

Improve Work Order Flow



Project Start: 8-9-2012

Project Champion: Stephanie Rollings

Black/Green Belt: Heather Bolestridge

Define Phase

1. Select Output Characteristics



Champion Project Worksheet			Champion:	
Step	Action	Information Elements for Defining Project	Definition/Explanation	Actual Project Information
1. Identify the specific problem that needs to be solved per the business case or other source.	1A	WHAT is the actual problem?	A business condition or impediment to success stated as the high level effect the problem is having on the business. This is usually in terms of cost, revenue, quality or delivery.	There is no workorder system in place in the Parks Department.
	1B	WHERE is the problem occurring?	Define where the problem is occurring. Include a geographic name such as city or facility and the name of the business area; i.e., Accounts Receivable, Purchasing, Manufacturing...	Parks Department
	1C	The TIMEFRAME over which this problem has existed?	Define when the problem first began or the timeframe over which it has existed. Example: Began Feb 2005, for the past 15 mos., or has always existed.	Consistant for several years
	1D	WHO is the customer(s) most affected by this problem?	Identify who the customer is that is most impacted by this business problem. This could be an internal or an external customer.	the parks crew/customers
2. Determine the Y's (CTO's), what specifically needs to be improved and the baseline performance level.	2A	Determine the characteristic or process output (Y's) that will be improved to solve this problem.	Name the Y which you intend to improve in order to solve the problem; i.e., Product Test Yields, Customer Complaints, Invoice Errors, Response Time....	work order completion percent reported
	2B	Identify the PRIMARY METRIC for each Y that numerically describes the problem and will be used to measure and track improvement.	This is a combination of the name for the Y and the unit of measure associated with it. Example: motor torque % defective, defects per invoice, call back response time in minutes.	reported completion
	2C	Estimate the magnitude, BASELINE PERFORMANCE , of the problem in terms of the primary metric.	Data should be gathered to determine the performance or behavior of the primary metric, assure the data is long term and not short term data. An Excel macro can be used to plot the data as a function of time and then be used to monitor the improvement as a function of time. This data establishes the base from which to calculate the potential financial benefits of the project, as a function its improvements.	88% not reported which gives us a DPMO of 879,699
	2D	Identify a CONSEQUENTIAL METRIC .	This is any other characteristic or process output you will want to monitor to assure there is no negative impact to another area from solving the problem.	time it takes to complete, much higher number completed than documented, staff vs work order load

The Champion Project Worksheet is the starting point for every project. The worksheet helps set parameters for the selected project and keeps all of the initial information in one, easy-to-read place.

