minimizing costs, minimizing risks, and enabling the County's parks to be of excellent service to its citizens.

This Parks Tactical Asset Management Plan (TAMP), prepared collaboratively among the Parks Department and Matrix, provides an industry best practices-based framework based on the International Standard Organization (ISO) 55000 Series on Asset Management and other AM standards. This TAMP aims to improve the overall performance and extend the life cycle of the Parks asset portfolio while minimizing long-term costs.

This TAMP outlines a framework for prioritizing resources to fund maintenance and recapitalization of the County's parks assets. This is done by assigning risk to Parks assets based on their level of importance to the community (also known as Consequence of Failure, CoF). The second factor in determining asset risk is the Probability of Failure (PoF), which is the likelihood that an asset will fail soon. The product of PoF and CoF factors represents the risk score of the asset. For the Parks assets, asset condition was based on the age of the asset as inferred from the age of plat data for the park where the asset was located. The consequence of each asset was determined by collaborating with the El Paso County Parks management team. Parks assets with a high CoF tier are recommended to be maintained or recapitalized first, while conversely, assets with a low CoF are of lesser priority.

Matrix recommends that the County should prioritize the recapitalization of its most highly consequential tier assets while providing minimal O&M funding to the rest of its less consequential assets to prevent them from degrading into worse condition in the spirit of the County's pursuit of a state of good repair of its assets. This prioritized funding approach would be implemented per the Funding Distribution Table in the Approach section of this document with tiered prioritized maintenance investment to maintain these less consequential assets' basic useability until such time additional funding can be allocated to recapitalize less consequential assets in Poor condition. As assets of greater consequence are recapitalized, the Department can then use the cost savings generated from improving those assets to prioritize funding for recapitalization of less consequential assets. Additional asset data collection is necessary for further refinements of the funding model.

Further investment strategies are detailed in the recommendations section below. Implementing these recommendations will enhance the quality of Parks, improve community engagement, and support economic development and quality of life for residents.

Introduction

Background

El Paso County is a picturesque community located along the Colorado Front Range of the Rockies with rural, suburban, and urban development. The County has a population of approximately 737,800 people and was incorporated in 1861. One of the County's core responsibilities is to provide stewardship of the public assets that provide crucial services to the community, as outlined in their Strategic Plan Framework & Objectives of the Community Charter (Strategic Plan). The County's Strategic Plan is meant to serve as a flexible framework that adapts to community drivers and is the primary filter for consistent decision-making. The Strategic Plan connects county-wide elected officials with annual budgets and performance plans. Per the 2023 Original Adoption Budget (OAB), a portion of approximately $5.1M of the County's overall budget is allocated to fund the Parks' budget, of which approximately $3.1M is dedicated to sustainment and recapitalization.

Replacing/Maintaining these assets is considered critical if the County aims to improve the current levels of service. Current funding levels are insufficient to replace all assets at the recommended pace to maintain them in a 'good' overall status. As such, the Board of County Commissioners (BOCC) has expressed a desire to develop a data-defined, risk-based approach to address this issue. This TAMP aims to address these concerns with an analysis of an approach to help the County hedge against the degradation of the park's assets and equipment, reduced life cycles, and increased safety risk concerns.

The Department currently manages a multimillion-dollar park system that includes approximately 8,000 acres of parkland, 145 miles of trails, 33 pavilions, 15 playgrounds, 23 restroom facilities, 2 nature centers, 2,500 acres of conservation easements, and numerous athletic facilities. Parks also manages the El Paso County Fairgrounds and landscape maintenance at numerous County facilities. A summary of El Paso County Parks' parks, trails, and open spaces is detailed in *Table 1*.

This document establishes a systematic approach for the Department to help it recognize and communicate asset funding needs to sustain parks infrastructure to meet the parks and recreation needs of the community within the available resources. This TAMP builds on previous AM efforts for park assets at the County and lays out an industry best practices approach that is repeatable for further enhancing AM for the Department.

The Government Investment Pool (GIP) is key for physical improvements and development of parks, trails, open spaces, and public facilities throughout the park system. The GIP aims to improve safety, accessibility, and quality of life through continuous maintenance and upkeep of current assets, parkland acquisition, and ongoing development of new park properties and facilities as our community grows. To achieve the above goals, Parks developed a Capital Improvement Program (CIP), which identifies available funding and needs. The CIP is a fluid document, updated annually, to reflect changes in priorities, opportunities, and circumstances.

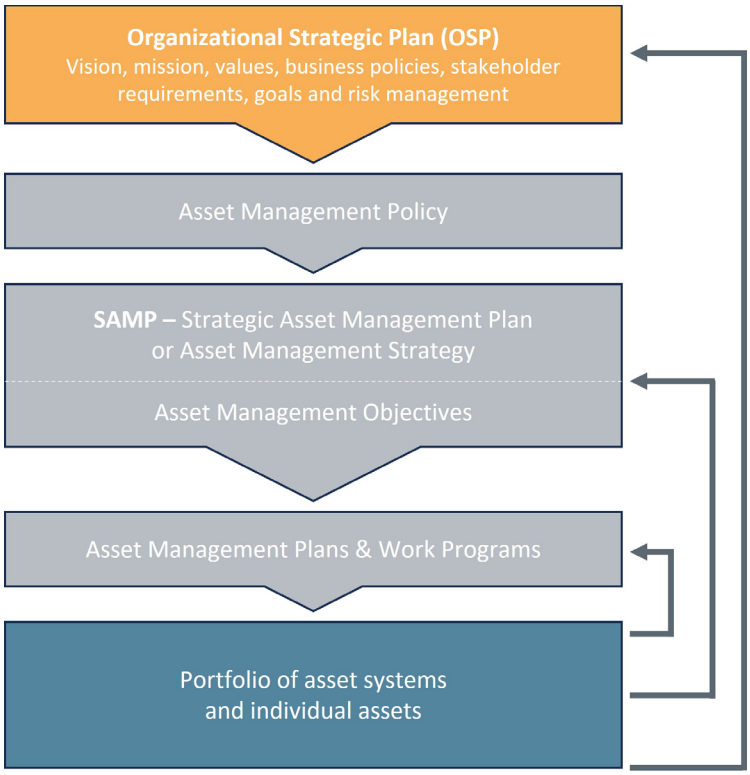
Table 1: El Paso County Parks, Trails, and Open Spaces

Regional Parks	Regional Trails	Open Spaces	Community Parks	Dog Parks
• Bear Creek Regional Park	• New Santa Fe Regional	• Black Forest Section 16	• John Ceresa Memorial Park	• Bear Creek Regional Dog Park
• Black Forest Regional Park	• Ute Pass Regional	• Clear Springs Ranch	• Palmer Lake Recreation Area	• Fox Run Regional Dog Park
• Falcon Regional Park	• Crews Gulch Regional Trail	• Drake Lake	• Stratmoor Hills Community Park	• Falcon Regional Dog Park
• Fountain Creek Regional Park	• Fountain Creek Regional Trail	• Jones Park	• Stratmoor Valley Park/Trailhead	• Fountain Creek Regional Dog Park
• Fox Run Regional Park	• Rock Island Regional Trail	• Kane Ranch Open Space	• Widefield Community Park	
• Homestead Ranch Regional Park		• Pineries Open Space	• Willow Springs Ponds	
• El Paso County Fair and Event Center	• Jimmy Camp Creek Regional Trail	• Paint Mines Interpretive Park		
	• Forest Lakes Regional Trail	• Rainbow Falls Historic Site		
	• Cherry Creek Regional Trail	• Santa Fe Open Space		
	• Fox Run Regional Trail	• Other Open Spaces		

Purpose

In general terms, a TAMP is a strategic framework that positions agencies to consider the full lifecycle cost when evaluating, managing, and investing in assets and infrastructure. It establishes a business-like approach within an agency that looks to limit long-term costs, while extending the overall life cycle and boosting the system-wide performance of the asset class and reducing its failure risk. The purpose of the TAMP is to document the assets that fully encompass El Paso County's network, identify where budget shortfalls have occurred and offer realistic recommendations for future fund management.

This TAMP focuses on developing a risk-based prioritization of asset repair and replacement needs to prioritize the County's limited funding for the most highly consequential assets before they fail. The Department is attempting to identify, prioritize, and more strongly advocate for asset renewal funding to shift from a reactive "run-to-failure" approach, where natural and built assets are repaired only when issues and failures arise, to one that is more proactive, strategically more effective and cost efficient. This will improve asset sustainment, utilizing condition data and predictive modeling. Future improvements to the department's asset management capabilities, especially most immediately industry best practices-based asset inventory and condition data and funding will aid in this endeavor going forward.



