Appendix 4 – Maintenance Standards

CHAPTER ONE - INTRODUCTION

1.1 PROJECT PURPOSE AND GOAL

Maricopa County Parks and Recreation Department manages a system that encompasses over 125,000 acres and ten parks dispersed over a vast area and serving a population of more than 3,900,000. The Department is organized into four primary areas: Administration, Engineering and Planning, West Side Parks and East Side Parks. The Department has a trails development group and a trades group in Engineering and Planning.

Maricopa County Parks and Recreation Department retained PROS Consulting, LLC to evaluate the maintenance activities to assess its operations and develop a Maintenance Management Plan. The goal of this Maintenance Management Plan is to provide the most effective and efficient operational strategies as well as address the necessary resources to support the current and future parks system. Each Park has a limited maintenance staff that is supported by seasonal volunteers (Hosts.) Heavier maintenance is provided by a central trades crew that serves all Parks and is staffed by skilled trades personnel. The trail systems is developed by a centralized trails crew and renovated and maintained by the trails crew and local park staff.

1.2 PROJECT METHODOLOGY AND REPORT ORGANIZATION

PROS evaluated the maintenance operations to assess the efficiency and effectiveness of its functional areas of responsibility. This included assessing its current operations related to organization and staffing, levels of service/workload, work processes and standards, budgeting, and management and monitoring of daily work by staff. This assessment was performed through on-site evaluations and analysis of collected data provided to PROS by staff.

The following report presents a situational assessment, recommendations and an implementation strategy with detailed actions and priorities. The Situational assessment presents findings and analysis. The Recommendations are organized to guide decision making for implementing the Maintenance Management Plan with strategies, standards and performance measures.

CHAPTER TWO - SITUATIONAL ASSESSMENT

PROS Consulting, LLC (PROS Team) collected and reviewed a variety of financial and operational data to gain insight into the current operations of the maintenance operations.

A series of questions were asked during interviews with staff. Individuals interviewed included the Department Director, Park Supervisors, Park Managers, park staff and maintenance staff. Additional data was requested during these meetings to expand the level of operational analysis and further identify critical issues to address and develop recommendations. Specific areas assessed included:

- Existing maintenance and operational standards
- Existing policy and procedures management
- Performance measures

- Budget processes
- Purchasing processes
- Staffing utilization and needs
- Staff training
- Workload requirements
- Maintenance Practices (Routine, Preventative, and Life Cycle)
- Activity based costing
- Field equipment/resources
- Partnerships/volunteer support
- Information systems and technology

Following is a summary of findings from the overall assessment completed by PROS with specific key issues to be addressed.

2.1 OVERALL ASSESSMENT

Overall, the maintenance staff is seen as a "can-do" group of capable individuals. The maintenance staff has experienced several constraints in the delivery of their services that have resulted from reduced funding, and increase in assets to maintain, and a steady increase in the use of parks. Following is an overall assessment of the maintenance services:

- Maintenance staffing is limited across the system and is significantly impacted by travel time to sites
- The maintenance requirements of an aging system infrastructure is also adding to the work load of the maintenance staff
- The continuing development of new public use facilities have resulted in increased maintenance service requirements for the staff resources which are not being expanded
- The efficiency of centralized maintenance crews performing specialized services is impacted by travel time to park locations throughout the system
    - Trades Crew – a central service group providing a variety of trade skills
    - Trail Development – a central service group responsible for the development, renovation, and maintenance of park trails
    - Equipment Maintenance – central service being provided through the County's maintenance facility for all rolling equipment
- The maintenance staff have limited time for preventative maintenance and resource protection activities due to broad service area and the size of the parks
- The lack of a comprehensive maintenance management plan which includes a work order system and related maintenance standards
- The lack of a comprehensive asset renewal/replacement program
- The differences between peak season and non-peak season use creates an uneven workload throughout the year

This overall assessment is supported by a number of key operational findings that must be addressed through this Maintenance Management Plan. Following is a summary of key operational findings and issues.

2.2 SUMMARY OF KEY FINDINGS

The PROS Team summarized the key operational findings from the evaluation into the following key issues that need to be addressed in this Maintenance Management Plan:

2.2.1 KEY ISSUE: ORGANIZATIONAL, STAFFING AND WORKLOAD REQUIREMENTS

The current organization structure of the maintenance and their functions appear to be appropriate as staff is managing their resources reasonably well compared to their significant workload. However, the maintenance resources available are stressed when compared to the size and number of locations maintained and given the overall service area being served. The lack of consistent data related to daily performance and standard measures has affected the ability of the maintenance staff to perform meaningful analysis to determine the overall efficiency and effectiveness of its operations.

In 2004, the Department had 36 full-time equivalent maintenance positions. Maintenance is now performed by 37 employees during the years ending 2007 and 2008. That total staff complement includes the Trails Development Crew with seven (7) employees who perform primary trail development and trail maintenance tasks and the Trades Crew with seven (7) employees who perform tasks requiring construction trade skills. The trades and trail crews work from centralized locations and travel to the various park locations. The remaining staff is located and work at specific parks throughout the System. The maintenance staffing levels at park locations include:

Location	Staffing	Developed Acres	Total Acres
Lake Pleasant	6 employees including one supervisor	515	23,646
White Tank	2 employees	289	29,571
Desert Outdoor Center	3 employees	-0-	19,840
Estrella	3 employees	532	2,922
Cave Creek	2 employees	120	21,099
McDowell Park	2 employees	307	3,648
Usery	3 employees	348	10,198
San Tan	1 employee	6	2,154
Spur Cross	1 employee	0.2	1,526
Adobe Dam	0 employees	761	1,526
Buckeye	0 employees	122	4,474
Paradise	0 employees	0	129

With the limited staffing levels, the maintenance resources are strained and create a reactive operating environment. The issue is also significantly impacted by the reality of maintenance staff travel time.

2.2.2 KEY ISSUE: INCREASE EFFICIENCIES THROUGH POLICIES, PROCEDURES AND STANDARDS

Maintenance groups appear to have strong tactical execution capabilities. However, locations, equipment, technology and available staff resources limit their ability to increase efficiency. The on-site maintenance staff serves large developed areas from 60 acres to over 100 acres per employee. All maintenance crews need to reduce the non-productive time resulting from the significant travel required each day which instead can be spent on the delivery of services.

- The large system area requires significant drive times to and between job sites and trade crews work from a centralized location. With the current resources, centralized staging is the most productive approach for that crew; however, as the staff levels increase, consideration should be given to reorganizing the current group into two crews that are closer to their assigned service areas.
- The trail development crew works from the Parks and Recreation administration building and the crews are divided into east service area and west service areas.

The trail development staff could be moved to those service areas and report to each of the two superintendants to improve drive time and to improve the coordination of trail duties between the trail development staff and the park maintenance staff. The trail planners should continue to work from the central office under the Engineer.

- Attention should also be given to the work responsibilities of the park maintenance crews .It is apparent that certain efficiencies can be found through park crews providing increased trail maintenance services as a means of supporting the work of the Trails Crews which currently have the primary responsibility for developing, renovating, and maintaining trails.
- Coordination and integration of standards will provide a broader asset management approach that considers opportunities for more effective use of staff resources and equipment. This can best be accomplished through the implementation of a work order system. Improved processes for prioritizing work and scheduling of staff resources will greater improve maintenance service delivery.

2.2.3 KEY ISSUE: FINANCIAL AND FUNDING

- By December, 2009, the Department is scheduled to be "non-reliant on the general fund for park operations through alternate means of funding." The Department is adding land and amenities without the ability to add maintenance resources. With additional assets to maintain and a static number of staff, a potential decrease in maintenance and asset conditions exists.

