



Six Sigma DMAIC Improvement Story

Green Belt Project Objective:
To Reduce the Time to Process Zoning
Changes Requiring Hearings

Last Updated: 03-11-14

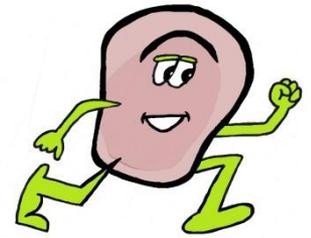
Team: **Hearing Aide**

Donna Romito (Co-Team Leader) Christa Erml-Martinez (Co-Team Leader)

Stephen Baker Juliana Salas Christine Velazquez Jorge Fernandez

Nick Nitti (SME) Ron Connally (SME)

Jack Osterholt (Sponsor) Eric Silva (Process Owner)

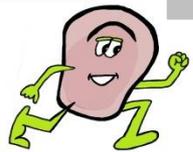


Lean Six Sigma Problem Solving Process

The team utilized the 5-Step DMAIC problem solving process.

DMAIC Performance Improvement Process

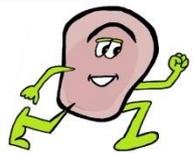
Process Step		Description of Team Activities
Number	Name	
1	DEFINE	<ul style="list-style-type: none">• Select Problem• Identify Project Charter• Develop Project Timeline• Establish Method to Monitor Team Progress• Construct Process Flowchart• Develop Data Collection Plan• Display Indicator Performance “Gap”
2	MEASURE	<ul style="list-style-type: none">• Stratify Problem (i.e. “Gap”)• Identify Problem Statement
3	ANALYZE	<ul style="list-style-type: none">• Identify Potential Root Cause(s)• Verify Root Cause(s)
4	IMPROVE	<ul style="list-style-type: none">• Identify and Select Improvement(s)• Identify Barriers and Aids• Develop and Implement Improvement Plan• Confirm Improvement Results
5	CONTROL	<ul style="list-style-type: none">• Standardize Improvements within Operations• Implement Process Control System (PCS)• Document Lessons Learned• Identify Future Plans



Select Problem and Identify Project Charter

The project was assigned by RER Mgmt & the team developed a Project Charter.

Project Charter	
Business Case	<i>Project Name:</i> To Reduce Time to Process Zoning changes requiring Hearings 2. ✓
	<i>Problem/Impact:</i> Delays in this process can discourage development as well as encourage illegal activity. More Violations require more enforcement staff as well as staff needed to resolve zoning issues being created. Delays also place the county at a disadvantage in land development within our county. 1. ✓
	<i>Expected Benefits:</i> Faster Development; boost the economy, faster resolution of violations for better quality of life
Objectives	<i>Outcome Indicator(s)</i> Q1 - % of Hearing Request where Zoning Hearing was Held within 180 Days (3 Month Ending)
	<i>Proposed Target(s)</i> Target= 60% (initial target)
	<i>Time Frame:</i> Oct 2013 through Feb 2014
	<i>Strategic Alignment:</i> Supports the County's Econmic development
Scope	<i>In Scope:</i> Zoning Change requests
	<i>Out-of-Scope:</i> Administrative Changes, DRIs, DICs
	<i>Authorized by:</i> Jack Osterholt
Team	<i>Sponsor:</i> Jack Osterholt
	<i>Team Leader:</i> Christa Erml-Martinez; Donna Romito
	<i>Team Members:</i> Stephen Baker, Juliana Sarias, Christine Velazquez, Jorge Fernandez, Ron Connamy (SME), Nick Nitti (SME)
	<i>Process Owner(s):</i> Eric Silva - Asst Dir Development Services, RER
	<i>Mgmt Review Team:</i> Eric Silva , Lourdes Gomez
Schedule	<i>Completion Date:</i> 28-Feb-14
	<i>Review Dates:</i> Monthly and Final Review in February 2014
	<i>Key Milestone Dates:</i> See Action Plan



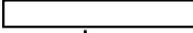
Develop Project Timeline Plan

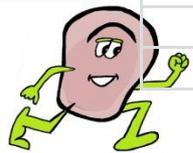
The team developed a timeline plan to complete the Project.