Key AM Documents, adapted from IAM 2014

This TAMP supports El Paso County's Countywide AM across its infrastructure asset departments. El Paso's Countywide AM program under development is aligning with best practices of the Institute of Asset Management's, which are largely based on the International Standards Organization's (ISO) 55000 Series on AM, and other industry standards and best practices. The Countywide Strategic Asset Management Plan (SAMP) applies the County's strategies to set the strategic direction for its infrastructure assets.

The County's TAMPs are child documents to the SAMP and utilized to apply tactics to plan and enable how the County's infrastructure asset classes will be managed to accomplish these strategies. This is summarized in the Key AM Documents figure, which summarizes the trickle-down of an organization's strategic plan down through its policy and into applied tactics in its individual asset class management plans. More information about general AM approaches used by the Countywide AM Program are summarized in the SAMP.

The first step in developing a TAMP is understanding the current state of the asset portfolio. This is commonly referred to as asset visibility and can be accomplished through TAMPS specific to each asset class and reflective of implementing the SAMP's strategies via tactics with the assets. TAMPs help to accomplish this and lay the trajectory from the top at the SAMP to the bottom of each individual asset in implementing an organization's AM strategy. Complete asset visibility is focused especially on 2 factors: asset inventory and asset condition. As AM capabilities mature at the County the analyses for the TAMPs can also mature and grow in detail.

Approach

Fundamentally, AM considers key asset information, such as those listed below.

- Which assets do I have?
- Where is the asset located?
- What is it worth?
- In what condition is it, and how is it performing? How much life does it have left? What needs to be done with the asset to avoid its failure?
- When do we need to do it, especially compared with other competing needs?
- How much funding is needed?

Efforts were made to answer these questions to perform the analysis in the TAMP. Presently, Parks asset data quality needs refined so assumptions, proxies, and work arounds were devised for now collaboratively with the Department. Further details about gaps in existing asset data and subsequent recommendations of how to address them are included in this document.

To take the answers to these questions, realize as with many agencies that needs and when they occur greatly outweigh the available funding, and then to thus prioritize the needs against one another while considering how to optimize the performance of the agency as it relies on its infrastructure assets, a risk-based approach was utilized. This approach follows industry best practices reflected in the ISO 55000 Series on AM and other standards. The approach outlined below reflects these steps and shows how they have been pursued particular to this agency's case, available data and existing capabilities, needs, and intents.

This approach summary addresses how key asset attributes, such as asset cost, lifespan and lifecycle remaining, and importance have been derived for the analysis of the asset class within this document. It also addresses how risk-based prioritization was derived for the asset repair and replacement needs.

Risk

The ISO 55000 Series on AM is a key standard in the asset management sector and is commonly recognized by the County as one of the key standards around which to orient its County-wide AM efforts. This series of standards emphasizes that AM involves balancing costs, opportunities, and risks in relation to the desired performance of the assets, to achieve the organizational objectives.

Risk of Failure (RoF) is a key aspect in examining the effects of uncertainty of physical infrastructure assets on the performance of an organization accomplishing its objectives. Consistent with the ISO 55000 Series on AM, the RoF of an asset is the product of the factors of Probability of Failure (PoF) of the asset multiplied by the Consequence of Failure (CoF) of the asset. PoF is a numerical score assigned to the asset that represents how likely an asset is to fail. CoF represents the importance of the asset to the organization accomplishing its objectives.

$$\textit{Risk of Failure} = \textit{Probability of Failure} \times \textit{Consequence of Failure}$$

In this iteration of AM analysis, the asset's condition score is used for asset PoF score, as is often typical. Asset age and subsequent remaining useful life have been derived from County data if available, or estimated if not, to estimate likely asset condition if condition data is not available. Asset CoF score is estimated by collaboration among the County and Matrix when not available in the data and is influenced by the importance of the asset in accomplishing the asset class's desired service levels; in

this iteration, this estimation is often quantitative and subjective. As the County's AM capabilities mature, these scores may be refined. However, the present iteration is still valuable in establishing the framework to perform such analyses in the future and to see major trends and decision points now.

Risk-Based Prioritization

The County has recognized the value, industry best practice, and its own need to perform a risk-based prioritization of asset repair and replacement needs in its TAMPs. This technique is utilized in the TAMPs and prioritizes investment to address these needs not only based on the probability that an asset will fail (presently largely determined by its condition given the County's existing AM capabilities), but also considering how consequential that asset is to the performance of the County in meeting its objectives. Such prioritization helps organizations move from a "worst-first" approach of mainly focusing investment on the assets in the worst condition, which ultimately leads to a costly state of reactiveness and reduced performance, to a more strategic and proactive approach to investing in the most important assets first, even if they are not in as bad of condition.

Optimization

In this TAMP, optimization is addressed by analyzing the outputs of a risk-based, prioritized forecast. The forecast is then attentively interpreted, refined if necessary, and a realistic way is suggested for the County to move forward in its investment spending for the asset class over the duration of the cost forecast while improving the State of Good Repair (SoGR) of this asset class and ultimately its portfolio. Improving its SoGR will help to keep its most important assets in good condition, improve the condition of its most important assets that are in bad condition, and generally catch up on improving the condition of the rest of the assets.

Business Rules

The methods, framework, and analysis within this document represent the business rules associated with this TAMP. These are included in a general sense in the above sections of this document, and in more detail in the below sections. These have been scaled particular to this agency, this asset class, this asset class's asset owners, and the current level of maturity of existing AM capabilities. These are also driven by the perspectives of the Countywide AM Policy.

TAMPs should be updated at least every 5 years, and more frequently as an organization's AM capabilities mature to accommodate more frequent updates to information and, hence, subsequent analyses. Annual updates are useful to assist with the County's annual budgeting cycle to reflect asset updates and the AM analyses about them, such as triggers for maintenance or replacement, changes in service levels, new services or needs that may require assets to be modified or developed, and considerations in the budgeting and prioritization process and their associate scenarios, alternatives, and recommended courses of action. As AM capabilities mature, business rules are expected to become more refined.

Matrix offers the following guidance for developing business rules to ensure consistency, efficiency, and effectiveness across a diverse inventory of Parks facilities and operations:

1. Standardized Maintenance Procedures: Develop and document standardized procedures for conducting routine maintenance tasks such as inspections, repairs, and preventive maintenance. Ensure that these procedures apply to the various types of assets in the portfolio and can be easily scaled up or down based on asset complexity and usage.

2. Asset Prioritization Framework: Establish a framework for prioritizing maintenance and replacement activities based on factors such as asset condition, consequence, safety risk, and budget constraints. This use of data-driven decision-making enables the effective allocation of resources and addresses high-priority needs first. This TAMP has established the initial version of this framework. In this case, assets were assigned a consequence score that aids in prioritizing the assets within the model.

3. Performance Metrics and KPIs: Define key performance indicators (KPIs) and benchmarks to monitor the performance of assets, maintenance activities, and service delivery. Track metrics such as asset use time, maintenance backlog, customer request response times, and customer satisfaction to assess performance and identify areas for improvement. This TAMP has established the initial version of these for this framework.

4. Compliance and Regulatory Standards: Ensure compliance with applicable regulatory requirements, industry standards, and best AM and maintenance practices. Establish protocols for documenting compliance activities, conducting audits, and promptly addressing non-compliance issues.

5. Budget Allocation Guidelines: Develop budget allocation and resource planning guidelines based on asset lifecycle needs, maintenance priorities, and strategic objectives. Consider factors such as asset age, condition assessment data, usage patterns, and funding availability when determining budget allocations for maintenance and replacement.

6. Risk Management Protocols: Define risk management protocols for identifying, assessing, and mitigating risks associated with asset maintenance and recapitalization activities. Establish procedures for conducting risk assessments, implementing control measures, and monitoring risk exposure to minimize liabilities and ensure safety. This TAMP has built upon and further matured the framework for this.

By implementing scalable business rules, El Paso County can streamline Park asset management processes, improve operational efficiency, improve data quality, and enable consistent and high-quality maintenance and recapitalization efforts across their park system.

Framework, Analysis, and Findings

The analysis in this TAMP helps the County accomplish its intent to be more informed and data-driven in its decision-making about assets and thus become more defensible and transparent in its decision-making about asset investment priorities. Subjective reasoning, expertise, and tactics are important complements to objective data analysis, and these have been applied in this analysis.