Define Phase

2. Define Performance Standard



 Lean Sigma Project Charter						
Project Title:	Improve Parks Work Order Flow			Project No. P1		
Team Members - Who		Authorization Date:		6-Aug-12		
Process Owner:	Tim Norris	Team Members: (5-7 Core team + customer contact)				
Process Champion:	Tim Norris	Name		Name		
Controller:	Jim Yanker	Jimmy Vega				
Process Expert:	Tim Norris	Jose Parga				
Black/Green Belt:	Heather Bolestridge	Todd Lestage				
Black Belt Mentor:		Chris Vega				
Master Black Belt:	Guillermo Garcia					
Project Champion:	Stephanie Rollings					
Key Leader:	Stephanie Rollings					
Project Description						
Project Scope and Boundaries:	The extent of the project (e.g. CBU, Plants, Production Lines, Products, etc.) and the boundaries that limit the project:					
	Work order system in the Parks Department					
Measurable	The Customer focused measurable to be improved:					
	Business Metric					
	Project Metric/Primary Metric		DPMO Reported Completion			
Secondary Metric		Time to complete work order				
Problem Statement:	<p>"What is wrong with where and I know this because." What is the spec, actual performance and gap in performance (problem) as evidenced by the results of the BIC/Project Metric :</p> <p>As a department, we are experiencing a problem with our work order flow. The area where the problem is occurring is at all of our parks. The problem has existed since the parks department was established. The magnitude of the problem is 88% of work orders not being reported closed which gives us a DPMO of 879,699. The expected performance is to have less than 10% not reported. The effect this problem is having on our business is a slow turn around on work completion and wasted time and money with follow ups. This is costing us an estimated \$40,597.00 per year.</p>					