4. 

Legend:	
	= Actual
	= Proposed

WHAT: Complete DMAIC Story Project by Feb 28, 2014

DMAIC Story Process Step	WHEN					
	2013			2014		
	Oct	Nov	Dec	Jan	Feb	Mar
1. Define	 					
	Completed 11/21/13					
2. Measure	 					
	Completed 11/21/13					
3. Analyze			 			
	Completed 12/12					
4. Improve				 		
	2/28/14					
5. Control						
	on going					

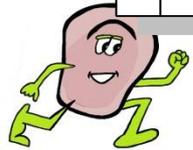


Monitor Team Progress

The Team and Management used a Checklist to monitor team progress.

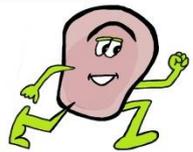
DMAIC Story Checkpoints			
PLAN	Step 1 Define	Objective: Demonstrate the importance of improvement needs in measurable terms.	
		1. The stakeholders' need(s) were identified. ✓	
		2. The problem can be described as an "object" with a "defect" with unknown cause(s) that need to be identified. ✓	
		3. A line graph outcome indicator was constructed that appropriately measures the problem (or gap). ✓	
	Step 2 Measure	Objective: Investigate the features of the indicator, stratify the problem and set a target for improvement.	
		4. A schedule for completing the five DMAIC Story steps was developed. ✓	
		5. Data contained or directly linked to the indicator were stratified from various viewpoints (i.e., what, where, when and who) and a significant dataset was chosen. ✓	
		6. A target for improvement was established based on the stakeholders' need. ✓	
	Step 3 Analyze	Objective: Analyze the stratified data to identify and verify the root causes.	
		7. The impact of the target on the indicator was determined. ✓	
		8. A problem statement that describes the "remaining dataset" was developed. ✓	
		9. Cause and effect analysis was taken to the root level. ✓	
DO	Step 4 Improve	Objective: Develop and implement countermeasures to eliminate the verified root causes of the problem.	
		10. Potential causes most likely to have the greatest impact on the problem were selected. ✓	
		11. A relationship between the root causes and the problem was verified with data. ✓	
		12. The impact of each root cause on the gap was determined. ✓	
	Step 5 Control	Objective: Confirm that the countermeasures taken impacted the root causes and the problem; and that the target has been met.	
		13. Countermeasures were selected to address verified root causes. ✓	
		14. The method for selecting the appropriate countermeasures was clear and considered effectiveness and feasibility. ✓	
		15. Barriers and aids were determined for countermeasures worth implementing. ✓	
	CHECK	Step 4 Improve	Objective: Confirm that the countermeasures taken impacted the root causes and the problem; and that the target has been met.
			16. The action plan reflected accountability and schedule. ✓
			17. The effect of countermeasures on the root causes was demonstrated. ✓
			18. The effect of countermeasures on the problem (or indicator) was demonstrated. ✓
Step 5 Control		Objective: Prevent the problem and its root causes from recurring. Maintain and share the gains.	
		19. The improvement target was achieved and causes of significant variation were addressed. ✓	
		20. The effect of countermeasures on the indicator representing the stakeholders' need was demonstrated. ✓	
		21. A method was established to document, permanently change, and communicate the revised process or standard. ✓	
ACT		Step 5 Control	Objective: Evaluate the team's effectiveness and plan future activities.
			22. Responsibility was assigned and periodic checks scheduled to ensure compliance with the revised process or standard. ✓
			23. Specific areas for replication were identified. ✓
			24. Any remaining problems (or gaps) were addressed. ✓
	25. Lessons learned, P-D-C-A of the Story process, & team growth were assessed & documented. ✓		

- Team identified an indicator; developed a Flowchart and a Spreadsheet
- Paretos, Flowchart, Histograms
- Single Case Bore; Fishbone ; RC Verification Matrix
- Countermeasures Matrix; Barriers and Aids; Action Plan
- Line Graph
- Process Flowchart; Process Control Chart
- Lessons Learned



