Property Handling Process

Project Start: 10 / 2009
Project Revision: 8 / 2010
Project Champion: Diannia Jackson
Black/Green Belt: Jimmy Toler

Define Phase
1. Select Output Characteristics

- The Property Handling Process was identified in order to improve the long term storage, inventory, and tracking of property items submitted to the Tyler Police Department.

Define Phase
1. Select Output Characteristics

Property Process Breakdown

1. Initial Documentation and Handling of Property
2. Storage and Tracking of Property
3. Disposition of Property

1. Select Output Characteristics

- Initial Documentation and Handling of Property:
  - Includes:
    - Identification
    - Initial Handling and Collection
    - Transportation
    - Documentation
    - Packaging
    - Storage

Define Phase
1. Select Output Characteristics

- Types of Data
  1. Number of Cases Processed
  2. Number of Items Processed
  3. Number of Defects
     a. Type of Defect

Define Phase
1. Select Output Characteristics

- Week 1
  - 124 Cases
  - 349 Property Items
  - 51 Defects
    - 48 Documentation Defects
    - 3 Packaging Defects
  - 14.6% Defect Rate

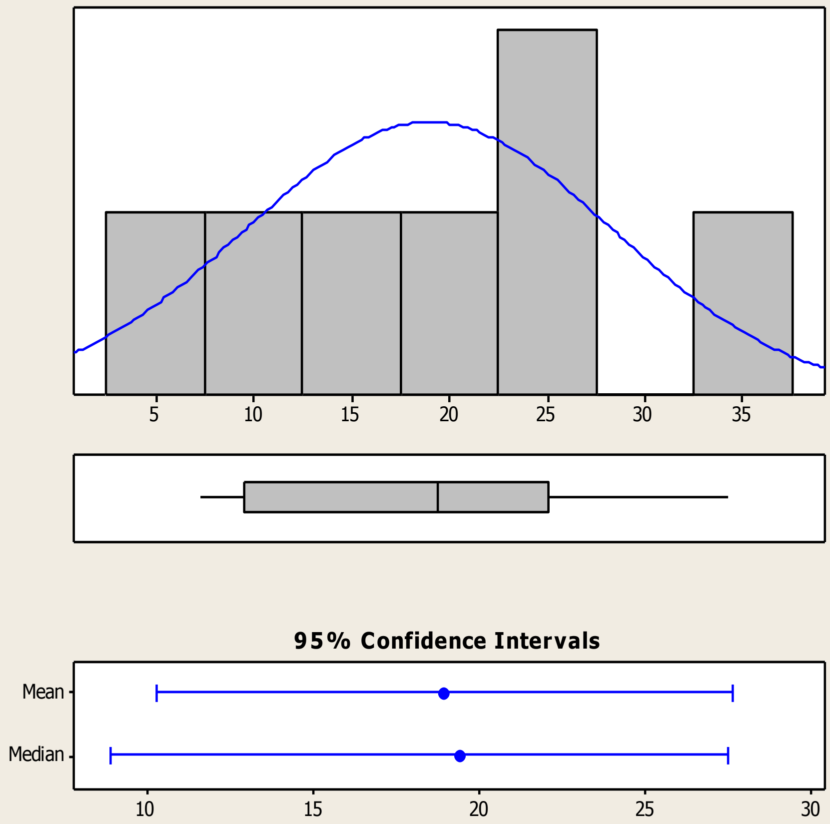
Define Phase
1. Select Output Characteristics

- Week 2
  - 96 Cases
  - 313 Property Items
  - 72 Defects
    - 71 Documentation Defects
    - 1 Packaging Defects
  - 22.7% Defect Rate

Define Phase

1. Select Output Characteristics

Summary for Percent Defective Per Day

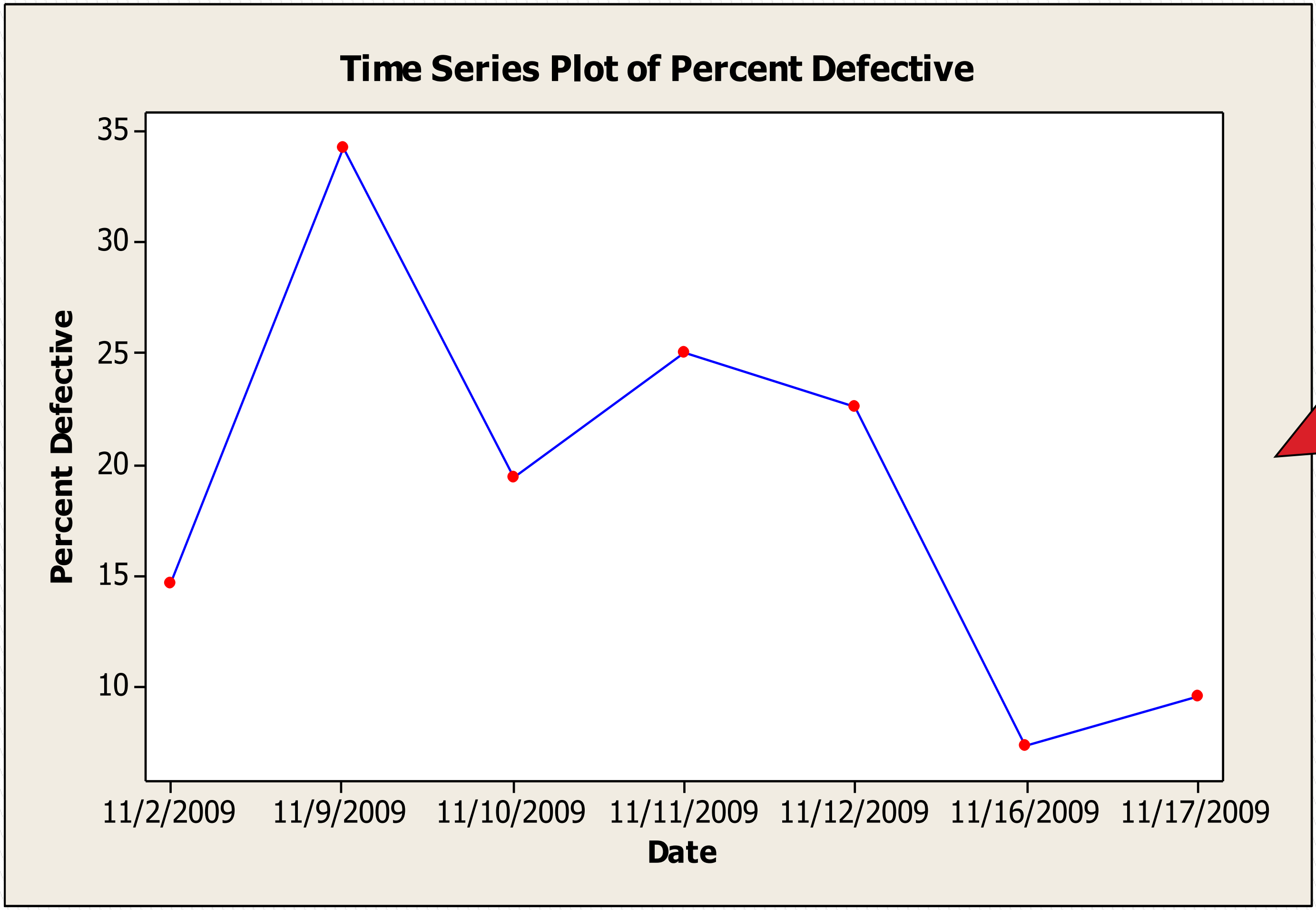


Anderson-Darling Normality Test	
A-Squared	0.17
P-Value	0.899
Mean	18.961
StDev	9.355
Variance	87.511
Skewness	0.378381
Kurtosis	-0.401463
N	7
Minimum	7.353
1st Quartile	9.524
Median	19.444
3rd Quartile	25.000
Maximum	34.211
95% Confidence Interval for Mean	
10.309	27.612
95% Confidence Interval for Median	
8.945	27.456
95% Confidence Interval for StDev	
6.028	20.600

Average defects per day = 18.961

Standard Deviation = 9.355

Define Phase
1. Select Output Characteristics



Time Series Chart reflects the percent (%) of defects per day

Define Phase
2. Define Performance Standards

Project Charter

Project Authorization

Organization:	Champion:	Process Owner:
Police	Dianna Jackson	Steve Sharron

Project:	Project #:
Improve Initial Processing of Property	

Problem Statement:

Since 11/02/2009, the initial data reveals that 18.961% of submitted items has a defect. The defect rate includes documentation and packaging errors associated wtih items submitted to the property unit of the Tyler Police Department.

