

Ohio State Highway Patrol



Chemistry Process Study Kaizen Event Report Out

August 8-12, 2011

ChemZen



The Team

- Todd Lee, Assistant Commander
- Tammy Qualls, Quality Assurance Administrator
- Brandon Werry, Crime Lab Director
- Jeff Turnau, Criminalist
- Heather Sheskey, Criminalist
- Mark Hiatt, Criminalist
- Lisa Crow, Criminalist
- Kara Klontz, Criminalist
- Lynne Strainic, Criminalist
- Jacqueline Smith, Criminalist
- Marlene Brightwell, Intake/Administrative Assistant
- Theresa Martelli, OSHP, Human Resources Department
- Dana Warner, BMV



Facilitators: Bill Demidovich, Steve Wall, Gloria Calcara, Sue Kirby, Rich Martinski

Leadership

Senior Leadership:

Tom Charles, Director of the Department of Public Safety
Craig Mayton, Assistant Director

Sponsor: Colonel John Born

Team Leader: Lieutenant Todd E. Lee

Subject Matter Experts:

Bridget Koontz, Legal

Joe Polley, IT

Major Paul Pride, Criminal Patrol

Joe Canepa, Chief Legal Counsel

Keith Albert, IT

Background

- The OSHP Crime Laboratory accepts evidence submissions from law enforcement agencies throughout Ohio.
- The submission form includes a description of evidence, a chain of custody and a request for analysis.
- The submission starts with the Intake section ... it's entered into LIMS ... given a lab number for tracking ... placed in a holding room ... and assigned to a criminalist.
- Criminalist takes the submission to the appropriate laboratory, analyzes the evidence, and enters results into LIMS.
- The data and report are technical and administratively reviewed for accuracy. Then the report are generated and made available on-line for OSHP officers. Reports for outside agencies are printed in hard copy and mailed.

Stakeholders

- Ohio Department of Public Safety
- Ohio State Highway Patrol Officers
- External Law Enforcement Agencies
 - Ohio Investigative Unit
 - Courts
 - Attorneys

Reasons for improving this process:

Process Goals

- Reduce backlog by 50%.
- Issue reports on felony cases within 30 days.
- Improve customer and employee satisfaction.

Scope of Event

The **PROCESS** begins when a submission enters the crime laboratory and ends when the customer receives the final report.

The **PURPOSE** of this event is to reduce the drug chemistry processing time and to improve customer satisfaction while maintaining quality.

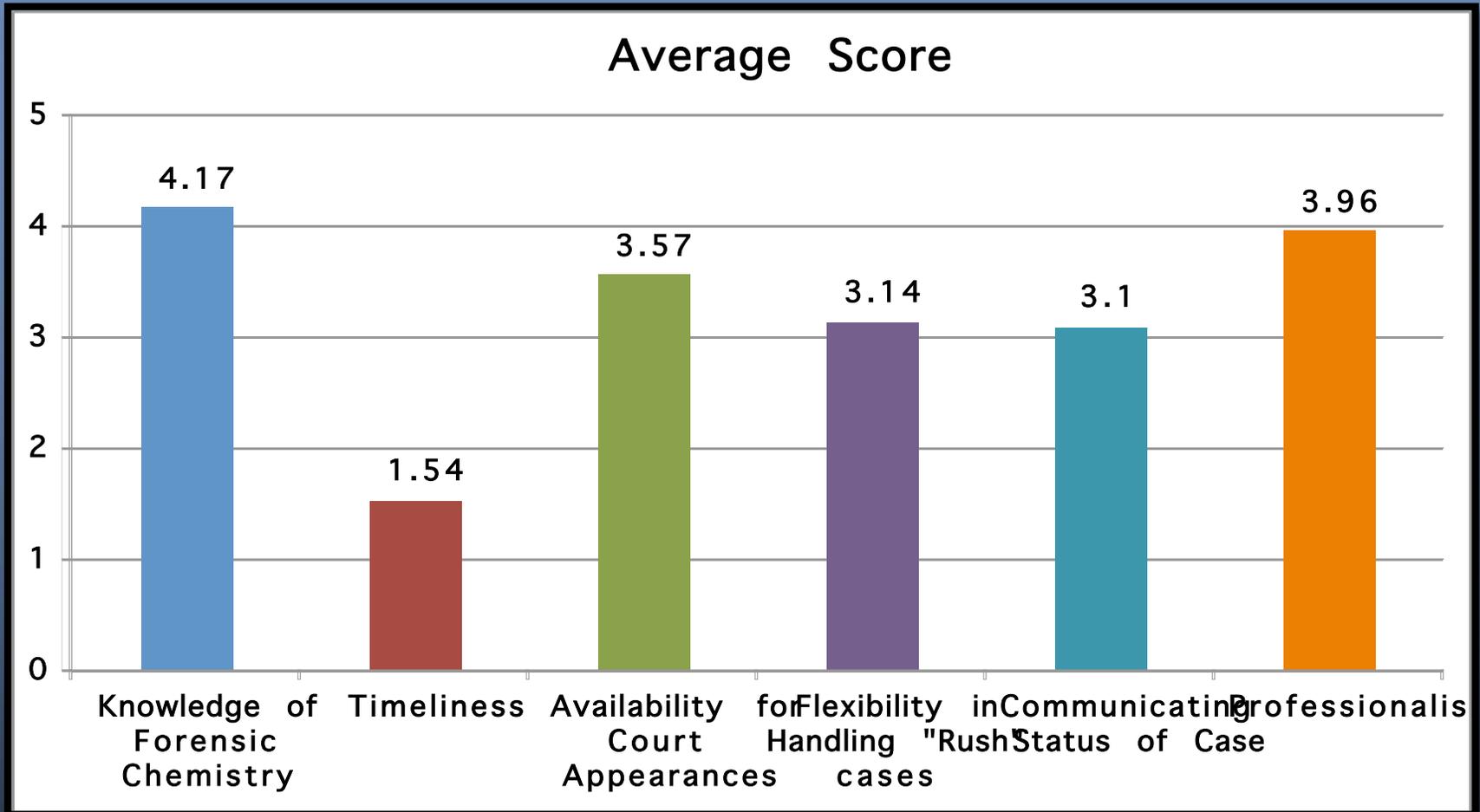


Out of Scope

Areas that will NOT change as a result of the Kaizen event :