The team identified these hidden costs:

- Discourage development and Job Creation– Owners or potential property owners may be discouraged from improving their property because zoning delays increase development costs pushing them to consider other opportunities even, perhaps, outside the UMSA. *(Not Calculated)*
- Encourage illegal activity- *a complex and lengthy process provides an excuse to proceed without proper approvals. (Not Calculated)*
- More Violations require more enforcement staff – *Increased number of enforcement workload results from increased violations due to proceeding without proper approvals. \$322,000*

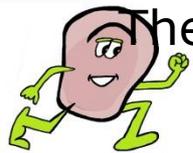
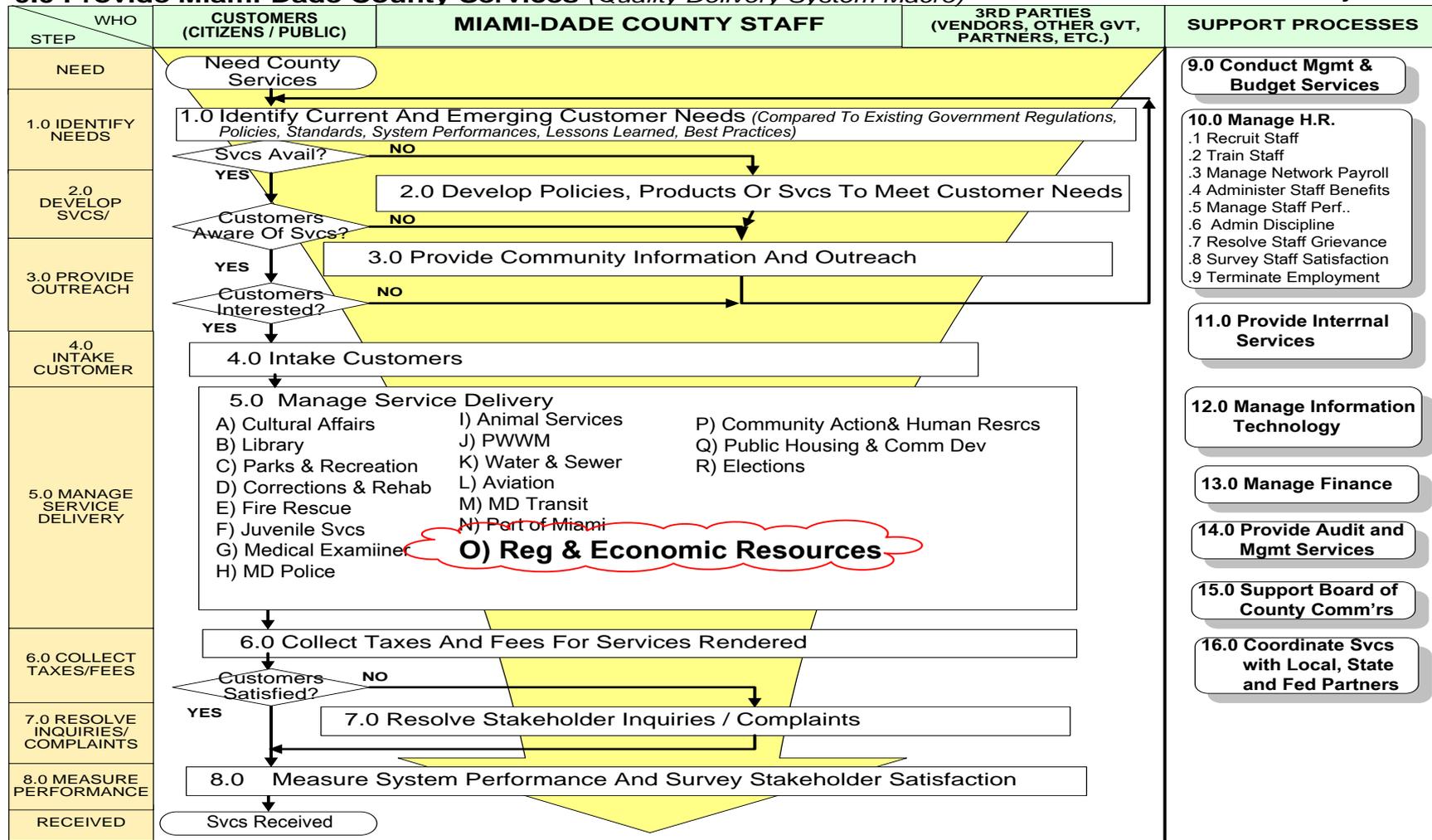