Asset Data

Data is the key underlying foundation of AM. Quality data, and the maintained updating of that data are significant, yet important efforts that require attention and investment.

Data Hierarchy

Asset inventories are a key component of asset management. Asset data hierarchy represents the relationship of the assets as reflected in the data, and the data to one another. The assets in the data

were identified by a unique Asset ID and grouped according to their location. The various assets within each park were assigned a condition based on their assumed degradation. These assets were then assigned a PoF score.

Park assets are grouped into overarching comprehensive categories and, as such, only contain two levels of asset data hierarchy. However, this should not be seen as a weakness or an outcome of data gaps. The asset inventory's flat structure is beneficial for tracking individual equipment performance, especially in park operations, rather than grouping them together. Within the Parks Department, the following Data Hierarchy structures apply:

Department/Division: El Paso County Parks and Community Services is classified as its own department, the highest level of the asset Data Hierarchy below the County-wide organization.

System: System-level data represents groupings of Subgroups known internally in Parks management as Parks/Open Spaces or Trails. However, for purposes of this funding model, the systems were merged so the Parks assets can be assessed in a level manner, rather than separating out Parks/Open Spaces, and Trails.

Subgroup: Subgroup-level data represents the groupings of various components that are organized by name of the park, open space, or trail.

Component: This level of hierarchy conforms to the "Asset ID" category of the Parks existing Equipment and Component structure. This is the final level of hierarchy for this asset portfolio as it is the lowest level of data structure available.

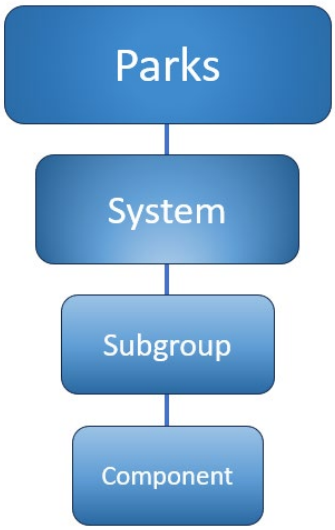


Figure 1: Parks Data Hierarchy

Asset Inventory

The Parks Department asset inventory resides in a Geographic Information System (GIS) database. The GIS data was sourced from two primary methods:

- Digitization of Department maps

- CAD drawings converted using GIS tool

The Parks' trails and assets were combined into one dataset for this report's inventory, which consists approximately of 1,339 individual assets. ***Table 2*** below lists types of assets present in Parks' asset inventory.

Table 2: Parks Inventory List of Asset Descriptions

Parks Asset Descriptions		
• Turf Mowing Area	• Secondary Regional Trail - Crushed Limestone	• Primary Regional Trail - Paved Asphalt
• Native Grass Mowing Area	• Bench	• Pavilion
• Steps	• Parking Lot	• Archery Range
• Other	• Light	• Bridge
• Horseshoe Pit	• Picnic Table	• Trailhead - Parking Lot
• Disc Golf Pad	• Water Access, Developed	• Pickleball Court
• Internal Park Trail - Native Soil	• Water Fountain	• Historic Feature
• Internal Park Trail - Crushed Limestone	• Picnic Table Grill Combo	• Fitness Area
• Sign	• Disc Golf Basket	• Water, Open - Dredge Costs
• Road	• Fence	• Tennis Court
• Turf Mowing Area - Irrigation Replacements	• Landscape Beds	• Storage
• Primary Regional Trail - Crushed Limestone	• Sidewalk	• Diamond Field
• Curbing	• Passive Node	• Baseball Field
• Grill	• Disc Golf	• Equestrian Facility
• Disc Golf Hole	• Dog Park	• Adventure Course

• Maintenance Yard	• Trailhead -Parking Lot	• Volleyball Court
• Secondary Regional Trail - Crushed Limestone	• Kiosk	• Playground
• Bench	• Internal Park Trail - Native Surface	• Primary Regional Trail - Paved Concrete
• Parking Lot	• Basketball Court	• Secondary Regional Trail - Paved Concrete
• Lights	• Basketball, Practice	• Garden
• Restroom	• Shop	

The assets summarized in ***Table 2*** were further classified into four different groups:

- Landscaping and Maintenance: includes assets such as ponds, landscape beds, and various mowing areas.
- Vehicle Infrastructure: includes assets such as parking lots, roads, and curbing.
- Park Visitor Infrastructure: includes assets such as trailheads, sidewalks, picnic tables, benches, pavilions, and other assets designed for visitor use.
- Sports Courts and Fields: baseball fields, basketball courts, horseshoe pits, disc golf, playgrounds, dog parks, equestrian facilities, and fitness areas.

Matrix notes that the Nature Center buildings are currently maintained under the Parks Department; however, they are scheduled to fall under the purview of the El Paso County Facilities Department and are therefore not included in this analysis.

Data Gaps

The underlying data from the assessment conducted for the El Paso County Parks Master Plan was not provided and stated to not be available to El Paso County. Additionally, through the assessment of the master plan, it appears condition scores of 0-3 were utilized during that assessment rather than the more commonly used 0-100 condition index score, which would be what we recommend as it allows for better planning and maintenance forecasting through an asset's lifecycle.

Due to the lack of available data, Parks condition data was assessed based on proxy data assumptions. The park's age was determined by plat data, assuming that the park's age was the same as the age of the plat. It was also assumed that all park assets were installed at the beginning of the park's service life. The deterioration of these assets was determined through a linear degradation based on each asset's service life. The service life was calculated by analyzing data related to similar components and through inputs from subject matter experts (SMEs).

To mitigate the impact of data gaps on model analysis, El Paso County must prioritize data quality and integrity, invest in data collection and validation processes, and explore alternative data sources or techniques. To mitigate the gaps present in the data used for this TAMP, consultation with subject

matter experts as well as statistical modeling was used to address missing data for condition, service life, and total replacement value.

Probability of Failure (PoF)

In this analysis, the asset condition score is used for the PoF score. Limited asset condition data was available from previous assessments detailed in the El Paso County Park Department's 2022 Asset Management Plan, so many of the asset attributes, including condition and age, had to be derived from gap-filling assumptions that Matrix made collaboratively with the Department.

Asset age was first used to determine condition. In the initial iteration of this age analysis, each asset or trail was assigned an age based on the age of the park it was located in, assuming all assets were installed when their respective parks were created because the age of assets is not currently tracked by the Department. This method may underestimate the condition of assets in many instances. Therefore, using an industry standard, assets without condition information were selectively assigned a value based on the distribution of good, fair, and poor designations among the limited data summarized in the 2022 Asset Management Plan; the data of the plan was not available for analysis in this TAMP.

To maintain a consistent condition standard across all County Parks assets, use of a Condition Index (CI) was employed. CI is a condition indicator commonly used throughout the asset management industry and is calculated as follows:

CI =1 - (Cost to replace degraded components ÷ Cost of replacing the asset)

As detailed in ***Table 3***, the CI ranges from 100 percent to 0 percent of asset life remaining and was further broken out into three distinct groups: Good, Fair, and Poor.

Table 3. Parks Asset Condition Index Groups

Condition Index	Description
Good - 100% to 70%	Asset operates efficiently and requires minimal corrective maintenance
Fair - 70% to 50%	Asset operates adequately and requires moderate corrective maintenance
Poor - 50% to 0%	Asset operates poorly and requires significant corrective maintenance

For the purpose of this report, a probability metric of 1, 2, or 3 was tied to the 'CI' with a PoF of 3 being the high potential for failure and a PoF of 1 to the lowest potential of failure. ISO 55000 does not strictly define PoF and instead states that "Each asset should be assigned a probability of failure (PoF) rating based on how likely the asset is to fail. These ratings should be based on a probability of failure rating structure created by system staff".

Matrix notes that a more accurate approach for assigning PoF would be on an individual asset class level. Ideally, a degradation curve specific to an agency, its geography, its operation, and/or other factors specific to the agency would be utilized to define the PoF. However, based on the limited existing asset data available and the scope and timeframe of the objectives of this TAMP, an approximation of PoF was used.

Condition

El Paso County's Parks assets are in relatively fair overall shape and in a maintainable state. Matrix notes that very limited condition data is available for El Paso County Parks, and the Parks Department's data available to consider in the Parks TAMP is lacking essential information related to most of its assets. The asset inventory was derived from multiple files and structures provided by El Paso County; however, many assets were missing information related to essential asset attributes to track such as install date, service life, and current condition. Therefore, the condition of parks assets was based on proxy data assumptions. The age of the park was determined using plat data, and the assumption was made that the age of the park matched the age of the plat. Additionally, the assumption was made that all assets of the park were installed at the time of the initial construction of the park. The degradation of those assets was established via an assumed linear degradation based on the default assumption of the service life of each asset. The service life was determined through analysis of data linked to similar components, as well as through inputs from Subject Matter Experts (SMEs).

