Six Sigma DMAIC Improvement Story

Green Belt **Project Objective:**

To Improve Timeliness and Effectiveness of PWWM 311 Service Request Processing

Team: *Team CSR (Customer Service Responders)*

Gayle Love (Co-Team Leader) Joan Shen (Co-Team Leader)

Gerard Metellus Milen Penland Maria Sanchez

Basil Binns II Greg Ferguson/Larry Wilson (Subject Matter Expert)

Kathleen Woods-Richardson (Sponsor)

Active Strategy

Identify Project Charter

The team developed a team Project Charter.

Project Charter		
Business Case	*Project Name:*	To Improve Timeliness and Efficiencies of PWWM Service Request Processing
	Problem/Impact:	Current PWWM response time exceeds the targeted Service Request (SR) Timeframes
	Expected Benefits:	Reduced response time to meet the service goal. Increase caller satisfaction.
Objectives	*Outcome Indicator(s)*	Q1- % of PWWM 311 Service Requests Overdue (at Completion)
	Proposed Target(s)	Target= 10%
	Time Frame:	February 2013 thru June 2013
	Strategic Alignment:	Supports the County's Business Plan
Scope	*In Scope:*	PWWM 311 System
	Out-of-Scope:	Other County 311 Intakes
	Authorized by:	Kathleen Woods-Richardson
Team	*Sponsor:*	Kathleen Woods-Richardson
	Team Leader:	Gayle Love, Joan Shen
	Team Members:	Gerard Metellus, Milen Penland, Maria Sanchez, Basil Binns II, Greg Ferguson/Larry Wilson (SME)
	Process Owner(s):	Gerard Metellus
	Mgmt Review Team:	Ray Scher; Chris Rose; Kathleen Woods-Richardson
Schedule	*Completion Date:*	30-Jun-13
	Review Dates:	Monthly and Final Review in June 2013
	Key Milestone Dates:	See Action Plan

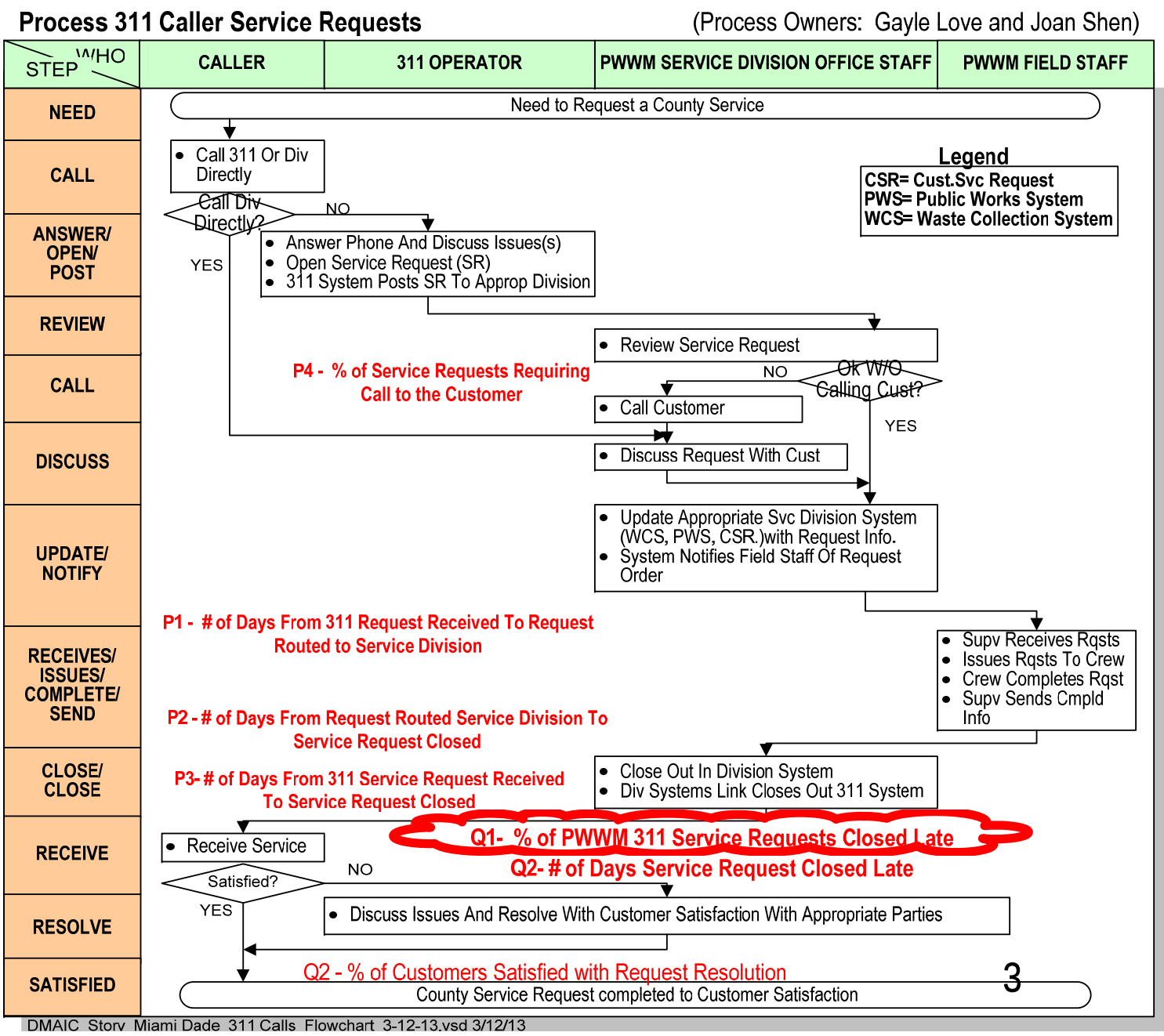
2. ☑

1. ☑

Review Process Flow Chart

The team constructed a Process flow chart describing the Process.

The team next looked closer how to capture indicator data.



Hidden Costs of Overdue Service Requests

The team identified costs of Overdue Service Requests.