Review Miami-Dade's Quality Delivery System

We noted where our process "fits" in the MD Quality Delivery System.

0.0 Provide Miami-Dade County Services (Quality Delivery System Macro)

Process Owner: Mayor



The team will focus on a Collection Process in the Aviation Area



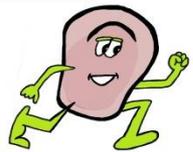
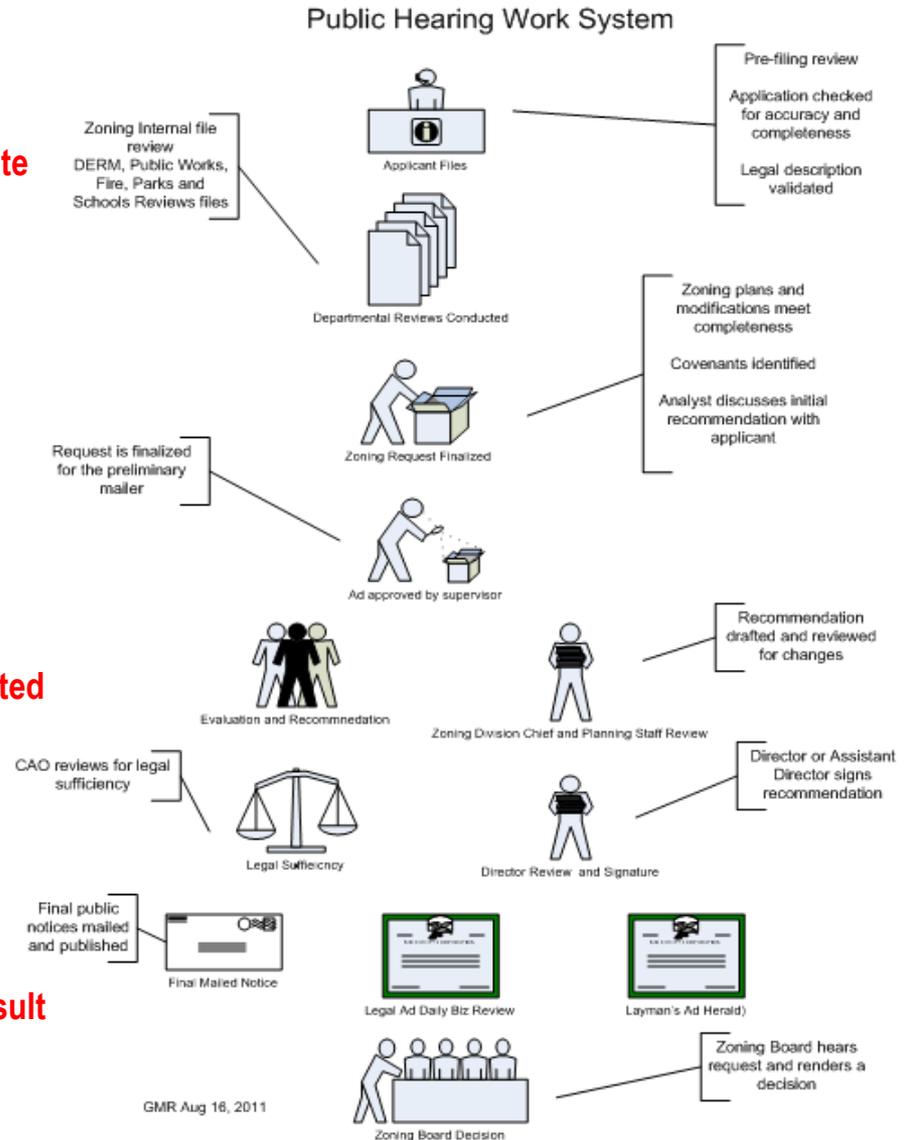
Review Process Flow Chart/ Key Measures