2.2.4 KEY ISSUE: ASSET PROTECTION

- Long-term asset management planning is needed to better quantify the capital maintenance needs so that funding requests can become more consistent year to year. This includes implementing procedures to capture the condition and life-cycle on existing facilities, equipment and infrastructure. This will allow staff to proactively establish life-cycle plans for existing and new improvements currently being planned.
- Based on the useful life of the Department's total facility assets, the expected maintenance and rehabilitation budget should be approximately $1,300,000 per year, or approximately 9.12% of total system assets. This includes budgeted maintenance and debt financed capital rehabilitation projects. The Department should consider funding to 4% to 6% of Total Park and Recreation infrastructure value per year for capital maintenance and rehabilitation.
- A major element of asset protection is preventative maintenance. A work order management system will provide the basis for proactively maintaining the assets of the Department. An automated system will produce preventative maintenance work orders on established schedules to assure that each asset is periodically inspected and maintained.
- The limited maintenance staff are not able to conduct preventive maintenance activities to protect natural and cultural resources; such as securing areas from unauthorized vehicle use, maintaining fences from illegal entry, protecting shooting and archery range sites and taking fire prevention measures

2.2.5 KEY ISSUE: INFORMATION MANAGEMENT AND TECHNOLOGY

- The Department is challenged in the area of accessing and utilizing information to improve decision-making. This includes integration of technology into work processes and improved record keeping and reporting to support long term planning.
- The implementation of a work order management is critical to the Department to report and manage their resources and track work needed and work performed

2.2.6 KEY ISSUE: RESOURCE PROTECTION

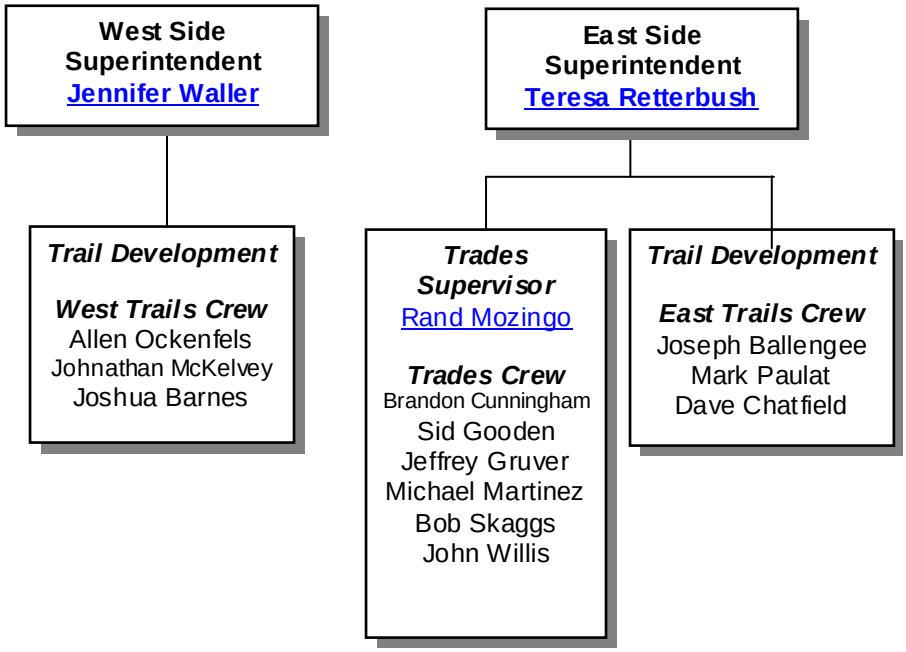
- As a result of staff being in a continuing process of "catching up" with ongoing maintenance work, the management of the Park System's Cultural and Natural Resources has not been managed consistently with the priority required for these important areas. Further, there is a need for a comprehensive plan for the management and protection of these valuable resources .That plan should include an inventory of sites and specific resources as well as mapping all significant locations. The plan should also identify required maintenance and security tasks, including fire prevention, boundary control, signage and related efforts necessary to deal with activities such as encroachment, vandalism, littering, unauthorized entry and other related illegal activities. This issue should be identified by the Department as a high priority initiative and given appropriate attention in the near future.

2.3 ORGANIZATIONAL ALIGNMENT

The maintenance services are currently organized into three organization groupings. The Trail Development and Trades crews report to the Chief Engineer. The Department also has maintenance personnel on-site at nine locations. PROS recommend adjustments to the current organization to better align with asset management strategies to allow improved allocation and monitoring of work and subsequent performance. The trails crew and trades crew works from the Department's central office. The drive time required for these centralized crews to travel to park locations is a significant factor in reducing work efficiency. By relocating the crews to field locations, the Department can improve the number of available work hours. The recommended organization includes:

- The Trades Crew should report to the East Side Superintendent. This will focus the maintenance activities to the Park operations and balance the management responsibilities between the two superintendents
- The Trail Development Crew is currently organized by East Trails Crew and West Trails Crew. The trail crews have started training on-site maintenance staff to transfer a part of the trail maintenance tasks. The East and West Trail Crews should be assigned to the respective East Side and West Side Superintendents.
- The capital and planning tasks should remain with the Chief Engineer

2.3.1 PROPOSED MAINTENANCE AND TRAILS ORGANIZATION



2.4 PREVENTATIVE MAINTENANCE

The objective of the preventative maintenance program is to extend the life of equipment, infrastructure and facilities and improve the efficiency of resources by reducing the number of trouble calls required. The Department has the opportunity to improve its operations through investment in updated equipment, better geographic distribution of its maintenance staff, and established frequency standards and procedures.

Specific work activities include:

- Annual Work Plan: Coordinate Annual Work Plan and review and revised quarterly
- Work-plan Development and Scheduling: Preparing weekly work plans and scheduling technicians based on established maintenance standards. Includes coordinating with Trades Crew for support resources and identifying and acquisition of materials, supplies and equipment needs for work execution.
- Work Execution: Performance of work plans including inspection process and implementing quality standards. The technicians perform, repair or prepare a work order for more extensive work required.
- Supervision and Quality Control: Supervisors and/or independent technicians perform quality control checks on completed work to ensure work is completed to standards.
- Performance Monitoring and Reporting: Maintain data and prepare reports presenting the maintenance performance based on established measurements.
- Resource Protection: Identify and document natural resources, implement protective actions, and complete restoration activities
- Identify the appropriate duties that can be performed by volunteers
- Develop training required for volunteers to safely perform each task

Key success indicators include:

- **Satisfaction and Value Rating**: High resident satisfaction and value ratings
- **Return on Investment**: Return on investment (ROI) through the extension of asset life and subsequent capital funding requirements
- **Productivity and Efficiency**: Consistent productivity for staff and resources by reducing operational impacts due to trouble calls
- **Predictable Funding Requirements**: Predictable annual operations and capital funding requirements
- **Internal Customer Satisfaction Rating**: High internal customer satisfaction ratings
- **Reduced Funding Requirements**: Annual targets for reduction in annual operations and maintenance funding requirements
- **Resource Protection**: Documentation of natural resources and preventive actions taken

2.5 STAFF NEEDS AND SERVICE DELIVERY ALIGNMENT

The current maintenance resources are not aligned to the facilities maintained. The long term goal should be locating skilled maintenance staff as close as practical to the sites and amenities that is being maintained to increase the service efficiency. The travel time to service locations is a significant factor with respect to the number of available work hours. Additional available work hours can be gained by locating the maintenance resources closer to the primary facilities served.

Staffing needs for the Department should be focused on creating positions that increase capacity to implement efficient and effectiveness improvements by allowing supervisors to be in the field performing trouble shooting, quality control and identifying process improvements. In addition, filling vacant maintenance positions should occur on an expedited basis. A summary of recommended positions by section follows:

2.5.1 TRADES

- Add complementary trade positions to allow the trades crew to operate from two locations
- The Trades Supervisor should be able to manage the crews from two locations with the implementation of a work order system and appropriate communication tools.

2.5.2 STAFF TRAINING

The Department does not currently have a training plan for trades, maintenance or construction staff. A training plan would improve productivity and safety. The Department should develop a standard training program for each staff level and develop a training sequence plan for each trade. The training program should include:

- Conduct job safety analysis to assist in determining critical training
- Continue trail maintenance training by the Trails Crew for other maintenance personnel
- Implementation of maintenance standards
- General instruction related to supervision and use of available technology

- Staffing of construction management and trade skills should be based on maintenance standard model labor hours and selected levels of service
- On-going skill evaluation needs to occur to demonstrate appropriate skill levels required to maintain the system assets.

2.5.3 EQUIPMENT REQUIREMENTS

Regularly scheduled equipment replacement is essential to maintaining an efficient fleet of vehicles and rolling stock. Regular replacements of vehicles and rolling stock avoid budget problems created by the failure of a significant percentage of the equipment inventory during one budget year. Scheduled vehicle and rolling stock replacement will assure that needed equipment will be available in an emergency, which in turn results in improved staff productivity levels based on staff not having to wait for repairs or equipment.

