

Appendix D

Maintenance Management Plan

Parks, Open Space, Trails, and Recreation Master Plan

Maintenance Management Plan

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Presented By:



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Executive Summary

This *Maintenance Management Plan* has been prepared as a component of the *Parks, Open Space, Trails, and Recreation Master Plan* project, and contains recommendations that were developed following intensive review of the current site and asset maintenance responsibilities of the City of Durango Parks and Recreation Department. These existing circumstances were coupled with industry best practices provided by PROS Consulting LLC as derived from our experience nationally. The resulting recommendations were generated in order to support the strategic decisions of the City for maintaining high quality parks, open space, trails, and recreation assets into the future.

Purpose of the Maintenance Management Plan

The purpose of the *Maintenance Management Plan* is to clearly define the requirements and actions of the City of Durango Parks and Recreation Department (“Department”) for maintaining high quality parks, open spaces, trails, and recreation sites and assets over the next 10 years. This includes consideration of existing conditions of the current inventory, as well as additional sites and assets that are being considered within the next five years.

The *Maintenance Management Plan* is intended to enable the Department and the City to improve the identification, justification, and prioritization of maintenance requirements for park and recreation sites and assets. This is achieved by establishing a clear quantification of resources necessary to maintain the current system as high-quality, accounting for aging facilities that continually deteriorate from use, as well as incorporating sites and assets being considered for addition to the City of Durango Parks and Recreation System (“System”) in the upcoming years.

Findings from Previous Reports

In October 2008, the PROS Team performed a cursory assessment of the sites and facilities within the Durango Parks and Recreation Department System (“System”) including, but not limited to parks, trails, structures, and the recreation center. These assessments establish an accurate understanding and ‘snapshot’ of the existing conditions of sites and facilities within the System, and support the foundation, or reference point, from which specific strategies and recommendations are framed within this report.

There were four (4) key findings that PROS deduced from performing the site and facility assessments:

1. Parks and Facilities are Generally Well Maintained
2. Insufficient Labor and Budget Resources
3. Usage Demands Outpace Available Facility Supply
4. Durango Excels at Park Connectivity

Of these, the first two findings are central to the maintenance efforts of the Department and have strongly influenced the recommendations contained within this report. Specifically, the key recommendations that follow were developed from the context that parks and facilities are currently maintained in a high quality manner, but insufficient labor and budget resources will inhibit maintaining current standards with the sites being considered for acquisition or development.

Key Recommendations

The key recommendations detailed below were derived from the analysis and research contained within this report associated with the *Parks, Open Space, Trails, and Recreation Master Plan*.

Address Design Issues

There are a number of sites and facilities within the System featuring design issues that increase the associated maintenance requirements. Specific examples of this include cases of inadequate irrigation systems or utilities, facility design issues, adaptive use of older structures, site access, and site grading. The design issues identified do not appear to be the fault of any party, but rather the result of evolved circumstances. It is critical to properly scope these issues and work to address them over a phased time period in order to improve the overall quality of sites and facilities, as well as improve the efficiency of regular maintenance requirements.



Standardize Regular Maintenance Requirements

Over the years, the regular maintenance requirements of the System have become fairly normalized and can be quantified in order to estimate additional maintenance requirements of new acquisition or development. Developing maintenance resource requirement standards that align with core goals of the Department for maintaining sites and facilities of the System should strengthen the capability of the Department to obtain necessary resources from the City to perform these functions. It will also support accurate projections of resources required for sites or facilities under consideration for acquisition and/or development. While not all standardized projections for regular maintenance requirements of sites and facilities are provided in this executive summary, examples of the types of functions recommended to standardize include:

- Established standards for maintenance of different types of sites and facilities
- Labor requirements per type of site including seasonal fluctuations and contracted services
- Material and supply requirements per type of site
- Equipment requirements
- Utilities and miscellaneous expenses

Plan for Capital Repair and Replacement

An area that many public park and recreation agencies fail to plan adequately for is capital repair and replacement requirements of their major assets. As a result, many entities struggle with large accumulations of deferred maintenance and facility deterioration that threatens the integrity of the services they provide. Best practices observed and promoted by PROS Consulting in projects throughout the United States is to standardize the calculation of capital repair and replacement necessary to maintain the integrity of facilities and assets. This is commonly calculated as a phased approach to raising funds to support major capital needs. This approach could fluctuate based upon the financial conditions at the time, but can be used as a tool to determine a responsible annual investment into maintaining high quality sites and facilities within the System.

Recommended Best Practices

In the process of completing over 600 projects throughout the United States and abroad, the PROS Team has developed a set of best management practices for park and recreation agencies. Several of these are related directly or indirectly to maintenance responsibilities. These 10 recommended best management practices are provided below for consideration at the City of Durango.

Best practice agencies integrate sustainability approaches within maintenance management practices. This includes energy conservation, use of alternative fuels and hybrid or electric vehicles, LEED design principles, use of solar and wind power, planting trees, reducing staff driving time, recycling, and the reduction of chemicals in general park maintenance duties. The recommended best practices described below can be integrated into the Durango Parks and Recreation Department management priorities and supported by City leadership for purposes of preserving the quality and integrity of facilities, structures, and assets throughout the System.

1. Park maintenance personnel in best management systems maintain 12 to 14 acres per person of managed park space. This can be a combination of public employees and contract employees.
2. Best managed park and recreation systems have a maintenance work order system in place to track the cost of maintenance, utilities, supplies, equipment and employee time for parks and recreation facilities based on set standards. The work order system also manages asset lifecycles for all replacement schedules to keep parks and facilities up to the level they need to so the public will enjoy them for a long period of time.
3. Best practice agencies have an equipment replacement program established and funded to keep equipment tied to employee productivity and supporting the efficiency goals of the agency.
4. Best practice agencies outsource their maintenance operations at no less than 20% of their total labor with the remaining resources dedicated to continuity in case a contract is discontinued the agency can step in and continue operations with limited impact on the users.
5. Best management agencies have maintenance management plans in place to keep control of maintenance costs and efficiency. These plans are updated every five years.
6. Best practice agencies have established design standards for parks and recreation facilities based on the outcomes that they want to achieve and based on the dollars to develop and the return on investment from users to support operational costs if any. These standards apply to neighborhood parks, community parks and all recreational facilities an agency has under its management and control.
7. Best practice agencies spend 4-6% of the estimated value of their total assets less land values maintaining what they already own to keep them well positioned in the minds of residents.
8. Best practice agencies have maintenance and program standards that support design standards to operate as efficiently as possible while supporting the customer service requirements of the program or facility.
9. Best practice agencies seek out bond funds to support capital costs every five years to keep the bond issue low with the high value of return to taxpayers based on the time-value of money. As parks and recreation facilities are developed and succeed, the community will support these bond issues if presented correctly and the improvements have wide-age segment appeal.
10. Best practice agencies have 35-40 funding sources including earned revenues that they use to support operational and capital costs to keep the agency as sustainable as possible.

Site and Facility Design Issues

“Design faults not only result in unplanned maintenance, but they also are expensive in terms of the lives of occupants and the cost of repairs.”[∇]

As noted in the Executive Summary, there are a number of sites and facilities within the System featuring design issues that increase the associated maintenance requirements. Not all design issues present at sites and facilities within the System are addressed within this aspect of the *Maintenance Management Plan*. Only those that directly or indirectly increase the maintenance requirements or decrease the efficiency of the maintenance team in performing necessary tasks are detailed.

Specific Design Issues at Existing Parks

Examples of specific design issues that contribute to growing maintenance requirements of the System are detailed in the tables below and on the following page. Level of need is a subjective indication of priority determined by PROS Consulting based upon input from stakeholders and community leaders, review of the maintenance practices of the Department, and interviews of Department leadership.