Table 4 below depicts the current average age of assets within the given park as well as the average condition of those assets based on the condition data that was available or through the gap-filling assumptions made as part of the analysis. El Paso County is aware that many of their parks are over 25 years of age, and therefore, the importance of a best-practices based asset inventory and condition assessment will continue to become more imperative due to the age of the assets within the parks.

Table 4: El Paso County Parks Ages & Conditions

Park Name	Average Age	Average Condition Index
Bear Creek Regional Park	52	57.79
Black Forest Regional Park	47	56.92
Black Forest Section 16	27	78.60
Cherry Creek Regional Trail	4	54.00
Clear Spring Ranch Open Space	23	83.43
Crews Gulch Regional Trail	52	74.67
El Paso County Fair and Events Center	27	55.48
Falcon Regional Dog Park	8	54.00
Falcon Regional Park	8	57.21
Forest Lakes Regional Trail	2	54.00
Fountain Creek Regional Park	32	80.81
Fountain Creek Regional Trail	32	72.60
Fountain Creek Trail	32	61.50
Fox Run Regional Park	39	55.92
Homestead Ranch Regional Park	50	57.45
Jimmy Camp Creek Regional Trail	24	54.00
John Ceresa Memorial Park	24	64.86
Jones Park Open Space	9	54.00
Kane Ranch Open Space	2	81.56
New Santa Fe Regional Trail	37	57.29
Paint Mines Interpretive Park	27	55.79
Palmer Divide Regional Trail (PDRT)	20	Planned Not Constructed

Palmer Lake Recreation Area	37	57.42
Pineries Open Space	4	57.45
Rock Island Regional Trail	21	54.00
Santa Fe Open Space	2	85.00
Stratmoor Hills Community Park	52	60.43
Stratmoor Valley Trailhead Park	19	59.00
Ute Pass Regional Trail	21	72.00
Widefield Community Park	52	62.74
Other	25	65.50
Average (Overall)	**38.94**	**62.12**

** PDRT is a planned and anticipated to be constructed trail network it has been pre-loaded in this TAMP for future analysis. The PDRT park network ID was assigned by the County to several minor asset items located within the Woodland Trailhead area. These are existing assets currently maintained by the County that are located near the projected PDRT trail network. Due to the planned redevelopment, these minor assets have been excluded from the funding model.*

Consequence of Failure (CoF)

Service Levels & KPIs

Levels of Service (LoS), are defined by the International Infrastructure Management Manual (IIMM)[i] as "the defined service quality for a particular activity [of infrastructure] or service…against which performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability, and cost." LoS are translated into the risk analysis through the CoF score. Key Performance Indicators (KPIs) in this iteration are done qualitatively with some subjectivity. As AM capabilities mature in the Department, this translation will be able to be honed and become more quantitative.

Defining LoS is key to driving the identification of the necessary life-cycle and condition of park components; predicting the timing of restoration and replacement schedules, and estimating the probable costs for standard components, amenities, and park infrastructure. These efforts tie to County performance objectives and expectations and thus help prioritize capital improvement funds, so that funding is directed to areas where it can have the most significant impact and benefit towards those objectives. Service levels can be applied to evaluate where additional park acreage and amenities should be provided in the County, set priorities for development and redevelopment, and pursue an equitable distribution of parks and recreation resources county-wide.

Identifying Levels of Service

El Paso County has previously worked to define LoS alongside annual budgeting exercises to an extent for some of its assets. The County publishes yearly budget objectives and performance measures for its assets to include goals like implementing energy efficient components. However, these do not appear to explicitly consider Parks assets to an extent to leverage in this AM analysis. Thus, the CoF scoring scale definitions relating them to service levels have been derived collaboratively among the County and Matrix for the analysis in this document.

The LoS decided upon for Parks AM consists of three scoring levels of the CoF of assets, sometimes referred to as the criticality, importance, or impact rating. Each asset within the Parks inventory is assigned a consequence rating of 1, 2, or 3 based upon what projected consequences would occur should the asset be nonoperational or not fully performing.

An asset's consequence was arrived at through input and discussion with the El Paso County Parks. The consequence rating was determined through consideration of which park the asset was located in, typically referred to as the corresponding "Network ID". This determination was provided by the County, as some parks were deemed more essential than other parks. The Department determined the consequence rating for each asset by first identifying the parks that were most important to its mission success. Then, the assets were scored based on how consequential their park is in which they are located while also considering the vitality of the park.

In this way, assets of higher consequence imply that they are more critical for maintenance, repair, and resourcing allocations than those with lower consequence. ***Table 5*** below describes each consequence rating:

Table 5: El Paso County Parks CoF Scoring Scale & LoS Defined

Rating	Description	Service Level Expectation
3 – Highest Consequence of Failure	These assets have unique capabilities that cannot be duplicated by other Parks assets and/or fulfill an essential mission of one or more County departments. They may also be assets that are most frequently utilized and will cause significant inefficiencies in operations if they are nonoperational. Examples: Parking Lots Some Landscape Beds Sidewalks	• Immediate response to work orders • Highest priority for maintenance and recapitalization activities
2 - Moderate Consequence of Failure	These assets are required to provide County services but either have more redundancy or perform services which are not as high of consequence in case of failure or delay. Examples: Picnic Tables Benches Disc Golf Baskets	• Prioritized response to work order requests • Prioritized for regular maintenance and recapitalization activities
1 - Lowest Consequence of Failure	These assets support County operations but either have high redundancy or perform non-critical operations with low consequence in case of failure. Examples: Volleyball Courts Fences	• Response to work orders as time available • Maintenance and recapitalization activities are based on availability of resources with recapitalization prioritized over repair for component assets

Figure 2 illustrates the breakdown of consequence rating among Parks' 1,339 assets (the current inventory provided for this study), showing that approximately 73% are in the highest consequence rating tier using the methodology above. The results in this pie chart indicate that maturing the inventory and condition assessment of parks assets to include all assets and parks and be based on industry best practices for inventory and condition assessment would be highly beneficial. For instance, the better data quality and resolution in such an effort would likely provide better resolution on how many assets are actually the most highly consequential to prioritize funding for instead of approximately two-thirds of the parks asset portfolio showing that it is highly consequential. With additional authorization, more

analysis of the parks asset data can be performed, such as the version of the pie graph based on cost instead of by asset count, and many others.

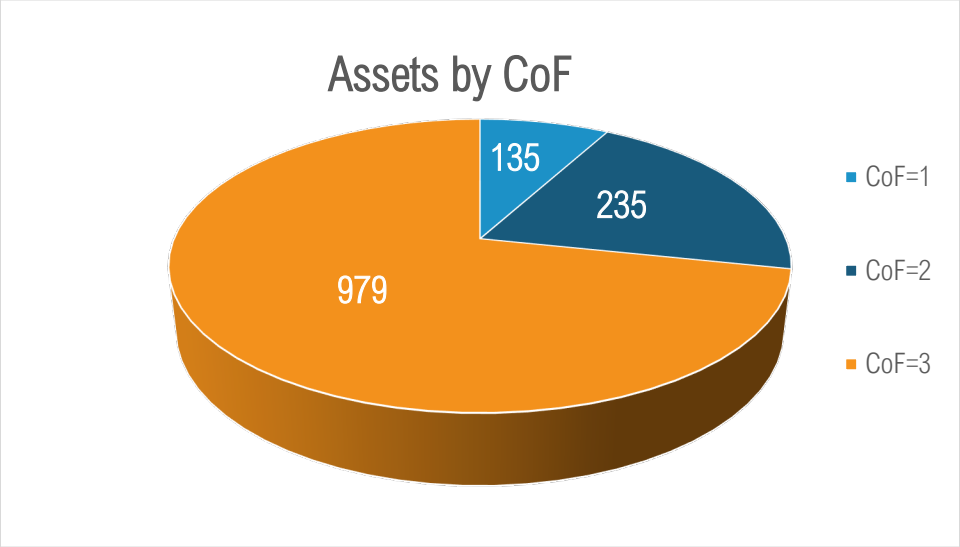


Figure 2: Total Parks Assets by Consequence Rating

The El Paso Country Parks assets are broken out as follows:

1. CoF 3, Tier 3 (High consequence): 979 individual assets comprised mainly from the Park Visitor Infrastructure group and the Landscaping and Maintenance group.