- No one loses their job because of the Kaizen event, but duties may be modified.
- Need for additional personnel is independent of the process.
- Need for additional money is independent of the process.
- No legislative changes or changes to collective bargaining agreement.
- IT solutions are independent of the process.

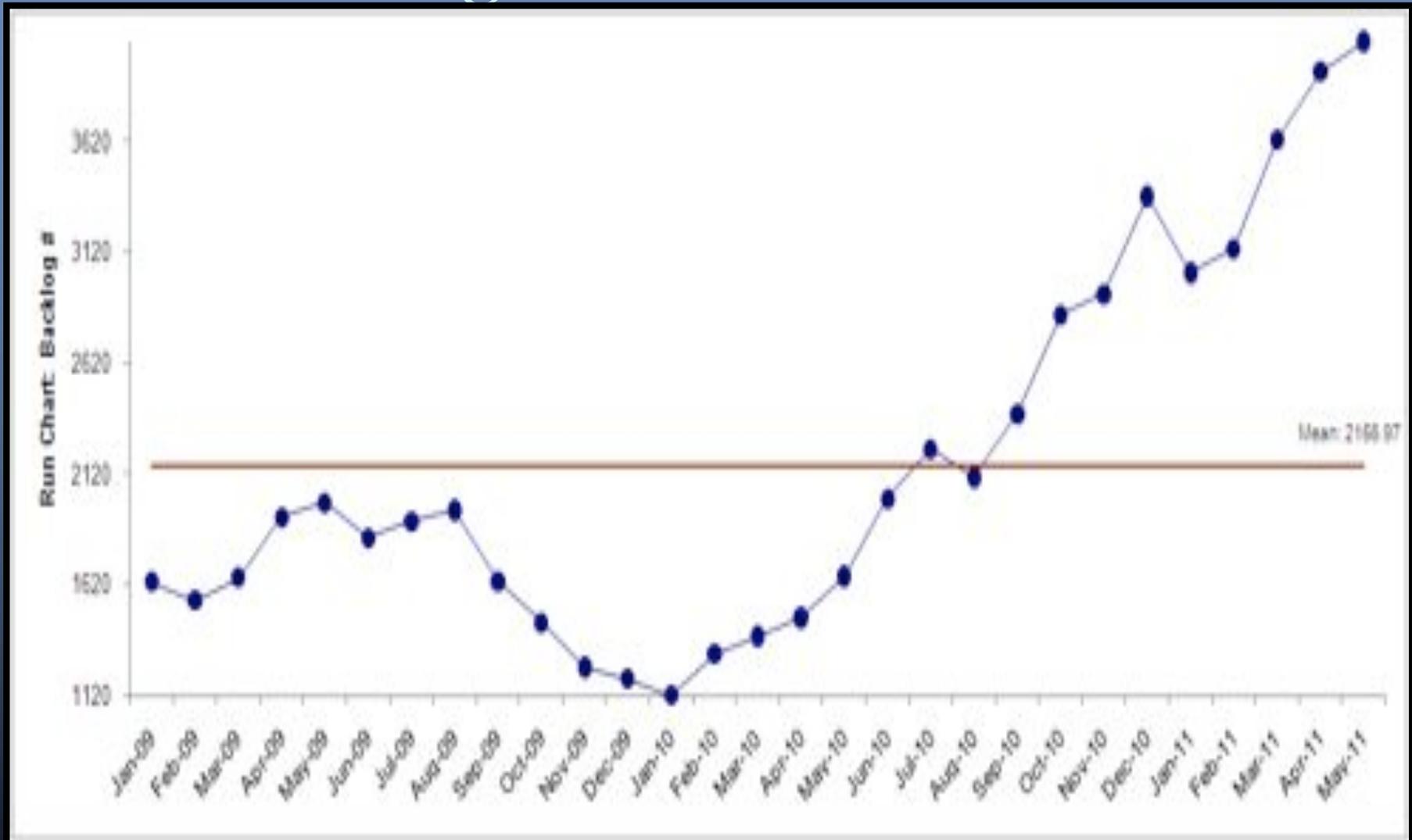
Voice of the Customer



Respondents were asked to rate the performance of the lab on 6 different indicators. The lab received the highest scores in **“Knowledge of Forensic Chemistry”** and **“Professionalism”** ... and lowest **“Timeliness.”**