Facility / Site	Issue	Level of Need
33 rd Street River Access Site	Capacity is severely undersized to not meet usage demands	High
Chapman Hill (ski area)	Site configuration and asset design hinders site performance during periods of peak usage	High
Off-leash Dog Area	Parking and access is difficult to nonexistent	High
Animas River Trail	Aging asphalt surfacing on select segments of the trail are deteriorated and more difficult to maintain	High
Various open spaces	Access points inhibit site use due to limited parking, lack of marked trailheads, and grading	High
Mason Center	Older buildings are severely deteriorating and not well designed for current uses	High
Various parks	Irrigation system at various parks is undersized or has inefficient design	Moderate
Folsom Park	Design of water and wastewater supply to the restrooms inhibit usage periodically each year	Moderate
Memorial Park	Site frequently used for river access by private and commercial users, but not designed for it	Moderate

[∇] Ishak, Nor Haniza, Afaq Hyder Chohan, and Ahmad Ramly. “Implications of Design Deficiency on Building Maintenance at Post-occupational Stage.” *Journal of Building Appraisal* (2007) 3, 115–124.

Facility / Site	Issue	Level of Need
Rotary Park	Vintage construction of pavilion inhibits repair to railings and roof support beams	Moderate
Santa Rita Park	Parking capacity, wastewater line alignment, and design of sand volleyball courts are problematic or impending challenges	Moderate
Durango Community Recreation Center	Limited capacity and design of storage and maintenance areas, climate control system in the entry vestibule, and pool equipment room ventilation contribute to increased maintenance requirements.	Moderate
Maintenance yard / office	Limited size and capacity of maintenance yard, shop, and offices located at the cemetery inhibit increased efficiency of the maintenance staff	Moderate
Various parks	Select mini parks provided by private developers are not well designed to support optimal usage	Low
Historic 3 rd Avenue medians	Traditional design of medians increases maintenance requirements	Low

Addressing design issues like these are generally costly, and in some cases require additional planning efforts. It can be easy to regard the extra maintenance requirements associated with these design shortcomings as an acceptable cost in relation to the cost associated with a major effort to improve the design issue. The PROS Team recommends the Department and City leadership review these design issues and strategically pursue a phased approach to funding and addressing those deemed critical. Most likely, the prevailing concern that will define the priorities for addressing these projects are those that relate directly to user experience. The cases where design implications are negatively impacting use and/or the user experience should be a priority to consider.



Regular Maintenance Requirements

"An ounce of prevention is worth a pound of cure."[∇]

The regular maintenance requirements of the Department are vast, and extend beyond the sites and assets they directly manage. This section of the *Maintenance Management Plan* addresses the total scope of the regular maintenance responsibilities of the Department, reviews the current resource requirements to meet these expectations, calculates unit-based quantification for most major resource requirements, and provides the method through which projections for future resource needs can be developed. Issues not addressed in the section are major capital repair and replacement actions that are beyond the preventative and responsive nature of regular maintenance.

Objectives of Parks and Recreation Department Maintenance

The objectives of Department's maintenance efforts are expansive and organized into the six large categories detailed below. These objectives are not presented in any order of importance:

- Maintain and improve the sites, grounds, facilities, and structures of the City of Durango Parks and Recreation System to provide optimal and enjoyable use.
- Provide snow removal for all City trails, sidewalks, and parking lots in a timely manner, respectful of the needs of citizens.
- Provide landscaping and general maintenance for a multitude of City amenities, including but not limited to City landscaping beds/signage areas, historic medians, urban "pocket" open spaces, and select City buildings and structures.
- Provide general maintenance and burial services for the Greenmount Cemetery.
- Be responsive to maintenance needs of the City open space tracts including, but not limited to access points, trail repair, erosion control, trash removal, and fuels reduction.



Many of these objectives for the Department's maintenance team go beyond the traditional responsibilities of parks and recreation employees, but provide an invaluable service to the community. The assessment performed by PROS Consulting reviewing the sites and facilities of the System yielded findings that the maintenance staff are extremely productive given their vast responsibilities and limited resources.

It is important for members of the community, Department management, and City leadership to project future resource requirements of additional sites and facilities across each of these objectives. These objectives represent the full scope of expectations the community has for the outcome of parks and recreation maintenance efforts.

[∇] Henry de Bracton, *De Legibus*, 1240.

Current Regular Maintenance Resource Requirements

The PROS Team collected data from the Department regarding the current resource requirements of the maintenance team and their responsibilities. These requirements are organized and reported in the following four categories:

1. Quantifying workload
2. Labor and contracted services requirements
3. Material and supply requirements
4. Equipment requirements
5. Utilities and miscellaneous

These requirements will be detailed in accordance with an objective quantification of maintenance responsibilities in such areas as acres, types of sites and facilities, miles of trails, etc. The sections that follow build the framework of quantifying maintenance resource requirements by unit, which can enable an accurate projection of future requirements with additional sites and assets in the System.

Quantifying Workload

The first step in developing standardized parameters to project regular maintenance requirements of the division is to quantify workload. There will remain many aspects of the maintenance division's workload that is difficult to accurately quantify, but a conservative approach to doing so is utilized in this analysis in order to contribute to a useable outcome. The areas of maintenance workload that are evaluated are:

- Parks
- Trails
- Cemetery
- Forestry
- Open Space (including Wildland Fire Management)
- Indoor Facilities
- City-wide responsibilities

Park Maintenance

Park maintenance responsibilities include the regular mowing, landscaping, pruning, structure and infrastructure repair, utilities, and trail work associated with the 31 park sites within the system, and approximately 20 additional sites through the City of Durango that are detailed in the *Site and Facility Assessment* report submitted earlier in this project. This inventory represents a total of 221.91 acres of parkland, and numerous park amenities. These sites include:

- 33rd Street River Access Site
- Animas City Park
- Brookside Park
- Chapman Hill (ski area)
- Crestview Park
- Cundiff Park
- Dallabetta Park
- Easter Heights Park
- Fanto Park
- Hillcrest View Park
- Holly Park
- Iris Park
- Jenkins Ranch Park
- Lions Den
- Memorial Park (Phase 1)
- Memorial Park (Phase 2)
- Needham Elementary Park
- Off-leash (Dog) Area
- Riverfront Park
- Riverview Sports Complex
- Roosa Park
- Rotary Park
- Ryler Park
- Santa Rita Park
- Schneider Park
- Viles Park
- Whitewater Park

- Fassbinder Park
- Folsom Park
- Pioneer Park
- Rank Park
- Various additional sites as identified in the *Site and Facility Assessment* report

Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **38% of annual labor resources to park maintenance responsibilities.**

Trails Maintenance

Within the scope of park maintenance responsibilities is hard surface trail maintenance.[∇] There are currently 11.7 miles of hard surface trails, largely as the Animas River Trail, within the system that are maintained by the Department, including surfacing repairs, erosion control, bridges, railings, embankments, and snow removal. It is estimated that hard surface trail maintenance accounts for **15% of the park maintenance workload area.**

Cemetery

Cemetery responsibilities include providing burial services, all mowing, pruning, and general maintenance of the Greenmount Cemetery. Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **27% of annual labor resources to cemetery responsibilities.**

Forestry

Forestry responsibilities include the maintenance of the urban forest comprised of 7,441 trees in the City parks street right-of-ways. Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **15% of annual labor resources to forestry responsibilities.**

Open Space Maintenance

Open Space responsibilities include the maintenance of natural lands and wildland forests. This inventory includes 1,159.61 acres of City open space lands. Maintenance includes the removal of noxious weeds and trash, and fuels reduction to minimize wildland fires. Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **3% of annual labor resources to open space maintenance responsibilities.**

Earthen or natural surface trails in the City's open space have historically been constructed and maintained by the volunteer organization, Trails 2000. This volunteer effort is significant and illustrates a meaningful partnership that effectively leverages the limited resources of the City. Open space maintenance includes wildland fire management which is discussed in greater detail in the section that follows on the following page.