2. CoF 2, Tier 2 (Medium consequence): 235 individual assets comprised mainly from the Sports Courts and Fields group and the Park Visitor Infrastructure group.

3. CoF 1, Tier 1 (Low consequence): 125 individual assets comprised mainly from the Vehicle Infrastructure and Landscaping and Maintenance groups.

Historic Levels of Service

El Paso County has previously worked to define LoS alongside annual budgeting exercises. The County publishes yearly budget objectives and performance measures for its Parks assets to include goals like maintaining a comprehensive inventory and evaluation of the outdoor components in the park system, thus establishing baseline information required for the proper management of Park assets.

In the El Paso County Parks Master Plan, the County defined its organizational goals for Parks and directly related some of those goals LoS. Those goals are:

1. Provide a coordinated and connected system of parks, trails, and open space that is equitably distributed based on population and serves the needs of county residents.

2. Balance passive/active use of county parks and open space and determine what is the most appropriate for individual sites based on community needs and master planning processes.

3. Pursue best practices in managing and administrating all department operations.

4. Provide high-quality and safe experiences for users of county park facilities and recreational areas.

5. Prioritize taking care of and maximizing current assets over acquiring new assets to better serve El Paso County residents.

6. Maintain a consistent and equitable level of service by filling gaps in existing service levels and providing new facilities and services to meet future population demand.

7. Acknowledge the importance of parks and open space in El Paso County by providing adequate funding to develop, operate, and maintain these resources at a level commensurate with their importance.

Operational Performance

It is important to ensure that El Paso County's Parks' assets meet operational performance objectives related to reliability and capacity.

1. Reliability: Assets are designed to function reliably and efficiently, meeting operational requirements without frequent breakdowns or disruptions.

2. Capacity: The asset's capacity to meet current and future demands is in line with expectations, and any necessary upgrades or expansions are undertaken to accommodate changing needs.

In order to pursue optimal lifecycle management going forward, it is essential that El Paso County employ the following best practices:

1. Optimized Asset Performance: By managing assets throughout their lifecycle, El Paso County can enable park facilities, equipment, and infrastructure to perform optimally and meet operational needs. This includes regular maintenance, repairs, and upgrades to extend asset lifespan and enhance performance.

2. Cost Efficiency: Lifecycle management allows for effective allocation of resources by prioritizing investments based on asset condition, consequence, and expected lifespan. By identifying and addressing maintenance needs proactively, the county can minimize unplanned expenses, reduce downtime, and avoid costly asset failures.

3. Risk Mitigation: Proactive lifecycle management helps mitigate risks associated with asset deterioration, obsolescence, and non-compliance. By identifying potential hazards and addressing maintenance needs promptly, the county can minimize safety risks, regulatory violations, and liability exposure.

4. Sustainability: Lifecycle management promotes sustainability by optimizing resource utilization, minimizing waste generation, and reducing environmental impacts associated with asset maintenance and replacement.

5. Asset Planning and Decision-Making: Lifecycle management provides valuable data and insights to inform asset planning, budgeting, and decision-making processes. By understanding asset

lifecycles, an agency can develop strategic asset management plans, prioritize investments, and forecast long-term maintenance needs.

6. **Public Image and Perception:** Well-maintained assets in this portfolio contribute to community well-being, quality of life, and civic pride. By investing in lifecycle management, an agency can enhance the attractiveness, functionality, and safety of its facilities, thereby increasing visitor satisfaction and fostering community engagement.

7. **Compliance and Accountability:** Lifecycle management helps meet regulatory requirements, industry standards, and contractual obligations related to asset management and maintenance. By documenting maintenance activities, tracking asset performance, and demonstrating compliance, an agency can enable better accountability and transparency in AM practices.

8. Safety and Compliance: Maintaining safety and compliance within El Paso County's parks is essential to an asset's consequence scoring and its condition score. It is essential that Parks' assets are managed to ensure safety and compliance with various regulations and standards.
    a) **Safety Standards:** Assets must adhere to established safety regulations and standards. Regular assessments are conducted to identify and address potential safety hazards, ensuring the well-being of users and the surrounding community. This can be accomplished through regular safety inspections of park assets, including playground equipment, facilities, trails, and amenities. Inspections should be performed by trained personnel using established safety checklists and protocols to identify hazards, defects, or non-compliance issues.

    b) **Regulatory Compliance:** Assets must comply with relevant laws, regulations, and industry standards. This includes environmental regulations, accessibility requirements, and other legal considerations. Stay updated with federal, state, and local regulations governing park operations, safety standards, accessibility requirements, and environmental regulations. Ensure that park assets adhere to these regulations to avoid penalties and legal liabilities.

As service levels, their KPIs, and the other AM capabilities in the Department mature, the aspects above can be incorporated more directly into service levels, KPIs, and ultimately the consequence and risk scoring of assets in the model and performance monitoring.

Service Level Lifecycle Considerations

Lifecycle Management

Lifecycle management of EPC Parks' assets is important for optimized asset performance, cost efficiency, risk mitigation, asset planning and decision-making, sustainability, compliance, accountability and community satisfaction. Matrix notes that El Paso County generally has plans in place for the sale, renewal, rehabilitation, or replacement of individual elements or entire assets as they age or become obsolete. Matrix considered the maintenance activities' optimization to address cost-effectiveness while preserving or enhancing the assets' performance and longevity.

Physical Condition

It is crucial to keep the department's assets in good physical condition to ensure that public spaces remain safe, functional, and visually appealing. Achieving this requires strategy at the enterprise level,

which begins with data. Therefore, it is essential to make appropriate investments in the following areas to ensure the Parks' assets are adequately and proactively managed:

1. Regular Inspections: Implement a schedule for routine inspections of park assets such as playground equipment, benches, picnic tables, pathways, trails, courts, fences, lighting, signage, and landscaping. Trained staff should conduct inspections to identify any issues or potential hazards.

2. Preventive Maintenance: Establish a preventive maintenance program to address minor repairs and upkeep tasks before they escalate into larger problems. This includes activities such as lubricating moving parts, tightening bolts and screws, and repainting surfaces.

3. Repair and Replacement: Promptly repair any damage or defects identified during inspections. Allocate budget resources for repairing or replacing worn-out or damaged assets to prevent safety hazards and maintain the park's functionality.

4. Landscaping and Groundskeeping: Maintain green spaces, lawns, shrubs, and trees through regular mowing, trimming, pruning, and watering. Remove weeds, debris, and litter to keep the park clean and attractive.

5. Trash and Waste Management: Ensure proper waste disposal infrastructure such as trash cans and recycling bins are strategically placed throughout the park. Regularly empty bins to prevent overflow and littering.

6. Infrastructure Upkeep: Monitor the condition of park infrastructure such as pathways, bridges, and pavilions. Repair any cracks, potholes, or structural damage to ensure safe usage by visitors.

7. Playground Safety: Adhere to safety standards and regulations for playground equipment. Conduct periodic inspections to check for wear and tear, sharp edges, loose parts, and potential entrapment hazards. Install appropriate safety surfacing, such as rubber mulch or sand beneath playground equipment.

8. Pest Control: Implement measures to control pests such as insects, rodents, and unwanted wildlife that may damage park assets or pose health risks to visitors. Use environmentally friendly pest control methods whenever possible.

9. Seasonal Maintenance: Adjust maintenance activities based on seasonal changes. For example, winter maintenance may involve snow removal and de-icing, while spring maintenance may focus on planting flowers and fertilizing grass.

10. Community Engagement: Encourage community involvement through volunteer programs, park clean-up events, and citizen feedback mechanisms. Engaging with residents can foster a sense of ownership and pride in the park, leading to better stewardship and support for maintenance efforts.

11. Long-term Planning: Develop a comprehensive maintenance plan that outlines short-term and long-term maintenance goals, budget allocation, and asset replacement schedules. Consider factors such as aging infrastructure, changing usage patterns, and emerging maintenance needs.
12. Training and Education: Provide training for park maintenance staff on best practices for asset management, safety protocols, and equipment operation. Keep staff informed about industry trends, technological advancements, and regulatory changes relevant to park maintenance.

Through the implementation of these strategies, El Paso County can effectively maintain its Parks' assets in good physical condition, ensuring enjoyable and safe outdoor experiences for residents and visitors.