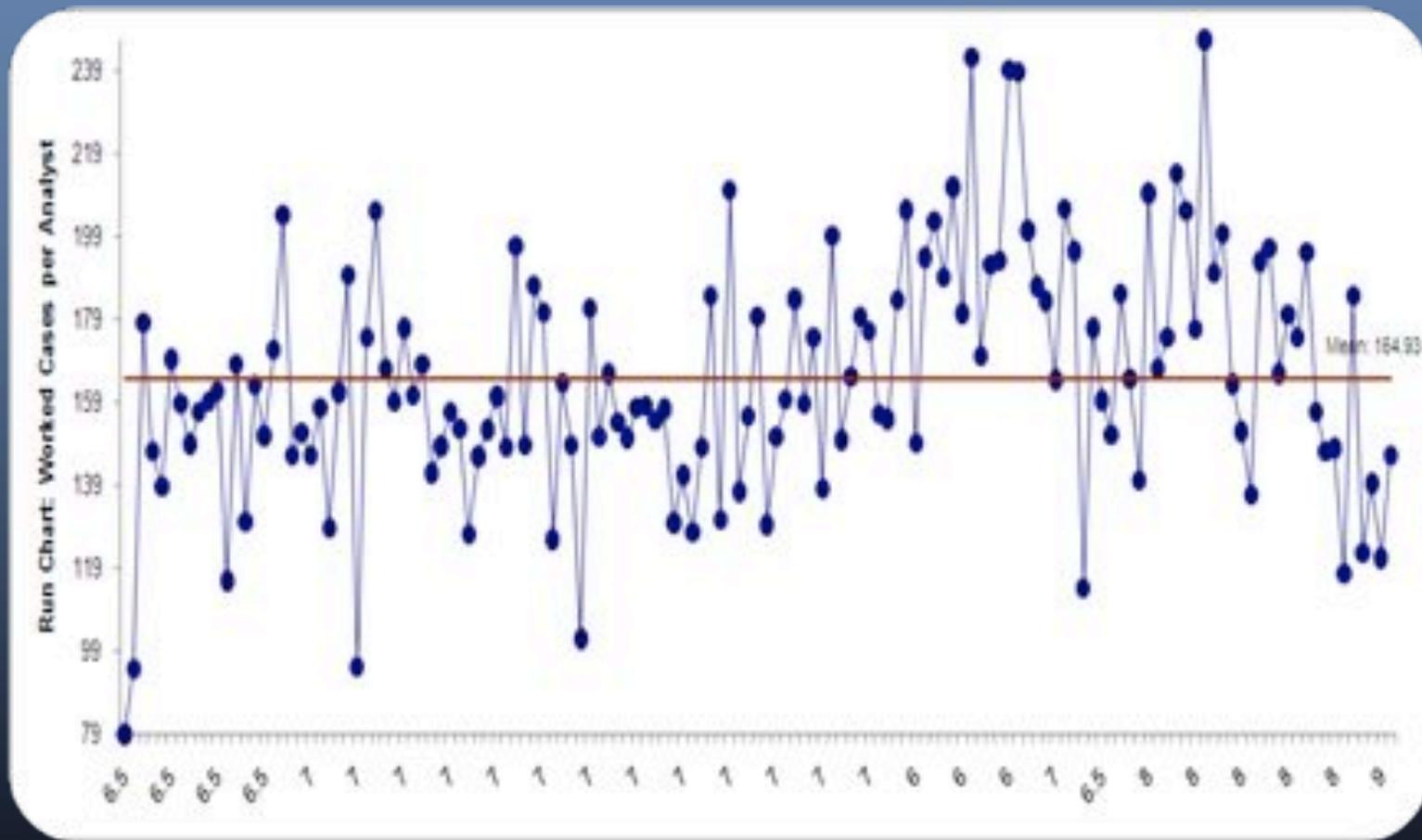
Case Backlog

At last count = 4,069



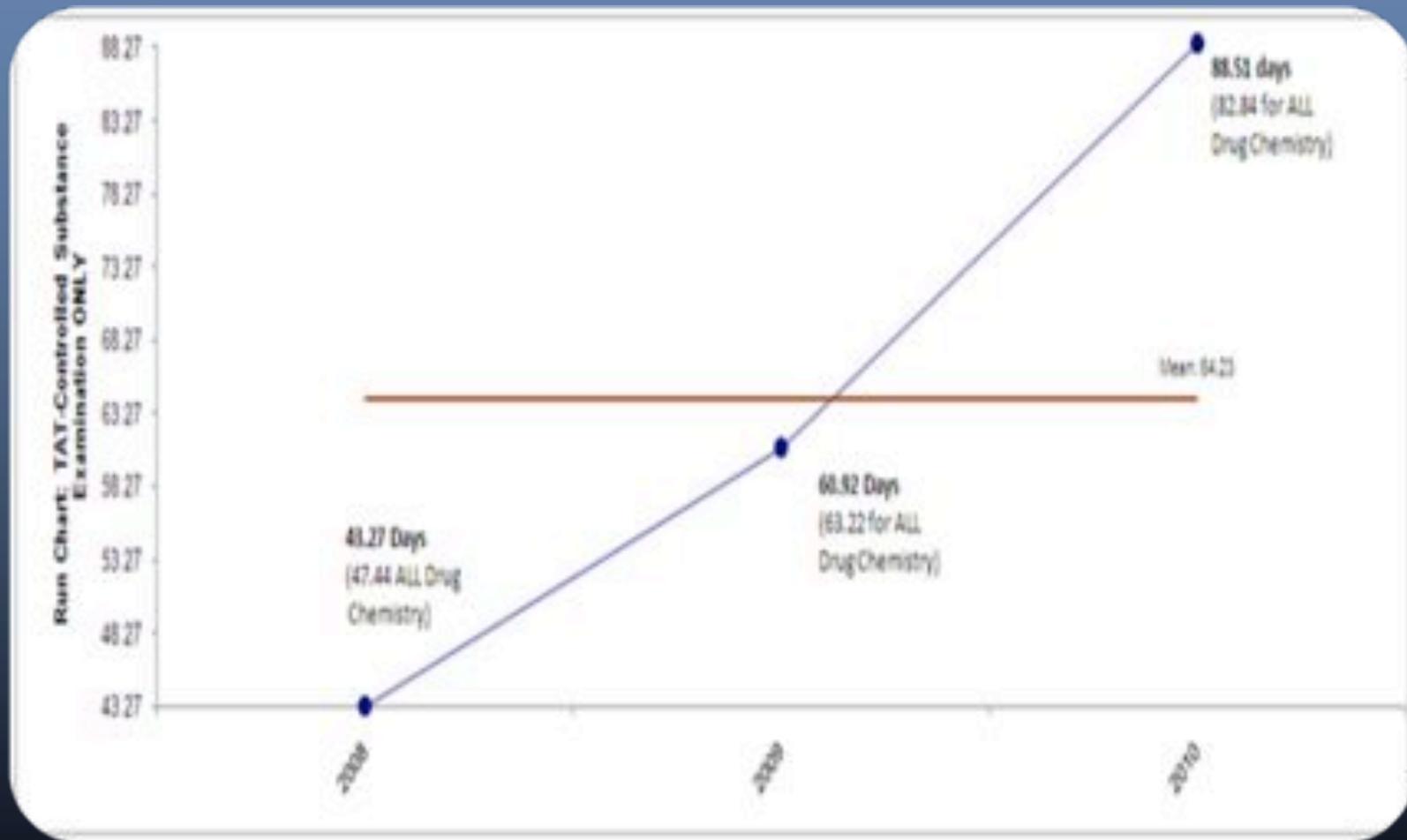
Case Worked by Criminalist