[∇] Hard surface trail maintenance is considered a portion of park maintenance responsibilities, but later will be quantified separately for purposes of estimating future maintenance resource needs.

Wildland Fire Management

Wildfire is a natural and frequent event in southwest Colorado ponderosa pine forests, pinon–juniper woodlands and gambel oak mountain shrub lands. Historically, frequent, low intensity surface fires thinned trees, reduced the forest of accumulated fuels and maintained biodiversity. Aggressive fire control over the last century has created unnatural fuel accumulations and changed the structure and composition of native wildland vegetation; resulting in hazardous wildfire conditions. Further complicating this hazardous fuel condition and increasing the wildfire risk is the prolonged drought and climate change that the region has been experiencing.

Urban development and growth into the wildland areas, also called the wildland urban interface places communities and human development, as well as natural resources, at risk from wildfires. City of Durango Parks and Open Space lands are wildland urban interface zones. These Parks and Open Space lands contain typical southwest Colorado forests, woodlands and shrub lands with hazardous wildfire conditions. Selective thinning and prescribed fire can mimic these natural fires, mitigating the fire hazard and restoring forest health. Appropriate treatments can restore the lands natural ecological structure and processes while protecting the adjacent community, neighborhoods and other values at risk such as watershed, wildlife habitats and recreational infrastructure.

Facility Maintenance

Facility maintenance responsibilities are those involving the interior and exterior maintenance requirements of the Durango Community Recreation Center, the Mason Center, and Chapman Hill (ice rink) facilities. This includes all structural, utility, and general maintenance of these buildings, and also includes janitorial or cleaning responsibilities. There are a total of 116, 674 square feet of enclosed facilities that are the focus of these efforts. Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **19% of annual labor resources to facility maintenance responsibilities.**

City-wide Responsibilities

The Department has maintenance responsibilities that serve the City of Durango outside of the sites and facilities of parks and recreation. These city-wide responsibilities include mowing landscaping at City sites and landmarks, snow removal on city parking lots and sidewalks, and a diverse set of miscellaneous maintenance tasks the Department is accountable for. These services provided by the Department play a crucial role for the City, but require resources to support. Based upon our review of the System and interviews with Department staff, it is estimated that the maintenance division dedicates approximately **2% of annual labor resources to city-wide responsibilities.**

Labor and Contracted Services Requirements

The labor resource requirements of the Department’s maintenance division are calculated based upon the following assumptions:

1. The current sites, facilities, and infrastructure are generally in good condition and reflect high quality parks and recreation assets.
2. The current staffing resources are sufficient for maintaining existing sites, facilities, and infrastructure within the System.
3. Additional sites, facilities, and infrastructure would require additional labor given the current work load of the existing staff.
4. Overtime worked by full time equivalent (FTE) employees is an indication of the magnitude of work load beyond the *regular*, current staffing levels to manage the division’s responsibilities.
5. Annual labor hours of contracted services to support park and/or facility maintenance requirements are not included in this analysis.

The regular labor requirements, not including overtime, of the Department’s parks maintenance division are detailed in the table below. This data indicates that over the last three years, it requires **an average of 25,578 regular labor hours each year to meet current maintenance demands.**

Personnel	General Description	No. of Employees	2006 regular hours	2007 regular hours	2008 regular hours	Average Annual Regular Hours
Full Time Equivalent (FTE)	Full time maintenance employees responsible for site and grounds maintenance, utility repair and maintenance, facility and structural repair and maintenance, snow removal and other seasonal responsibilities, cemetery operations, and other duties as assigned.	8	16,640	16,640	16,640	16,640
Part Time and/or Seasonal	Part time and seasonal employees responsible to assist full time personnel in completion of all maintenance team responsibilities	8	8,134	9,794	8,886	8,938
TOTALS		16	24,774	26,434	25,526	25,578

The tables below and on the following page detail the estimated overtime worked by FTE employees, as well as part time / seasonal personnel. As seen in these tables, the **average annual overtime labor requirement of the maintenance division based on the average overtime pay rates noted below is 430 hours for FTE employees, and 8 hours for part time / seasonal personnel.**

FTE Overtime (OT)	Parks OT	Cemetery OT	Total OT	Avg OT Rate (\$/hour)	Est. Total OT Hours
2006	\$5,365	\$4,322	\$9,687	\$27	359
2007	\$6,760	\$4,045	\$10,805	\$27	400
2008	\$9,427	\$4,886	\$14,313	\$27	530
Average	\$7,184	\$4,418	\$11,602		430

Part Time Overtime (OT)	Parks OT	Cemetery OT	Total OT	Avg OT Rate (\$/hour)	Est. Total OT Hours
2006	\$27	\$0	\$27	\$19	1
2007	\$150	\$0	\$150	\$19	8
2008	\$261	\$0	\$261	\$19	14
Average	\$146	\$0	\$146		8

The cost of labor salaries for parks, trails and cemetery services is depicted below for 2006 through 2008. These salaries do not include the cost of benefits, FICA, or Medicare coverage.

Total Salary and Wage Requirements	FTE Parks	PT Parks	FTE Cemetery	PT Cemetery	Total Salaries and Wages
2006	\$264,008	\$62,289	\$70,428	\$19,023	\$415,748
2007	\$271,453	\$67,986	\$73,506	\$29,804	\$442,749
2008	\$284,780	\$69,510	\$75,999	\$19,085	\$449,374
Average	\$273,414	\$66,595	\$73,311	\$22,637	\$435,957

The total labor hour resource requirement to meet current demand and aligned with the assumptions provided earlier in this section are detailed in the table below. This data indicates that the **total estimated labor hour requirement to maintain existing park sites, facilities, and infrastructure in its current conditions is an average of 26,015 annual hours over the last three years.**

Total Labor Hour Requirement	FTE Regular	FTE OT	Part Time/Seas. Regular	Part Time/Seas. OT	Est. Total Hours
2006	16,640	359	8,134	1	25,134
2007	16,640	400	9,794	8	26,842
2008	16,640	530	8,886	14	26,070
Average	16,640	430	8,938	8	26,015

The labor requirement to maintain the indoor recreational facilities, including the Durango Community Recreation Center, Chapman Hill and the Mason Center includes a combination of full and part-time employees. The chart below depicts annual salaries and wages associated with labor for maintenance only of the indoor recreational facilities, not including labor costs for general operations. These salaries do not include the cost of benefits, FICA, or Medicare coverage.

Total Salary and Wage Requirements	FTE Recreation Center	PT Recreation Center	FTE Chapman Hill	PT Chapman Hill	PT Mason Center	Total Salaries and Wages
2006	\$119,166	\$82,890	\$15,800	\$8,500	\$9,360	\$235,716
2007	\$145,664	\$74,402	\$16,000	\$9,000	\$9,507	\$254,573
2008	\$152,049	\$85,895	\$16,800	\$9,370	\$9,175	\$273,289
Average	\$138,960	\$81,062	\$16,200	\$8,957	\$9,347	\$254,526

The data in the table below indicates that the total estimated labor hour requirement to maintain the indoor recreational facilities in current conditions is an average of 22,094 annual hours over the last three years.