- According to the Department's asset records 10.8% of the depreciable assets are over their planned useful lives
- An equipment replacement schedule plan should be developed for each class of equipment. The replacement schedule may be based on set criteria; such as, hours of use, annual downtime and annual maintenance costs.
- Equipment replacements should be based on the equipment life cycle along with the annual equipment conditional assessment

2.5.4 STANDARDS INSPECTION, MONITORING, AND REPORTING

- Standard inspections should be conducted by field supervisors based on work-team reports and documented for compliance weekly on a scheduled basis
- Non-compliance performance will be noted by the supervisors and recorded in a work-team employee files. Work teams should be redirected to complete work scheduled as established with no over-time pay allowed.

2.5.5 INFORMATION SYSTEMS AND TECHNOLOGY RECOMMENDATIONS

- The work order system implementation is critical to providing needed management information to the Department
- Communication tools are key to the use of the work management tools and includes mobile phone with internet functionality and staff should be trained on a continuing basis on the use of technology equipment
- Continually train staff on technology tools

2.5.6 RESOURCE MANAGEMENT RECOMMENDATIONS

- A comprehensive management plan which includes the inventory and documentation of natural and cultural resources, locations and current conditions should be developed and implemented as an essential step towards ensuring management and protection of these resources
- Staff training should be provided to ensure that management and maintenance activities are appropriately provided

2.5.7 EFFICIENCY BEST PRACTICES SUMMARY

- Conduct an interactive, consistent, on-going, and productive dialogue with users to confirm available resources are best matched to needs.
- Employ activity based costing methods and hold all levels of the organization accountable for achieving planned outcome.
- Continually assess and evaluate performance standards and achievements, adjust standards and frequencies where appropriate, reward success when possible.

2.6 MAINTENANCE STANDARDS

Maintenance standards create an estimated frequency schedule for staff to follow that ensures that the quality of the amenity will be available and working for visitors and users to enjoy. Maintenance standards allow staff to be proactive in managing the fixed assets of the Department. Maintenance standards establish a guideline for maintenance staffing and budgeting to achieve the frequency schedule and provide a baseline for accountability by demonstrating that the standards are being met.

Preventative maintenance standards support maintaining the level of predicted lifecycle of capital improvements and in most cases extends the asset life beyond the expected time period. Preventative maintenance provides a safe and quality experience for visitors and users of park facilities and decreases the liability exposure of the Department. The following standards are the basis for the preventative maintenance plan and are presented in thirteen groups by type of facility. Preventative maintenance standards are presented in Section 5 and were developed with the Department's maintenance staff. The results of the maintenance model are shown in the Appendix. The model presents labor hours requirements for maintenance tasks by levels of service. The model is organized by Park locations and inventory item with associated tasks and three levels of service.

2.7 SUMMARY OF FINAL RECOMMENDATIONS

The following is a summary of the most significant recommendations associated with Maintenance Management Planning.

1) Adopt maintenance standards measure to create meaningful analysis
2) Provide maintenance staff and resources in proportion to the additional assets that are being developed and in line with the selected level of service documented in the maintenance labor model
3) Develop an on-going training plan for trades and construction staff to maintain skill efficiency and to improve productivity of staff and keep resources up to date.
4) Develop a formal stores area for parts and suppliers to increase productivity and reduce drive times of staff
5) Contract out services such as equipment maintenance and selected trades such as plumbing and electrical work for overtime work related activities.
6) Reduce travel time by staff through improving policies relating to purchasing and job site designation

7) Continue and increase partnership programs with volunteers or partnering agencies

8) The Department needs to implement maintenance performance measures tied to success indicators which will allow the maintenance services to manage by outcomes which will create a positive proactive work environment and provide good information for improved decision-making.

9) Funding for deferred maintenance must be balanced with new construction to ease the staff impact on maintaining existing facilities and improving customer satisfaction.

10) Implement a work order system to report and manage their resources and track work needed and work performed and must continue to be a priority.

11) PROS recommends adjustments to the current organization to better align with asset management strategies that will allow for improved allocation of staff time and monitoring of performance.

12) Develop a comprehensive plan for the management and protection of natural and cultural resources

CHAPTER THREE – MAINTENANCE AND OPERATING STANDARDS

Maintenance standards are developed for each maintenance zone with existing amenities. These standards will include but not be limited to frequency, duration, and tasks. These standards will cover major elements from turf, hard surfaces, landscaping, trees, natural areas, irrigation, and related amenity structures in place.

Based on data collected during the site visit, maintenance standards for the Department were developed in both qualitative and quantitative formats, organized by Levels of Service. These two formats provide guidance in terms of understanding the required work activities and elements in a descriptive manner that then can be quantified numerically. Following are descriptions of the levels of service and both qualitative and quantitative maintenance standards as proposed for the Maricopa County area.

3.1 MAINTENANCE STANDARDS

PROS has developed expected industry standards in hours per tasks and annual frequencies by Levels of Services. The PROS Standards are based on NRPA data and include information regarding parks in western states. PROS Standards consist of typical park and recreation maintenance tasks and presents the standards in three levels with Level 1 being the highest standards and Level 3 being the lowest of the three standards. The current Department tasks and levels of efforts have been compared with the three levels of the PROS Standards.

3.2 PROS QUANTITATIVE MAINTENANCE STANDARDS

Quantitative standards precisely identify the number of man-hours necessary to complete a maintenance task or function to the level described in the qualitative standards for the same task. Quantitative standards are determined by multiplying the number of units to be maintained by the number of man-hours needed to complete the task one time by the frequency with which the unit needs to be maintained. The general national industry descriptions are presented below. The recommended standards and levels of effort are adjusted for the client's region.

3.2.1 LEVEL 1 – MAINTENANCE MODE FOR QUANTITATIVE MAINTENANCE STANDARDS

3.2.1.1 ROAD 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

3.2.1.2 TRAIL MAINTENANCE

- Remove trip hazards from pedestrian areas immediately upon discovery

- Repair scenic view area, curbs and other surfaces as needed
- Repair asphalt trails, or soft surface trails, parking lots, roadways and other surfaces as needed

3.2.1.3 NATURAL AND CULTURAL RESOURCE MAINTENANCE

- Initiate the development of site management plans including fire prevention, for each archeological area to insure proper best practices are followed in the protection of the particular artifacts...Coordinate with local, State and Federal agencies as appropriate
- Establish a management plan including fire prevention, for all natural resource areas and to ensure appropriate protections and best management practices are established and followed .for significant and unique resources. .Coordinate with local, State and Federal agencies as appropriate
- Install both educational and enforcement signage as a means of explaining the value of these important sites and post applicable enforceable regulations against inappropriate activities.
- Install fencing or other protective barriers to, protect archeological and as practical, significant natural resource areas
- Initiate a Department wide effort to educate staff on the importance of protecting these important resources with particular emphasis on aggressive law enforcement activities and the importance of following best practices in maintenance activities.
- Initiate a public relations effort with County residents, park visitors and in particular with neighboring communities to educate them as to the importance of these resources and to solicit their support in assisting the Departments efforts

3.2.1.4 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 as needed and mow weekly
- Weeds should cover no more than 15% of the grass surface consistent
- 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 2-3 times during growing season
- Inspect regularly for insects, diseases and rodents and respond to outbreaks according to threshold standards within 3 days

3.2.1.5 LANDSCAPE MAINTENANCE

- Prune shrubs as necessary annually September to January
- Shear formal shrubs every three weeks during the growing season consistent with procedures for bird nesting survey
- Prune trees as necessary September to January

- 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

3.2.1.6 IRRIGATION SYSTEM MAINTENANCE

- Inspect irrigation drip 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 drip emitters as necessary weekly during the dry season
- Modify systems as necessary to increase irrigation coverage or efficiency

3.2.1.7 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
- 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

3.2.2 LEVEL 2 - MAINTENANCE MODE FOR QUANTITATIVE MAINTENANCE STANDARDS

3.2.2.1 LANDSCAPE MAINTENANCE

- Prune shrubs as necessary every two years September to January
- Shear formal shrub hedges monthly during the growing season consistent with procedures for bird nesting survey
- Prune trees as necessary every three years September to January
- 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 invasive plants within 10 days of discovery
- Replant as trees and shrubs as necessary

3.2.2.2 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 sod or seed to maintain uniform turf coverage of 80%
- Weeds should cover no more than 25% of the grass surface
- Apply fertilizer according to optimum plant requirements at least twice each year
- Inspect regularly for insects, diseases and rodents and respond to outbreaks according to IPM threshold standards within 10 days

3.2.3 LEVEL 3 - MAINTENANCE STANDARDS

3.2.3.1 ROAD, TRAIL AND PARKING LOT MAINTENANCE

- Respond only for safety-related concerns

3.2.3.2 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

3.2.3.3 LANDSCAPE MAINTENANCE

- Respond only for safety-related concerns or where addressed by agency policies

3.3 WORK PRIORITIES FOR LEVELS

Following are recommended work priorities by level:

3.3.1 SERVICE LEVEL 1 & 2 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.

3.3.2 SERVICE LEVEL 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**: 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.