1.5 cases per hour – marijuana
0.5 cases per hour – non marijuana

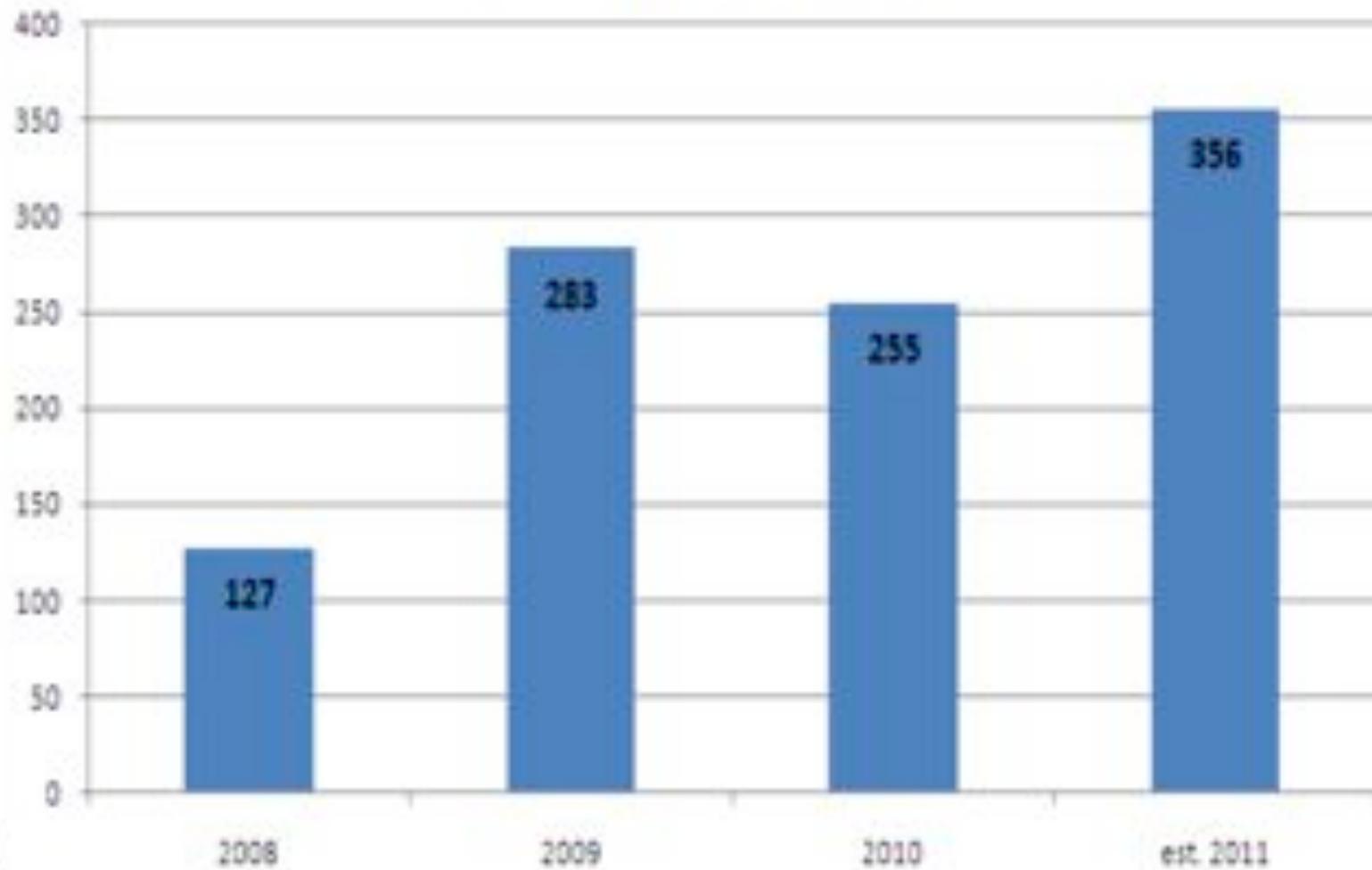


Case turn-around-time (TAT)