Total Labor Hour Requirement	FTE Regular	FTE OT	Part Time/Seas. Regular	Part Time/Seas. OT	Est. Total Hours
2006	12,511	13	9,647	25	22,196
2007	12,511	56	8,888	40	21,495
2008	12,511	33	10,020	26	22,590
Average	12,511	34	9,518	30	22,094

Applying estimated workload area requirements detailed previously to annual labor hours provides an estimate of labor hour requirements for each workload area. The table below demonstrates how these estimates are derived.

Workload Area	Total Workload Annual Labor Hours	Estimated % of Total Workload	Est. Annual Labor Hour Requirement
Parks Maintenance	26,015	38%	9,886
Trails Maintenance		15%	3,902
Cemetery Maintenance		27%	7,025
Forestry Maintenance		15%	3,902
Open Space Maintenance		3%	780
City-wide Responsibilities		2%	520
TOTAL	26,015	100%	26,016

The following table illustrates the workload by facility for the annual labor hour requirement for Indoor recreational facilities.

Workload Area	Estimated % of Total Workload	Estimated Annual Labor Hour Requirement
Recreation Center	84%	18,558
Chapman Hill	15%	3,314
Mason Center	1%	221
Total	100%	22,093

As noted in the preceding tables, the labor hour requirements for each workload area can be estimated as a percentage of the total annual labor hour requirement of the maintenance division. These workload areas can be further quantified into units, such as park acres, trail mileage, facility square feet, and open space acres in order to standardize the labor requirement projections.

The detailed quantification of annual labor requirements within each workload area are provided on the following pages.

Park and Trail Maintenance Labor

The table below quantifies the estimated annual labor requirement by acre of park land and trails, including labor resources required to maintain the amenities of those parks. Hard surface trail maintenance is figured by trail mileage, and based on 15% of the park maintenance annual labor requirements.

Workload Area	Total Workload Annual Labor Hours	Total Units	Unit Type	Est. Annual Labor Hour Requirement per unit
Park Maintenance	9,886	222.9	Acres	44
Trail Maintenance	3,902	11.7	Trail miles	334

This table demonstrates that current **park maintenance labor requirements are approximately 44 hours annually per acre**. Parks less than one acre in size are projected as requiring the labor equivalent of one acre. **Hard surface trail maintenance labor requirements are estimated to be 334 hours annually per mile of trail**. These trail maintenance requirements should not be divided any less than 0.5 miles, meaning any segment less than 0.5 miles is projected to require the labor equivalent of 0.5 miles.

NOTE: These estimates are additive in that a ten acre park that contains one mile of hard surface trail will require approximately 774 annual labor hours for regular maintenance ((44 hours x 10) + 334 hours).

Open Space Maintenance Labor

The table below quantifies the estimated annual labor requirement by acre of open space, including labor resources required to maintain the natural attributes of those open space areas.

Workload Area	Total Workload Annual Labor Hours	Total Units	Unit Type	Est. Annual Labor Hour Requirement per unit
Open Space Maintenance	780	921.5	Acres	0.846

This table demonstrates that current **open space maintenance labor requirements are approximately .846 hours annually per acre**. Open Space less than one acre in size are projected as requiring the labor equivalent of one acre.

It is estimated that approximately 3% of the total annual labor requirements of the maintenance division are dedicated to open space responsibilities. Therefore, the estimate that the annual regular maintenance on a 100-acre tract would be approximately 84.6 hours, or the equivalent of approximately 10.5, eight-hour days throughout the year.

Facility Maintenance Labor

The table on the following page quantified the estimated annual labor requirement by square foot of enclosed facility, generally including the labor resources required to maintain the amenities within those facilities. This is based upon facility maintenance labor requirements being approximately 19% of total annual labor requirements of the maintenance division.

Workload Area	Total Workload Annual Labor Hours	Total Units	Unit Type	Est. Annual Labor Hour Requirement per unit
Facility Maintenance	22,094	116,674	Square foot	0.19

This table demonstrates that current **facility maintenance labor requirements are approximately 0.19 hours annually per square foot**. It is important to note that this estimates the regular maintenance requirements associated with improved facilities within the System, including janitorial and cleaning at the Recreation Center but not at the Mason Center and Chapman Hill (janitorial services were contracted at these two facilities in the years 2006-2008), and it does not include major capital repair and replacement. This per square foot estimate of facility maintenance requirements would therefore estimate that the annual regular maintenance on a 10,000 square foot facility would be approximately 1,900 hours, or the equivalent of approximately 238, eight-hour days throughout the year.

Cemetery Labor

The responsibilities of the maintenance division to support the needs of Greenmount Cemetery seems to be a constant over the last several years that can be easily accounted for each year in the calculation of total maintenance labor requirements. It is estimated that approximately 27% of the total annual labor requirements of the maintenance division are dedicated to cemetery responsibilities. Therefore, an estimated 7,025 annual labor hours are necessary to support these tasks.

Forestry Labor

The table below quantified the estimated annual labor requirement by tree in the urban forest, generally including the labor resources required to plant, prune, and remove trees in the parks and street right-of-ways. This is based upon forestry labor requirements being approximately 15% of total annual labor requirements of the maintenance division.

Workload Area	Total Workload Annual Labor Hours	Total Units	Unit Type	Est. Annual Labor Hour Requirement per unit
Forestry	3,902	7,441.0	Trees	0.524

This table demonstrates that current **forestry labor requirements are approximately 0.524 hours annually per tree**. It is important to note that this estimates the regular maintenance requirements associated with general maintenance of the City's urban forest, not including major capital repair and replacement projects. This per tree estimate of forestry requirements would therefore estimate that the annual regular maintenance on a 100-acre tract with 100 trees would be approximately 52.5 hours, or the equivalent of approximately 6.5, eight-hour days throughout the year.

City-wide Responsibilities Labor

City-wide responsibilities of the Department’s maintenance division vary widely and are therefore difficult to specifically quantify by a single unit. Currently, these responsibilities are dominated by the following tasks:

1. Snow removal on all city sidewalks and parking lots
2. Landscaping and outdoor maintenance of numerous city public spaces and landmarks
3. Miscellaneous facility maintenance as needed

It is estimated that approximately 2% of the total annual labor requirements of the maintenance division are dedicated to City-wide responsibilities. Therefore, an estimated 520 annual labor hours, or the equivalent of approximately 65, eight-hour days throughout the year, necessary to support these tasks.

It is important for City leadership to adequately account for and support the labor resources necessary to meet these expectations as potential new projects are considered that will involve the maintenance division of the Parks and Recreation Department. This requires a vigilant approach by the Department in tracking and projecting labor resource requirements associated with all city-wide responsibilities.

Contracted Services

As noted in the assumptions that preceded this labor requirement analysis, the labor hours of contracted services supporting any of these workload areas of the Department’s maintenance division were not included. Over the last three years the Department has invested an average of \$211,818 each year in contracted services supporting park maintenance, facility maintenance, trail maintenance, open space maintenance, cemetery, forestry, and city-wide responsibilities. A table detailing these annual expenses and the overall annual average is provided below.

Contract Service Area	2006 Expenses	2007 Expenses	2008 Expenses	Average Annual Contracted Services
Parks, Trails, Open Space, Forestry, City-wide	\$100,906	\$104,869	\$105,928	\$103,901
Cemetery	\$4,960	\$7,741	\$8,533	\$7,078
Indoor Recreation Facilities	\$97,124	\$108,675	\$96,719	\$100,839
TOTALS	\$202,990	\$221,285	\$211,180	\$211,818

These expenses include contracted labor that contributes to the current quality of the System and the assets of the Department. This **represents approximately 24% of the average total labor budget** for the last three years including payroll and all additive employment costs. A common best practice is to manage contracted services to represent approximately \$1 for every \$5 spent on labor. The Department meets this best practice of leveraging the maintenance workforce through outsourcing. It is critical that each new project consider contracted service opportunities that must be budgeted for and leverage the resources of the Department to maintain the sites and facilities it is responsible for.