Project Objective:

Our objective is to imrove the initial documentation, handling and processing of property by reducing the number of defects (documentation and packaging) by 75 % from 18.961% to 4.74%.

Estimated Defect Level:	Initial Goal:	Estimated Benefits:
20%	5%	

Approval Date:	Champion Signature:	Process Owner Signature:

Estimated Completion Date:	Project Leader:	Financial Analyst:
	Jimmy Toler	

The problem statement identifies the purpose of the project.

The project objective identifies a goal of a 75% reduction in defects.

Measure Phase

4. Establish Baseline Process Capability

- Initial Capability Analysis

Attribute Capability

Confidence -->	0.95
Units -->	1,047
Opportunities -->	1
TOP's -->	1,047
Defects -->	188

Sample data is:
- (•) Short Term
- ( ) Long Term

Confidence Interval is:
- ( ) One-sided
- (•) Two-sided

Initial Process represented a Sigma Level of .92

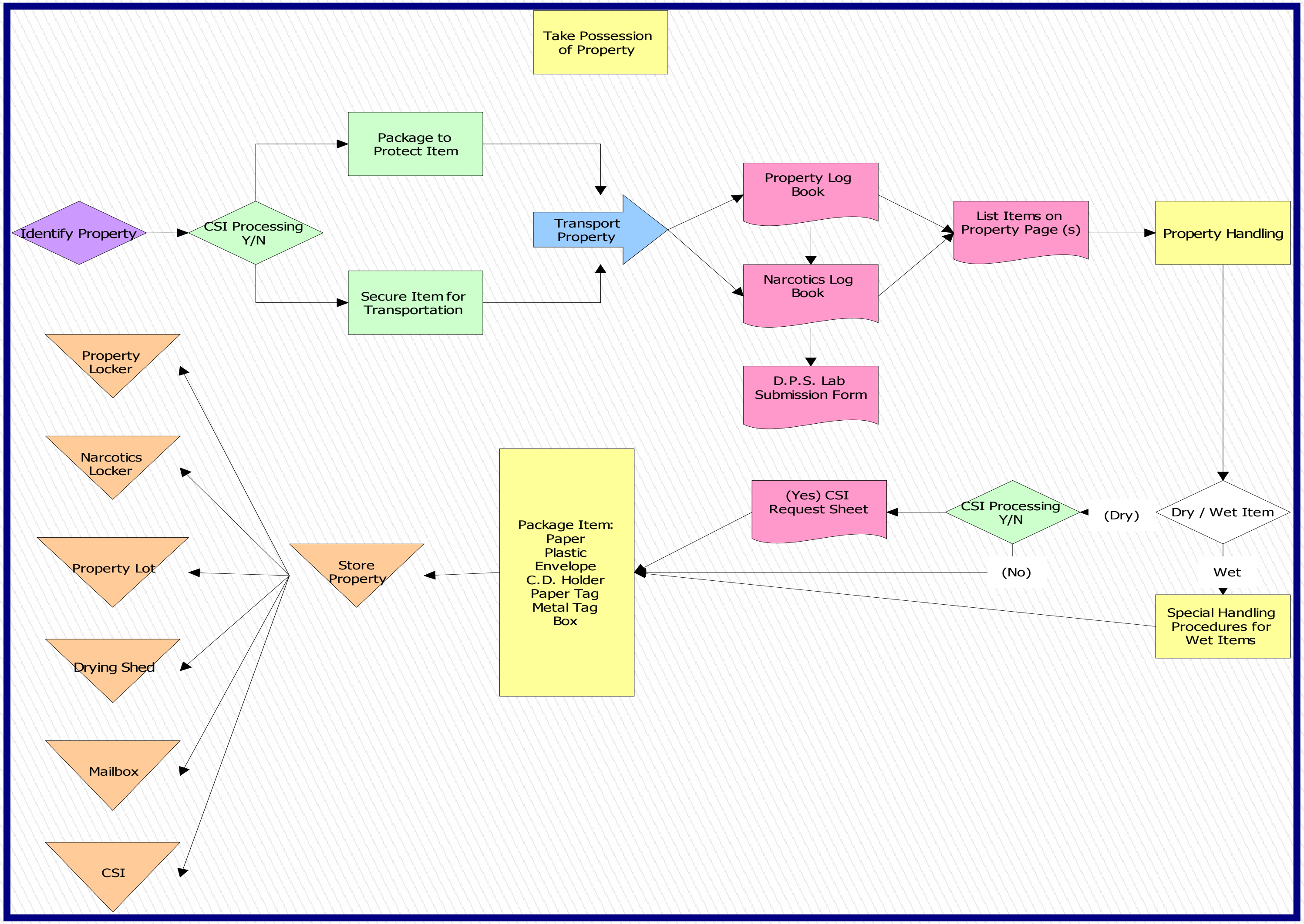
Short Term Capability

	p(d)	Percent	ppm	Cpk	Z		Defects	
Upper Limit on Failure Rate	0.2042	20.4%	204,177	0.28	0.83	"worst case" =>	214	95%
Nominal Value	0.1796	18.0%	179,561	0.31	0.92	<= "best estimate"		Confidence
Lower Limit on Failure Rate	0.1568	15.7%	156,761	0.34	1.01	<= "best case"=>	164	Interval