Goal Statement:	<p>The Objective Statement should directly address the information in the Problem Statement. Indicate the level of improvement is expected. Should be specific and quantifiable:</p> <p>Our goal is to reduce our defect rate by 90% and to save an estimated \$36,537 per year in soft and hard dollars.</p>					
Project Objective:	Increase / Decrease The Business/Customer Ys by what amount / percent. % Defect					
	Project Metrics	Baseline	Current	% Improve	Goal	
	DPMO Reported Completion	879,699	890,898	90%	87970	
	Time to complete work order					
Rationale for Hard Dollars:	<p>What are the line items that provide the foundation behind the projected savings. Where does the money come from?</p> <p>Reduction in fuel usage to follow-up on non-closed work orders.</p>					
Estimated Savings and Leveragability:						
Leveragability <input type="radio"/> High <input type="radio"/> Medium <input checked="" type="radio"/> Low	Cost Analysis		% Cost Reduction		Potential Savings	
	Hard Dollars:	\$1,541	90%	\$1,386		
	Soft Dollars:	\$39,057	90%	\$35,151		
	Total Dollars	\$40,597		\$36,537		
Estimated Project Schedule - Phase Completion General Duration Chart						
Phase Weeks	Measure 3	Analyze 3	Improve 3	Control 3	Validation 4	Total 16
Estimated Date of Completion	8/27/2012	9/17/2012	10/8/2012	10/29/2012	11/26/2012	26-Nov-12
Project Approval:						

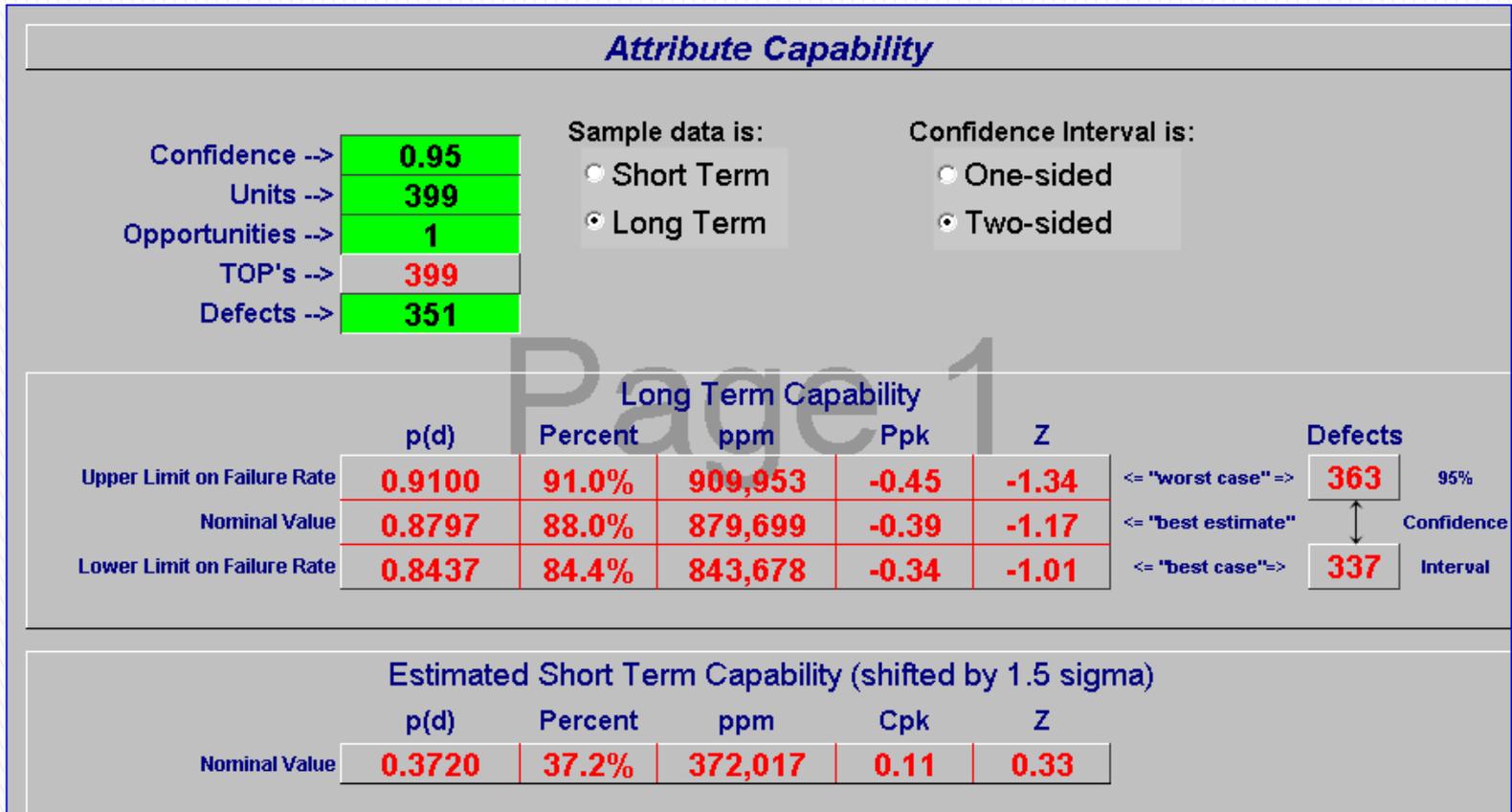
The Lean Sigma Project Charter is a “contract” between the Champion and Black Belt or Green Belt performing the project.