3.4 TECHNOLOGY NEEDS

To maximize the benefits of this analysis, PROS recommends the implementation of a computerized maintenance management system. The benefits of an Automated Maintenance System include improved tracking of Department resources, improved resource allocations based on needs and standards, documentation of Department efficiencies, and documentation of additional resource requirements as the system grows.

The implementation requirements include data gathering, staff training, development of standards (prepared as part of this analysis), and sufficient human resources to input the daily work results. The efficiencies achieved by automated maintenance reporting significantly exceed the resource requirements.

The field technology should include mobile data terminal to receive work orders and input work results in the field. The field input can be enhanced by the use of bar code system implementation which includes the coding of assets and work tasks.

3.4.1 MAINTENANCE WORK ORDER SYSTEM REQUIREMENTS DEFINITION

PROS project team in conjunction with the Department staff prepared a Maintenance Work Order System Requirements Definition. The requirements were developed from the PROS Work Order Requirements Template and modified to meet the specific needs of the Department. The Requirement Definition includes the following major sections:

- General System Requirements
- Contract Management
- Inspection Tracking
- Work Orders Details and Functions
- Preventive Maintenance
- Work Scheduling

- Purchasing
- Parts and Materials Management
- Reporting
- Capital Project Management
- Facility Management
- Assets Management(Areas and Equipment)
- Labor Details
- Tools Management
- Technology / Mobile Functions
- Capital Planning

The documentation was prepared in a format to be used as template for the County to issue an RFP. When the project team met with the County's information technology staff, the County staff indicated that the technology group would put the requirements definition into the County's procurement format for the issuance of a request for proposals.

3.5 CONTRACT MAINTENANCE SERVICES

The Department should consider contracting selected maintenance services as needed through a competitive bid process. Through a cost-benefit analysis, the Department should determine which services would be best completed by contractors. The benefit analysis should also consider the need for specialized equipment and labor skills, frequency of work, and seasonal aspects of services required.

The Department should continue to monitor opportunities for contract maintenance services and identify potential contracting opportunities that are beneficial to the Department. Potential opportunities include:

- Skill trades to supplement Trades Crew resources as needed
- Skill trades for specific sites to reduce Trade Crew travel times and backlog
- Special skills not available with the Trades Crew

3.6 MAINTENANCE IMPLEMENTATION PLAN

The maintenance services are organized in three areas: Trails Development Crew, Trades Crew, and local maintenance at various parks. . Maintenance services are provided by a group of highly capable individuals. Overall, the maintenance services are being performed with limited resources, it is simply operating in a stressed situation due in part to its inability to fully quantify its needs and subsequently support its requests for resources.

Maintenance is always the easiest item to cut when budgets are tight. This is due in part to its impact to the users can be subtle. However, the overall impact for cuts in maintenance funding is not short term but rather long term. The cost of not maintaining assets in a proactive manner actually is higher when one considers that 10 to 20 years of deferred maintenance is considerably more expensive and is compounded by also having to address new or additional needs of users. The bottom line is, pay now or pay a lot more later.

This Facilities Maintenance Management Plan identifies areas of concern and presents strategies to address them. The most important element to success is the ability of the Department to tell its story. This is a story of needs, trends and performance. The current

information management capabilities of the Department are not adequate for accurately quantifying these items.

Maintenance is performed by a fixed number of staff at a time when additional amenities are being added without the resources and funds to adequately maintenance the growing number assets to maintain. If additional resources are not obtained, the ability of the Department to effectively perform its current responsibilities and levels of service with the additional assets being developed will falter. For this reason, PROS recommends minor realignment of the resources to improve responsiveness.

This plan is very doable. The staff is committed with a can-do attitude. There is no single recommendation that will achieve the outcome desired by the Department but collectively, the ability to maintain and protect the investment of the County's residents can be improved.

CHAPTER FOUR – PREVENTATIVE MAINTENANCE STANDARDS

4.1 BUILDINGS

Maricopa Parks and Recreation maintains numerous public facilities including:

- Amphitheater
- Restrooms
- Shelters
- Nature Center
- Visitor Center
- Contact Stations

4.1.1 MAINTENANCE PROGRAM

- Inspect doors, Closers, Locks, lubricate hardware, and repair as needed, annually
- Inspect fire extinguishers and replace if expired, annually
- Replace dispensers (paper towels, tissue and soap) and mirrors as needed.
- Inspect ceilings for leaks and report or repair as needed, annually
- Repair interior walls and paint as needed; coordinate with lifecycle program
- Repair exterior walls and paint as needed; coordinate with lifecycle program
- Lubricate shutters and check for proper operation and repair as needed
- Inspect windows repair as needed
- Clean vents and replace A/C filter, quarterly
- Turn on all interior lights and replace defective bulbs and lens as needed.
- Check light switches, outlets and repair as needed
- Test emergency lights and repair as needed bi-annually
- Turn on security lights and replace bulbs and lens as needed, annually
- Inspect water fountain; repair within means or report for follow up
- Inspect exterior lighting; repair within means or report for follow up
- Inspect exterior plumbing; repair within means or report for follow up
- Inspect food preparation areas per health code regulations
- Inspect interior plumbing; repair within means or report for follow up
- Inspect all bathroom fixtures (toilets, faucets, etc.) report or repair as needed
- Clean outdoor restrooms, daily
- Repair storage and shop buildings as necessary
- Inspect floor covering for wear/damage and repair as needed; coordinate with lifecycle program
- Inspect roofs for damage and report or repair as needed, coordinate with lifecycle program
- Remove graffiti within a 48-hour period once identified
- Inspect bathroom toilets and stalls on a daily basis and repair within 24-hours
- Electricity boxes in shelters will be inspected monthly
- All HVAC equipment will be evaluated in all buildings over (3) months
- Inspect all roofs for leaks or damages and coordinate with lifecycle program

4.2 OTHER STRUCTURES

Maricopa County Parks and Recreation Department maintains several special use structures including:

- Misc. Building
- Pump/Power Building
- Storage Building
- Shelters
- Utility
- Maintenance Buildings

4.2.1 MAINTENANCE PROGRAM

- Inspect condition of fencing; repair within means or report for follow up
- Inspect gate security; repair within means or report for follow up
- Inspect doors, locks; lubricate hardware, repair within means or report for follow up
- Inspect ceilings for leaks and report or repair as needed, annually
- Inspect exterior walls; repair within means and paint as needed
- Inspect fire extinguishers and replace if expired, annually
- Turn on all interior lights and replace defective bulbs and lens as needed.
- Turn on security lights and replace bulbs and lens as needed, annually
- Inspect exterior lighting; repair within means or report for follow up
- Inspect roofs for damage and report or repair as needed, coordinate with lifecycle program
- Inspect shelter floor for damage repair as needed, coordinate with lifecycle program
- Pumps will be inspected yearly

4.3 BOATING OPERATIONS

The boating operations include boat ramps, docks, winches, buoy markers, boathouse, and floating restrooms.