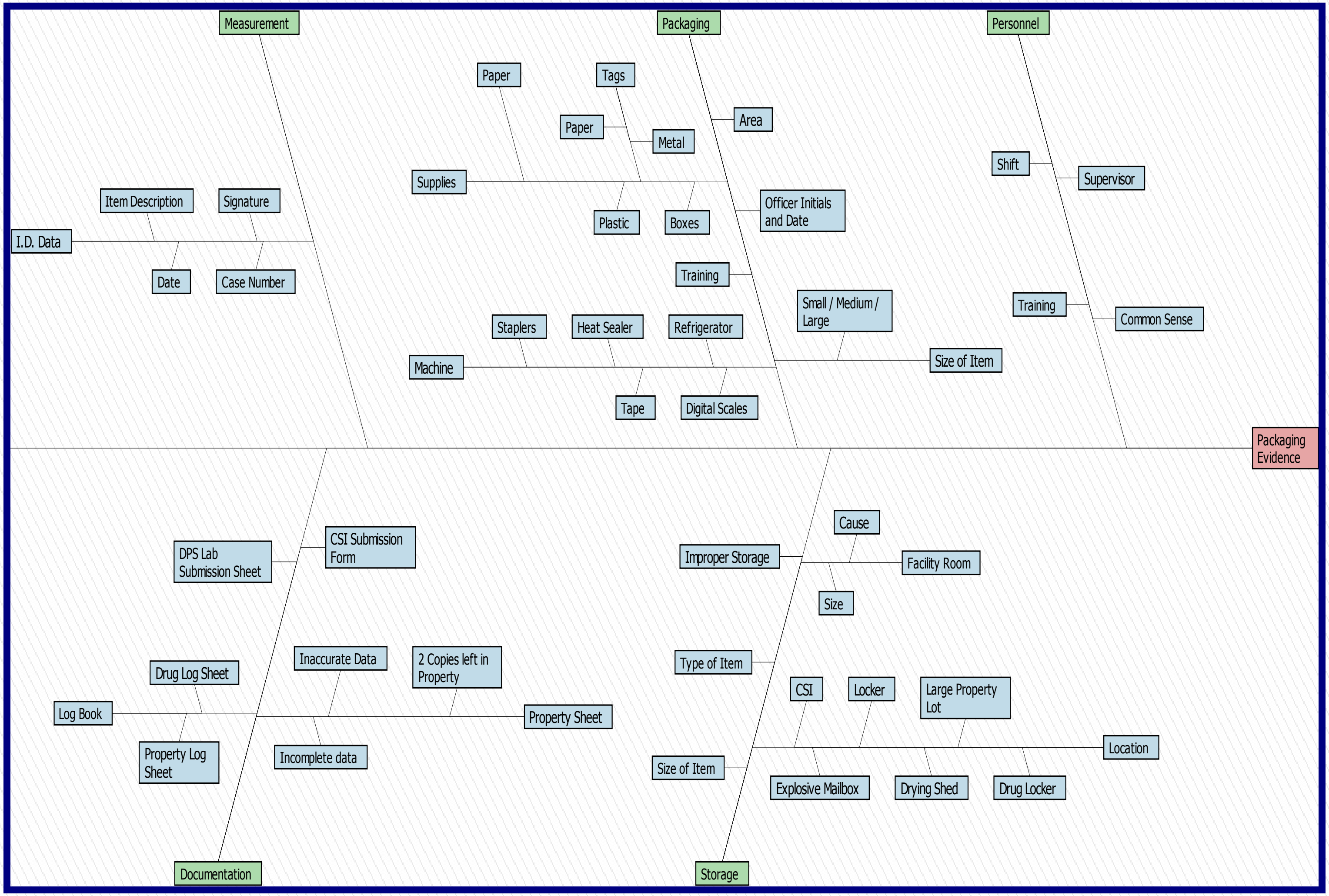
Estimated Long Term Capability (shifted by 1.5 sigma)

	p(d)	Percent	ppm	Ppk	Z
Nominal Value	0.7200	72.0%	720,040	-0.19	-0.58

Measure Phase
6. Identify Variation Sources



Measure Phase
6. Identify Variation Sources



Measure Phase
6. Identify Variation Sources

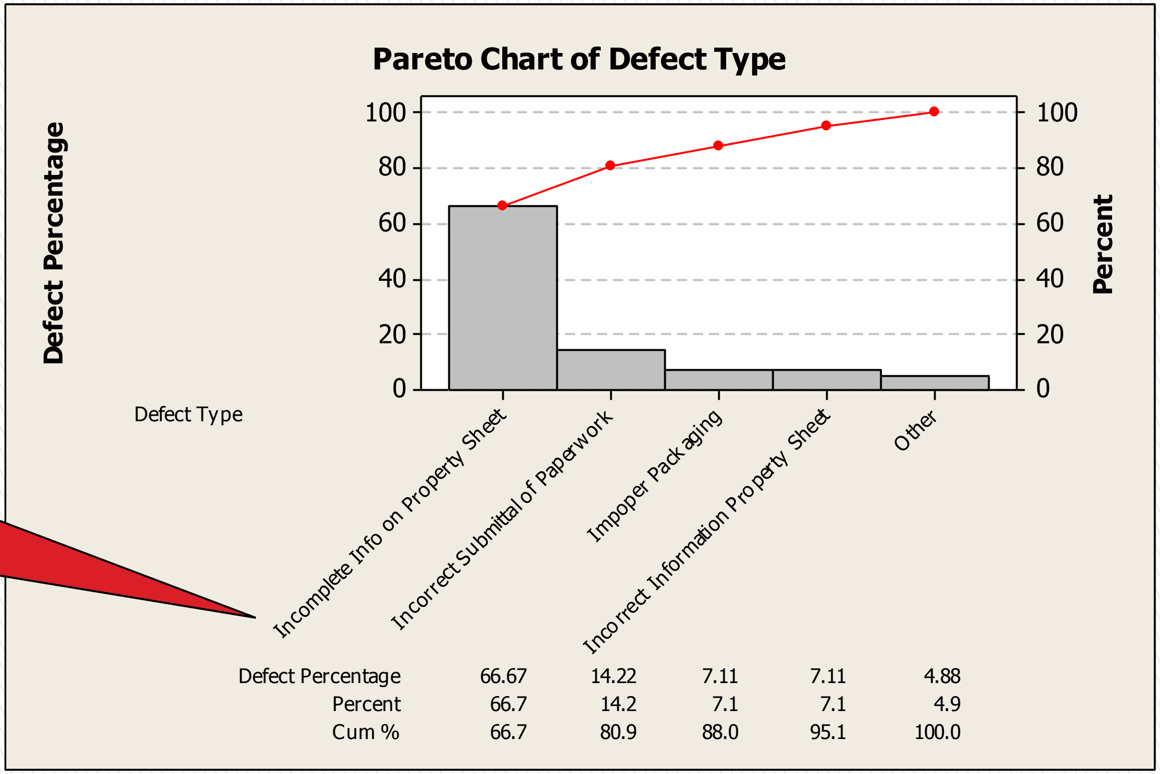
- Preparing FMEA

Process/Product
Failure Modes and Effects Analysis
(FMEA)

Process or Product Name:	Improve Property Procedures	Prepared by: Jimmy Toler	
Responsible:	Jimmy Toler	FMEA Date (Orig) 11-25-2009 (Rev)	

Process Step	Key Process Input	Potential Failure Mode	Potential Failure Effects	SEV	Potential Causes	OCC	Current Controls	DET	RPN	EOC
Initial Identification		Evidence not maintained / Evidence lost.	Loss of Evidence.		Improper Handling		General Orders		0	
Initial Identification		Property Item Damaged	Pay for damaged propertly item.		Improper Handling		General Orders		0	
Property Log Book		Incomplete information listed in log book.	Loss of propert tracking.		Officer fails to list information in log book.		Property Manual		0	
Property Log Book		Incorrect inforation listed in log book.	Loss of property trackikng.		Officer lists the incorrect information in the log book.		SOP		0	
Narcotics Log Book		Incomplete information listed in log book.	Loss of property trackikng.		Officer fails to list information in log book.		SOP		0	
Narcotics Log Book		Incorrect inforation listed in log book.	Loss of property trackikng.		Officer fails to list information in log book.		SOP		0	
Narcltics Log		No weight listed in log book.	Loss of property trackikng.		Officer fails to list weight in the log book.		SOP		0	
D.P.S. Submission Form		Incomplete information listed on sheet.	Lack of information for analysis.		Officer not properly listing information on sheet.		SOP		0	
D.P.S. Submission Form		Failure to submit submission for for items going to the lab.	Lack of documentation to submit property item to the lab for analysis.		Officer failing to complete the required form.		SOP		0	
D.P.S. Submission Form		Failure to submit submission form for items going to the lab.	Lack of documentation to submit property item to the lab for analysis.		Officer noth nowing that the form is required.		SOP		0	

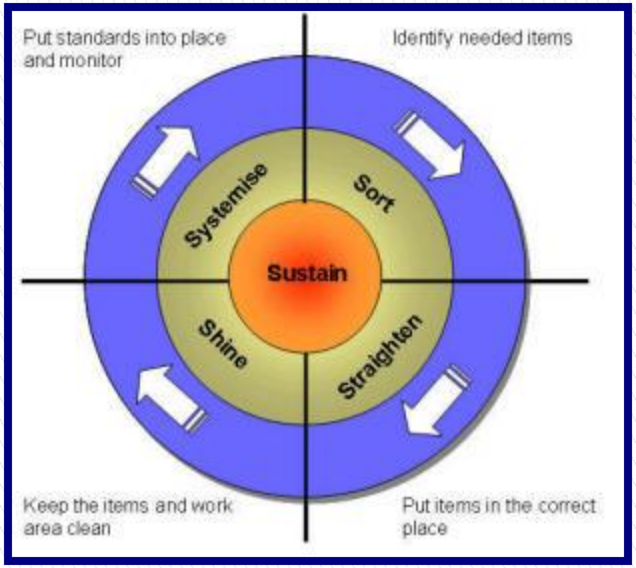
- Classification of Defects



The highest rate of defect is associated with documentation errors (88%).