Annual Cost

1. Handling Costs for Inquiries/Complaints asking about Overdue Request

a. (1376 Overdue CSRs per month) X (12 months/Yr) X (10 min per call) X (1 hr per 60 min) X (33% probability per overdue CSR) X ($26 per Hour)..... $ 23,850

2. Managing Service Request Backlogs

a. (.5 Hour to review Overdue Report per day) X (239 hours per year) X($26 per hour)..... $ 3,107

3. Additional Costs

a. Costs associated with duplicate visits $203,000

Annual Costs = $229,957

Identify Data Collection Needs

The team developed a data collection spreadsheet

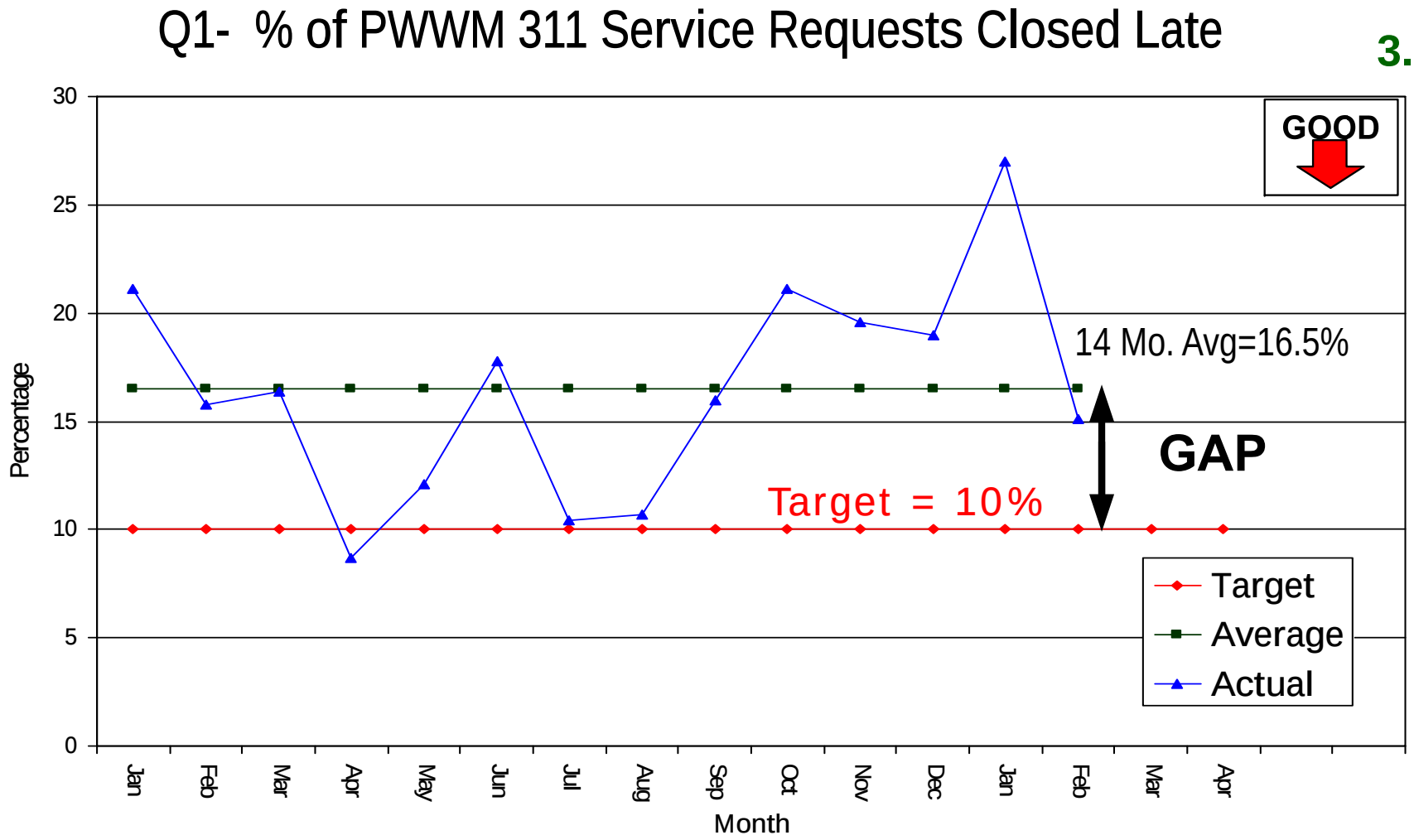
Miami-Dade PWWM 311 Service Request Summary

BCB Line#	DEMOGRAPHICS							
	WHAT				WHO		WHERE	
	B	C	D	E	G	J	K	L
	Service Request #	Problem Description	Complaint Origin System	PWWM Division	Reporter Last Name	Participant/ Source	Complaint Address	Dist #
1	A20	Sidewalk Broken/ Raised	311	Traffic & S	Anonymo	PUBLIC AT LA	8525 SW 104	12
2	A20	Sidewalk Broken/ Raised	311	Roads & B	JANET	PUBLIC AT LA	4001 SW 104	3
3	A20	Sidewalk Broken/ Raised	311	Trash	MARIA	PUBLIC AT LA	NW 201ST S	4

MILESTONES									DURATION			OUTCOMES		
M	N	O	P	Q	R	Z	AA	AB	AC= P-N	AD= AA-P	AI= AA-(N or P)	AO= AI-9	AP='Y' if AI<=9	BB
1- Request Received by 311				2- Received By PWWM		3- Request Closed			Received by 311 TO Received by PWWM	Received by PWWM TO Rqst Closed	311 Rc'd/ PWWM Rcd TO Rqst Closed	# of Days Service Request Closed Late	Service Request Closed Late?	
Date	Time	Day	HR	Date	Day	Date	Day	Complaint Due Date						Comments
		% Mo	Avg		% Mo		% Mo		Avg # of Days				%Y	
		0.0	11.3		0.0		0.0		0.0	91.7	91.7	61.7	100.00	
									P1	P2	P3	Q2	Q1	
22-Mar-12	11:15 AM	Th	11	22-Mar-12	Th	20-Jul-12	Fr	21-Apr-12	0	120	120	90	N	
20-Apr-12	3:15 PM	Fr	15	20-Apr-12	Fr	27-Jun-12	We	20-May-12	0	68	68	38	N	
24-Apr-12	8:15 AM	Tu	8	24-Apr-12	Tu	20-Jul-12	Fr	24-May-12	0	87	87	57	N	

Review Selected Indicator

The team collected Q1 indicator data and reviewed performance trends:

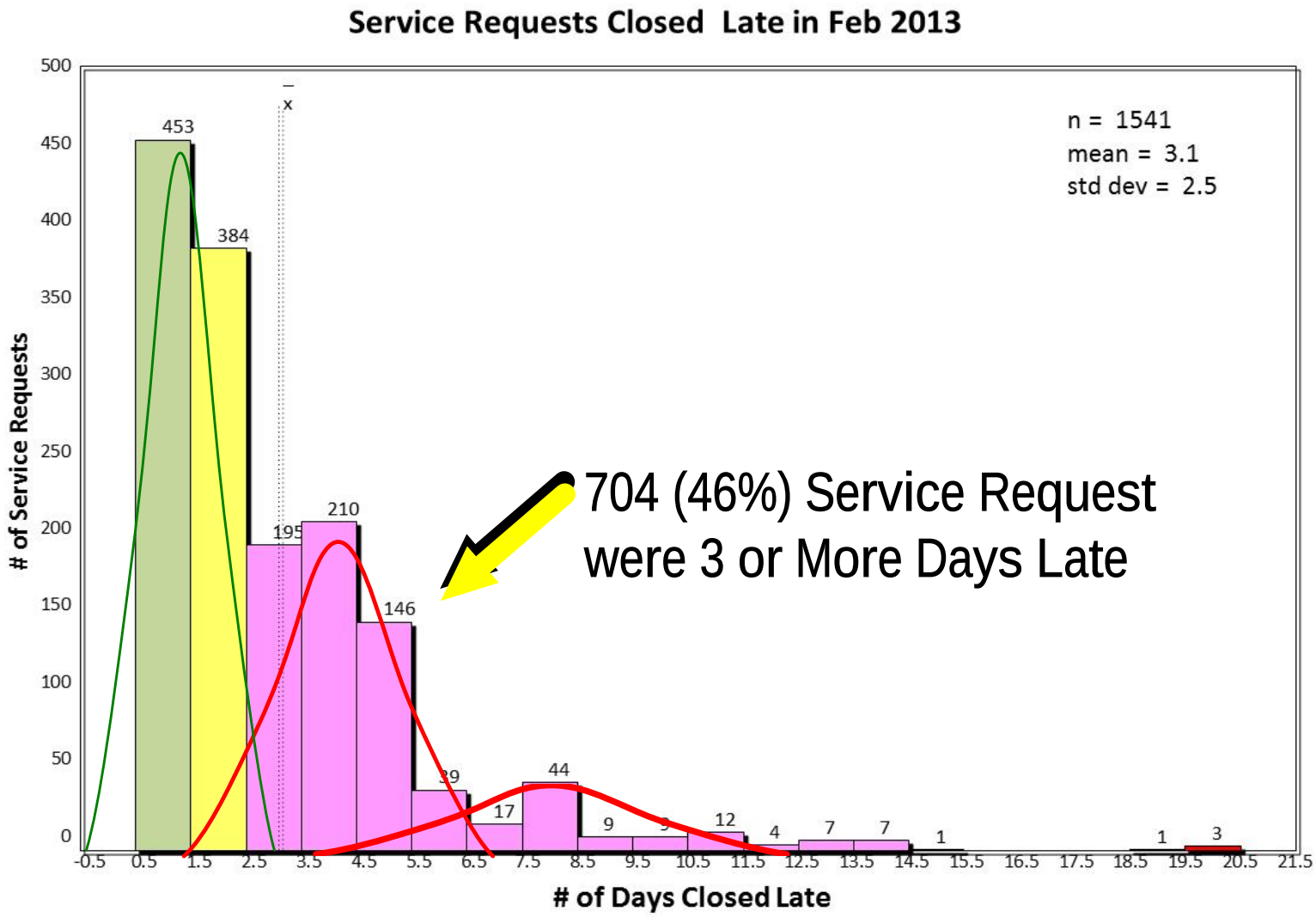


The team next looked closer at the gap.

Stratify the Problem

5.

The team stratified the February 2013 Late Service Requests and found…

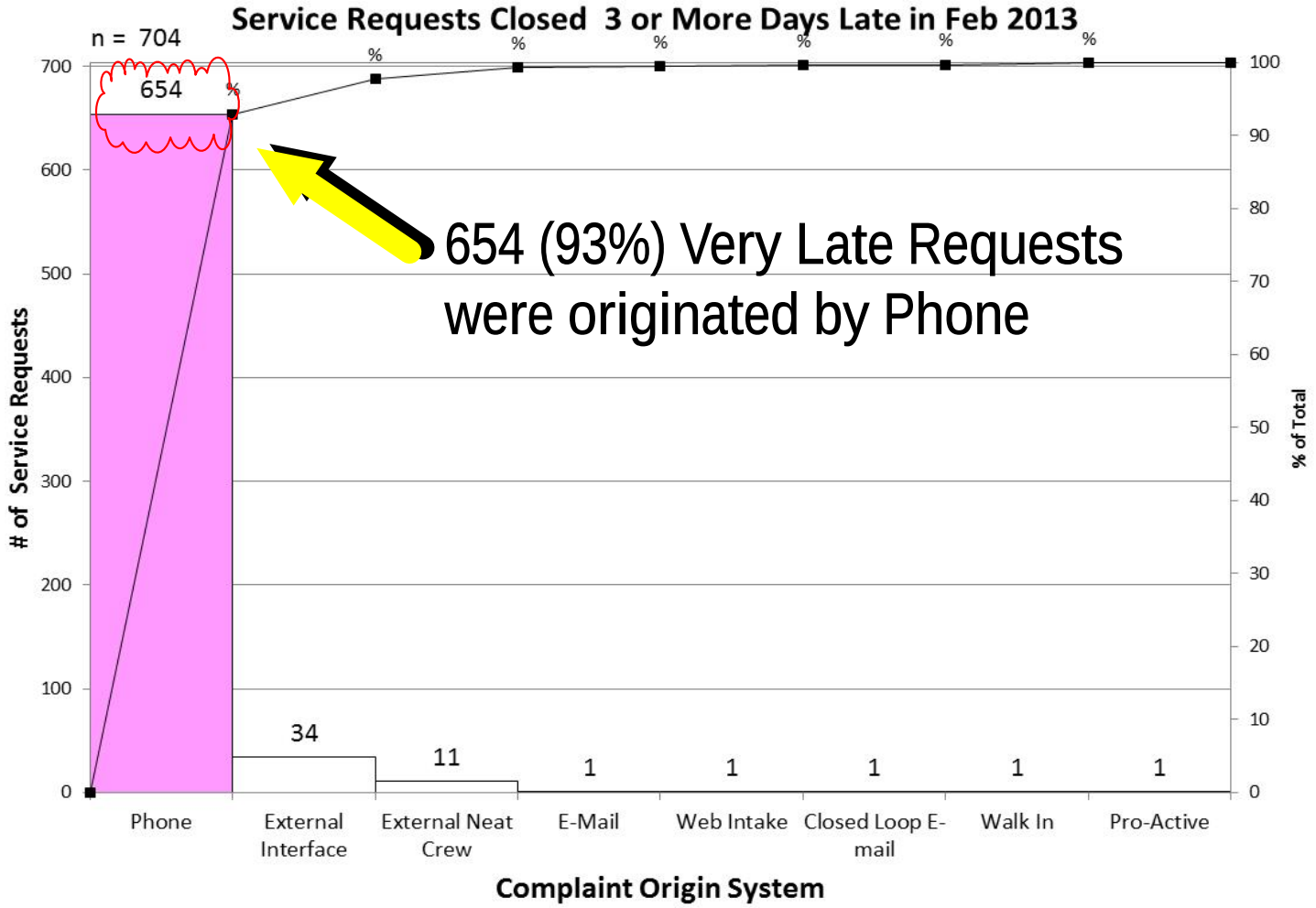


The team looked closer at these 704 Late Service Requests.