4.3.1 MAINTENANCE PROGRAM

- Inspect gate security daily; repair within means or report for follow up
- Inspect restrooms daily; repair within means and pump out on first of week during peak seasons and as needed during non-peak seasons
- Inspect doors, locks; lubricate hardware, repair within means or report for follow up
- Inspect buoy markers weekly and relocate and adjust for water levels as needed
- Turn on security lights and replace bulbs and lens as needed, annually
- Inspect fire extinguishers and replace if expired, annually
- Repair storage and shop buildings as necessary
- Inspect signage; repair within means or report for follow up.
- Inspect walkways for damage repair as needed, bi-annually
- Inspect fuel pumps per state guidelines, annually
- Annually inspect all storage facilities and repair as necessary
- Inspect boat hoist monthly

- Inspect boat ramp for damages and repair concrete as needed
- Moorings and mooring chains should be inspected once a year
- Inspect dock electrical outlets monthly
- Inspect winches monthly
- Remove sludge from pump-out station every month on a as needed basis
- Inspect storage areas for boats on a yearly basis

4.4 CAMPING OPERATIONS

The camping facilities maintained include:

- Group camp facilities
- Restrooms/Showers
- RV Pump-out
- RV Sites/Pads
- Electrical Pedestals
- Water Hook-ups
- Sewer Hook-ups
- Tent Sites

4.4.1 MAINTENANCE PROGRAM

- Inspect doors, Closers, Locks, lubricate hardware, and repair as needed, annually
- Replace dispensers (paper towels, tissue and soap) and mirrors as needed
- Inspect ceilings for leaks and report or repair as needed, annually
- Repair interior walls and paint as needed; coordinate with lifecycle program
- Repair exterior walls and paint as needed; coordinate with lifecycle program
- Lubricate shutters and check for proper operation and repair as needed
- Inspect windows repair as needed
- Turn on all interior lights and replace defective bulbs and lens as needed.
- Check light switches, outlets and repair as needed
- Turn on security lights and replace bulbs and lens as needed, annually
- Inspect exterior lighting; repair within means or report for follow up
- Inspect exterior plumbing; repair within means or report for follow up
- Inspect all bathroom fixtures (toilets, faucets, etc.) report or repair as needed
- Clean showers/restrooms, daily
- Inspect floor covering for wear/damage and repair as needed; coordinate with lifecycle program
- Inspect roofs for damage and report or repair as needed, coordinate with lifecycle program
- Inspect exterior plumbing; repair within means or report for follow up
- Inspect benches, trash containers, picnic tables and grills, bicycle racks, drinking fountains, and other site furnishings for damage weekly
- Replace boards on benches and tables as needed
- Inspect doors, locks; lubricate hardware, repair within means or report for follow up
- Inspect gate security; repair within means or report for follow up
- Inspect interior plumbing; repair within means or report for follow up
- Inspect all electrical outlets and security lights in campgrounds weekly

- Remove sludge monthly in RV pump-out areas or on an as needed basis

4.5 PARK ACTIVITY FACILITIES

Maricopa Park and Recreation Department provides numerous activity facilities throughout the system including:

- Equestrian Staging Areas
- Archery Range
- Gun Range
- Fishing Peer
- Interpretive Signs
- Trails – All Types
- Equestrian Arena

4.5.1 MAINTENANCE PROGRAM

- Replenish dirt, renovate, and re-grade for uniform surface and good drainage prior to each season
- Replenish dirt in worn areas as required
- Inspect light levels, poles, and system components before each season and at least monthly during the season, coordinate with lifecycle program
- Inspect water fountain; repair within means or report for follow up
- Inspect signage; repair within means or report for follow up
- Inspect walkways and patio areas for hazards/repair as needed, coordinate with lifecycle program
- Inspect doors, Closers, Locks, lubricate hardware, and repair as needed, annually
- Clean outdoor restrooms, daily
- Repair storage and shop buildings as necessary
- Inspect condition of fencing; repair within means or report for follow up
- Inspect gate security; repair within means or report for follow up
- Inspect exterior plumbing; repair within means or report for follow up
- Inspect benches, trash containers, picnic tables and grills, bicycle racks, drinking fountains, and other site furnishings for damage weekly
- Replace boards on benches and tables as needed
- Inspect all bathroom fixtures (toilets, faucets, etc.) report or repair as needed
- Inspect interior plumbing; repair within means or report for follow up.
- Inspect exterior lighting; repair within means or report for follow up
- Inspect fishing pier wood planks weekly and repair as needed
- Inspect all safety rails on fishing piers and repair as needed
- Inspect horse stalls for horse and human safety once a month
- Inspect pony ring for horse and human safety once a month
- Inspect roller hockey boards on a weekly basis and repair on an as needed basis
- Inspect shooting range facility for safety compliance before opening each day
- Inspect archery range facility for safety compliance before opening each day
- Inspect show ring for safety of horse and humans weekly and repair immediately

4.6 LANDSCAPE OPERATIONS

Maricopa Park and Recreation Department primarily maintains natural areas and landscaping including:

- Landscape areas
- Nature areas

4.6.1 MAINTENANCE PROGRAM

- Inspect fountains at least monthly during the season, coordinate with lifecycle program
- Inspect walkways for damage repair as needed, bi-annually
- Inspect signage; repair within means or report for follow up
- Inspect lake fountain; repair within means or report for follow up
- Inspect exterior plumbing; repair within means or report for follow up
- Inspect gate security; repair within means or report for follow up
- Inspect benches, trash containers, bicycle racks, drinking fountains, and other site furnishings for damage
- Repair irrigation systems in landscape beds as needed and inspect weekly

4.7 PARK OPERATIONS FACILITIES

Maricopa County Parks and Recreation Department operations facilities serve the system by maintaining the many and varied facilities. The operations facilities include:

- Park Furniture
- Park Structure
- Miscellaneous Play
- Park Sign
- Art
- Miscellaneous Building
- Playground
- Sign
- Ball fields – All Types

4.7.1 MAINTENANCE PROGRAM

- Complete playground safety inspections weekly or as required. All inspections are to be documented
- Complete safety-related repairs immediately or remove equipment from service until repairs are made. Initiate other repairs within 48 hours of discovery
- Inspect benches, trash containers, picnic tables and grills, bicycle racks, drinking fountains, and other site furnishings for damage weekly
- Clean picnic tables and grills once per week spring through fall
- Inspect barbeque grills, benches, bleachers, picnic tables; repair within means or report for follow up

- Replace boards on benches and tables as needed
- Inspect turf for safety hazards; repair within means, report for follow up
- Inspect water fountain; repair within means or report for follow up
- Report any other damage
- Inspect chain link fencing for damage; repair within means or report for follow up
- Inspect access control gates repair within means or report for follow up
- Replace boards on access control fence as needed or report for follow up
- Inspect doors, locks; lubricate hardware, repair within means or report for follow up
- Inspect fences, gates, bollards, and other landscape structures at least once annually. Complete safety-related repairs immediately
- Inspect sign lettering, surfaces, posts and sign structures including interpretive signs at least once monthly
- Repair / replace signs to maintain design and safety standards
- Construct new signs and banners as necessary
- Remove graffiti immediately upon discovery. Document and photograph damage as necessary
- Repair other vandalism within 24 hours
- Inspect light levels and poles at least monthly during the season, coordinate with lifecycle program
- Inspect walkways for damage repair as needed, bi-annually
- Inspect fitness course equipment weekly and repair as needed
- Inspect water playgrounds daily in season and repair as needed
- Inspect fuel pumps for fuel standard requirements monthly
- Inspect natural gas tank systems for state fuel standards required as needed
- Inspect benches, trash containers, picnic tables, bicycle racks, drinking fountains, and other site furnishings for damage weekly
- Inspect lifeguard stands on beaches at the start of each season
- Inspect all pool pumps, filters before the season begins and weekly during the season

4.8 PARKING/TRAILS

Maricopa County Parks and Recreation Department maintains trails including:

- Handicapped
- Bridges
- Horse Trails
- Nature Trails
- Pathways
- Sensory Trails

4.8.1 MAINTENANCE PROGRAM

- 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, patios, curbs and other surfaces as needed

- Repair asphalt walks, parking lots, roadways and other surfaces as needed
- Inspect all trails bi-monthly
- Inspect soft surface trails for drainage problems at least once weekly during periods of rain
- Inspect and remove as necessary downed limbs, trees and other obstructions from soft surface trails at least once weekly
- Maintain a uniform 3-4” depth of compacted material on soft surface trails at all times
- Remove overhanging branches within 84” of the trail surface at least twice annually
- Remove any roots threatening damage to walkway
- Inspect bumper blocks; remove graffiti, reset high pins report any broken or missing blocks
- Inspect signage; repair within means or report for follow up
- Inspect walkways for damage repair as needed, bi-annually
- Inspect bridges yearly

CHAPTER FIVE – MAINTENANCE MANAGEMENT PLAN

A Maintenance Management Plan was created to support the desired outcomes expected for each Park. Performance measures were established to hold staff accountable for meeting the standards desired.