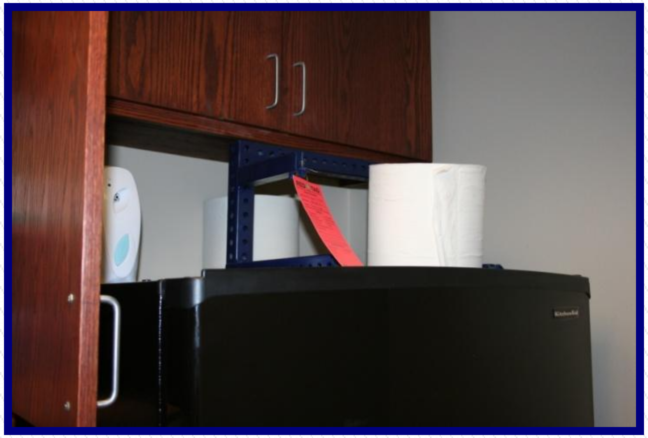
Improve Phase
9. Implement Improvements

- Sort, Stabilize, Shine, Standardize, Sustain



Improve Phase
9. Implement Improvements

- Sort



Improve Phase
9. Implement Improvements

- Stabilize

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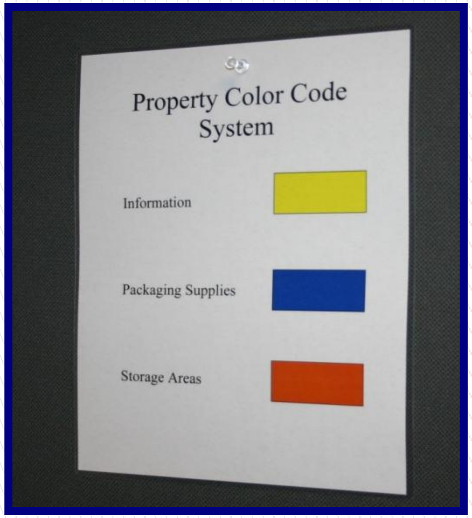
- Shine