Stratify the Problem

5.

The team stratified the 704 Late Service Requests many ways and found…



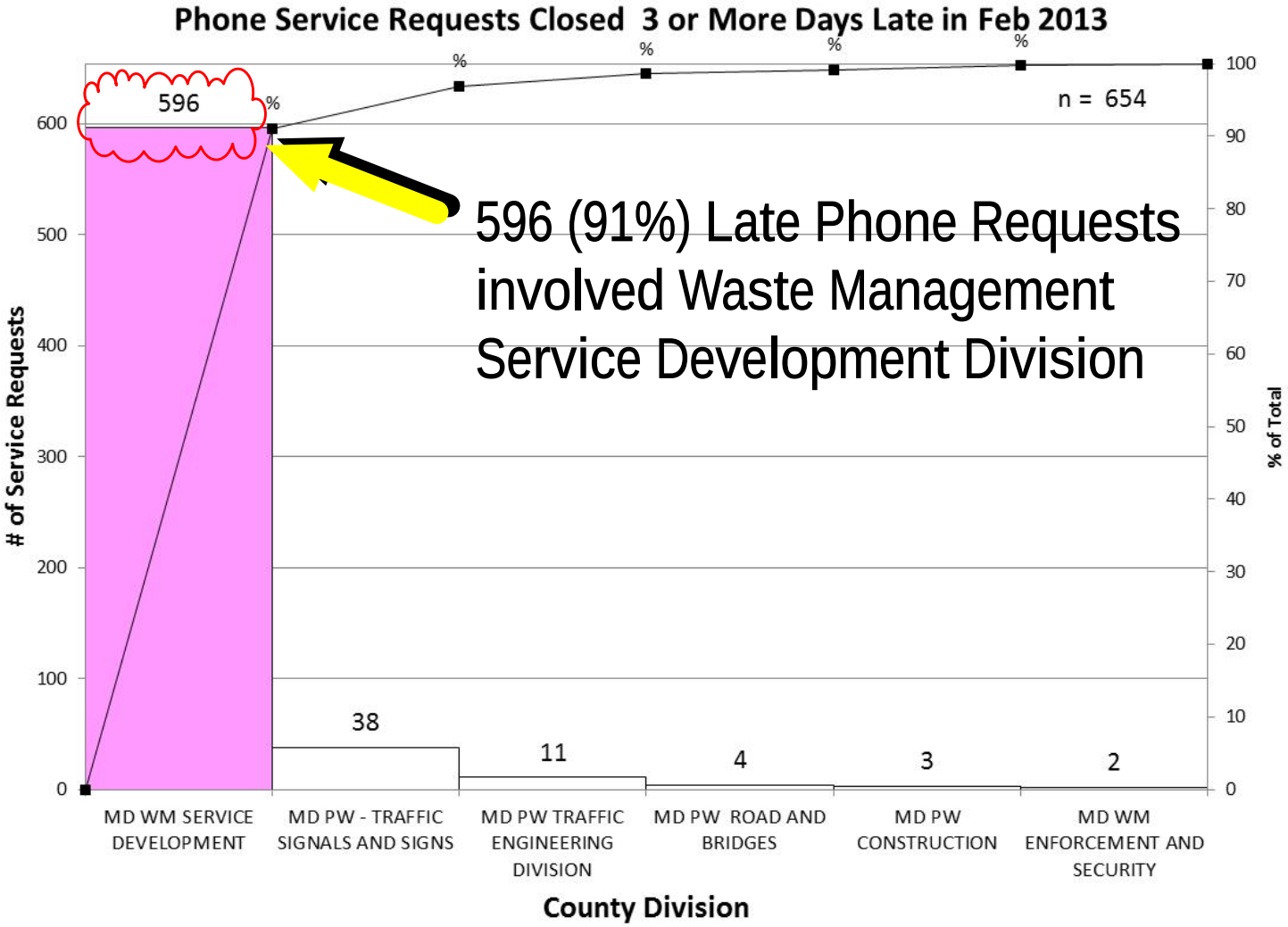
The team looked closer at these 654 Late Phone Requests.

Define | Measure | Analyze | Improve | Control

Stratify the Problem

5.