Lifecycle Cost Considerations

Managing the lifecycle costs and analyzing the lifecycle metrics of Parks' assets can be quite challenging due to the vast number of variables associated with installation, maintenance, and repair operations. Each asset may have different maintenance requirements or undergo varying usage levels throughout its lifecycle. The most accurate way to assess, predict, and take action on Parks' assets is to gather detailed data at an individual asset level while also considering general analysis on groups of similar assets and the Parks as a whole. This will enable Parks to continue to shift to and sustain a more proactive, cost- and performance-effective approach to assets, realizing the cost efficiency and effectiveness of the SoGR ideal of keeping good condition assets in a good condition and improving the condition of other assets based on their importance and subsequent priority.

Matrix recommends the following strategies for lifecycle cost considerations:

1. Optimized Expenditure: The State of Good Repair (SoGR) considers not only the immediate costs of maintenance but also the long-term lifecycle costs. This involves balancing short-term investments with the anticipated benefits and cost savings over the asset's entire lifespan so that the majority of an asset portfolio is in a SoGR. This will enable Parks to continue to shift to and sustain a more proactive, cost- and performance-effective approach to assets, realizing the cost efficiency and effectiveness of the SoGR ideal of keeping good condition assets in a good condition and improving the condition of other assets based on their importance and subsequent priority.
2. Performance Monitoring: Implement systems for ongoing performance monitoring and evaluation of AM activities. Use key performance indicators (KPIs) to assess the plan's effectiveness and identify improvement areas.

Cost Estimating

CI score helps to identify the approximate amount of investment needed to maintain or replace an asset. Asset O&M replacement costs were gathered from data supplied by the Department when available or by independent research conducted by Matrix. O&M costs in the generated model represent the dollar value of yearly maintenance required to maintain an asset at its operational effectiveness.

Estimations for the year-to-year Parks budget were determined by a review of historical budget data and spending, the projected 2024 Parks budget provided by El Paso County, and generalized increases for yearly inflation. Two particularly significant assumptions were made in the Parks budget projections:

1. The budget over the last four years (beginning in 2020) was averaged to forecast the budget over the next 10 years starting in 2025, with a 2.5% yearly inflation increase adjustment.

2. The budget projections did not account for any infusion of federal funds or other outside funding sources or grants.

With these assumptions, asset budget projections were made for Parks over the next ten years.

Table 6: El Paso County Parks 10-Year Budget Projection for Recapitalization and O&M

Year	Yearly Budget Projection
2025	$2,509,904.12
2026	$2,572,651.72
2027	$2,636,968.02
2028	$2,702,892.22
2029	$2,770,464.52
2030	$2,839,726.14
2031	$2,910,719.29
2032	$2,983,487.27
2033	$3,058,074.45
2034	$3,134,526.31

Shortage of Funding Assigned to El Paso County Parks

According to the El Paso County Master Plan, County Parks currently utilizes a Capital Improvement Program (CIP) to forecast parks development by balancing O&M of existing facilities along with future recapitalization or expansion needs. Funding levels within the Parks' budget are not sufficient to maintain the park asset portfolio in a SoGR.

Although it appears that a high-level system inventory and condition assessment was completed during the development of the Parks 2022 Asset Management Plan, that data is not at the level of resolution necessary for this TAMP and is not available for this analysis in this TAMP. Thus, due to limitations in currently available data quality, numerous data gaps were encountered during analysis of the data and development of the TAMP model for which gap filling assumptions had to be derived.

Definition of Need

"Need" in this TAMP is defined as the sum of projected funding required to maintain Parks' assets in good condition and recapitalize assets that are in Poor condition. Parks' year-to-year needs rise and fall as assets degrade into Poor condition or recapitalized back to higher levels of condition. This rise and fall vary for each asset consequence tier, with high consequence assets being prioritized to fund their recapitalization need year over year.

Parks could deviate from the funding needs. However, not recapitalizing or repairing assets in a timely manner raises the probability that an asset will fail at an inopportune time, causing delays or shortfalls in the organization and their mission. Should this occur, Parks would most likely be forced to spend

resources to replace an asset on short notice in a manner more impactful to cost, time, and performance. The projected need represents this risk of possible forced dedication of monetary resources and is shown as the hypothetical total spending that would be required year-by-year to recapitalize all Poor condition assets and maintain other assets above a Poor condition.

Transitioning the investment of Parks' assets from a reactive approach to a proactive planning approach, where O&M and recapitalization efforts are planned and prioritized effectively within the available budget is important. This TAMP helps the Department to identify and justify the amount, timing, and prioritization of such funding needs in the Department's assets.

Risk-Based Prioritization

A gap exists between this asset portfolio's yearly projected budget and projected need. This gap continues over the course of the 10-year time frame of the analysis, essentially representing the fact that this asset portfolio lacks the required funding that is projected to be required to fully maintain or recapitalize these assets. Therefore, tradeoffs will need to be made and risk assumed to prioritize a funding strategy for needs.

To better align asset investment priorities and help to make more informed asset investment decisions, an additional risk-based scoring metric, a Risk of Failure (RoF) approach as described earlier in this document, was also applied to the assets.

Within the model developed in this effort, assets were broken into three tiers: High Tier, Mid-Tier, and Low-Tier. The tier system provides thresholds for condition index of the assets as well as prioritized funds distribution for O&M and recapitalization costs for most effective asset investment.

Table 7: Parks Assets Tiers

Tier	Consequence	CI Trigger	Funds Distribution
High	3	70	60%
Mid	2	50	30%
Low	1	20	10%

As depicted in ***Table 7***, assets in the High-Tier were assigned the highest CoF score of 3, therefore they were determined to be the most critical assets within the parks' inventory and should not be allowed to degrade below a condition index of 70. 60% of the budget will be allocated to High-Tier assets, since they should therefore receive much higher priority in both recapitalization and maintenance funding than assets in other tiers. Assets in the Mid-Tier were assigned a criticality of 2, and therefore were determined to be less critical than the assets in the first tier. The assets in Mid-Tier would be allowed to degrade to a condition index of 50, and 30% of the annual budget will be allocated to Mid-Tier assets. Low-Tier assets were determined to be the least critical with a CoF score of 1. These assets will be allowed to degrade to a condition index of 20 and only 10% of the budget will be allocated to the maintenance of these assets. With this predication, the Department assumes more risk in its lower tier assets, and thus in the performance of those assets. This increased risk of the lower tiered assets is assumed to be justified by prioritizing investment in the higher tiered assets to enable them to be fully operational consistently to attain the County's objectives associated with assets in this Department.

Figure 3 displays the distribution of assets and their associated risk. The closer the risk value is to 3, the higher the likelihood of failure of that asset. Most assets are clustered in the last three distribution range (2.5 and greater), which clearly depicts that many of El Paso County's Parks' assets are at a high

consequence in the present analysis, given its necessary present assumptions that fill data gaps. 73% of the assets were assigned a CoF of 3 in this analysis.

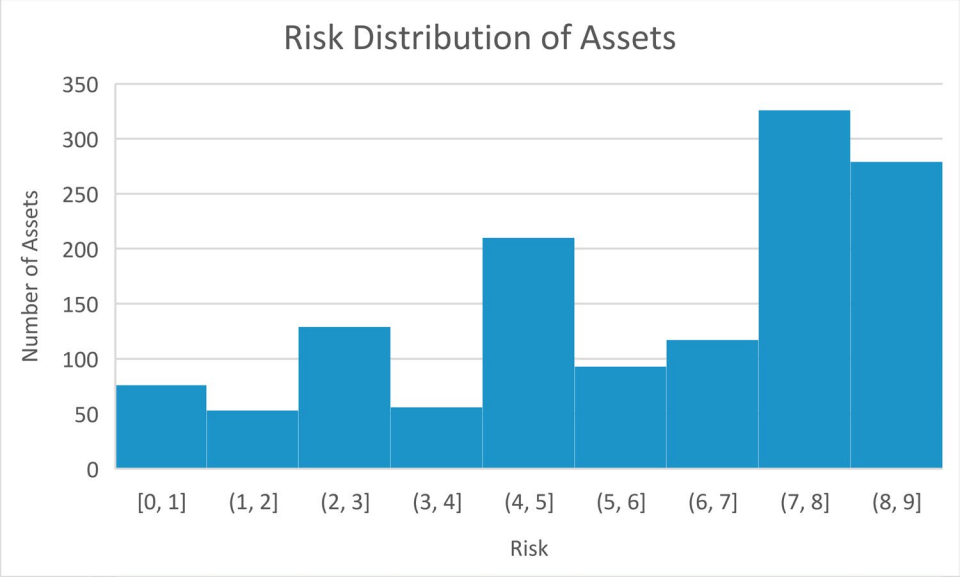


Figure 3: Risk Distribution of Assets

Cost Forecasting and Funding Model

Objectives & Methodology

The primary objective of the model is to showcase the total compounded investment need for the entirety of the El Paso County Parks assets each year for the next 10 years. This model accounts for the year-by-year distribution of recapitalization and raises the condition code of any asset that replacement funding is applied to a condition of 100. Thus, it reflects how replacement extends the life of an asset back to its original typically expected service life.