After

Before

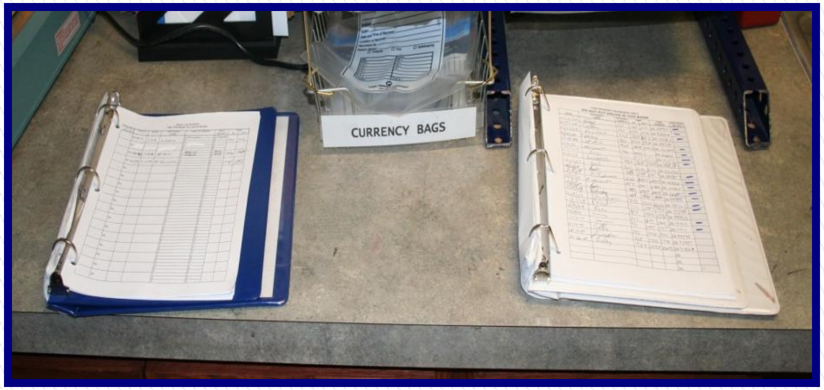
Improve Phase
9. Implement Improvements

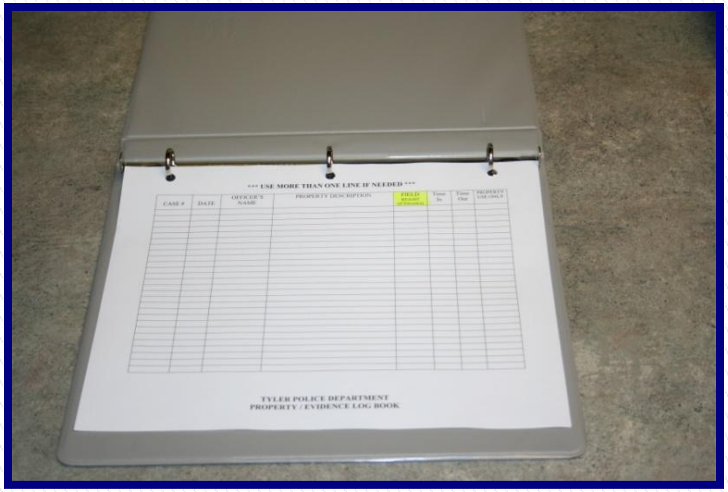
- Standardize



Improve Phase
9. Implement Improvements

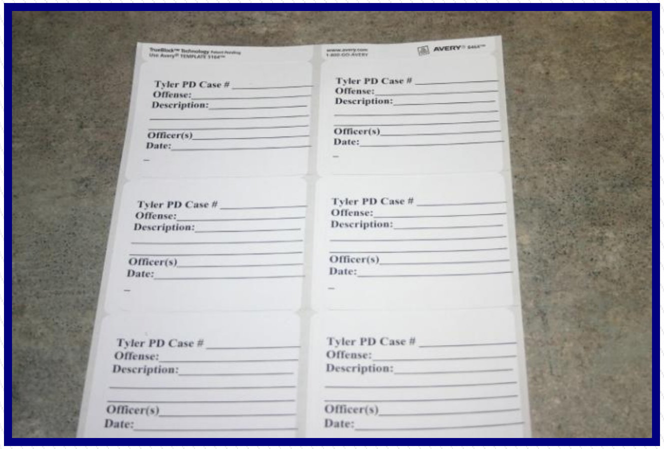
- Property Log Book





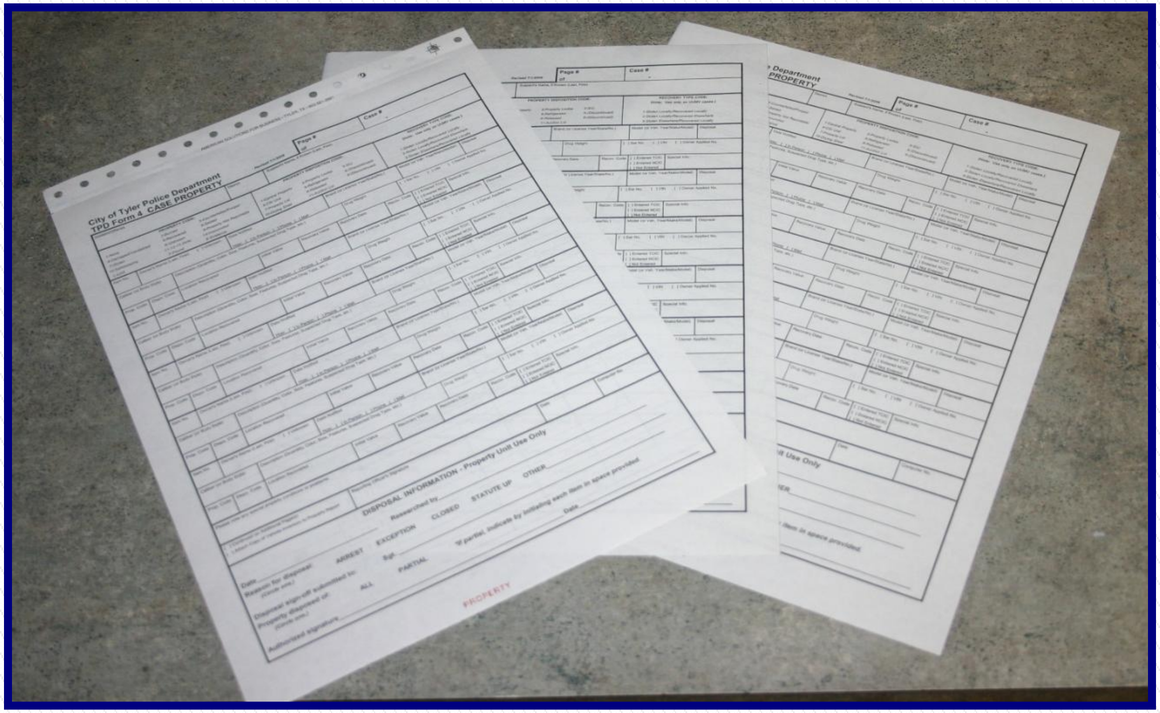
Improve Phase
9. Implement Improvements

- Packaging Materials / Supplies / Equipment



Improve Phase
9. Implement Improvements

- Property Page Submission

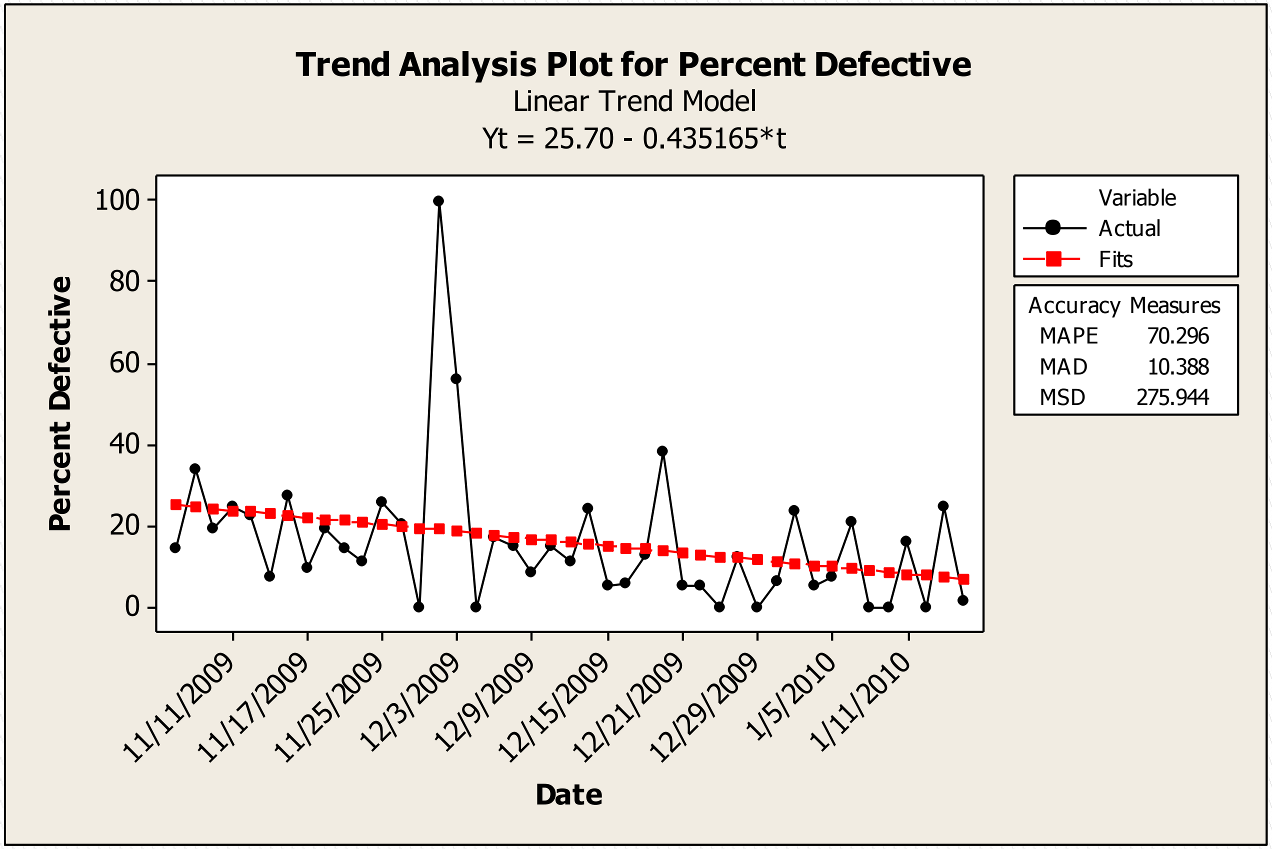


- Property Corrections List

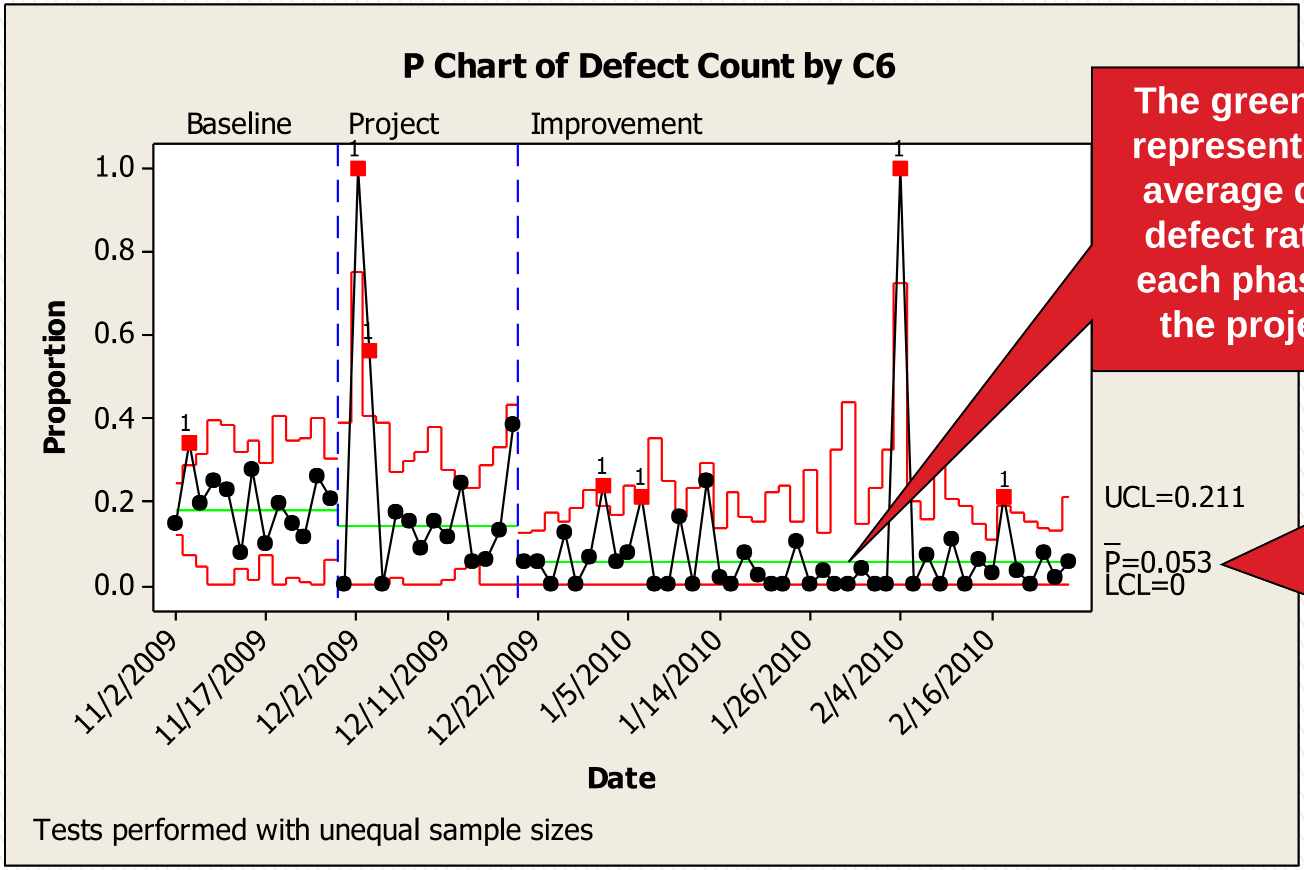
TYLER POLICE DEPARTMENT
Property / Evidence Correction List
Date: ______01.20.10___________
Prepared By: ___J. Williamson______