The team stratified the 654 Late Phone Requests many ways and found…



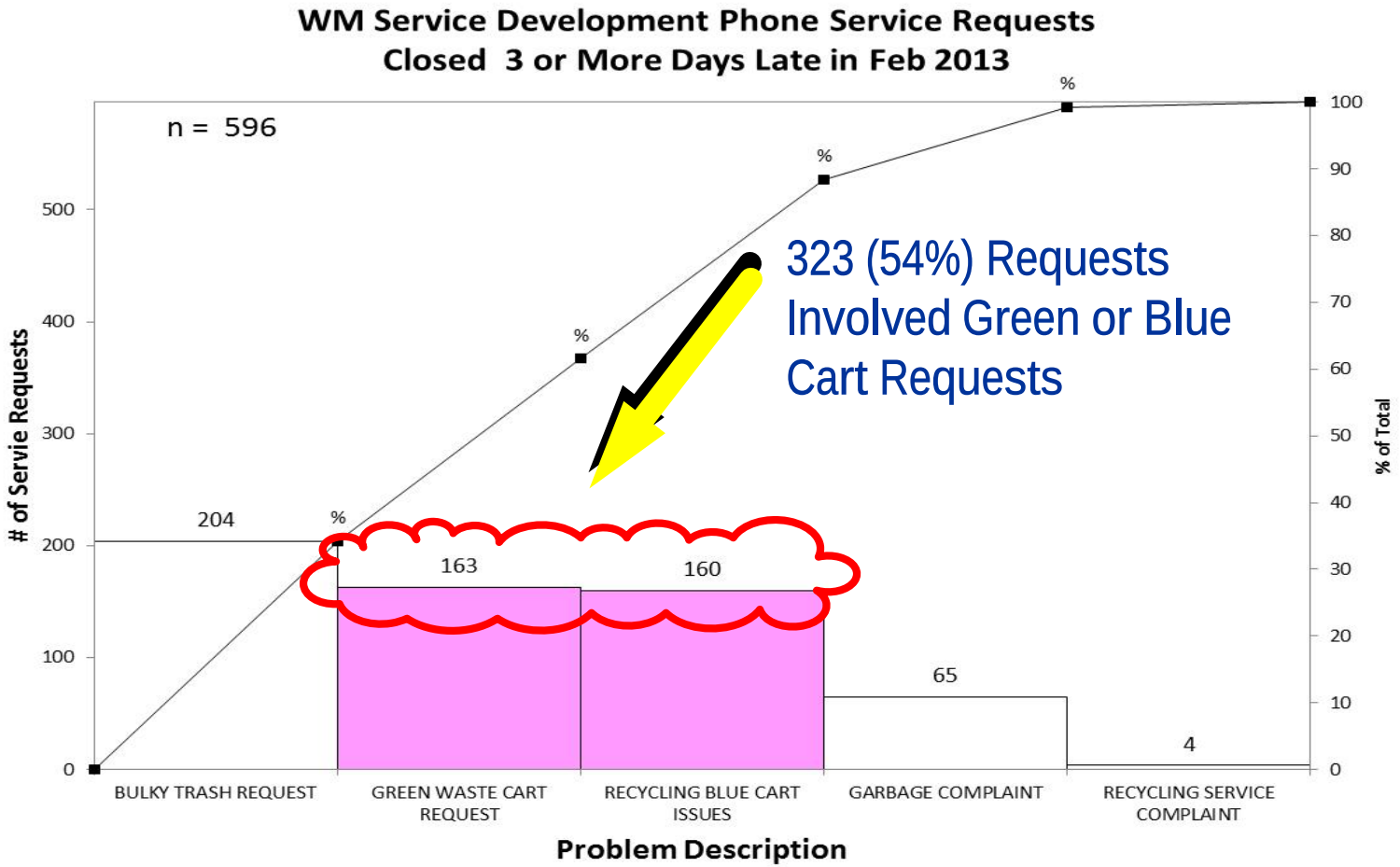
The team looked closer at these 596 WM Phone Requests.

Define | Measure | Analyze | Improve | Control

Stratify the Problem

5.

The team stratified the 596 Late WM Phone Requests many ways and found…



Problem Statement: *"323 Waste Management Service Development Phone Service Requests Closed 3 or more Days Late in Feb 2013 involved Requests for Green or Blue Carts"*

Identify Potential Root Causes

9.

The team sampled 24 CSRs and reviewed documentation before conducting Single Case Bore Analysis.

Problem Statement: *"323 Waste Management Service Development Phone Service Requests Closed 3 or more Days Late in Feb 2013 involved Requests for Green or Blue Carts"*

Reasons or Factors *(That possibly contributed to Late Completion of Green or Blue Cart Request)*	Sampled 24 of the 323 Late WM Green and Blue cart Requests																								Total	Percentage
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1) Cart Found at location (Service assumably provided already)	X																			X					2	8%
2) Crew went to the wrong location		X																							1	4%
3) Cart reportedly fixed already or not needing repairs			X	X																		X			3	13%
4) Closed Late despite field on time A					X	X	X	X					X	X	X	X	X								9	38%
5) Cart not accessible for service. 2nd trip necessary B									X	X	X	X						X		X		X		X	8	33%
6) 2nd trip necessary due to customer's dissatisfaction																			X						1	4%

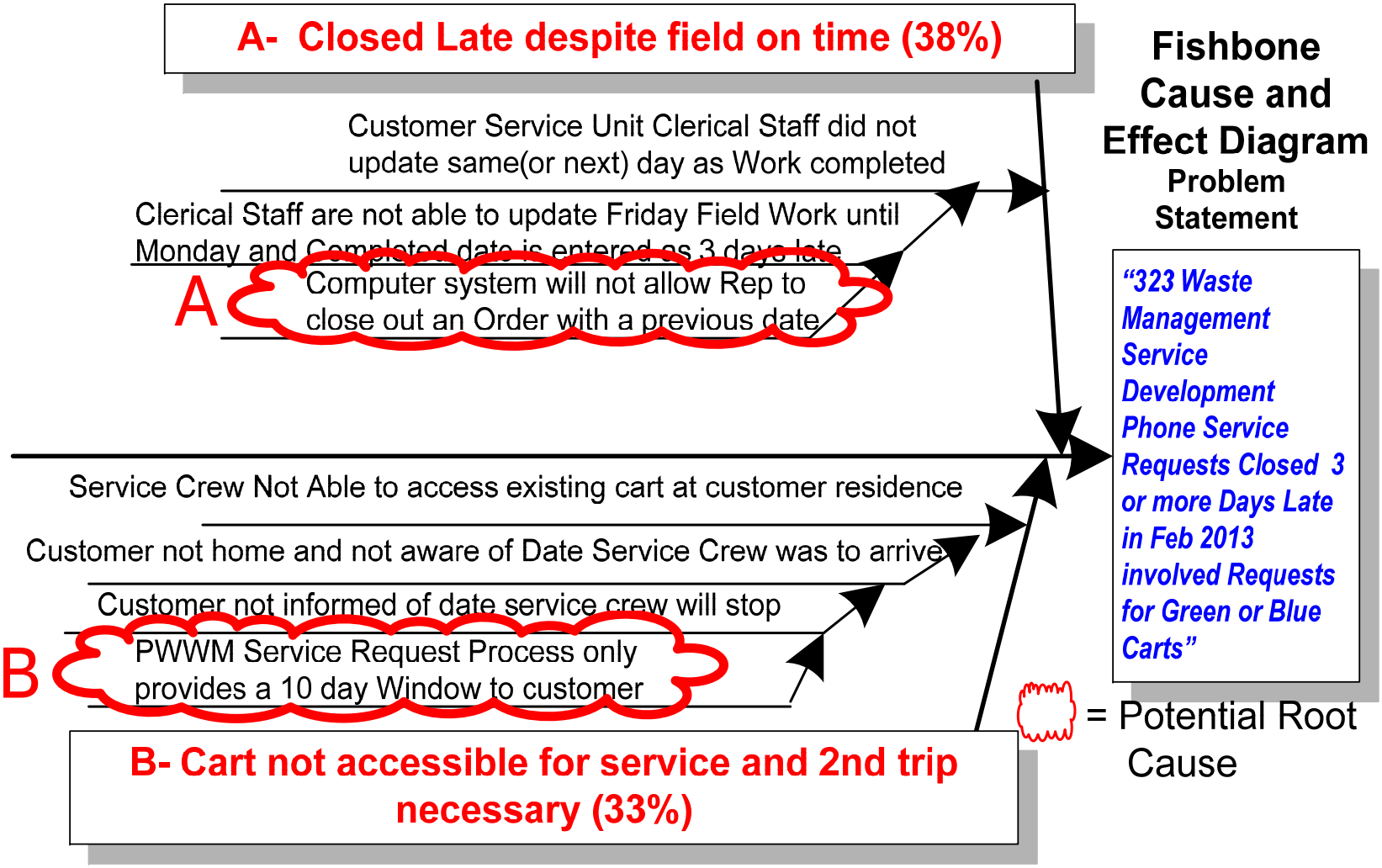
The team next looked closer at these 2 factors.