•M1: Avg. # days – Application Date to Routing Date

•M2: Avg # days – Application Date to Last Departmental Review

•M3: Avg # days – Application Date to Pre-Kit Routed

•M4: Avg # days – Application Date to Hearing Result



Identify Data Collection Needs

- Data Analyzed:
 - 93 Cases reviewed; 2 outliers removed (>1400 days)
 - 91 Cases Analyzed
 - Non-DIC, DRI, or Administrative applications
 - Cases that went to hearing and received a disposition between January, 2013 through mid November, 2013
 - Note: Application Date varies a great deal; subject to different processes
 - Note: Incomplete/Unusual Data Entries

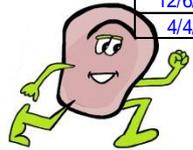


Identify Data Collection Needs

The team developed a data collection spreadsheet...each row is a Zoning Change Application request.

BCB	D E M O G R A P H I C S												
	WHO			WHERE				WHAT					
	B	C	D	E	F	G	H	I	J	K	L	R	
	Line #	Applicant Type	RER Zoning Reviewer	Other Reviewers	Community Councils	District	Zipcode	Type of Location	Type of Property	Type of Request	Rqst to Correct Current Violation?	Request FEE	Hearing Had to be Rescheduled?
											%Y	Avg	%Y
											66.7	\$117	66.7
1	Owner	Smith	XYZ	XYZ	1	33212	Business	Commercial	Set-Back	Y	\$ 100	Y	
2	OwnerAgent	Jones	AAA	AAA	3	45332	Residence	Residential	Re-Zoning	N	\$ 150	N	
3	Application Mgr	White	ABC	ABC	5	33211	Empty Lot	Commercial	Use Variance	Y	\$ 100	Y	

MILESTONE DATES									DURATION						OUTCOMES		
S	T	U	V	W	X	Y	Z	AA	AC= U-S	AD= W-U	AE= X-W	AF= Y-X	AG= Z-Y	AH= AA-Z	AI= AA-S	AP='Y' if AH<=180	BB
1- Application Date	2- Routed to Reviewers Date	Last Review Rec'd From: Date	3- Last Review Received Date	4 Pre-Kit Routed Date	5- Final Recommndn for Dir. Signature Date	6- Final Kit Routed Date	7- Hearing Held Date		Application TO Routed to Rvrs	Routed to Rvrs TO Last Review Rec'd	Last Review Rec'd TO Pre-Kit Routed	Pre-Kit Routed TO Final Recom fo Dir Sgnt	Final Recom TO Final Kit Routed	Final Kit Routed TO Hearing Held	Application TO Hearing Held	Hearing Held within 180 Days of Request?	Comments (Results)
% Mo									Avg # of Days						%Y		
25.5									11.8	240.7	54.4	18.5	4.5	15.8	342.7	31.9	
									P1	P2	P3	P4	P5	P6	Q2	Q1	
2/6/12	Mo	2/21/12	PWK	12/3/12	12/20/12		1/3/13	1/9/13	15	286	17			6	338	N	APPROVED
12/6/11	Tu	1/24/12	DERM	10/18/12	12/28/12	1/4/13	1/8/13	1/15/13	49	268	71	7	4	7	406	N	APPROVED
4/4/12	We	4/13/12	ZONING	10/24/12	12/28/12	1/4/13	1/8/13	1/15/13	9	194	65	7	4	7	286	N	APPROVED