88.51 days



Overtime Hours (with estimate for 2011)



Measures of Success

Measure		Current Level	Target	Gap
Spending/Costs	Overtime	\$47,000	0	100%
Backlog		4,069 cases	0	100%
Lead Time		83 days	14 days	69 days
Customer Service	Quality	3.39	50% improvement	
	Timeliness	1.54		
	Satisfaction	2.81		

The Kaizen Approach

Team-based energy and creativity drives immediate process improvement

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Day of Learning	Day of Discovery & Developing Improvement Ideas	Day of Improvement & Creating the New process	Day of Design Implementation & Documentation	Day of Celebration & Results Schedule 30-60-90-day follow-ups

At the end of the week, each Kaizen team has designed dramatic operational improvements

KAIZEN: To Break Apart for the Better

- Clear objectives
- Team process
- Tight focus on time (one week)
- Quick and simple, action first
- Necessary resources available right away
- Immediate results (end of week)

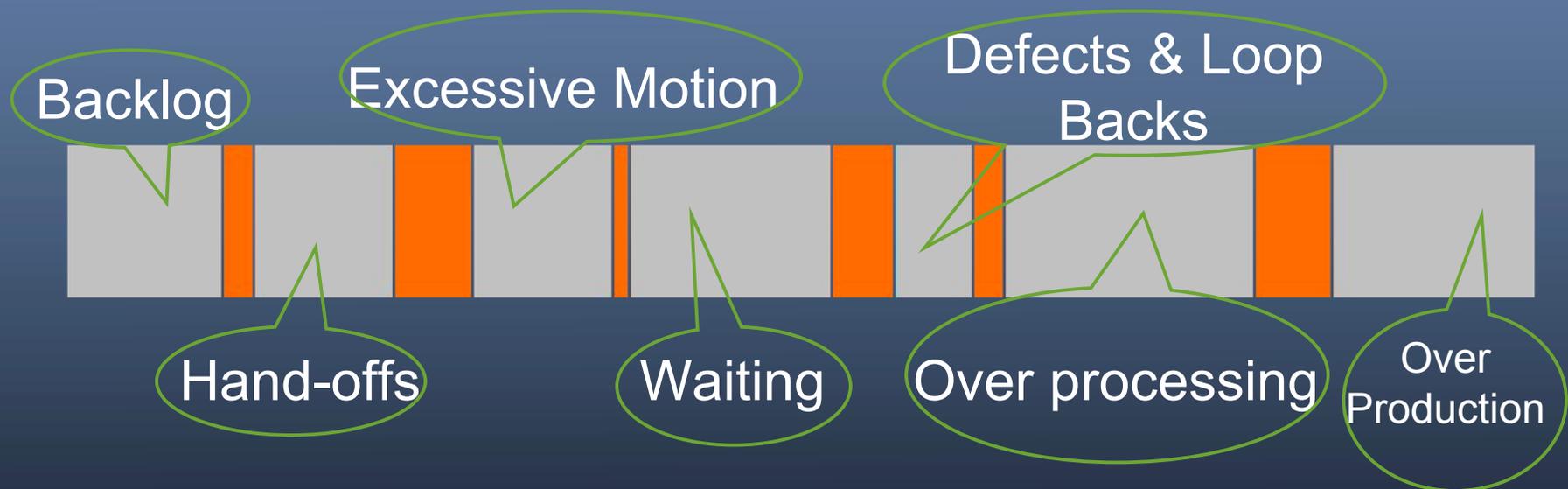


OSHP CRIME LAB
KAIZEN

Lead-time Reduction

Wasted Time and Activity

Core Process Value Added



TIM WOOD – Transportation, Information, Motion, Waiting,
Overproduction, Over processing, Defects

Current-State Process Map



136 steps
27 decisions

17 handoffs
7 delays

The original processes had:

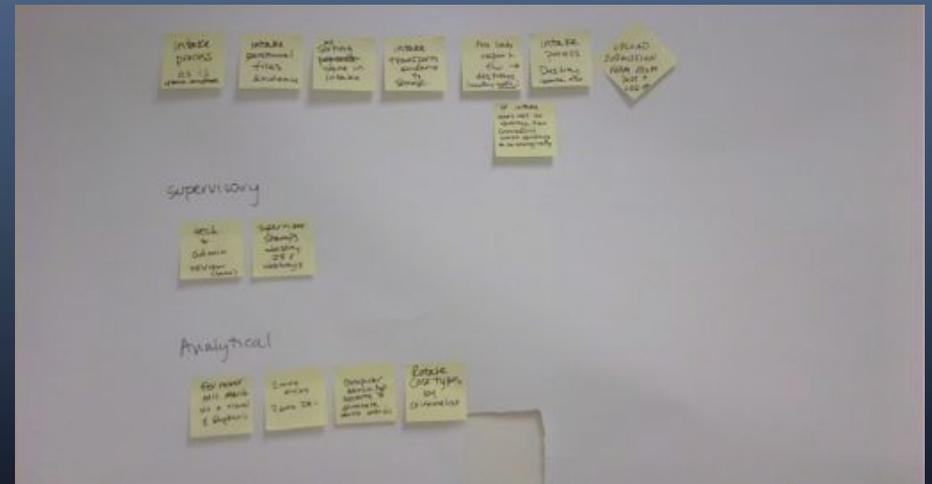
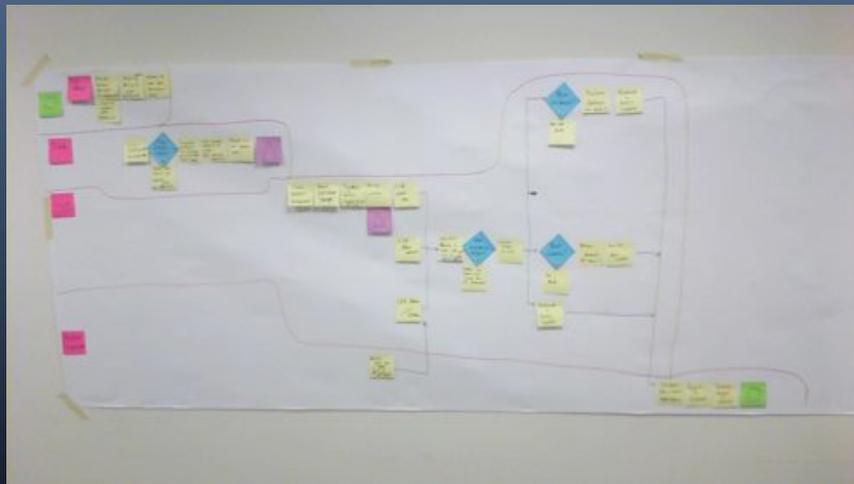
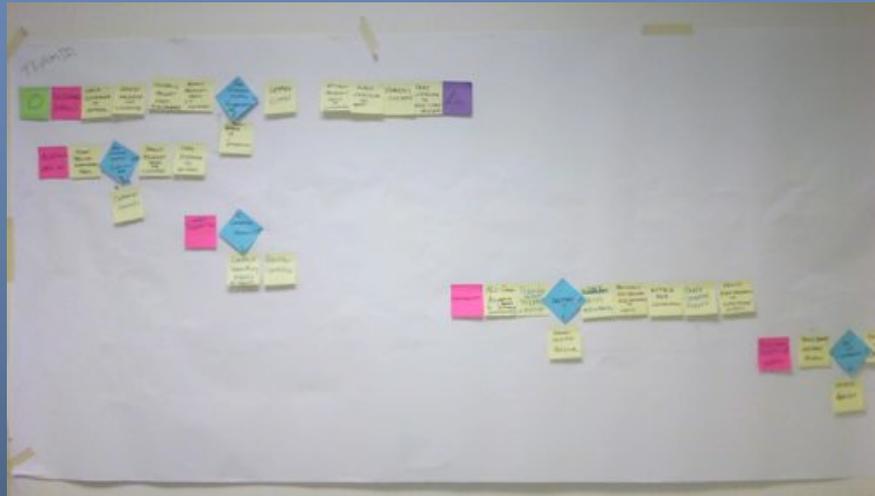
- Too many steps
- Too many handoffs
- Too many delay points (storage)
- Caused too much process lead time
- Resulted in backlog



The team brainstormed more than 60 improvement ideas



Clean Sheet Redesign



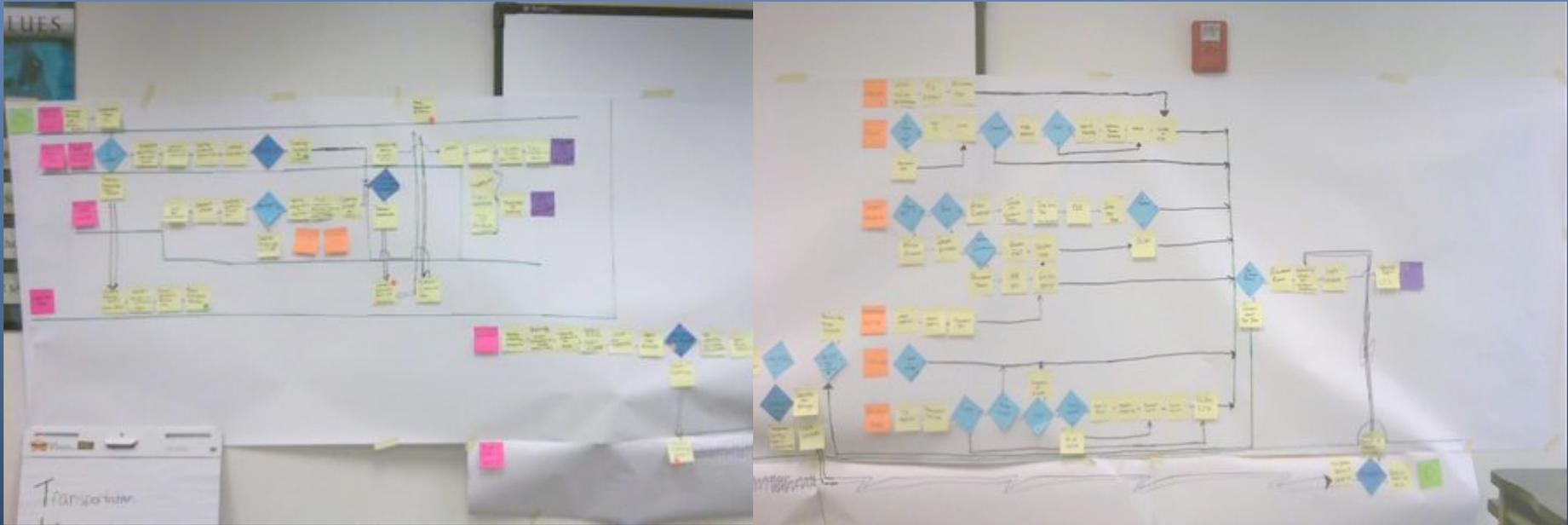
Common Ground

Common Ground

- * rotating sample assignment
- * paperless - computers on desk-top
- * sorting at intake (and transport)
- * tech/admin/notary combination
- * i-pre-log & i-results
- * inventory report destroy concept
- * admin asst access to drug chem holding