Define | Measure | Analyze | Improve | Control

Identify Potential Root Causes

The team completed Cause and Effect Analysis and found...

9.,10.



The team next looked to verify these two (2) Potential Root Causes.

Define | Measure | Analyze | Improve | Control

Verify Root Causes

The team collected data to verify the root causes and found…. **11.,12.** ☑

Root Cause Verification Matrix

	Potential Root Cause	How Verified?	Root Cause or Symptom
A	Computer system will not allow Rep to close out an Order with a previous date	Team verified with management that 311 Call System will not allow anyone to enter a completion date previous to entry input date and time	Root Cause
B	PWWM Service Request Process only provides a 10 day Window to customer	Team Verified with Customer Service Rep Supervision that the Rep's Script requires them to state the 10 day window for cart servicing	Root Cause

…that both Potential Root Causes were validated as root causes.

Identify and Select Countermeasures

13.,14.

The team brainstormed many countermeasures and narrowed them down to these for evaluation:

Countermeasures Matrix

Legend: 5=Extremely, 4=Very, 3=Moderately, 2=Somewhat, 1=Little or None

Verified Root Causes	Countermeasures	Ratings: Effectiveness	Feasibility	Overall	Take Action? Yes/No
A - Computer system will not allow Rep to close out an Order with a previous date	A1- Train Field Clerical Staff to update CSR System requests (Blue Carts)	5	4	20	Hold
	A2- Revise System to allow Previous DATE to be entered	4	1	4	N
	A3- Field Staff to send Scanned Completed Blue Cart requests by 4pm EACH DAY	5	4	20	Y
B - PWWM Service Request Process only provides a 10 day Window to customer	B1- Service Crew services Carts on Regular Garbage Days	5	3	15	Y
	B2- Inform customer of specific day cart will be serviced	5	1	5	N
	B3- Send a reminder Call from Auto-Dialer to Customers	4	3	12	N
	B4- Establish a Week-End/Night Crew	4	2	8	Pend
	B5- Establish additional dedicated staff for Cart Servicing	5	3	15	Y
	B6 - Revise Script to provide Servicing Options to "Day Working Customers" at call request *(Appointment, Customer picks up at Svc Ctr; Provide gated community code)*	3	5	15	Y
	B7 - Email reminders of day of Pick-up	4	2	8	N

The team selected 4 countermeasures for possible implementation.

Identify Barriers and Aids

15.

The team performed Barriers and Aids analysis on the selected Countermeasures.

Countermeasure(s): Implement 4 Countermeasures to speed 311 Requests

Barriers		Aids	
Impact (H, M, L)	Forces against Implementation		Forces For Implementation
H	1) Additional Costs Hard to Justify *(Supported by Aid:A,B,C)*	A)	Management very supportive of team's efforts in saving costs
M	2) Push-Back by Staff on 4pm deadline *(Supported by Aid:A,B,C)*	B)	Customer Satifaction would result
		C	Less 2nd trips to customer location

The team next sought to incorporate this analysis into the team's Action Plan.

Develop and Implement Action Plan

Legend:
■ = Actual
□ = Proposed

The team implemented an Action Plan for the team's Countermeasures. 16.

Implement Countermeasures to Improve Timeliness of 311 Call Requests

▪HOW	▪WHO	▪WHEN 2013 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. ▪**Implement Countermeasures:**										
A3- Field Staff to send Scanned Completed Blue Cart requests by 4pm EACH DAY	Gerard			▪5/15/13						
B1- Service Crew services Carts on Regular Garbage Day	Greg Perguson			▪TBD						
B5- Establish additional dedicated staff for Cart Servicing	Milen/ Gayle			▪TBD						
B6- Revise Script to advise customers to leave cart in an accessible location	Greg/ Maria				▪6/20/13					
Provide servicing options to "Day Working Customers" at Call Request *(Appt., Customer picks up at Svc Ctr; Provide Gated community code)*	Gerard									
2. **Secure Management Approval of Countermeasures (share benefits and cost savings)**	Team				7/31/13					
3. **Communicate/Train PWWM Staff in Countermeasures and related policies/procedures (share benefits and cost savings)**	Team					8/30/13				
4. **Implement Countermeasures**	Team						9/30/13			
5. **Review Pilot and determine Benefits and adjust as necessary and present results to management**	Team							10/31/13		
6. **Establish On-going responsibilities and standardize countermeasures into operations**	Team						▪On-going			