This funding needs model also accounts for the known O&M investment needs each year. The O&M needs are applied on a percent cost of total replacement value (TRV) predicated on the established 2023 OAB budget. However, because the Parks budget does not contain enough O&M funding to meet the full need of the asset inventory immediately, the model prioritizes funding by asset tier, as discussed above.

Table 8: O&M Funding by Asset Tier

Asset Tier	Funding Model
High (Tier)	Receives O&M funding after their condition drops below 70, the “Good” threshold at a cost multiplier of 0.001.
Medium (Tier)	Receive O&M funding after their condition drops below 50 or midway through the “Fair” condition at a cost multiplier of 0.025
Low (Tier)	Receive O&M funding after their condition drops below 20, the “Poor” threshold at a cost multiplier of 0.05.

Assets within the High Tier are also associated with a high CoF and, therefore, pose the greatest risk if they fail or deteriorate. Prioritizing capital funding for these assets helps mitigate the risk of accidents, injuries, and service disruptions. By proactively addressing these critical assets, El Paso County can minimize potential liabilities, meet Level of Service (LoS) goals, and reduce overall costs. Additionally, these critical assets play a fundamental role in delivering essential park services and amenities to the community. Prioritizing funding for these assets helps uninterrupted service continuity, preserving the quality of recreational experiences for residents and visitors to the county.

This modeling achieves the objective of keeping the most important Parks' assets in the highest SoGR while simply maintaining the base operational effectiveness of lower tiered assets with a lower condition and high O&M need. The real-world operational actions of this are that lower tier assets can be maintained at minimal operational effectiveness until such time that additional outside funding can be allocated to increase the condition of those lower tier assets. Recapitalization funds are similarly prioritized, with the majority of yearly funding allocated for high tier assets until the recapitalization need of that tier is met. The additional funding of lower tiered assets becomes increasingly possible as higher tier assets are recapitalized and therefore require less maintenance, allowing funding to 'roll over' to other lower tiers. In the event that the entirety of the suggested budget allocated is utilized, a remaining funds distribution percentage is applied across each tier. The fund distribution is defined as the total budget multiplied by the percentages in the Funds Distribution table.

Funds Distribution	
60%	High Tier
30%	Medium Tier
10%	Low Tier

The purpose of these fund distribution percentages is to allow for a portion of the budget to be utilized to ensure that lower-tier assets do not fall into complete disrepair. This prioritized funding strategy by asset tier enables the county to focus resources where they are needed most, ensuring the continued functionality, safety, and reliability of essential park assets while maximizing the value of investments in asset management and maintenance.

Funding Model Results

The diagrams, graphs, and tables below show the application of the funding model in this analysis. The scenario chosen is to identify the investment needs through the next 10 years to enable the Parks asset portfolio to reach a SoGR, based on the assumptions made above.

As depicted in ***Table 9***, the recapitalization need for the High-Tier assets (most critical) greatly exceeds the allocated budget each year. Matrix notes that the recapitalization need is greatest for this tier (most critical) because the vast majority of assets fall into it, and the tier contains the highest overall replacement values, reflecting their scale and/or likely importance to the Department. Improving the asset inventory and condition assessment data quality of parks assets will improve the model and likely change the results to ones more intuitive, but this TAMP exhibit that the framework and model are in place for a best practices-based approach to AM going forward.

Table 9: High Tier Assets Recapitalization Needs

Year	Budget	High Tier Recap Budget	High Tier Recap Need	Difference
2025	$2,509,904	$1,505,942	$3,677,360	($2,171,417)
2026	$2,572,652	$1,543,591	$6,905,000	($5,361,409)

2027	$2,636,968	$1,582,181	$13,748,546	($12,166,366)
2028	$2,702,892	$1,621,735	$13,869,305	($12,247,570)
2029	$2,770,465	$1,662,279	$15,441,455	($13,779,176)
2030	$2,839,726	$1,703,836	$15,379,771	($13,675,935)
2031	$2,910,719	$1,746,432	$15,779,833	($14,033,402)
2032	$2,983,487	$1,790,092	$15,835,130	($14,045,038)
2033	$3,058,074	$1,834,845	$16,321,850	($14,487,005)
2034	$3,134,526	$1,880,716	$16,967,433	($15,086,717)

As depicted in ***Table 10***, the recapitalization need for Mid-Tier assets is within the allocated budget, except for in the year 2029. Surpluses are rolled up to the highest consequence tier, and then if surplus remains there then (which does not occur in this iteration of the model). For example, in 2025 the Mid-Tier surplus is included in the High-Tier deficit for the same year to buy it down by $375,380 to $2,171,417.

Table 10: Mid-Tier Assets Recapitalization Needs

Year	Budget	Mid-Tier Recap Budget	Mid-Tier Recap Need	Difference
2025	$2,509,904	$752,971	$377,591	$375,380
2026	$2,572,652	$771,796	$344,719	$427,077
2027	$2,636,968	$791,090	$455,098	$335,992
2028	$2,702,892	$810,868	$280,353	$530,515
2029	$2,770,465	$831,139	$1,053,495	($222,356)
2030	$2,839,726	$851,918	$462,099	$389,818
2031	$2,910,719	$873,216	$255,745	$617,471
2032	$2,983,487	$895,046	$735,301	$159,745
2033	$3,058,074	$917,422	$35,179	$882,244
2034	$3,134,526	$940,358	$179,401	$760,956

As depicted in ***Table 11***, the recapitalization need for Low-Tier assets (least critical), exceeds the allocated budget for them in every year.

Table 11: Low Tier Assets Recapitalization Needs

Year	Budget	Low-Tier Recap Budget	Low-Tier Recap Need	Difference
2025	$2,509,904	$0	$198,352	($198,347)
2026	$2,572,652	$257,265	$568,445	($311,180)
2027	$2,636,968	$263,696	$460,943	($197,246)
2028	$2,702,892	$0	$384,032	($384,029)
2029	$2,770,465	$277,046	$358,090	($81,044)
2030	$2,839,726	$283,972	$697,599	($413,627)
2031	$2,910,719	$291,071	$647,308	($356,236)
2032	$2,983,487	$298,348	$765,774	($467,425)
2033	$3,058,074	$305,807	$642,501	($336,694)
2034	$3,134,526	$313,452	$465,700	($152,247)

Tables 9, 10 and 11) show the anticipated recapitalization needs, the projected future budget, and the cost differences between them. associated calculated average risk score, with the risk defined as 'Risk = Probability of Failure (PoF) x Consequence of Failure (CoF)', as averaged across the typical replacement cost of the Department's asset portfolio.

Funding Model Conclusions

Recapitalizing the entire need is clearly not within the Parks current yearly budget. As Table 9, Table 10 and Table 11 represent, the anticipated total recapitalization need for the Parks department raises to approximately $14M by the year 2027. Although a prioritized funding strategy, this rises to approximately $17M by the year 2034. The primary value of this result is a showcase of the total budget shortfall anticipated to occur for the Department over the course of the next 10 years.

Essentially, the conclusion here is that the Department should prioritize the recapitalization of its most critical Tier assets, while providing minimal O&M funding to the rest of its less critical assets to prevent them from degrading into worse condition (e.g., pursuit of SoGR). This prioritized funding approach would be implemented per the Funds Distribution Table with tiered prioritized O&M to maintain their basic useability until such time that additional funding can be allocated to recapitalize lower tier assets. As assets of greater consequence are recapitalized, the Department can then use the cost savings generated from improving those assets to prioritize funding for Mid-Tier and Low-Tier assets recapitalization. Further investment strategies are detailed in the recommendations section below.