The New, Improved Process

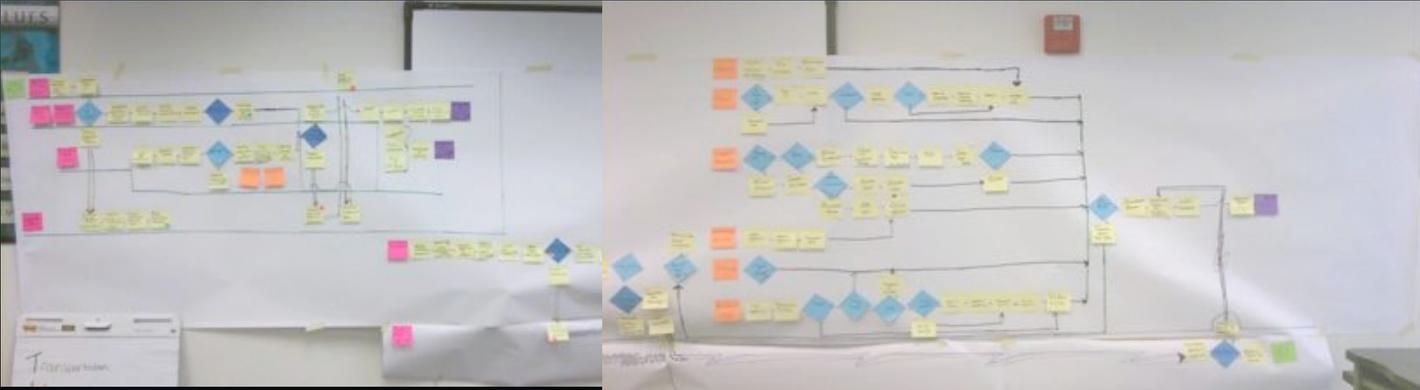


91 Steps
22 Decisions
7 Handoffs
3 Storage points

Old Process



New Process



The Results Matrix

Measure	Before	Projected After	Difference
Steps	136	91	45 less steps -33%
Decision Points	27	22	5 fewer decisions -19%
Handoffs	17	7	10 Fewer -59%
Chemistry Processing Time	Total = 3.3 to 37.7 hours Intake = 1.6 to 5.1 hours Pre-work = 0.4 to 0.6 hours Report & Seal: = 0.3 to 0.6 hours	Total = 2.1 to 34.4 hours Intake = 1 to 4 hours Pre-work = 0.3 to 0.6 hours Report & Seal = 0.1 to 0.13 hours	Reduction in time = 1.2 to 3.3 hours Intake = ↓ 0.6 to 1.1 hours Pre-work = ↓ up to 0.1 hrs Report & Seal = ↓ 0.2 to .5 hours
Storage & Delays	Log & Sort: Up to 8 months	Log & Sort: 7 days	Log & Sort: 99% reduction

More Results

- Transforming to a paperless “state of the art” lab
- Targeted increase in customer service
- Reduced job frustration; revitalizing job satisfaction through backlog elimination
- Buy-in from all levels of staff
- Projected cost avoidance and savings

Projected Cost Savings



Annual Cost Savings (Real Dollars)

- Mailing Costs \$14,500
- Paper Costs \$ 7,800
- Overtime \$45,000

TOTAL \$67,300

PLUS:

Annual Cost Avoidance

- Destroys \$15,000

TOTAL \$82,300

Time Savings
Mailing @ 4 hours/week

Dollar Savings
\$3,300/year

Criminalist Processing Time
@ 7,777 hours/year

\$116,000/year

The time savings associated with the redesigned process will result in minimum of 2,000 extra cases processed per year