Define | Measure | Analyze | Improve | Control

Review Results

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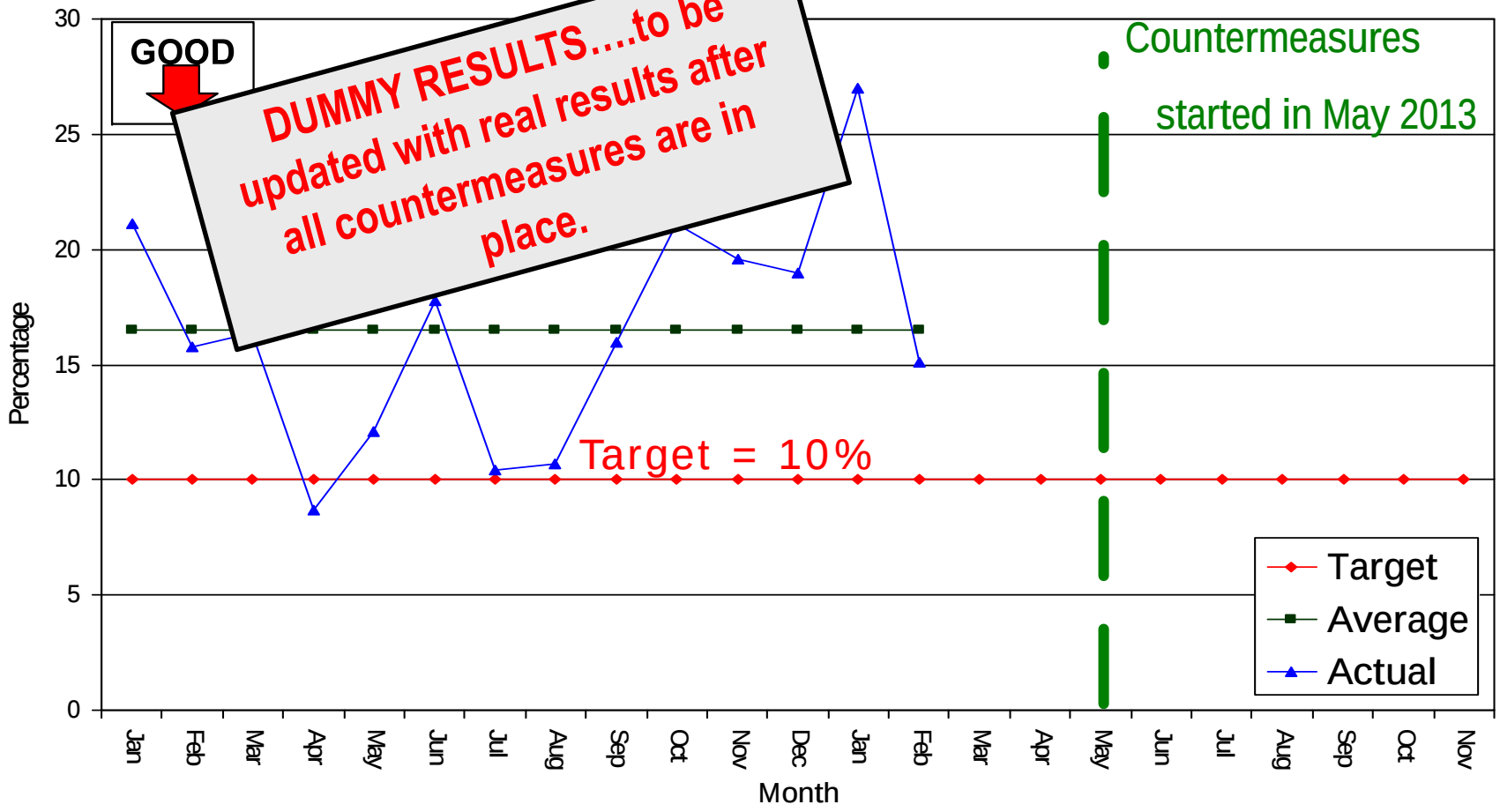
The team collected indicator data and reviewed performance results:

Q1- % of PWWM 311 Service Requests Closed Late

3.



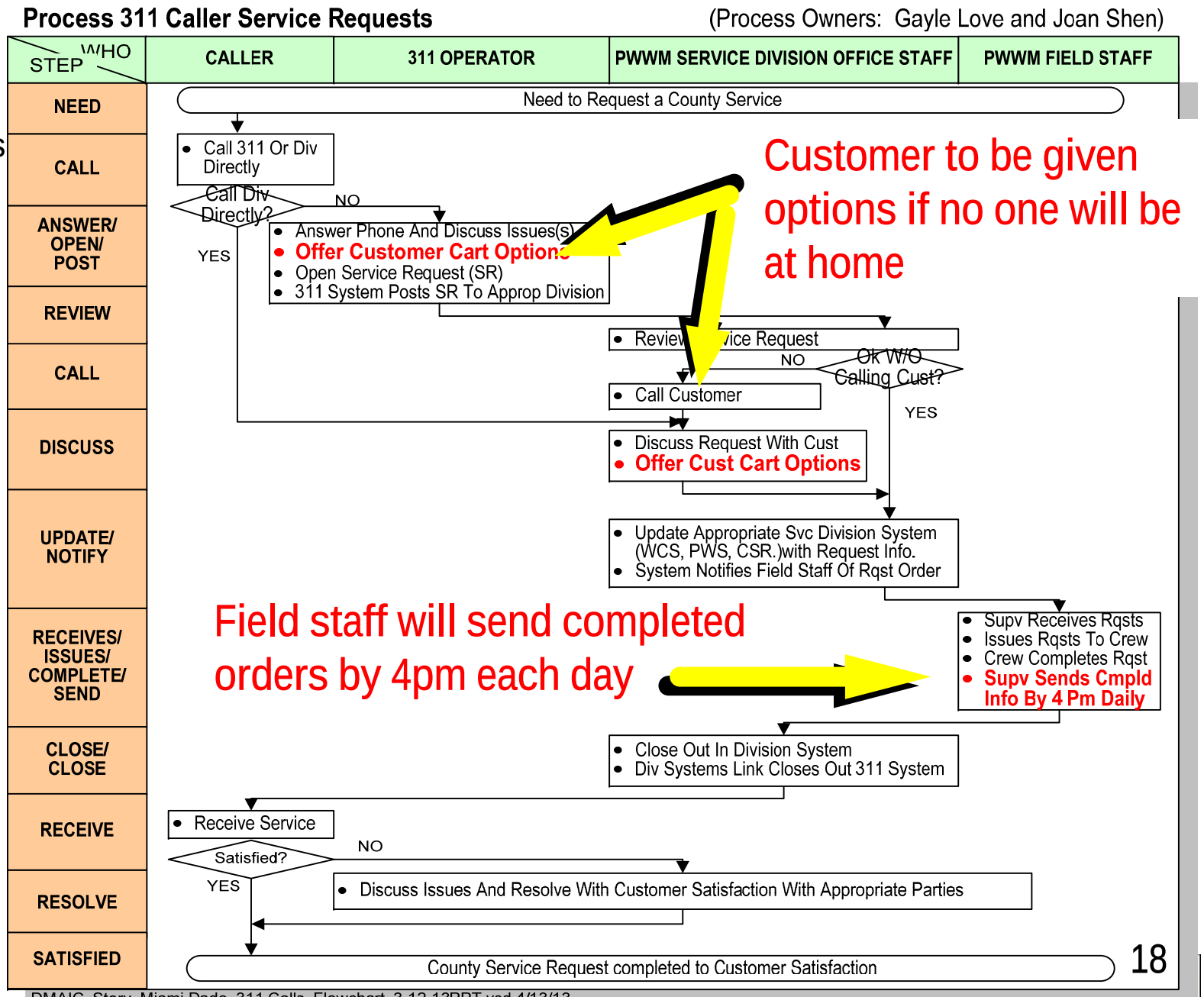
The team was encouraged by results.

Standardize Countermeasures

21.,22.,23.

The team incorporated the improvements into the Process.

The team looked ahead to the future.