Material and Supply Requirements

As with contracted services, material, supplies, and equipment requirements are difficult to quantify by unit of inventory like in the preceding labor resource analysis. This *Maintenance Management Plan* only strives to detail average annual material and supply requirements based upon related expenses in the operating budget of the last three years. A minor capital equipment inventory is also provided; each item accompanied by a general description of their working condition, as identified by key Department staff.

Material and supply expenses include the following expense categories:

- Office supplies
- Chemical and lab supplies
- Clothing and uniforms
- Fuel
- Forestry supplies
- Hand tools
- Other supplies

The total budget expenditures for these items are detailed in the table below for the last three years.

Total Materials and Supplies	2006 Expenses	2007 Expenses	2008 Expenses	Average Annual Materials and Supplies
Parks, Trails, Open Space, Forestry, City-wide	\$79,582	\$84,351	\$99,172	\$87,702
Cemetery	\$12,727	\$12,736	\$17,200	\$14,221
Indoor Recreation Facilities	\$135,639	\$140,904	\$159,444	\$145,329
TOTALS	\$227,948	\$237,991	\$275,816	\$247,252

As noted in the table above, total material and supply expenditures average approximately \$247,252 each year over the last three years, with the 2008 expenditure being \$275,816. Material and supply requirements are largely, albeit not wholly, aligned with labor resources. Therefore, this analysis compares material and supply expenditures to total labor hours. This provides a basis to predict minimally required increases in material and supply budgeting to support potential increases in labor resources. The table on the following page details these calculations.

Workload Area Labor Requirements	Est. Annual Labor	Average Annual Materials and Supplies	Est. Materials and Supplies per Labor Hour
Parks, Trails, Open Space, Forestry, City-wide	18,990	\$87,702	\$4.62
Cemetery	7,025	\$14,221	\$2.02
Indoor Recreation Facilities	22,094	\$142,332	\$6.44
TOTALS	48,109	\$244,255	

These calculations are estimates that **approximately \$4.62 per labor hour is dedicated to park maintenance, trail maintenance, open space maintenance, forestry, and city-wide workload responsibilities is required for materials and supplies to support these efforts.** Likewise, **approximately \$2.02 per labor hour is dedicated to cemetery workload responsibilities is required for materials and supplies.** **Approximately \$6.44 per labor hour is dedicated to the indoor facility**

maintenance responsibilities for materials and supplies to support these efforts at the Recreation Center, Chapman Hill and the Mason Center. Additional materials and supplies beyond these projections will likely be required when considering additional sites and facilities on a circumstantial basis.

Equipment Requirements

Equipment requirements are difficult to project in a similar fashion, but should be accounted for with budgeting for repair and replacement costs, as well as any additional sites or facilities being considered. Equipment is generally regarded as a minor capital expense, up to \$50,000 for full replacement value. Equipment deteriorates with heavy usage is typically more difficult to keep running as it ages. The table below and on the following page details the current equipment inventory, and its general condition.

Equipment	General condition
2001 GMC 1T 4x4 w/ utility & plow	good
2003 Ford F250 3/4T 4x2	good
2004 Chevy 3500 1T 4x4 w/utility & plow	good
2005 Ford F250 3/4T 4x2	good
2006 GMC C2500 w/plow	good
1994 GMC K2500	fair
1999 GMC C2500 4x2 pick-up	good
2000 GMC 3/4T 4x4	fair
1996 IHC 10 yd w/plow	good
2007 IHC Bucket Truck	excellent
2000 GMC 4x2 1T w/dump	good
2007 Toro 3280D Tractor	fair mower; good snow blower
2005 John Deere 310G Backhoe Loader	good
Club Car Golf Cart	fair
2002 Bandit 250 Brush Chipper	good
2008 Bobcat S220 Loader/Backhoe	excellent
1994 Vermeer Stump Cutter	Good
2005 Bobcat 2000 Utility	good
2001 Zamboni 440 – Chapman Hill	fair
2007 John Deere X740 Tractor	good
2006 Toro 4100 D Wide Area Mower	fair, needs to be replaced
2003 John Deere X495 Tractor	good
2004 John Deere X495 Tractor	good

Equipment	General condition
1974 Thikol 2100C Snow Packmaster	Poor, needs to be replaced
2006 John Deere 4320 Tractor	good
2006 John Deere X740 Tractor	good
2008 Bobcat 5600 Toolcat	excellent
(5) Husky Chainsaws	(1) fair, (3) good, (1) excellent
(7) Shindaina Chainsaws	(6) good, (1) excellent
(1) Honda Weedeater	good
(2) Echo Weedeaters	(1) fair, (1) poor
(1) Partner Demosaw	fair
(1) Husky Leaf Blower	fair
(1) Stihl Leaf Blower	fair
(1) Power Pruner Ext. Chainsaw	poor
(1) Honda Snow Blower	good
(1) Wacker Plate Compactor	good
(1) Shindaina Power Pruner Gas Trimmer	good
(3) Honda Water Pumps 1"	(2) good, (1) fair
(1) Troy Built Rototiller	fair
(1) Honda Walk Behind Mower	good
(1) Propane Reddy Heater	excellent
(1) Miller Trail Blazer Portable Welder	excellent
Bobcat attachments	good
(1) Toro Arifiyer	fair
Ty-Crop MH 400 Top Dresser	good
Smithco Sweep Star V62	good
Lely Fertilizer Spreader	good
Jacobsen Sweeper/Thatcher	fair
Miller Trailblazer portable welder/generator	excellent
(6) Trailers in various sizes	Good

The average annual expense over the last three years for vehicle maintenance and rentals was \$168,290. This expense is difficult to allocate by either unit of equipment or labor hour because of the large diversity of the inventory ranging from large vehicles to weed eaters. These costs will continue to be required for budgeting based with any current or new equipment additions. The costs over the last three years for maintaining the equipment, not including replacement costs of vehicles or large implements, are detailed in the expense table below.

Equipment Maintenance and Renting	2006 Expenses	2007 Expenses	2008 Expenses	Avg. Annual Equipment Maintenance and Renting
Parks, Trails, Open Space, Forestry, City-wide	\$118,672	\$123,978	\$123,624	\$122,091
Cemetery	\$28,480	\$31,707	\$31,363	\$30,517
Indoor Recreation Facilities	\$15,667	\$15,435	\$15,943	\$15,682
TOTALS	\$162,819	\$171,120	\$170,930	\$168,290

Utilities and Miscellaneous

Utility and miscellaneous resource requirements that are supported in the maintenance division budget vary widely. These resource and budget requirements include the following, which are summarized in the table below.

Utilities and Miscellaneous Expenses	2006 Expenses	2007 Expenses	2008 Expenses	Avg. Annual Utilities and Miscellaneous
Parks, Trails, Open Space, Forestry, City-wide	\$155,516	\$152,898	\$171,985	\$160,133
Cemetery	\$24,218	\$64,605	\$46,663	\$45,162
Indoor Recreation Facilities	\$662,703	\$677,088	\$716,735	\$685,509
TOTALS	\$842,437	\$894,591	\$935,383	\$890,804

Similar to equipment maintenance expenses, utilities and miscellaneous are difficult to accurately allocate by unit of park acres, facility square footage, labor hour, or equipment because of the diversity of expenses included and their variable circumstances. These expenses include:

- Dues and memberships
- Professional development
- Utilities
- Telephone
- General repair and maintenance expenses
- Other capital

The PROS Team recommends that all categorical expenses such as these be developed at the division level, related to total workload requirements, but not projected per unit. These expenses are necessary and prudent to support the success of the maintenance team in meeting their objectives, and should be considered when new resources or obligations are added to the Department.