OFFICER'S NAME	DATE	CASE NUMBER	CORRECTION NEEDED
Crawley, John	1.20.10	10-1685	Item #13 Blk AT&T LG Cell phone no model or Serial # listed on property sheet

- Overall Trend (Percent Defective / Day)



- Percent Defect for Each Phase of Project

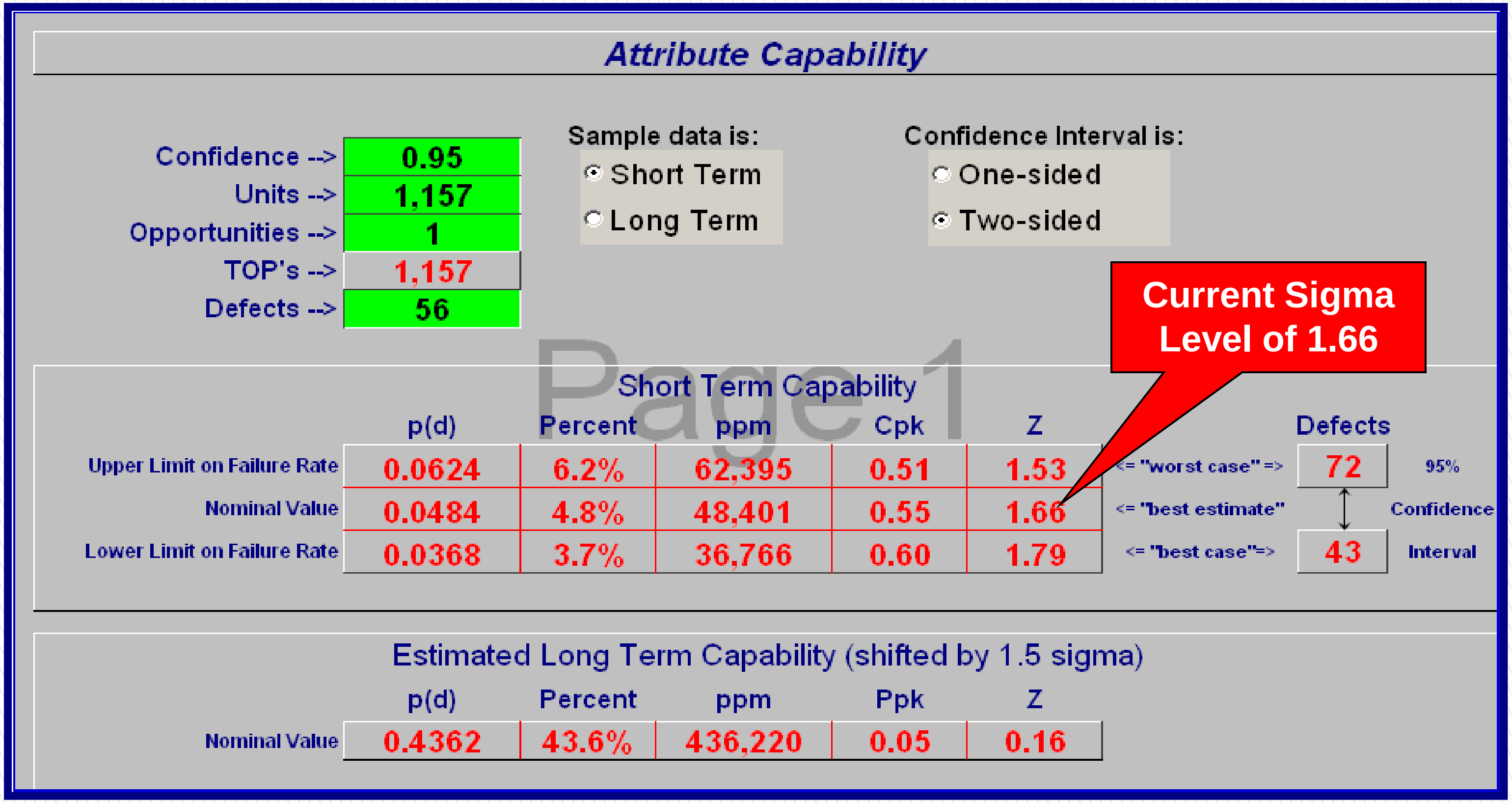


The green line represents the average daily defect rate in each phase of the project.

The average daily defect rate has decreased to 5.3% over time. This represents a 71.9% improvement.

Improve Phase

11. Determine Final Process Capability



	% Defective	PPM (ST)	CPK	Sigma
Initial	18%	179,561	.31	.92
Goal	4.8%	44,890	.54	1.61
Improvement	4.8%	48,401	.55	1.66

- Control Plan

Six Sigma Process Control Plan

Process Name:	Improve Intital Property Procedures	Prepared by:	Lt. Jimmy Toler	Page:	1 of 1
Customer	Assistant Chief Steve Sharron Int/Ext ___	Approved by:		Document No:	
Location:	Tyler Police Department	Approved by:		Revision Date:	2/25/2010
Area:	Property / Evidence	Approved by:		Supercedes:	

Process Step	Sub Process Step	CTQ KPOV	CTQ KPIV	Specification Characteristic	Specification / Requirement USL	Specification / Requirement LSL	Measurement Method	Sample Size	Frequency	Who Measures	Where Recorded	Decision Rule/ Corrective Action	SOP Reference
Enter Property / Evidency Area	Fill out property log book.			Accurately and Completely Fill out property log book.	Filled out properly		Visual	100% sample size	Daily	Property Technician	Property Log Book	Notification to Officer on Property Correction Form	Property Manual
Property Handling	List Items on Property Page (s)			Accurately and Completely Fill out property page.	Filled out properly		Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make	Property Manual
							P Chart	100% sample size	Daily	Property Technician	Property	Notification to Officer on Property Correction Form / Officer Must Make	Property Manual
	Dry Items			Safe processing of evidence.	Properly protected		Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction.	Property Manual
	Wet Items			Safe processing of evidence.	Properly protected		Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction.	Property Manual
	CSI Request Sheet			Locate and Analyze Evidence	Special Handling Procedures		Visual Inspection by Officer	As Needed	As Needed	Officer	CSI Request Sheet	CSI Sheet Properly Submitted to Crime Scene	Property Manual