Problem Statement:

“As a department, we are experiencing a problem with our work order flow. The area where the problem is occurring is at all of our parks. The problem has existed since the parks department was established. The magnitude of the problem is 88% of work orders not being reported closed which gives us a DPMO of 879,699. The expected performance is to have less than 10% not reported. The effect this problem is having on our business is a slow turn around on work completion and wasted time and money with follow ups. This is costing us an estimated \$40,597.00 per year.”

Measure Phase

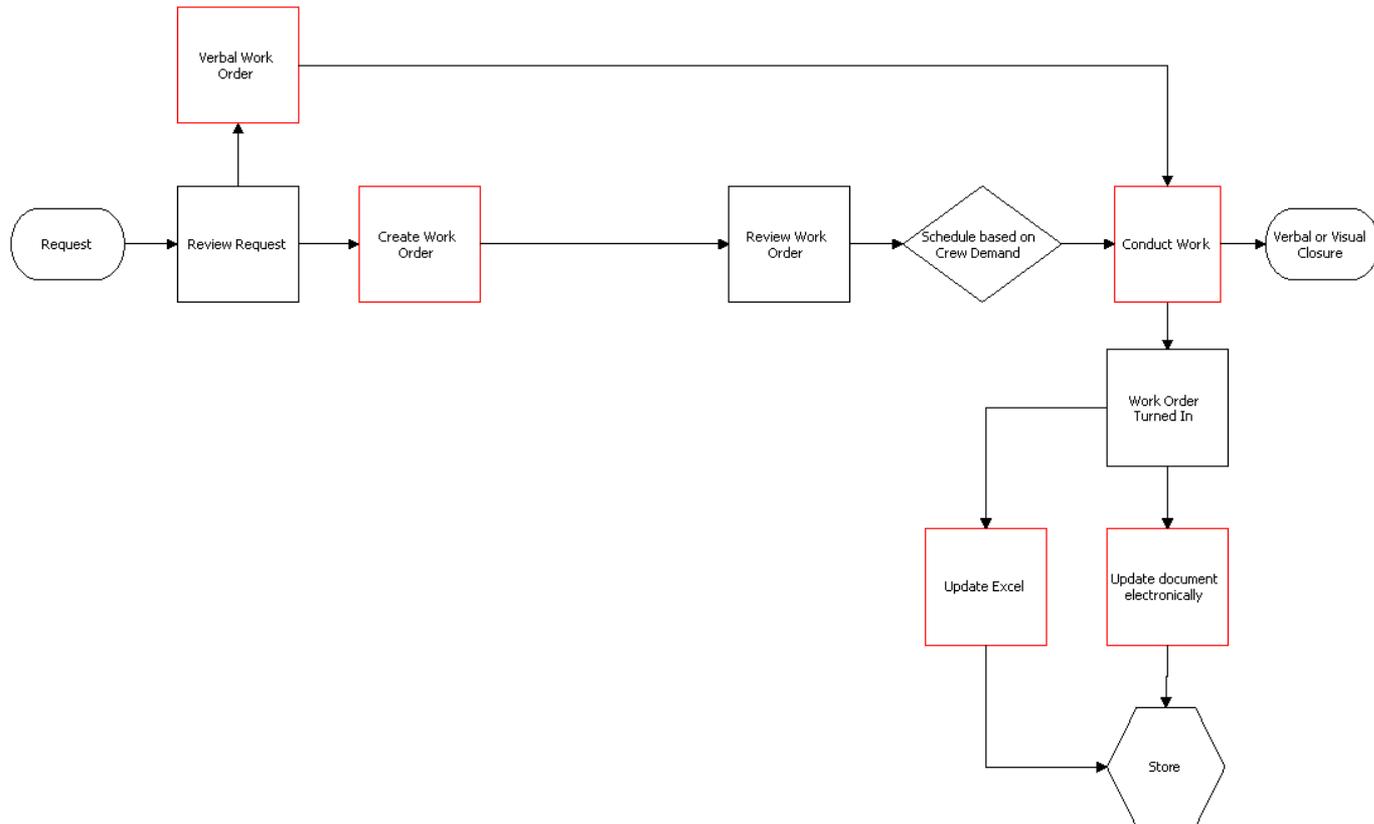
4. Baseline Capability



The process is performing at a less than 1 sigma level long-term. This indicates a system that is not properly functioning or being properly used.