Cases in = Cases out

New process capability = 8,400 cases per year

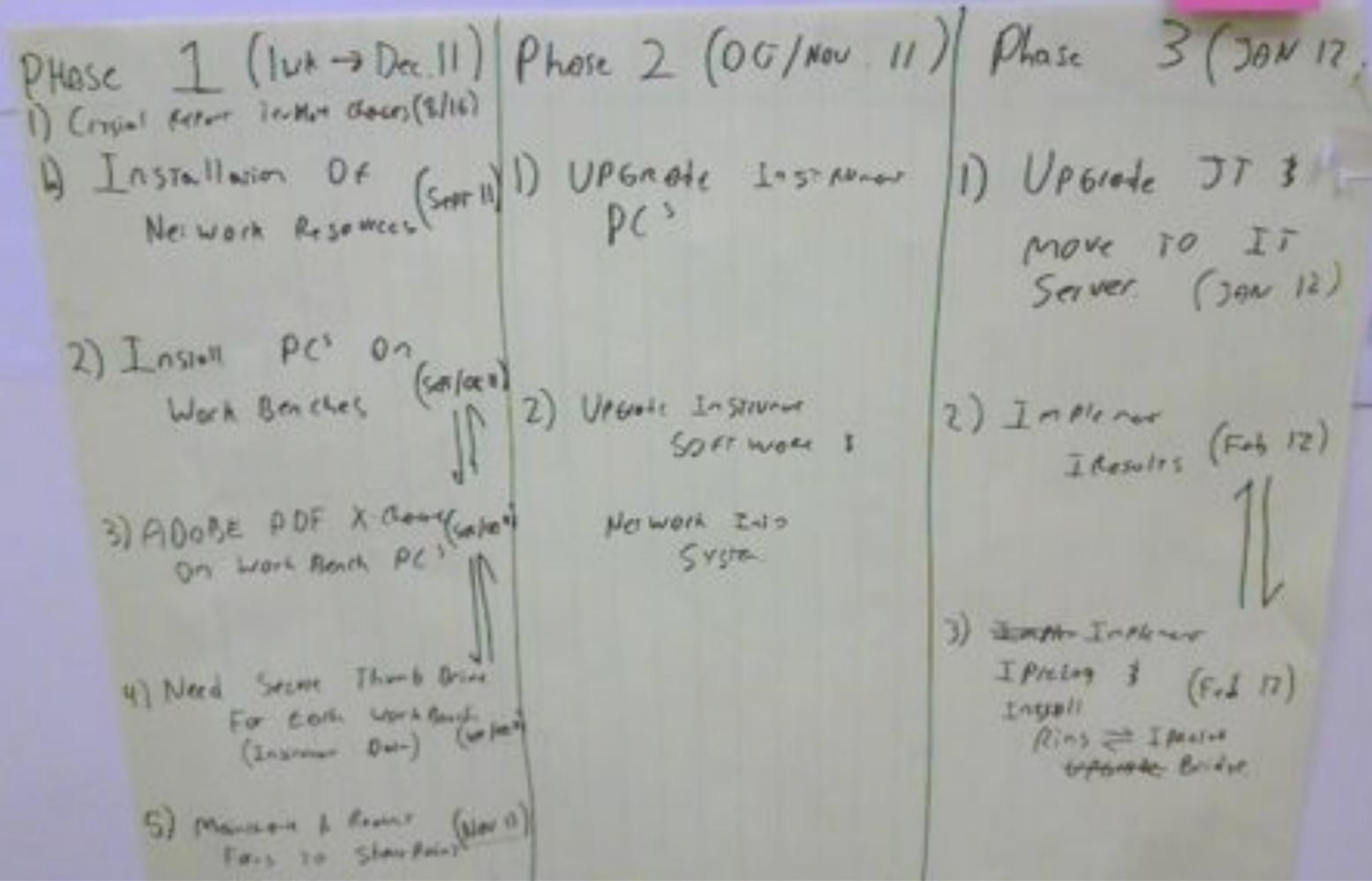
Total Cases Received in 2010 = 8,382

Implementation Plans

- Training plan
- Communication plan
- Technology Plan
- Backlog Plan



Information Technology Plan



Backlog Plan



DESTROY Backlog Plan

- Change Destruction procedures in Manuals
 - Tammy, Brandon
- Create Destruction Report template in LIMS with autotext
 - Brandon
- Train Drug Chem personnel - Lt. Lee, Brandon
 - about one week
- Dedicate all Drug Chem analysts to eliminate the Destroys backlog (3 days - a week)
 - result - 2 weeks - 1700 cases
- In future, criminalists will work Destroy cases along with their regular workload
 - By Sept 1, NO further separation of Destroy cases.

- ## 4000 BACKLOG CASES Backlog Reduction STRATEGIES
- PHASE 1
1) ELIMINATE DESTROYS (1700) CASES WITHIN 3 WEEKS WITH NEW DESTROY POLICY AND USING ALL CRIMINALISTS SEPT
 - PHASE 2
2) ANALYZE ALL BULK CASES USING HYPER-G INCLUDING MAR-SUMM OCT
 - ANALYZING FEWER SAMPLES
 - TIME REDUCTION
 - PHASE 3
3) ROTATE TYPES OF CASE ASSIGNMENT WEEKLY SEPT
 - SAVES INSTRUMENT TIME
 - PHASE 4
4) PAPERLESS PROCESS SEPT
 - Saves time, paper, printers, transport/waiting time.

Beginning Monday...



- Have meeting with lab staff to advise them of changes
- Manual rewrites of procedures
- Develop drug chemistry rotation schedule
- Change reporting method for Destroy cases
- Revise notary procedure

Benefits

Less paper

Reduced postage costs

Increased satisfaction among submitting officers

Less waiting time

Less frustration for employees

Streamlined process

Process is a product of the employees

Reduces the opportunity for human error

Fewer incomplete/incorrect submissions

Better use of scientists' time

Personal Lessons Learned

- Impressed by how we worked as a group.
- A lot of us contributed.
- We got it done.
- Input from new hire – they gave great input we wouldn't have thought about
- Collaborating as a team helped us come up with great idea
- Great sponsor support before and during the week
- Staff has enthusiasm for developing changes and
- This is probably the most contact I've had with the Crime Lab. I'm amazed at the talent that's in this department.... What I like best is the sense of humor. You have fun when you're working, which is necessary. We need to be paying more attention to you as an organization.... I was really impressed..

- “I was thinking, ugh, I don’t know these people. It has been a really good ice-breaker; most people coming in don’t have that opportunity.”
- Team concept: A lot of people came out of their shells this week... It was good to see people without their lab coats on
- The team concept helps people thrive – and was emphasized heavily
- The fact that this was our idea makes this our own. We’re invested in it and want to see it fulfilled.
- From all the years I’ve been here and all the techniques we’ve used, this is finally one that seems to really work. Because come Monday, you’re not sending it to someone who has to improve it. It’s already improved. You’re already starting implementation... This process works.
- Work gets to busy that you tend to continue with things that are status quo...and you don’t take time to fix them.... You have to get out of the trenches once in a while and think of a creative fix....

Life as a member of a Kaizen event
Team...



Questions & Comments



Special *THANKS* to...

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Director of the Department of Public Safety,
Tom Charles

Assistant Director, Craig Mayton

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