Projecting Future Requirements

A common dilemma of Park and Recreation agencies around the United States is the inability to adequately resource the requirements to maintain the quality and integrity of sites, facilities, and major assets. This is particularly true in dynamic systems that are growing or evolving, which generally include the maintenance of an existing inventory of sites and facilities, concurrent with the acquisition and/or development of new assets.

Park and Recreation budgets are rarely sufficient to strictly adhere to industry best practices for asset protection and regular facility maintenance. This creates the need for prioritizing resources and maintenance projects. This usually results in growing inventories of deferred maintenance that become increasingly difficult to fully address over time.

A primary intent of the analyses within this *Maintenance Management Plan* is to establish standard parameters through which accurate resource projections can be developed and defended for the regular maintenance requirements of the System. The calculations of the previous section of this report provide the framework through which these projections can be made. The summaries below and on the following page review the results of these analyses and the methods recommended by the PROS Team for developing future estimates of maintenance resource requirements.

Labor

Workload Area	Total Workload Annual Labor Hours	Total Units	Unit Type	Est. Annual Labor Hour Requirement per Single Unit
Park Maintenance	9,886	222.9	Parks/grounds acres	44.35
Trail Maintenance	3,902	11.7	Trail miles	333.50
Cemetery Maintenance	7,025	39.8	Grounds acres	176.51
Forestry Maintenance	3,902	7,441.0	Trees	0.52
Open Space Maintenance	780	921.5	Open space acres	0.85
Indoor Recreation Facilities	22,094	116,674.0	Facility square foot	0.19

In addition to these workload areas, the PROS Team identified an estimated 520 hours generally needed annually to support the city-wide responsibilities of the Department’s maintenance division. It is recommended that any addition to these workload areas be evaluated for projected increases in the annual labor hour requirements.

Materials and Supplies

Workload Area Labor Requirements	Est. Annual Labor	Average Annual Materials and Supplies	Est. Materials and Supplies per Labor Hour
Parks, Trails, Open Space, Forestry, City-wide	18,990	\$87,702	\$4.62
Cemetery	7,025	\$14,221	\$2.02
Indoor Recreation Facilities	22,094	\$142,332	\$6.44
TOTALS	48,109	\$244,255	

Additional materials and supplies beyond these projections will likely be required when considering additional sites and facilities on a circumstantial basis.

Contracted Services

It is recommended that contracted service projections be based on between 18% - 20% of the total labor budget, including payroll and all additive and related employment costs. This level of outsourcing supports both the productivity and quality management of the maintenance team. As a note, labor additives and employment costs are generally between 20%-22% of current payroll (including overtime) expenses based upon the operational budget from the last three years.

Equipment Requirements

Equipment requirements are presented as an average lump-sum based upon the current equipment inventory. It is recommended that any acquisition or developed facility be evaluated for its unique impact on equipment demands, and adequately budget for the expense of purchasing or leasing any additional equipment, and the related maintenance requirements.

Equipment Maintenance and Renting	2006 Expenses	2007 Expenses	2008 Expenses	Avg. Annual Equipment Maintenance and Renting
Parks, Trails, Open Space, Forestry, City-wide	\$118,672	\$123,978	\$123,624	\$122,091
Cemetery	\$28,480	\$31,707	\$31,363	\$30,517
Indoor Recreation Facilities	\$15,667	\$15,435	\$15,943	\$15,682
TOTALS	\$162,819	\$171,120	\$170,930	\$168,290

Utilities and Miscellaneous

Utilities and maintenance resource requirements are presented as an average lump-sum of a multitude of variable expenses. It is recommended that any acquisition or developed facility be evaluated for its unique impact on these expenses, and be adequately budgeted for.

Utilities and Miscellaneous Expenses	2006 Expenses	2007 Expenses	2008 Expenses	Avg. Annual Utilities and Miscellaneous
Parks, Trails, Open Space, Forestry, City-wide	\$155,516	\$152,898	\$171,985	\$160,133
Cemetery	\$24,218	\$64,605	\$46,663	\$45,162
Indoor Recreation Facilities	\$662,703	\$677,088	\$716,735	\$685,509
TOTALS	\$842,437	\$894,591	\$935,383	\$890,804

Sustainability Initiatives

Nationwide, the parks and recreation industry is adopting green or sustainable practices in operations, particularly maintenance operations. The Sustainability Sites Initiative 2008 (SSI) issued a report on the guidelines and performance benchmarks for sustainable practices. The SSI was an interdisciplinary partnership led by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center, and the United States Botanic Garden. This body of work focuses on fostering and transforming

land development and maintenance practices. According to the Initiative, sustainability is defined as “the design, construction, operations, and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs.”

Commitment to sustainable practices is of critical importance to the Durango Parks and Recreation Department. Included in the appendix of the report is a sustainability audit the Department can follow to assess its commitment to green practices in design, maintenance, facility operations, and recreation programming. As an overview, the maintenance management of the Department should develop an overall policy that guides the Department in green practices, including the reuse of materials, the reduction of waste, implementation of recycling at all parks and facilities, green design practices, energy conservation, and green purchasing practices. Many agencies have developed green teams that oversee the agency’s commitment to sustainable practices. A brief list of practices the Department can deploy for maintenance management includes:

- Utilizing green purchasing practices, such as the Environmental Protection Agency’s Environmentally Preferred Products program or greenseal.org or the U.S. Communities program, which is a nationwide procurement program that pools the purchasing power of public agencies to achieve bulk volume discounts
- Purchasing products from recycled and recyclable content
- Requiring vendors to use recycled materials
- Using the Green Building Council’s Leadership in Energy and Environmental Design (LEED) in future buildings
- Using prairie or woodland restoration or bio-swales to reduce maintenance costs, control erosion, and/or promote wildlife habitats
- Use of animal resistant trash containers, particularly for bears
- Use of fuel efficient hybrid-electric hybrid vehicles and equipment
- Use of alternative fuels
- Using alternative and/or biological pest control in place of traditional chemical solutions.
- Promoting the reduction in the use of fertilizers and pesticides in parks by means of utilizing drought and disease-resistant native plants species and eliminating mowing in some areas
- Promoting the use of integrated pest management to reduce the use of fertilizers and pesticides
- Developing an agency-wide recycling program for facilities, offices, and parks
- Designing landscaping around facilities that promote energy conservation through wind breaks, shading, and using drought-tolerant plants

Durango Parks and Recreation can become a leader in the parks and recreation industry and the community by developing a comprehensive sustainability program. As part of this, developing a communications plan for educating the Durango residents about the Department’s sustainable efforts will assist in accomplishing this leadership role.

Summary of Recommendations

The summary of these recommendations is that regular maintenance resource requirements have been quantified into parameters that meet the current standard for site and facility conditions. These parameters can serve the Department and the City to sufficiently plan for the budget and resources necessary to maintain the current quality of sites and facilities with a growing and evolving inventory. It is critical that assets be sufficiently maintained throughout their lifecycle to avoid problematic issues including, but not limited to asset failure, premature capital replacement, and the build-up of significant deferred maintenance.

Capital Repair and Replacement

"Setting a goal is not the main thing. It is deciding how you will go about achieving it and staying with that plan."[∇]

Among the most challenging budget woes of park and recreation agencies around the United States is having the support to adequately plan for major capital repair and replacement costs. Major capital repair and replacement planning is an inherited responsibility that comes with all equipment, vehicles, utilities and infrastructure, structures, facilities, major amenities, trails, and open spaces within the System. Generally major capital repair and replacement needs are distributed over a longer period of time, but they are costly and sometimes require unique planning efforts.