Additionally, strategically selecting key asset types to invest in and then dedicate a pool of funds for those specifically can help to make an impact of catching up the condition of assets and meeting performance expectations of parks. Investing in playgrounds, restrooms, and irrigation systems is a direct way El Paso County can quickly enhance the quality of its parks while also improving community engagement and enhancing Parks value through increased visitor attraction. Other agencies have implemented a helpful capital asset investment strategy that splits a portion of capital costs among playgrounds, irrigation systems, and restrooms. It is recommended that these costs are rotated amongst these asset categories and funneled to meet those in greatest need. Additionally, it is recommended that an equivalent rotating pool amount between the three asset categories be used proactively for forecasted investment needs. The recommendation is to invest approximately $1.5 million, rotated among these asset classes, each year, in addition to the projected funding need. The $1.5 million recommendation is based on the scale of investment at other agencies in the region that has proven successful and realistic, and this Department's particular case. A consensus reached in discussion with Parks is that using a focused approach to spending on playgrounds, irrigation systems, and restrooms would be a financially feasible and practical way to catch up on replacing or repairing expired high consequence assets that have failed or will fail imminently. Investing in playgrounds, restrooms, and irrigation systems at parks is essential for promoting community health, well-being, and social connectivity, while also supporting economic development, environmental sustainability, and quality of life for residents.

Next Steps in Model Maturity

While this case study represents a suggested path forward for the forecasted investment needs budget of the Department, limitations of this approach (as with any assumed model) do exist that need future investment. Several important limitations are present in the funding model which given more time and budget could be addressed to provide a greater level of accuracy of the results they are listed below:

1. Linear Degradation: The model assumes that all assets degrade over time in a linear path. Matrix notes that each individual asset class is likely closer to multi-nodal polynomial "S" curve degradation. With conditions degrading slower in the first half of the lifecycle, an accelerated degradation during the mid-lifecycle (50%-80%) and again a slower degradation during the last 20% of the asset's lifecycle.

2. Total Variability: The model in that this analysis represents only a select number of variables that were selected in a vacuum. When deciding for or against recapitalization, further data points on these assets should be taken into account in order to arrive at the most holistic recommendation possible. For example, the irrigation assets included in this analysis were scheduled at a full recapitalization cost due to their highly variable and unknown O&M benefit vs replacement costs ratio, their importance, and institutional County knowledge that many are extremely old and with maintenance and performance costs that outweigh replacing them. Matrix notes that an approach of highly select targeted irrigation replacements combined with strategic O&M of the remaining irrigation lines could theoretically double the estimated service life. Likewise, the turf mowing asset class was the recipient of an enormous amount of O&M costs. If efficiency improvements were made to the underlying vehicle fleet or if select portions of the turf area were reallocated outside of the Park purview; additional funds would be available for O&M of restrooms or playgrounds thus increasing their lifecycles. These tradeoff scenarios were not yet factored into the cost funding model due to limitations of the initial authorization for this effort. However, they could be included in later model iterations to help tailor the results to the desires of the County.

3. Data Limitations: While investment needs predictions were able to be made utilizing existing data and through extrapolating data gaps, the County needs to invest in a best practices-based asset data collection to improve the accuracy of these estimates. The biggest limitation on this model is most obviously where condition was extrapolated given the lack of asset data and authorized scope of this study. Collaboratively with the County, Matrix assumed that the majority of asset's were the same age as the plat age of the park itself. However, this does not account for replacements of assets which have occurred since the initial park creation, or newer expansions of parks which have newer assets. This was a significant impact especially for Parks where CoF was scored as a 3. Ultimately, a comprehensive condition assessment down to the individual elements of each Parks asset is essential for the Parks TAMP to create a more accurate inventory and budget for operations and maintenance (O&M) and recapitalization costs. This in-depth assessment of all assets will better identify critically failing assets and help ensure the County's limited resources are invested wisely.

4. Recapitalization Costs: The basis of this analysis is the assumption that there is a distinct point where it is more cost effective to replace an asset as opposed to maintaining it. In the funding model, the distinct point for each asset is assumed to be the moment when its condition code reaches zero and it has theoretically outlived its operational life expectancy. As explained in previous sections, the model also raises an asset's condition code as funding is applied to it, representing the maintenance and repair O&M value added and how proper preventative maintenance effectively extends an asset's lifespan. However, these are all generalized values and assumptions. A more distinct analysis per asset line item would allow for a more in-depth

approach which can both validate the model and provide a method for asset-by-asset replacement cycles.

5. General Limitations: Because the production of this TAMP was limited by available time and scope, the result of this effort is a general product that seeks to provide high-level funding guidance and a replicable funding model. The accuracy of the proposed budget and budget forecast is limited by the age and quality of existing asset condition data for the various parks. Various assumptions were required to account for large gaps in existing asset data and the analysis has been rolled up on the asset data hierarchy to a higher level which results in more generalizations. With a merged asset data inventory and condition assessment, greater value can be derived from the framework in this document.

Recommendations

El Paso County fully acknowledges the importance that its Parks have for the quality of life of its residents and visitors. It is essential that all county parks, trails, and open spaces are maintained in a way that achieves the goals set forth in the El Paso County Parks Master Plan and the County. Critical to meeting those goals is ensuring that the assets within the parks are proactively managed through a schedule of predictable assessments, preventative maintenance, and recapitalization. As El Paso County continues to grow, it is essential to ensure that the parks, open spaces, and trails within the county continue to adequately serve a diverse community. To ensure these objectives are met, El Paso County must focus on implementing key recommendations that are summarized below. Further information on recommended actions is included in the Countywide Asset Management Improvements Roadmap.

Comprehensive Asset Inventory and Condition Assessment

Investment is needed in an industry best practices-based inventory and condition assessment to gather, track, and maintain asset data to enable proactive, cost-saving maintenance and recapitalization. An inventory provides a comprehensive list of all park assets, their current conditions, and potentially even their install dates. This information serves as a foundation for effective asset management, allowing El Paso County to track, monitor, and maintain its assets efficiently. This then allows for accurate resource allocation, budget forecasting, and strategic planning. The inventory and assessment efforts so far appear not to have attained this to the extent necessary. This assessment should identify each asset's condition, age, capacity, and other key AM best practices attributes to determine areas that require maintenance, repair, or potential expansion to meet operational needs. Investing in an industry best practices approach-based inventory and condition assessment is essential to accurate development and full implementation of the TAMP. This investment and inventory assessment should ideally happen during the warm season of 2024 for best value to the County to ensure that assets can be assessed without interruption.

Update the Model with Improved Data Quality

The model developed as part of this TAMP is an effective way for the Department to forecast its O&M, recapitalization, and other investments in its Parks assets. However, we know that many assumptions were needed due to the gaps present in the current data. Once that data has been updated, the model will function as designed.

Implement the Parks TAMP

As with any plan, the success of this TAMP hinges on implementation. Delivering on the processes and investments outlined in this plan is critical to achieving optimized resource allocation and enhanced asset performance for the Department. Additionally, implementing the recommendations from this TAMP will enable the county to be better postured as they work towards proactive risk management and defensible, data-driven decision-making when it comes to maintaining the parks, open spaces, and trails within the County.

Invest in Strategically Selected Assets

Investing in playgrounds, restrooms, and irrigation systems is a direct way El Paso County can quickly enhance the quality of its parks while also improving community engagement and enhancing Parks value through increased visitor attraction. Other agencies have implemented a helpful capital asset investment strategy that splits a portion of capital costs among playgrounds, irrigation systems, and restrooms. It is recommended that these costs are rotated amongst these asset categories and funneled to meet those in greatest need. Additionally, it is recommended that an equivalent rotating pool amount between these three asset categories be used proactively for forecasted investment needs. The recommendation is to invest approximately $1.5 million, rotated among these asset classes, each year, in addition to the projected funding need. A consensus reached in discussion with Parks is that using a focused approach to spending on playgrounds, irrigation systems, and restrooms would be a financially feasible and practical way to catch up on replacing or repairing expired high consequence assets that have failed or will fail imminently. Investing in playgrounds, restrooms, and irrigation systems at parks is essential for promoting community health, well-being, and social connectivity, while also supporting economic development, environmental sustainability, and quality of life for residents.

Reliability-focused Maintenance

A proactive and reliability-focused maintenance program in the field should be implemented to prevent asset failures and maximize service life. This includes regular inspections, lubrication, calibration, and predictive maintenance techniques to detect potential issues before they escalate.

Capacity Planning

Analyze current park usage patterns and anticipate future demand to determine capacity requirements for park assets. When planning for capacity upgrades or expansions, consider factors such as population growth, demographic changes, and trends in recreational activities.

Continuous Improvement Benefits and updates

El Paso's AM program strives for continuous improvement. Continuous improvement is a best practice philosophy practiced by organizations for increased efficiency and effectiveness over time as needs, priorities, constraints, and other factors change.

By implementing these recommendations, the County can effectively optimize the reliability and capacity of its Parks' assets to meet operational performance objectives and provide high-quality recreational experiences for residents and visitors, especially as the population of El Paso County continues to grow.