Measure Phase

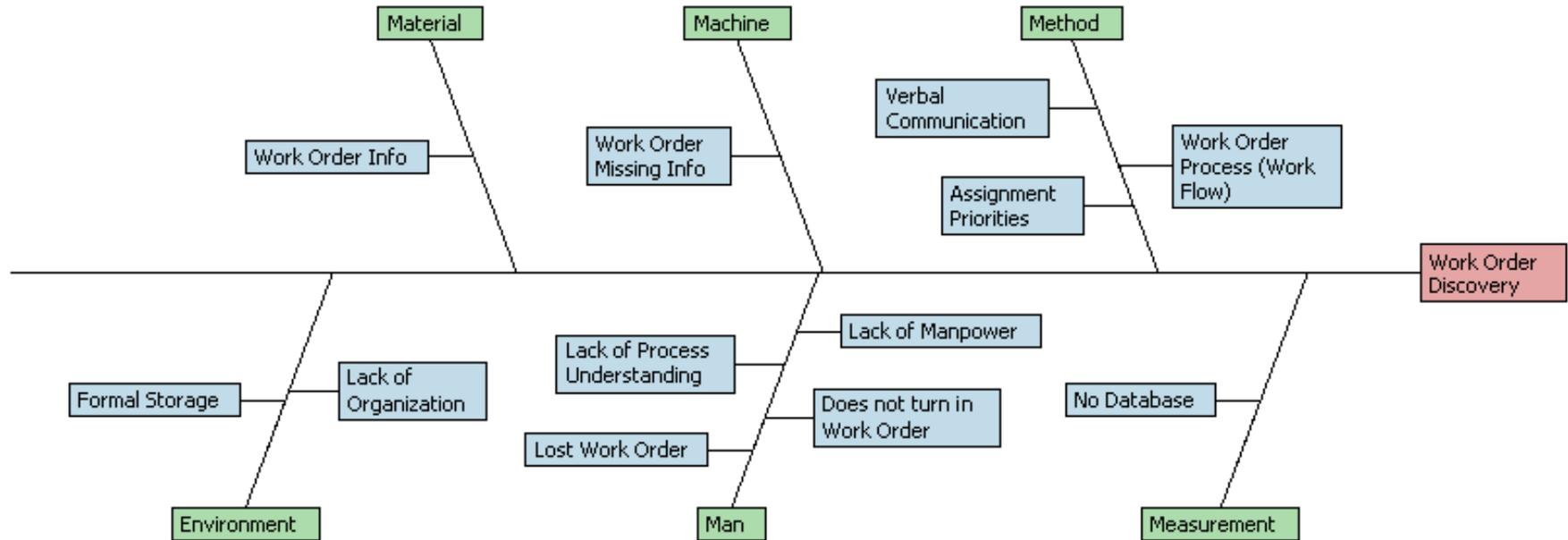
6. Identify Potential Variables



The process map outlines how the work order system flow is currently carried out.

Measure Phase

6. Identify Potential Variables



The fishbone diagram is a list of potential “problems” identified by key personnel associated with the process.

Measure Phase

6. Identify Potential Variables



YX Diagram Summary

Process:	Improve work order flow
Date:	Aug/15/2012

Output Variables	
Description	Weight
completed work orders	9
update work orders	9
work orders not recorded	7
reported work order	7

Input Variables	
Description	Ranking
lack of technology	288
forgetting workorders	288
no database	274
does not turn in WO	234
lost work order	228
work order flow	227
lack of organization	223
complexity of work order	218
Formal Storage	214
access to the database	209
rework/follow up	204
advance notice	199
lack of manpower	194
verbal communication	188
lack of process understanding	184
assignment priorities	99

Key personnel say down and completed a YX Diagram to prioritize “problem” areas from the identified key variables.

Analyze Phase

7. Identify Potential Leverage



After determining the potential problem with the highest outcome, we began doing research by analyzing best practices among Parks Departments around the U.S. by using the Alliance for Innovation as well as cold calling.

Knowledge Question:

“We are looking for information on best practices for a municipal work order system. It can be an electronic or paper system. We have suspended the use of our current system and are looking to start over from the ground up, so any ideas would be helpful.”