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- Control Plan

Property Handling	List Items on Property Page (s)			Accurately and Completely Fill out property page.	Filled out properly	Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction.	Property Manual
						P Chart	100% sample size	Daily	Property Technician	Property	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction. Post results weekly.	Property Manual
	Dry Items			Safe processing of evidence.	Properly protected	Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction.	Property Manual
	Wet Items			Safe processing of evidence.	Properly protected	Visual	100% sample size	Daily	Property Technician	Property Correction Form	Notification to Officer on Property Correction Form / Officer Must Make Necessary Correction.	Property Manual
	CSI Request Sheet			Locate and Analyze Evidence	Special Handling Procedures	Visual Inspection by Officer	As Needed	As Needed	Officer	CSI Request Sheet	CSI Sheet Properly Submitted to Crime Scene	Property Manual

Control Phase
12. Implement Controls

- Property Manual Updates

TYLER POLICE DEPARTMENT

PROPERTY MANUAL

PROPERTY MANUAL (REVISED) 01/610

call Property Specialist can be located and come in to empty the full lockers.

Access to the PD Locker and Evidence Preparation Area (EPA) will be by an electronic access card (or a master key) that is issued to each officer.

P03.04 GENERAL PACKAGING PROCEDURES:

Upon entering the Evidence Preparation Area (EPA) to prepare / package evidence the officer and/or the supervisor will sign the appropriate log books when depositing property, noting their name, case number, date, description of items and time in and out.

1. Place the evidence and the property form in the locker and close the locker. All locker doors are self-locking and will be open when not in use. The officer will secure the property item and property sheet by closing the self-locking door.

2. There is one long locker for rifles, shotguns, and other extra long items submitted. Some smaller rifles may fit in the six half lockers that are available.

3. One locker has a slot cut in the front. This is for photos, videotapes, cassette tapes, checks, vehicle or bicycle paperwork, jewelry, currency, or anything that is small enough to fit through the slot. This slot is referred to as the drop slot.

4. Procedures for marking and packaging all evidence are provided in Chapter 4 of this manual. Packaging supplies, forms, tags, and heat sealer are provided in the Evidence Preparation Area.

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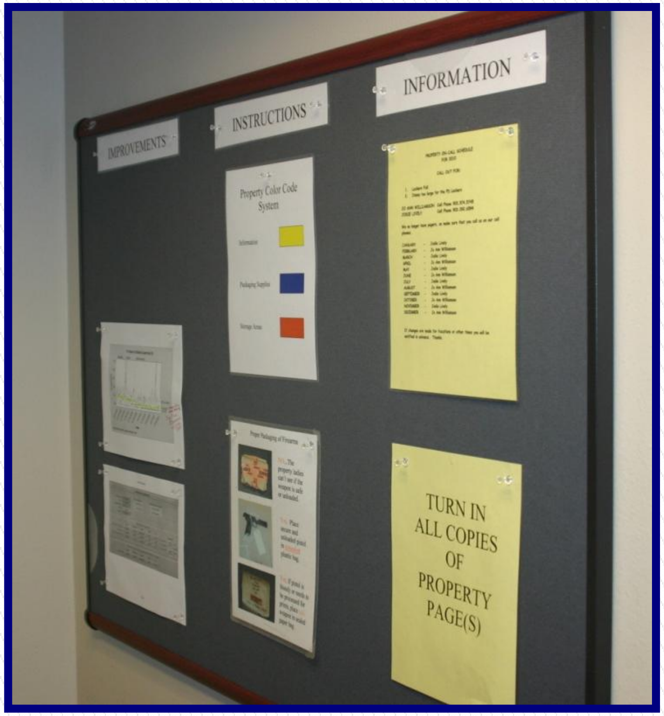
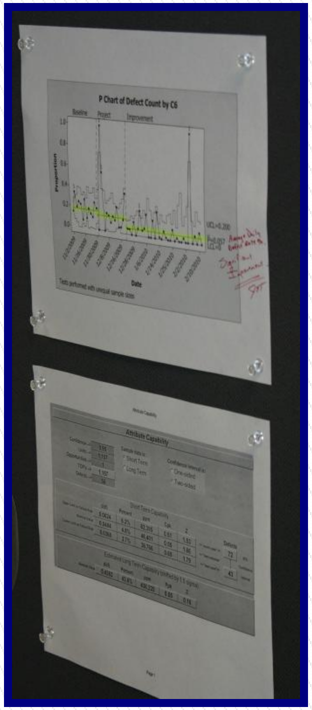
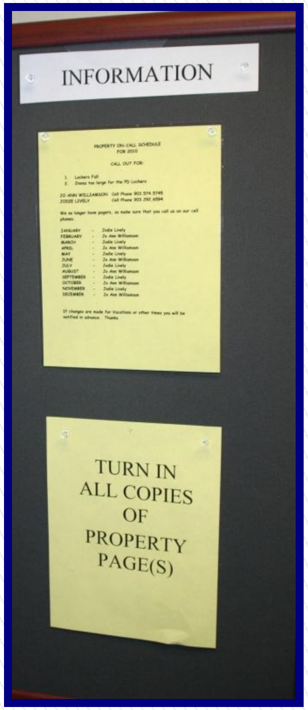
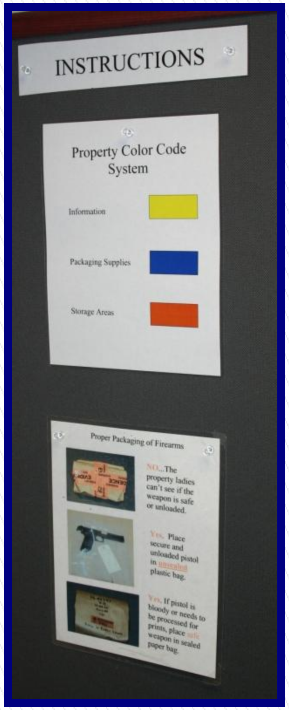
Control Phase
12. Implement Process Controls