The scope of this *Maintenance Management Plan* does not include a detailed recommendation on the developing the long-term financial solution to managing major capital repair and replacement expenses. Rather, this report strives to identify the types of capital repair and replacement responsibilities that are inherent within the current City of Durango Parks and Recreation System to be used as a guide for maintaining current sites and facilities, and when planning new acquisitions or developments.

The sections that follow detail recommended capital repair and replacement requirements for each workload area, as defined previously in this report. These recommendations are based on a cursory knowledge of the facilities and infrastructure of the System, and should not be interpreted as comprehensive. Capital repair and replacement is defined as major maintenance requirements to repair or replace 50% or more of an asset, and/or cost over \$10,000 as a single project.

Park Maintenance

Within the park maintenance area of work there are a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Utility infrastructure	Pipes, pumps, electric utilities, telephone utilities, water and wastewater utilities	10 – 30 years based upon individual asset requirements
Structures	Picnic tables, playgrounds, shelters, pavilions, bridges, small buildings	10 – 30 years based upon individual asset requirements
Roads and access	Roads, parking lots, sidewalks, trails	8 – 15 years based upon individual asset requirements
Equipment	Vehicles, tractors, commercial mowers, large implements	8 – 15 years based upon individual asset requirements

[∇] Tom Landry, Head Coach - Dallas Cowboys (1960-1988)

Trail Maintenance

Within the trail maintenance area of work there are a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Trail surfacing	Asphalt and/or concrete surfacing	10 – 30 years based upon individual asset requirements
Railings	Edge railings	10 – 30 years based upon individual asset requirements
Bridges	Pedestrian and/or vehicle bridges	15 – 30 years based upon individual asset requirements

Open Space Maintenance

Within the open space maintenance area of work there are a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Fencing	Boundary or tract fencing	10 – 30 years based upon individual asset requirements
Roads and access	Roads, parking areas, trails	8 – 15 years based upon individual asset requirements
Equipment	Vehicles, tractors, commercial mowers, large implements	8 – 15 years based upon individual asset requirements

Facility Maintenance

Within the facility maintenance area of work there are a diversity of assets that require capital repair and replacement. These assets are detailed in the table on the following page.

Asset	Description	Capital Repair / Replacement Schedule
Utility infrastructure	Pipes, pumps, electric utilities, telephone utilities, water and wastewater utilities,	10 – 30 years based upon individual asset requirements
Exterior	Roof, building skin, foundation, fencing	15 – 30 years based upon individual asset requirements
Mechanical	HVAC, pool equipment, laundry machines, alarms	10 – 25 years based upon individual asset requirements
Roads and access	Roads, parking lots, sidewalks, trails	8 – 15 years based upon individual asset requirements
Equipment	Commercial cleaning equipment, pool accessories, large exercise equipment	8 – 15 years based upon individual asset requirements

Cemetery

Within the cemetery area of work there are a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Utility infrastructure	Pipes, pumps, electric utilities, telephone utilities, water and wastewater utilities,	10 – 30 years based upon individual asset requirements
Facility Exteriors	Roof, building skin, foundation	15 – 30 years based upon individual asset requirements
Mechanical	HVAC, alarms	10 – 25 years based upon individual asset requirements
Roads and access	Roads, parking lots, sidewalks, trails, fencing	8 – 15 years based upon individual asset requirements
Equipment	Vehicles, tractors, commercial mowers, large implements	8 – 15 years based upon individual asset requirements

Forestry

Within the forestry area of work there are is a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Equipment	Vehicles, tractors, large implements	8 – 15 years based upon individual asset requirements

City-wide Responsibilities

Within the city-wide responsibilities area of work there are is a diversity of assets that require capital repair and replacement. These assets are detailed in the table below.

Asset	Description	Capital Repair / Replacement Schedule
Utility infrastructure	Pipes, pumps, electric utilities, water and wastewater utilities,	10 – 30 years based upon individual asset requirements
Exterior	Roof, building skin, foundation, fencing	15 – 30 years based upon individual asset requirements
Mechanical	HVAC, pool equipment, laundry machines, alarms	10 – 25 years based upon individual asset requirements
Roads and access	Roads, parking lots, sidewalks, trails	8 – 15 years based upon individual asset requirements
Equipment	Vehicles, tractors, commercial mowers, large implements	8 – 15 years based upon individual asset requirements

There are multiple occasions of overlapping assets between different areas of work as detailed above. Capital repair and replacement responsibilities were identified in each area with the assumption the Department will discern where overlap and redundancy can be avoided. This is predominantly the case with equipment repair and replacement.

Recommended Efficiency Standards

The standardized parameters provided in this *Maintenance Management Plan* are solely intended to serve as a basis for quantifying the workload and subsequent resource requirements of the Department in managing the quality of the current System. This process can yield results that support the efforts of the Department to sufficiently plan for future maintenance requirements of the System as assets age, and new sites or facilities are considered for acquisition and/or development.

These parameters only establish the first layer of productivity standards that manage the efficiency of the maintenance team. It is recommended that the Department retain an updated maintenance management plan every five years that would monitor and support the optimal productivity of the maintenance efforts. The recommended efficiency standards contained herein are intended to inspire the next generation of maintenance management plan for the Department to continue the standardization and efficient usage of site and facility maintenance resources.

From our extensive work with park and recreation agencies around the United States, the PROS Team has developed industry standards for maintenance efficiencies per tasks and annual frequencies by levels of services. These PROS Standards are based on NRPA data and include information regarding parks in the western states. PROS Standards consist of typical park and recreation maintenance tasks and are presented in three levels of service:

1. **Level 1** – Sports Playing Fields
2. **Level 2** - Developed Areas, Heavy Public Traffic, High Visitor Density
3. **Level 3** – Semi-developed Areas, Moderate Public Traffic and Visitor Density
4. **Level 4** – Undeveloped/Natural Areas, Moderate Public Traffic, Low Visitor Density

PROS Maintenance Standards

Quantitative standards are determined by multiplying the number of units to be maintained by the number of labor hours needed to complete the task once, by the frequency with which the unit needs to be maintained. The recommended standards and levels of effort should be adjusted for the region.

Level 1 – Sports Playing Fields

Mowing and Detailing

- Mow as needed to the maximum recommended height for the specific turf variety during growing season
- Edge sidewalks, borders, fences and other appropriate areas once weekly during the growing season
- Install sod or seed as needed and mow weekly at a minimum
- Weeds should cover no more than 5% of the grass surface
- Inspect thatch layer regularly and remove as needed
- Remove grass clippings
- Test soil as needed and apply fertilizer according to optimum plant requirements 2-3 times during growing season
- Inspect regularly for insects, diseases and rodents and respond to outbreaks according threshold standards within 3 days

Landscape Maintenance

- Prune shrubs as necessary year-round
- Prune trees as necessary throughout the year
- Apply fertilizer to plant species once per year as needed according to their optimum requirements
- Inspect regularly for insects, diseases and rodents. Respond to outbreaks according to IPM thresholds and procedures within 3 days
- Place 4" of organic mulch around each tree within a minimum 18" ring
- Place 4" of organic mulch around shrub beds to minimize weed growth
- Remove hazardous limbs and plants immediately upon discovery
- Remove dead trees that pose an immediate hazard upon discovery
- Remove or treat invasive plants within 5 days of discovery
- Replant trees and shrubs as necessary



Irrigation System Maintenance

- Inspect irrigation systems a minimum of once per month
- Initiate repairs to non-functioning systems within 24 hours of discovery during the dry season and within 10 days during the wet season
- Inspect and adjust and/or repair irrigation systems and microspray as necessary weekly during the dry season
- Modify systems as necessary to increase irrigation coverage or efficiency