Analyze Phase

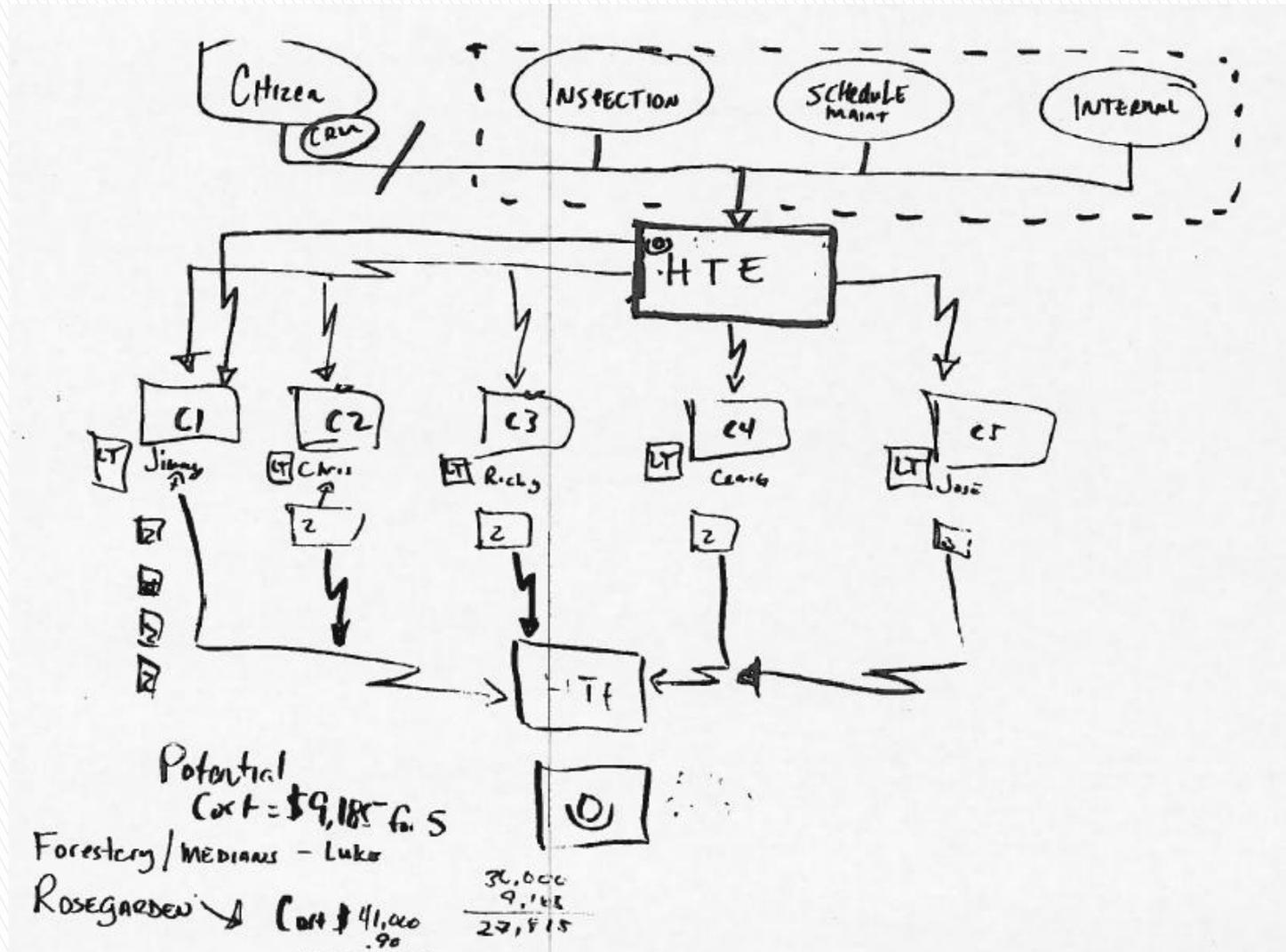
7. Identify Potential Leverage



After receiving information back from the Alliance for Innovation, we determined that in order to be on par with 95% of U.S. Parks departments surveyed – we would have to introduce an electronic work order system.

Analyze Phase

7. Identify Potential Leverage



Analyze Phase

7. Identify Potential Leverage



Estimated Budget Costs of Adding New Hardware
 Estimates generated from the FY 2011-2012 Budget