Following are key recommendations supporting this plan:

5.1 KEY RECOMMENDATIONS

- Adopt a maintenance standard level of service for each service area as presented in the model and continue to address maintenance impacts as new areas and facilities are added
- Use the maintenance standards as a basis for comprehensive maintenance planning which continue or improve the service levels that the Department provides currently
- Train full-time and part-time staff, as well as volunteers on the standards desired
- Code budget line items as possible for maintenance activities and expenditures to allow accounting, tracking and monitoring
- Develop realistic annual maintenance goals and objectives to be included in the work program for staff and serve as the baseline for performance measurements and evaluations
- Develop a specific site budget for the new amenities based on frequency standards, expected outcomes, and volume of users to manage against
- Seek sponsors for the park amenities to offset operational costs
- Inspect maintenance standards against expected outcomes and report out results
- Implement a computerized maintenance management system
- Contract out non-skilled labor versus using county skilled labor employees who make higher wages for non-skilled work

5.2 PERFORMANCE MEASURES

The Department should consider developing the following performance measures to track desired outcomes and to demonstrate compliance with maintenance standards to maintain the value of the investment being made in the park system facilities. Performance measures should directly relate to the desired results and outcomes. Only those metrics that assess the accomplishment of Department goals should be tracked.

Following are recommended performance measures:

- Park maintenance standards established for this zone meet 90% consistency based on on-site expectations
- Visitor comments on cleanliness of the site reflect through on site surveys at 90% satisfaction level
- Volunteer support hours meet 95% of established hourly goals for each location
- Repairs to the site for vandalism are repaired within 24 hours of recognition of the problem at 95% compliance

- Staff hours assigned to each location for maintenance meet 95% of the hours budgeted for an established to achieve the level of maintenance standards desired
- The Park maintenance budget is based on set maintenance standards developed by creating staff hours or contract hours that are needed to meet the desired standard at 95% accuracy
- Quality Control Inspection is performed on all projects within 2-weeks of completion
- Number of trouble calls linked to life-cycle maintenance (not related to vandalism or disaster) are reduced by 5% annually compared to previous year's budget
- Maintenance frequency standards are met 90% annually
- Target 85% of work orders completed within 24-hours of established priority time frame

CHAPTER SIX – MAINTENANCE STANDARDS MODEL

Projected workload projections based on 2007 maintenance standards were prepared by applying labor hours per task with the associated maintenance standard. The standards and detailed results are shown on the following pages. The model includes the PROS labor standards adjusted to the Departments environment with input from Department staff.

The Parks and Recreation Department Maintenance Standards Model have been given to the Department management for their future use.

Appendix: Maintenance Work Order Requirements Definition

Request for Proposal Guidelines

Table of Contents

Submission Instructions

Add submission instructions.

Your cover page should include:

RFP Number/Designation:

Requested System:	Work Order Maintenance Management System
Organization:	Maricopa County Parks and Recreation Commission
Contact Person:	Name, Title, Telephone and/or Email

Submission topics will probably include:

RFP Issue Date:	MM/DD/YYYY
Response Deadline:	Day, Month, Year Time
Delivered to:	Maricopa County Parks and Recreation Department Attn: Name Street Address Phoenix, AZ
Inquiries:	Attn: Name Email/telephone number All questions concerning this RFP should be submitted no later than MM/DD/YYYY at HH AM/PM.
Instructions to Proposers:	Respondents must submit a complete response to this RFP. Number of copies of the response should be delivered in a sealed envelope to: Maricopa County Parks and Recreation Department Attn: Name Address City, State Zip

Issuer Background

The Maricopa County Parks and Recreation Department desires to implement a computerized work management system to manage and plan the maintenance activities for system.

The Maricopa County Parks and Recreation Department was established in April 1954, when Estrella Mountain Regional Park became the first park in the Maricopa County Regional Park System. Since then, nine additional parks have been incorporated into the Maricopa County Park System, making it the largest regional county park system in the United States. The County itself encompasses over 9,226 square miles of urban, suburban and rural communities and is the fourth most populous county in the United States. MCPRD is the managing partner and/or land owner for over 120,000 acres of Upper Sonoran Desert open space, including 10,198 acres in the neighboring county of Pinal and 13,725 acres of Lake Pleasant in Yavapai County. This acreage continues to expand with the development of the Regional Trail System and acquisition of new Arizona Preserve Initiative (API) lands. In fiscal year 2006, over 1.2 million visitors enjoyed hiking, boating, camping or another of a variety of activities offered at the county parks. Over 600,000 visitors played a round of golf, visited our water park, or took a trail ride with one of our concessionaire partners. MCPRD is a department of Maricopa County and has a director who is appointed by the Board of Supervisors and serves at the discretion of the County Manager. In addition, there is a seven member Parks and Recreation Commission that is also appointed by the County Board of Supervisors. It serves in an advisory capacity providing access for public information and feedback, reviewing and making recommendations on policy level decisions.

The Department, which has 92 Full Time Employees (FTEs) and over 100 park host volunteers seasonally, is organized into principal divisions: Administration, Operations, Engineering and Planning. The Department has 32 maintenance FTEs.

General Information:

Location of organization: Maricopa County (Phoenix), AZ

Annual operations expenditures: $9,354,654 for fiscal year 2007-08

Annual total expenditures: $16,756,821 for fiscal year 2007-08

Current System:	The Department is not currently using an automated maintenance system.
Desired System:	The Department desires a web-based hosted application that will facilitate the diversity and distances of the Department's facilities.
Integration Needs:	The work order system will need to interface with the County's human resource and financial systems.

Request for Proposal

Proposals should be submitted in the follow format. Proposal should include:

1. Cover Sheet
2. Table of Contents
3. Proposed Solution
   Overview of vendor's software products, services, and support offered.
4. Technical Requirements
   Point-based answers for the specific software functionality/features you are requesting. See sample included in this document.
5. Additional Functionality
   Additional features/functionality available from the vendor that may be of interest to you.
6. Vendor Profile
   Company information, qualifications/experience, accomplishments or offering that sets the vendor apart.
7. Customer References
   Vendor references. Specify the number of references preferred and state qualifications of the references, i.e. company of similar size/industry/geographic location, similar solution.
8. System Support Options
   Overview of services, first-year support, ongoing support.
9. Scope of Services
   Overview of implementation, including discovery process, installation and initial training; schedule of activities, including responsibilities of vendor and customer; proposed timeline; detailed description of training; proposed follow-up training, if any.
10. Price Proposal
    Price proposal template with instructions to insure standard price breakout by all responders. State whether software, hosting, special equipment, and services should be displayed separately. Include number of users/licenses required.
11. Vendor's Information Form
    Vendor contact information and binding signature. See sample included in this document.
12. Appendices
    Appendix items could include warranty agreement, support agreement, screen samples, or anything else you wish to see as supplemental information.

Data Interface Development Procedure

Proposal should include the following tasks:

Interface Requirements

1. Identify and document all the necessary data exchanges that will be required to support the implementation of the production system. Develop a diagram of the relationships between the new system and all the systems with which it will interface.

2. Identify and document the two computer systems that will exchange data in each interface. Identify and document the estimated date that the interface will be required for production.

3. Identify and document the direction that the data will flow between the two systems, the source and the target systems. If the interface will be bi-directional define each direction as a separate interface.

4. Identify and document the frequency at which the interface must occur to support the organizations business processes. Will the interface be a batch, run at a specific interval or will it be triggered by transactional processing in one of the systems?

5. Identify and document if any existing batch file programs for export from the source or import to the target have been developed for other systems, which can be used to support the interface. If they will be used, document the file layout used by these programs.

6. Identify and document the method that will be used to move the data between the two systems. (E.g. FTP transfer of batch files, direct database updates via SQL)

Data Mapping

7. Identify and document each specific data element within the source system that needs to be transferred to the target. Identify the data type and the element size where appropriate.

8. Identify and document each corresponding data elements requirements from other systems. . Identify the data type.

Technical System Requirements

Use the following section to rate the technical functions of the proposed system. Short responses may be used to describe or clarify responses.