Road, Trail and Parking Lot Maintenance

- Remove debris and glass immediately upon discovery
- Remove sand, dirt, and organic debris from roads, walks, lots and hard surfaces weekly
- Remove trip hazards from pedestrian areas immediately upon discovery
- Repair concrete walks, scenic view area, curbs and other surfaces as needed
- Repair asphalt trails, or soft surface trails, parking lots, roadways and other surfaces as needed

General Maintenance and Support Services

- Inspect fences, gates and other landscape structures at least once annually. Complete safety-related repairs immediately. Complete other repairs within 48 hours of discovery.
- Water manually as necessary to establish new plantings
- Install and maintain automatic drip irrigation system to reforestation projects where feasible
- Prune shrubs and trees as necessary
- Weed by hand or mechanically as necessary
- Provide pest control as needed and as per IPM thresholds
- Plant and renovate areas as necessary

Level 2 – Developed Areas, Heavy Public Traffic, High Visitor Density

Mowing and Detailing

- Mow to the maximum recommended height for the specific turf variety at least once weekly during growing season
- Edge sidewalks, borders, fences and other appropriate areas once weekly during the growing season
- Install sod or seed as needed and mow weekly
- Weeds should cover no more than 10% of the grass surface
- Inspect thatch layer regularly and remove as needed
- Remove grass clippings only if coverage is unsightly or impacts health of the lawn
- Test soil as needed and apply fertilizer according to optimum plant requirements 1-2 times during growing season
- Inspect regularly for insects, diseases and rodents and respond to outbreaks according threshold standards within 3 days



Landscape Maintenance

- Prune shrubs as necessary year-round
- Prune trees as necessary throughout the year
- Apply fertilizer to plant species once per year as needed according to their optimum requirements
- Inspect regularly for insects, diseases and rodents. Respond to outbreaks according to IPM thresholds and procedures within 3 days
- Place 4" of organic mulch around each tree within a minimum 18" ring
- Place 4" of organic mulch around shrub beds to minimize weed growth
- Remove hazardous limbs and plants immediately upon discovery
- Remove dead trees that pose an immediate hazard upon discovery
- Remove or treat invasive plants twice annually
- Replant trees and shrubs as necessary

Irrigation System Maintenance

- Inspect irrigation systems a minimum of once per month
- Initiate repairs to non-functioning systems within 24 hours of discovery during the dry season and within 10 days during the wet season
- Inspect and adjust and/or repair irrigation systems and microspray as necessary weekly during the dry season
- Modify systems as necessary to increase irrigation coverage or efficiency

Road, Trail and Parking Lot Maintenance

- Remove debris and glass immediately as needed
- Remove sand, dirt, and organic debris from roads, walks, lots and hard surfaces as needed
- Remove trip hazards from pedestrian areas immediately upon discovery
- Repair concrete walks, scenic view area, curbs and other surfaces as needed
- Repair asphalt trails, or soft surface trails, parking lots, roadways and other surfaces as needed

General Maintenance and Support Services

- Inspect fences, gates and other landscape structures at least once annually. Complete safety-related repairs immediately. Complete other repairs within 48 hours of discovery.
- Water manually as necessary to establish new plantings
- Install and maintain automatic drip irrigation system to reforestation projects where feasible
- Prune shrubs and trees as necessary
- Weed by hand or mechanically as necessary
- Provide pest control as needed and as per IPM thresholds
- Plant and renovate areas as necessary
- Complete playground and bridge inspections monthly

Level 3 – Semi-developed Areas, Moderate Public Traffic and Visitor Density

Mowing and Detailing

- Mow to maximum recommended height for the specific turf variety at least once every two weeks during growing season
- Edge sidewalks, borders, fences and other appropriate areas at least monthly during the growing season
- Install seed to maintain uniform turf coverage of 80%
- Weeds should cover no more than 25% of the grass surface
- Inspect regularly for insects, diseases and rodents and respond to outbreaks according IPM threshold standards within 10 days

Landscape Maintenance

- Prune shrubs as necessary every two years September to January
- Prune trees as necessary throughout the year
- Apply fertilizer to plant species only if plant health dictates
- Inspect regularly for insects, diseases and rodents. Respond to outbreaks according to IPM thresholds within 10 days
- Place 4" of organic mulch around shrub beds to minimize weed growth
- Place 4" of organic mulch around each tree within a minimum 18" ring
- Remove or barricade hazardous limbs and plants immediately upon discovery. Remove barricaded hazards within 3 days consistent with procedures for bird nesting survey
- Remove or barricade hazardous trees immediately upon discovery. Remove barricaded hazards within 3 days consistent with procedures for bird nesting survey.
- Remove or treat noxious or invasive plants as needed
- Replant as trees and shrubs as necessary

Level 4 – Undeveloped/Natural Areas, Moderate Public Traffic, Low Visitor Density

Mowing and Detailing

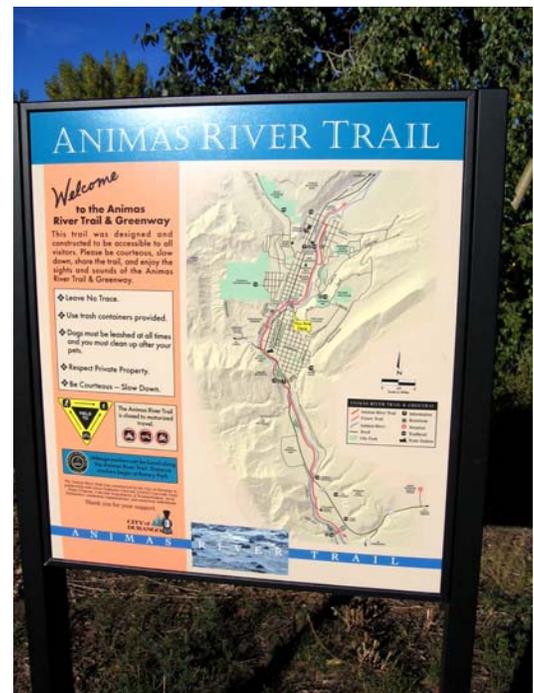
- Areas should be left in a natural state. Unless legal requirements dictate, areas are not mowed, trimmed, fertilized, or irrigated
- Weed control limited to legal requirements for eradication of noxious plants
- Respond only for safety-related concerns or where addressed by agency policies

Landscape Maintenance

- Respond only for safety-related concerns or where addressed by agency policies
- Fuels reduction to prevent wildland fires

Road, Trail and Parking Lot Maintenance

- Respond only for safety-related concerns



Work Priorities for Levels of Service

The following are recommended work priorities by level:

Level 1, 2 & 3 Work Priorities

- Priority 1: Conditions which pose an immediate threat to life or property (fire, explosion, water main break, building structural failure, electrical failure).
- Priority 2: Emergency requests from a regulatory agency to correct immediate hazards (fire code deficiency, hazardous material issue).
- Priority 3: Special request from the Director or designee determined to require immediate attention
- Priority 4: Emergency or routine work intended to improve services for visitors, or the general public.
- Priority 5: Emergency or routine work intended to reduce the long-term maintenance levels.
- Priority 6: Emergency or routine work intended to improve the aesthetics or attractiveness of an area or facility.

Level 4 Work Priorities

- Priority 1: Conditions which pose an immediate threat to life or property (fire, explosion, water main break, building structural failure, electrical failure).
- Priority 2: Emergency requests from a regulatory agency to correct immediate hazards (fire code deficiency, hazardous material issue).
- Priority 3: Emergency or routine work intended to reduce the long-term maintenance levels.
- Priority 4: Emergency or routine work intended to approve the aesthetics or attractiveness of an area or facility.