Hardware	Qty	Year 1	Year 2	Year 3	Year 4	Year 5
Desktop Computer	0	\$ -	\$ -	\$ -	\$ -	\$ -
Laptop Computer	6	\$ 2,027	\$ 2,027	\$ 2,027	\$ 2,027	\$ 2,027
Coban (in-car computer)	0	\$ -	\$ -	\$ -	\$ -	\$ -
Smart Phone / Tablet	0	\$ -	\$ -	\$ -	\$ -	\$ -
Monitor	0	\$ -	\$ -	\$ -	\$ -	\$ -
AirCard Data Plan (PC, data only)	6	\$ 4,320	\$ 4,320	\$ 4,320	\$ 4,320	\$ 4,320
SmartPhone plan (incl. Data)	0	\$ -	\$ -	\$ -	\$ -	\$ -
Desk Phone	0	\$ -	\$ -	\$ -	\$ -	\$ -
Laser Printer	0	\$ -	\$ -	\$ -	\$ -	\$ -
Large Laser Printer	0	\$ -	\$ -	\$ -	\$ -	\$ -
Receipt Printer	0	\$ -	\$ -	\$ -	\$ -	\$ -
Infrastructure						
Citywide Switches ³		\$ 666	\$ 666	\$ 666	\$ 666	\$ 666
AS/400 ⁴		\$ 578	\$ 578	\$ 578	\$ 578	\$ 578
Servers ³		\$ 965	\$ 965	\$ 965	\$ 965	\$ 965
Software & Licensing						
Anti Virus Protection		\$ 165	\$ 165	\$ 165	\$ 165	\$ 165
MS Email Retention		\$ 175	\$ 175	\$ 175	\$ 175	\$ 175
Spam Filter		\$ 96	\$ 96	\$ 96	\$ 96	\$ 96
Advanced Exchange Servers		\$ 20	\$ 20	\$ 20	\$ 20	\$ 20
Advanced Servers		\$ 50	\$ 50	\$ 50	\$ 50	\$ 50
Proxy Reporting		\$ 71	\$ 71	\$ 71	\$ 71	\$ 71
Disaster Recovery (Servers)		\$ 23	\$ 23	\$ 23	\$ 23	\$ 23
HelpDesk Software		\$ 51	\$ 51	\$ 51	\$ 51	\$ 51
Server Backup Software		\$ 33	\$ 33	\$ 33	\$ 33	\$ 33
Intranet (Net Strategy)		\$ 264	\$ 264	\$ 264	\$ 264	\$ 264
HTE Application Maintenance		\$ 5,304	\$ 5,304	\$ 5,304	\$ 5,304	\$ 5,304
SonicWall Firewall		\$ 41	\$ 41	\$ 41	\$ 41	\$ 41
Microsoft Windows ¹		\$ 1,439	\$ -	\$ -	\$ 249	\$ 249
Microsoft Office ¹		\$ 3,583	\$ -	\$ -	\$ 556	\$ 556
Microsoft Enterprise CAL ¹		\$ 2,705	\$ -	\$ -	\$ 494	\$ 494
Microsoft SQL CAL ¹		\$ 1,079	\$ -	\$ -	\$ 158	\$ 158
NetMotion ²	6	\$ 300	\$ 300	\$ 300	\$ 300	\$ 300
MDB	0	\$ -	\$ -	\$ -	\$ -	\$ -
Field Reporting	0	\$ -	\$ -	\$ -	\$ -	\$ -
Total		\$ 23,956	\$ 15,149	\$ 15,149	\$ 16,608	\$ 16,608

Cost for laptops at each location

Decentralization

Total \$ 23,956 \$ 15,149 \$ 15,149 \$ 16,608 \$ 16,608

Analyze Phase

7. Identify Potential Leverage



How decentralization works:

Each crew leader enters their own work orders and closes their own work orders daily with laptops.

Pros:

Empowers Crew Leaders with full network access

Puts the work in the CL's hands

Keeps a more comprehensive tally of work being entered and completed

Cons:

COST

Cumbersome and time consuming for CL

Network issues

Potential to take away time from daily work in the field

Analyze Phase

7. Identify Potential Leverage



Proposal Summary Pricing VSI Quote Number: 34226

Please See Detail Breakdown
on Following Pages

Description: Updated MainTrac Pricing - 5 Concurrent Users
 Prepared For: City of Tyler, Tyler, TX
 Contact Name: Heather Bolestridge, Services Coordinator
 Contact Email: hbolestridge@tylertexas.com
 Approved By: David Wirtz, Sales Manager (davew@vermontsystems.com)