- Sustain









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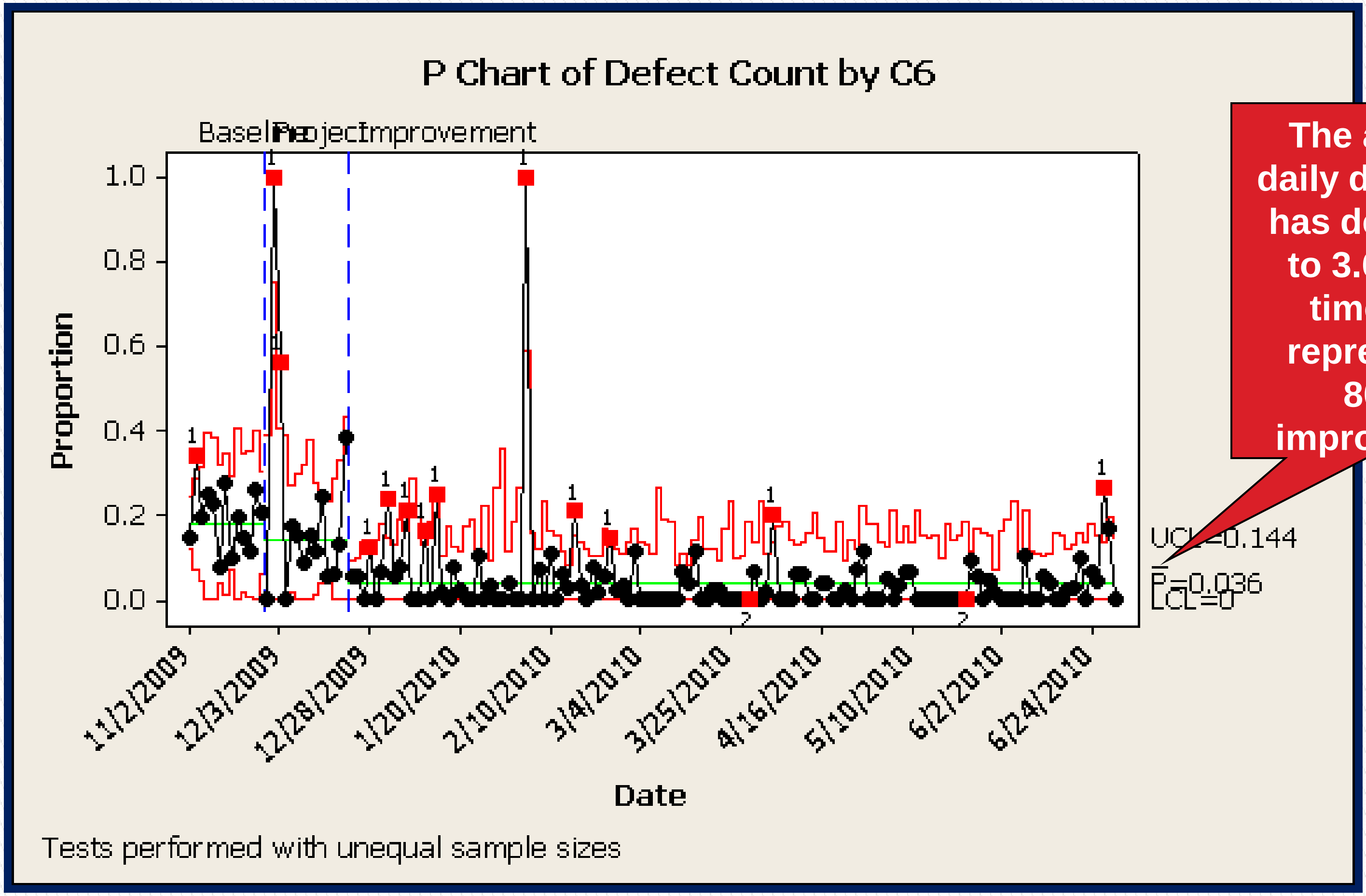
Control Phase
12. Implement Process Controls

- Cost
  - The potential savings based on a 75% improvement equal $10,904.46.
  - In addition, a 75% reduction in defects would provide time savings to officers and property technicians.

Control Phase
1. Implement Process Controls

- Percent Defect for Each Phase of Project



The average daily defect rate has decreased to 3.6% over time. This represents a 80.9% improvement.

Attribute Capability

Confidence -->	0.95
Units -->	3,474
Opportunities -->	1
TOP's -->	3,474
Defects -->	118

Sample data is:
- Short Term
- Long Term (selected)

Confidence Interval is:
- One-sided
- Two-sided (selected)

Current LT Sigma Level of 1.83

Long Term Capability

	p(d)	Percent	ppm	Ppk	Z		Defects	
Upper Limit on Failure Rate	0.0405	4.1%	40,540	0.58	1.74	<= "...st case" =>	141	95%
Nominal Value	0.0340	3.4%	33,967	0.61	1.83	<= "best estimate"		Confidence
Lower Limit on Failure Rate	0.0282	2.8%	28,194	0.64	1.91	<= "best case"=>	98	Interval

Estimated Short Term Capability (shifted by 1.5 sigma)

	p(d)	Percent	ppm	Cpk	Z
Nominal Value	0.0004	0.0%	441	1.11	3.33

- Property Data Costs and Savings

Initial Cost	$	14,539
Hard Time Savings	$	1,253
Soft Savings	$	14,876
Total Savings	$	16,129
Time Saved (Hrs)	84	

Data				Soft Dollar Calculations						Hard Savings				Time Savings			
Month	Number of Property Items	Number of Defects	Percent Defect	Baseline Defect Rate	Estimated Defects Based on Baseline	Evidence Cost for all Categories	Cost	Calculated Costs per Actual Defect	Soft Savings	Old labor Cost	Cost of Time	Cost	Hard Savings for Time Saved	Average Cycle Time to Repair (Hrs)	Estimated Time To Repair Estimated Defects (Hrs)	Estimated Time to Repair for Actual Defects (Hrs)	Time Saved (Hrs)
Jan-10	505	28	5.54%	19.38%	98	$ 6.44	$ 630	$ 180	$ 450	$ 15.00	$ 53	$ 15	$ 38	0.04	3.54	1.01	3
Feb-10	739	35	4.74%	19.38%	143	$ 6.44	$ 922	$ 225	$ 697	$ 15.00	$ 78	$ 19	$ 59	0.04	5.18	1.27	4
Mar-10	1095	22	2.01%	19.38%	212	$ 6.44	$ 1,367	$ 142	$ 1,225	$ 15.00	$ 115	$ 12	$ 103	0.04	7.67	0.80	7
Apr-10	648	20	3.09%	19.38%	126	$ 6.44	$ 809	$ 129	$ 680	$ 15.00	$ 68	$ 11	$ 57	0.04	4.54	0.72	4
May-10	487	13	2.67%	19.38%	94	$ 6.44	$ 608	$ 84	$ 524	$ 15.00	$ 51	$ 7	$ 44	0.04	3.41	0.47	3
Jun-10	862	26	3.02%	19.38%	167	$ 6.44	$ 1,076	$ 167	$ 908	$ 15.00	$ 91	$ 14	$ 77	0.04	6.04	0.94	5
Jul-10	965	21	2.18%	19.38%	187	$ 6.44	$ 1,204	$ 135	$ 1,069	$ 15.00	$ 101	$ 11	$ 90	0.04	6.76	0.76	6
Aug-10	824	14	1.70%	19.38%	160	$ 6.44	$ 1,028	$ 90	$ 938	$ 15.00	$ 87	$ 8	$ 79	0.04	5.78	0.51	5
Sep-10	589	5	0.85%	19.38%	114	$ 6.44	$ 735	$ 32	$ 703	$ 15.00	$ 62	$ 3	$ 59	0.04	4.13	0.18	4
Oct-10	989	9	0.91%	19.38%	192	$ 6.44	$ 1,234	$ 58	$ 1,176	$ 15.00	$ 104	$ 5	$ 99	0.04	6.93	0.33	7
Nov-10	890	7	0.79%	19.38%	172	$ 6.44	$ 1,111	$ 45	$ 1,066	$ 15.00	$ 94	$ 4	$ 90	0.04	6.24	0.25	6
Dec-10	810	12	1.48%	19.38%	157	$ 6.44	$ 1,011	$ 77	$ 934	$ 15.00	$ 85	$ 7	$ 79	0.04	5.68	0.43	5
Jan-11	739	9	1.22%	19.38%	143	$ 6.44	$ 922	$ 58	$ 864	$ 15.00	$ 78	$ 5	$ 73	0.04	5.18	0.33	5
Feb-11	741	14	1.89%	19.38%	144	$ 6.44	$ 925	$ 90	$ 835	$ 15.00	$ 78	$ 8	$ 70	0.04	5.19	0.51	5
Mar-11	1400	8	0.57%	19.38%	271	$ 6.44	$ 1,747	$ 52	$ 1,696	$ 15.00	$ 147	$ 4	$ 143	0.04	9.81	0.29	10
Apr-11	916	5	0.55%	19.38%	178	$ 6.44	$ 1,143	$ 32	$ 1,111	$ 15.00	$ 96	$ 3	$ 94	0.04	6.42	0.18	6