4 - Included in Current Version
The current version/package of the proposed solution meets or exceeds this requirement.

3 - Not Fully Included
The current version/package of the proposed solution meets most of this requirement. Explain any exceptions.

2 - Included in Future Version
Future releases of the proposed solution will include this functionality/feature within the next twelve (12) months. Explain.

1 - Customization
The requirement can be accommodated through a customization. Explain the magnitude of the customization.

0 - Not Available
The functionality/feature is not available.

General Requirements	Rating
Requirement	
Provide source code at no cost	
Response:	
System is easy to navigate	
Response:	
Support the import and export of data in multiple formats (Access, Word, Excel)	
Response:	
Filter for work order batch processing	
Response:	
Provide reporting with user-specific terminology	
Response:	
Provide automatic alerts for critical tasks	
Response:	
Provide customizable reports	
Response:	
Provide option of form view or datasheet view for forms	
Response:	
Provide context-sensitive help	
Response:	
Sort and filter by any field on data entry forms (excluding comment and note fields)	
Response:	
Provide individual requester information for work request submissions	
Response:	
Track all costs against a budget, by account, maintenance category, or by shop	
Response:	
Provide single points to eliminate multiple input of the same data	
Response:	
Total for General Requirements	0

Work Orders	
Requirement	
Automatically generate work order numbers	
Response:	
Allow comments to be entered on closed work orders	
Response:	
Allow work order types	
Response:	
Allow work order status codes	
Response:	
Allow submission of work requests directly to system using browser via Internet/intranet/extranet	
Response:	
Allow submission of work requests directly to system using minimal client via network	
Response:	
Allow work orders to be closed/issued/printed in batch mode	
Response:	
Provide work order approval capabilities	
Response:	
Allow work orders to be reopened	
Response:	
Assign and track all work order charges/costs by asset, contract labor, multiple accounts, multiple maintenance categories, shop or staff labor	
Response:	
Assign multiple miscellaneous costs to a single work order	
Response:	
Assign multiple parts and materials to a single work order	
Response:	
Assign multiple staff and contractors to a single work order	
Response:	
Assign multiple tools	
Response:	
Assign priority to work orders	
Response:	
Allow user-defined maintenance priorities	
Response:	
Assign user-defined accounts to work orders	
Response:	
Assign user-defined failure codes to work orders	
Response:	
Assign user-defined work order types	
Response:	
Assign work orders to areas (locations), equipment, or projects	
Response:	
Compare Actual Hours and Standard Hours	
Response:	
Automatically calculate and update actual costs and estimated costs by work order	
Response:	
Compare Estimated Hours and Actual Hours	
Response:	

Work Orders (Continued)	
Automatically calculate and update actual costs and standard hours by work order	
Response:	
Compare Actual Hours and Standard Hours	
Response:	
Attach multiple files to work orders including Word documents, Excel spreadsheets, bitmaps, CAD drawing files, video clips, sound files, and Visio files	
Response:	
Compare Actual Hours and Standard Hours	
Response:	
Automatically calculate and update actual costs and estimated costs by work order	
Response:	
Automatically indicate if equipment to be worked on is under warranty	
Response:	
Compare estimated time with actual time and produce variance report for completed work orders	
Response:	
Create and print billing notice/invoice based on charges entered on work order for labor, parts, and miscellaneous costs	
Response:	
Enter and track customer survey responses	
Response:	
Enter estimated number of hours to perform the work	
Response:	
Indicate if work order requires Lockout/Tagout procedures to be followed	
Response:	
Limit assignment of parts and materials to those associated with asset upon which work is being performed	
Response:	
Limit labor assignments to staff or contractors associated with property or facility where work is to be done	
Response:	
Limit labor assignments to staff or contractors with current required training or certification	
Response:	
Look up and assign assets to work orders by requester name	
Response:	
Maintain log of all work order status changes	
Response:	
Memorize and recall frequently used work orders	
Response:	
Optionally include comments from assets (areas and equipment) on work order	
Response:	
Print barcodes on work order and assign parts and materials to work order using barcode reader	
Response:	
Send work orders by email or fax	
Response:	
Support automatic alerts for remote work requests	
Response:	

Work Orders (Continued)	
Support work order services	
Response:	
Attach multiple files to PM tasks including Word documents, Excel spreadsheets, bitmaps, CAD drawing files, video clips, sound files, and Visio files	
Response:	
Indicate if PM task requires Lockout / Tagout procedures to be followed and automatically update work orders created from task	
Response:	
Track lost time for multiple staff labor	
Response:	
View schedules, calendars	
Response:	
Provide functionality to make notes and comments on work orders	
Response:	
Provide functionality to use prior year PM work orders to generate future work orders	
Response:	
Total for Work Orders Requirements	0

Contract Management	
Requirement	
Provide contract management	
Response:	
Associate assets with contracts	
Response:	
Add invoices to contracts	
Response:	
Allocate invoice costs to the assets associated with a contract	
Response:	
Total for Contract Management Requirements	0

Preventive Maintenance	
Requirement	
Assign multiple assets (areas and equipment) to a single PM task	
Response:	
Assign multiple miscellaneous costs	
Response:	
Assign multiple parts and materials	
Response:	
Assign multiple staff and contractors	
Response:	
Assign multiple tools	
Response:	
Assign PM tasks to shop	
Response:	
Assign priority	
Response:	
Attach multiple files to PM tasks including Word documents, Excel spreadsheets, bitmaps, CAD drawing files, video clips, sound files, and Visio files	
Response:	
Automatically calculate estimated time for PM task from assigned procedures or activities	
Response:	
Automatically track and update average time and cost for completing task	
Response:	
Build PM tasks from list of standard procedures or activities	
Response:	
Indicate if PM task requires Lockout/Tagout procedures to be followed and automatically update work orders created from task	
Response:	
Memorize and recall frequently used PM tasks	
Response:	
Restrict individual PM task scheduling to specific date range during year	
Response:	
Review and adjust PM task schedule before generating PM work orders	
Response:	
Schedule PM tasks by date (frequency selections must include every n days/weeks/months/years, specific days of the week, and since date last done)	
Response:	
Schedule PM tasks by mileage/meter	
Response:	
Support task masking or shadowing	
Response:	
Support automatic alerts for task scheduling	
Response:	
Report Preventive Maintenance activities by park, work area, task, crew, etc.	
Response:	
View Preventive Maintenance activities by park, work area, task, crew, etc.	
Response:	
Total for Preventive Maintenance Requirements	0

Inspections	
Requirement	
Create corrective work orders from failed inspection points	
Response:	
Create user-defined inspection work orders	
Response:	
Support multiple, customizable inspection formats for printing	
Response:	
Track failed inspection points for which corrective work orders have not yet been created	
Response:	
Track pass/fail percentage for individual inspection points	
Response:	
Total for Inspections Requirements	
Scheduling	
Requirement	
Allow rescheduling of work orders and PM tasks (Allow 'drag and drop' rescheduling of work orders and PM tasks)	
Response:	
Calculate and report backlog projects with approximate hours to complete	
Response:	
Display total estimated time required to complete work orders, by day	
Response:	
Drill down to view work orders from within schedule	
Response:	
Filter schedule by asset, shop/craft/trade, or by staff labor	
Response:	
Provide graphical schedule that displays all work orders and PM tasks (Highlight days where scheduled work time is greater than available staff time)	
Response:	
Provide visual scheduling for daily work orders and labor hour totals (Provide graphical schedule that displays all work orders and PM tasks)	
Response:	
Total for Scheduling Requirements	0

Assets (Areas and Equipment)	
Requirement	
Allow unlimited “parent-child” hierarchy among assets	
Response:	
Assign contact information	
Response:	
Assign parts and materials	
Response:	
Attach multiple files to assets including Word documents, Excel spreadsheets, bitmaps, CAD drawing files, video clips, sound files, and Visio files	
Response:	
Attach/display photo of asset	
Response:	
Display graphical Asset/Equipment tree based on assigned hierarchy	
Response:	
Maintain complete maintenance history of each asset	
Response:	
Maintain meter reading log	
Response:	
Maintain tenant information for leased assets	
Response:	
Store and calculate building areas	
Response:	
Allow equipment number, description, install data, install cost	
Response:	
Track equipment/component moves (e.g., moving equipment from location to location or exchanging component parts)	
Response:	
Track equipment/vehicle meter readings	
Response:	
Track service contracts and warranties	
Response:	
Track user-defined activities (e.g., filter replaced, bearings greased, walls painted, carpet cleaned)	
Response:	
Allow user-defined specifications (e.g., nameplate data, date built, type of roof, type of filter)	
Response:	
Total for Assets Requirements	0