Implement Process Control System

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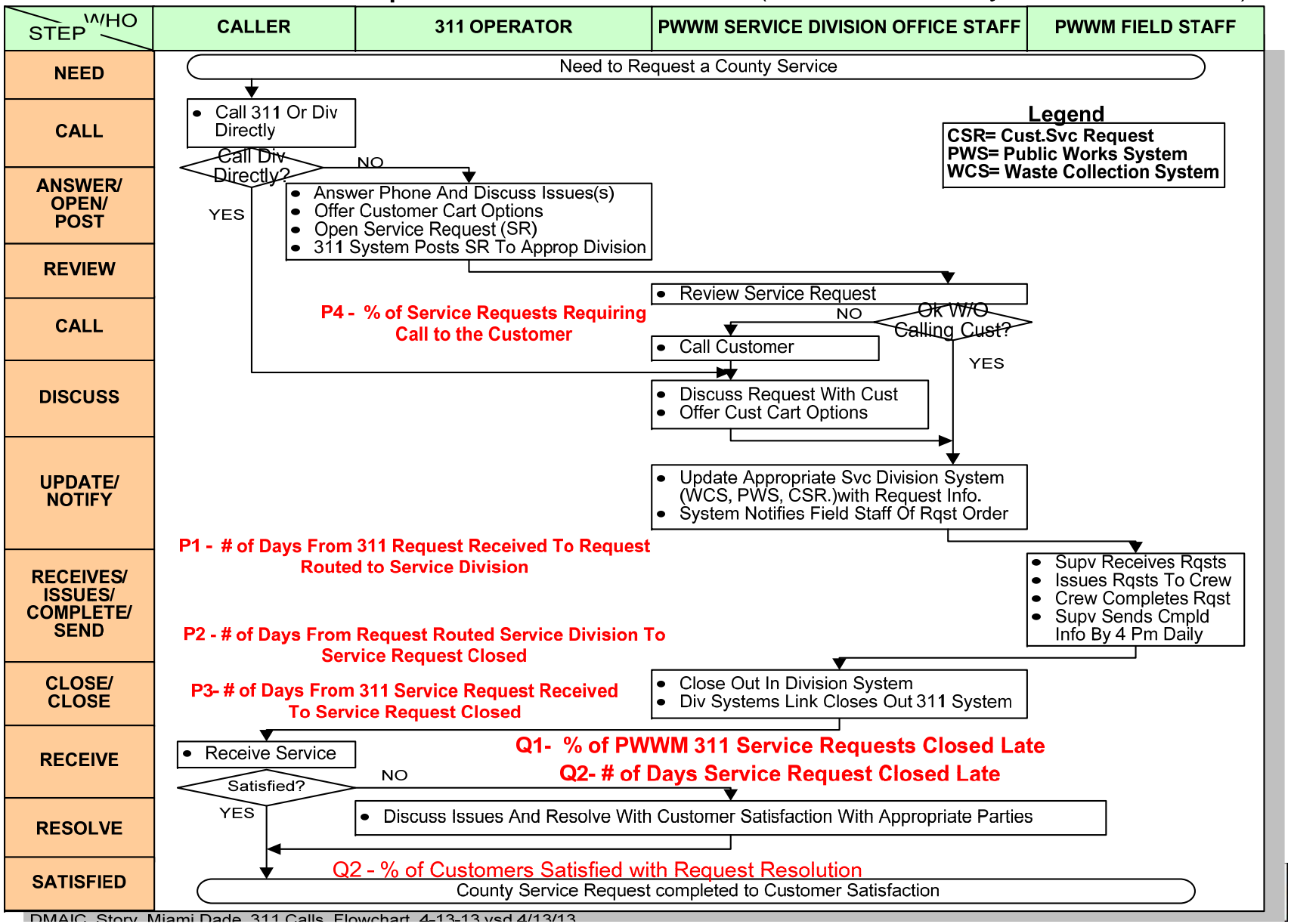
The team developed a Process Control System to better monitor the process on-going.

Process 311 Caller Service Requests (Process Owners: Gayle Love and Joan Shen)



Implement Process Control System

21.,22.,23.☑

… and completed the Process Control System (PCS) Form.

Process Control System	
Process Name: Process 311 Caller Service Requests	**Process Owner:** **Gayle Love and Joan Shen**
Process Customer: Caller	**Critical Customer Requirements:** Accurate and timely Resolution to requests
Process Purpose: Provide Resolutions to caller requests	**Current Sigma Level:** TBD (16.5% Late)
	Outcome Indicators: Q1, Q2

Process and Quality Indicators			Checking / Indicator Monitoring			
Process Indicators And Quality Indicators		Control Limits Specs/ Targets	Data to Collect What is Checking Item or Indicator Calculation	Timeframe (Frequency) When to Collect Data?	Responsibility Who will Check?	Contingency Plans / Misc. • Actions Required for Exceptions • Procedure References
P1	# of Days From 311 Request Received To Request Routed to Service Division	0	(Date 311 Request Routed to Service Division)-(Date 311 Request Received)	Monthly	Proc Owner	CSR Data Base
P2	# of Days From Request Routed Service Division To Service Request Closed	10	(Date 311 Service Division closed Work Order)-(Date Request Routed to Service Division)	Monthly	Proc Owner	CSR Data Base
P3	# of Days From 311 Service Request Received To Service Request Closed	10	(Date 311 Service Division closed Work Order)-(Date Request Received)	Monthly	Proc Owner	CSR Data Base
P4	% of Service Requests Requiring Call to the Customer	TBD	100*(# of Service Requests Requiring Call to the Customer)/(# of Completed Service Requests)	Monthly	Proc Owner	CSR Data Base
Q1	% of PWWM 311 Service Requests Closed Late	10%	100*(# of Service Requests Closed late)/(# of Completed Service Requests)	Monthly	Proc Owner	CSR Data Base
Q2	# of Days Service Request Closed Late	0	(Date 311 Service Request Closed)-(Date 311 call Received)-10	Monthly	Proc Owner	CSR Data Base

Approved: _____ Date: _____ Rev #: _____ Rev Date: _____

The team looked ahead to the future.

Identify Lessons Learned

24.,25.

Lessons Learned

1) **When evaluating countermeasures, the most effective is not always the best countermeasure** *since feasibility must also be considered.*

2) **Data stratification was very important** *as it took the team to areas not initially thought to be part of the problem.*

3) **Creative Thinking techniques were more valuable** *in identifying more diverse countermeasures for the team to evaluate***.**

4) **Utilizing Subject Matter Experts after "Data Stratifications" proved very helpful** *in identifying and evaluating countermeasures.*

5) **Flowchart Technique helped all team members see the process more clearly** *and was used to help identify communicate process improvements***.**

Next Steps

1) **Monitor implementation of Countermeasures.**