Phone Number: (903)531-1375
 Fax Number:
 Quote Date: 04/02/2013

Cost for iPhone Work Orders

Decentralization
Centralization
Hybrid

Description	Purchase Price	Annual Maint/Svs	Estimated Shipping	Total Price
MainTrac - Workgroup Multi-User Software				
Application Software	\$7,450.00	\$1,850.00	\$0.00	\$9,300.00
Progress OpenEdge Software	\$1,490.00	\$370.00	\$0.00	\$1,860.00
Support Services - Training & Travel Expenses	\$10,070.00	\$0.00	\$0.00	\$10,070.00
Total MainTrac:	\$19,010.00	\$2,220.00	\$0.00	\$21,230.00
WebTrac - Workgroup Edition				
Application Software	\$1,250.00	\$250.00	\$0.00	\$1,500.00
Progress OpenEdge Software	\$250.00	\$50.00	\$0.00	\$300.00
Support Services - Training & Travel Expenses	\$200.00	\$0.00	\$0.00	\$200.00
Total WebTrac:	\$1,700.00	\$300.00	\$0.00	\$2,000.00
VSI TOTALS				
Application Software	\$8,700.00	\$2,100.00	\$0.00	\$10,800.00
Progress OpenEdge Software	\$1,740.00	\$420.00	\$0.00	\$2,160.00
Support Services - Training & Travel Expenses	\$10,270.00	\$0.00	\$0.00	\$10,270.00
Grand Totals:	\$20,710.00	\$2,520.00	\$0.00	\$23,230.00

(plus tax where applicable)

Grand Totals: \$20,710.00 \$2,520.00 \$0.00 \$23,230.00

Analyze Phase

7. Identify Potential Leverage



How decentralization/centralization hybrid works:

Everyone in the Parks department has access to enter work orders – anyone with the app has access to see, close and notate on work orders.

Pros:

MainTrac interfaces with HTE

- Crew Leaders can remotely open/close work orders as necessary
- Keeps a more comprehensive tally of work being entered and completed
- Crew Leaders already have Iphones
- Allows better tracking of all work being completed
- Simplifies work order process to an easy-to-use app

Cons:

- First year cost
- Network issues

Analyze Phase

7. Identify Potential Leverage



Estimated Cost of Poor Quality Per Year	\$83,783.98
Estimated First Year Cost (MainTrac)	\$23,230
Estimated First Year Savings	\$35,708.21
Estimated Subsequent Year Savings	\$58,298.21

All of this cost savings is soft in time spent on following-up on work orders – having a work order system will allow us to determine project completion/issues in one click in one location as well as have a method for officially tracking amount of work done daily.

Improvement Phase

Implement Improvements



- *We have decided to implement the Decentralization/centralization hybrid and go with “MainTrac” as our work order system.*

Control Phase

Implement Process Controls



	Department	
	Procedure	

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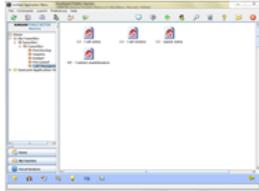
I. Purpose:
Manage the work order system

II. Scope:
Parks MainTrac system

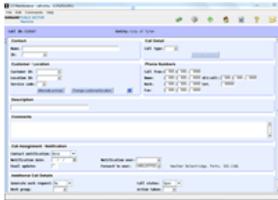
III. Definition:

IV. Procedure:

1. Receive a call, email or request
Answer the phone, read the email or write down request.
Open and log into HTE
Choose "Call Management" in CRM to enter call into the system and choose the option "enter call"



Enter the work order information into CRM



Once data is entered into CRM, open and log into MainTrac

SOP #	Form #	Originating Date	Revision Date	Revision #
		03/22/13		1

- *To implement MainTrac, procedural controls have been established.*

Control Phase

Monitor Cost Savings/Procedure



- *We will monitor the new process for a year following the implementation of the new work order system, which went live Oct. 1, 2013.*