Purchasing	
Requirement	
Associate work orders with purchase orders	
Response:	
Automatically create purchase order based on part and material quantities below reorder points	
Response:	
Maintain log of parts and materials received	
Response:	
Receive partial shipments	
Response:	
Receive parts and materials to multiple storerooms	
Response:	
Send purchase orders by email or fax	
Response:	
Total for Purchasing Requirements	0
Parts and Materials	
Requirement	
Assign priority to suppliers by part	
Response:	
Attach multiple files to parts and materials including Word documents, Excel spreadsheets, bitmaps, CAD drawing files, video clips, sound files, and Visio files	
Response:	
Automatically adjust quantities on hand when parts and materials are assigned to work orders	
Response:	
Maintain detailed supplier information	
Response:	
Maintain log of all quantity additions and reductions	
Response:	
Allow multiple storerooms per part	
Response:	
Allow multiple suppliers per part	
Response:	
Receive parts and materials directly without requiring purchase order	
Response:	
Support automatic alerts for reordering parts	
Response:	
Track hazardous materials and attach material safety data sheets	
Response:	
Allow unlimited user-defined specifications	
Response:	
Allow barcode scanning for physical counts, wireless or cable	
Response:	
Allow wireless or cable (tethered) access to database	
Response:	
Total for Parts and Materials Requirements	0

Labor	
Requirement	
Assign default accounts	
Response:	
Assign default maintenance categories	
Response:	
Allow default hourly charge rate (markup percentage and flat rate)	
Response:	
Allow multiple pay rates (minimum of 3)	
Response:	
Apply benefit	
Response:	
Apply overhead costs from standards	
Response:	
Track staff and contract labor	
Response:	
Track training and certifications	
Response:	
Ability to use labor timesheets	
Response:	
Allow use of standard labor rates	
Response:	
Total for Labor Requirements	0

Reports	
Requirement	
Create and add unlimited custom reports using built-in report writer	
Response:	
Provide customizable reports	
Response:	
Filter reports by any of the data included in the report	
Response:	
Provide reporting with user-specific terminology	
Response:	
Compare estimated time with actual time and produce variance report for completed work orders	
Response:	
Accept user specified organization, account ranges or reporting structures that are to appear on report	
Response:	
Report Preventive Maintenance activities by park, work area, task, crew, etc.	
Response:	
Calculate and report backlog projects with approximate hours to complete	
Response:	
Send reports via email attachments	
Response:	
Set up and print reports in user-defined batches	
Response:	
Control paging and totaling, modified headings and suppress control fields	
Response:	
Route output to printer, magnetic media or workstations	
Response:	
Prepare multiple copies of reports on hard copy or digital format	
Response:	
Transmit reports to multiple locations	
Response:	
Print selected reports at user specified printer locations	
Response:	
Produce output reports at any time within the accounting period	
Response:	
Vary the reports produced during standard reporting cycles (month end, etc.) by excluding or selecting specific reports	
Response:	
Provide ability to vary the number of copies of reports	
Response:	
Produce the report in report distribution sequence, rather than report number sequence	
Response:	
Provide link to GIS system to show graphics/photos of sites	
Response:	
Total for Reports Requirements	0

Tool Management	
Requirement	
Assign serial numbers to tools	
Response:	
Assign tools to staff	
Response:	
Identify last person to use tool	
Response:	
Identify lost tools	
Response:	
Maintain log of tools used by work order	
Response:	
Maintain tool usage log	
Response:	
Track tools by assigned staff or location	
Response:	
Total for Tool Management Requirements	0
Key Control	
Requirement	
Charge for replacement keys	
Response:	
Identify keys not returned by due date	
Response:	
Issue keys to staff and contractors	
Response:	
Maintain master key list and asset notations	
Response:	
Maintain key bitting data	
Response:	
Maintain key serial numbers	
Response:	
Maintain key transaction and control log	
Response:	
Total for Key Control Requirements	0

Projects	
Requirement	
Add work orders to projects	
Response:	
Assign sequence to work orders	
Response:	
Create and track projects	
Response:	
Create project budget	
Response:	
Track actual costs against project budget	
Response:	
Total for Projects Requirements	0
Technology / Mobile	
Requirement	
Create new work orders on PDA	
Response:	
Download work orders to PDA	
Response:	
Update work orders on PDA and upload changes to main database	
Response:	
Download inspections to PDA	
Response:	
Perform inspections using PDA and upload results to main database	
Response:	
Mark assets and equipment needing maintenance using PDA	
Response:	
Update meter readings using PDA	
Response:	
Utilize barcode scanning for inspection points	
Response:	
Use barcode scan to add parts to a work order	
Response:	
Use barcode scan to add asset to a work order	
Response:	
Assign failure code to a work order from the Handheld PC	
Response:	
Allow security to limit work orders viewed by technician	
Response:	
Allow wireless or cable (tethered) access to database	
Response:	
Use email to notify users of work orders and work order status	
Response:	
Total for Mobile Requirements	0

Facility Management	
Requirement	
Link facility drawings to facility data	
Response:	
Link areas, assets, and personnel to drawing objects	
Response:	
Allow for user-defined settings to automatically define rooms	
Response:	
Locate occupants via data-enabled drawings	
Response:	
Locate assets via data-enabled drawings	
Response:	
Locate areas via data-enabled drawings	
Response:	
Allow for facility projects	
Response:	
Attach drawings, documents, and other media to projects	
Response:	
Include drawings on maintenance work orders	
Response:	
Ability to use easy markup tools for drawings	
Response:	
Ability to view servicing equipment for areas or assets	
Response:	
Ability to view move histories	
Response:	
Ability to create and edit user-defined fields	
Response:	
Ability to interface with AutoCAD	
Response:	
Ability to track utilities	
Response:	
Total for Facility Management Requirements	

Capital Planning	
Requirement	
Assess current condition of buildings and building components	
Response:	
Determine maintenance needed for buildings and components	
Response:	
Catalog deferred maintenance	
Response:	
Calculate a rating/class score	
Response:	
Automatically determine priorities	
Response:	
Create Cost estimates	
Response:	
Compare deferred maintenance cost to current replacement cost	
Response:	
Automatically calculate the Facility Condition Index (FCI)	
Response:	
Track capital requests	
Response:	
Develop capital plan(s)	
Response:	
Coordinate and create projects for approved capital expenditures	
Response:	
Create detailed records of anticipated items/costs needed for a requested service	
Response:	
Assign miscellaneous expenses (staff, contract labor, materials, etc.) to anticipated items to calculate specific expenses associated with the servicing of a building	
Response:	
Create work orders for capital plan project	
Response:	
Track and manage all associated costs in a capital plan project	
Response:	
Total for Capital Planning Requirements	0

Primary Contact and Officer Signature

You may find it very helpful to have a primary contact at the vendor organizations, especially for arranging a software demonstration or asking questions of the vendor throughout the review process. Some companies also wish to have a signature from an officer at the vendor organization.

Feel free to adapt the sample below to best suit your needs.

Address:	
Primary Contact:	
Telephone:	
Fax:	
E-Mail:	

Signed,

_____
Officer Signature

_____
Printed Name and Title

_____
Date

Price Proposal

To be sure you are comparing "apples to apples" for pricing; provide a template for all vendors. It's also useful to restate the number of users/licenses required.

If you are requesting pricing for a hosted software solution, you may want to indicate columns for monthly and yearly costs.

You may also wish to specify your preference for travel and lodging expenses for any on-site services (generally part of the Installation and Additional Services Pricing). Some companies want to see estimates while others state that travel/lodging expenses will be approved at the time and will be billed at actual cost.

Feel free to adapt the sample below to best suit your needs.

Software Pricing, including First Year of Support

Description	Unit Price	Price
TOTAL		

System Maintenance, including Second Year of Support

Description	Unit Price	Price
TOTAL		

Installation, Training, and Additional Services Pricing

Description	Rate	Price
TOTAL		

Additional Software Options, Hardware/Equipment, Data Conversion (Optional)

Description	Price