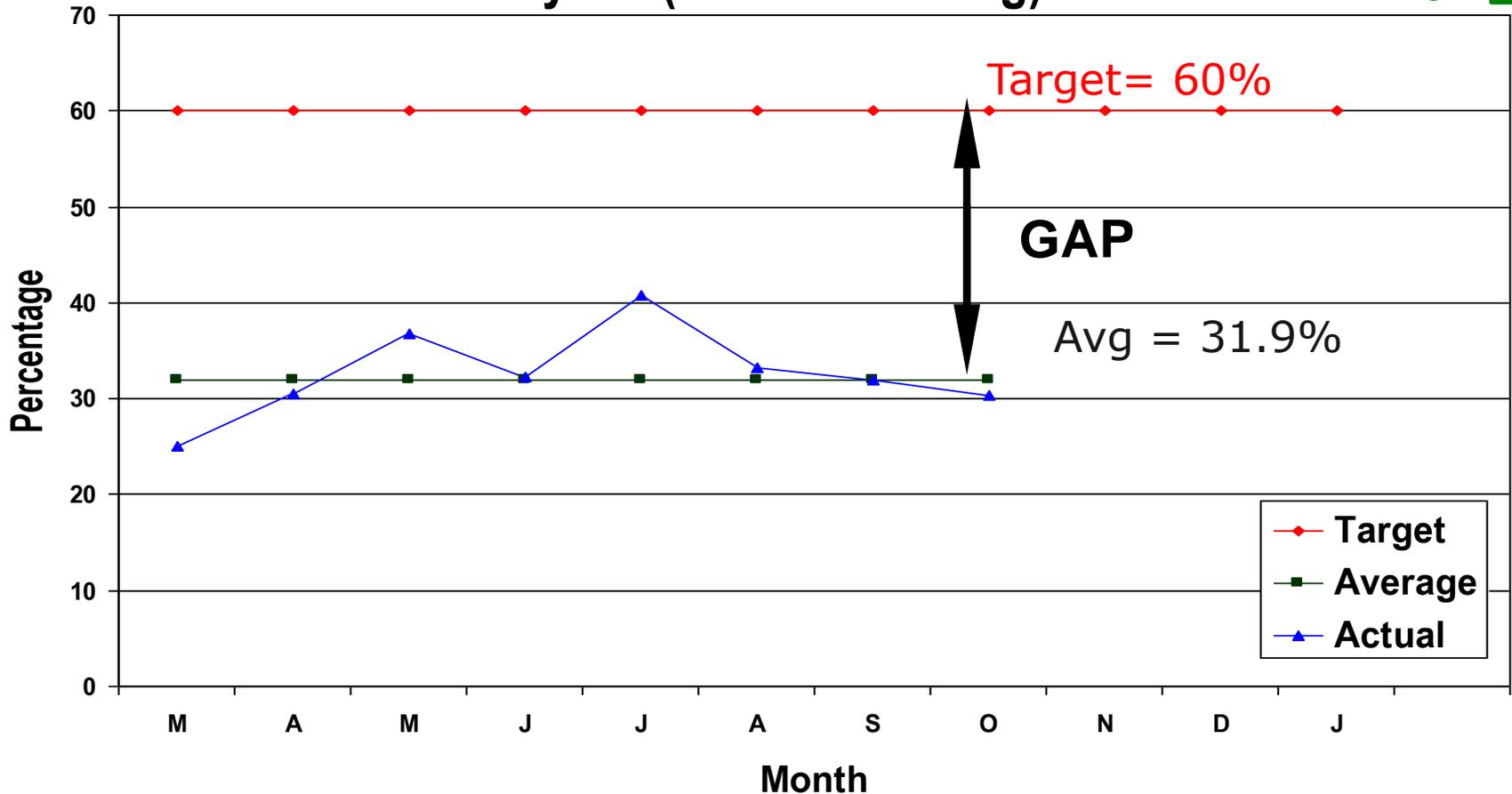


Review Selected Indicator

The team collected Q1 indicator data and reviewed performance trends:

Q1 - % of Hearing Request where Zoning Hearing was Held within 180 Days (3 Month Ending) 2013

3

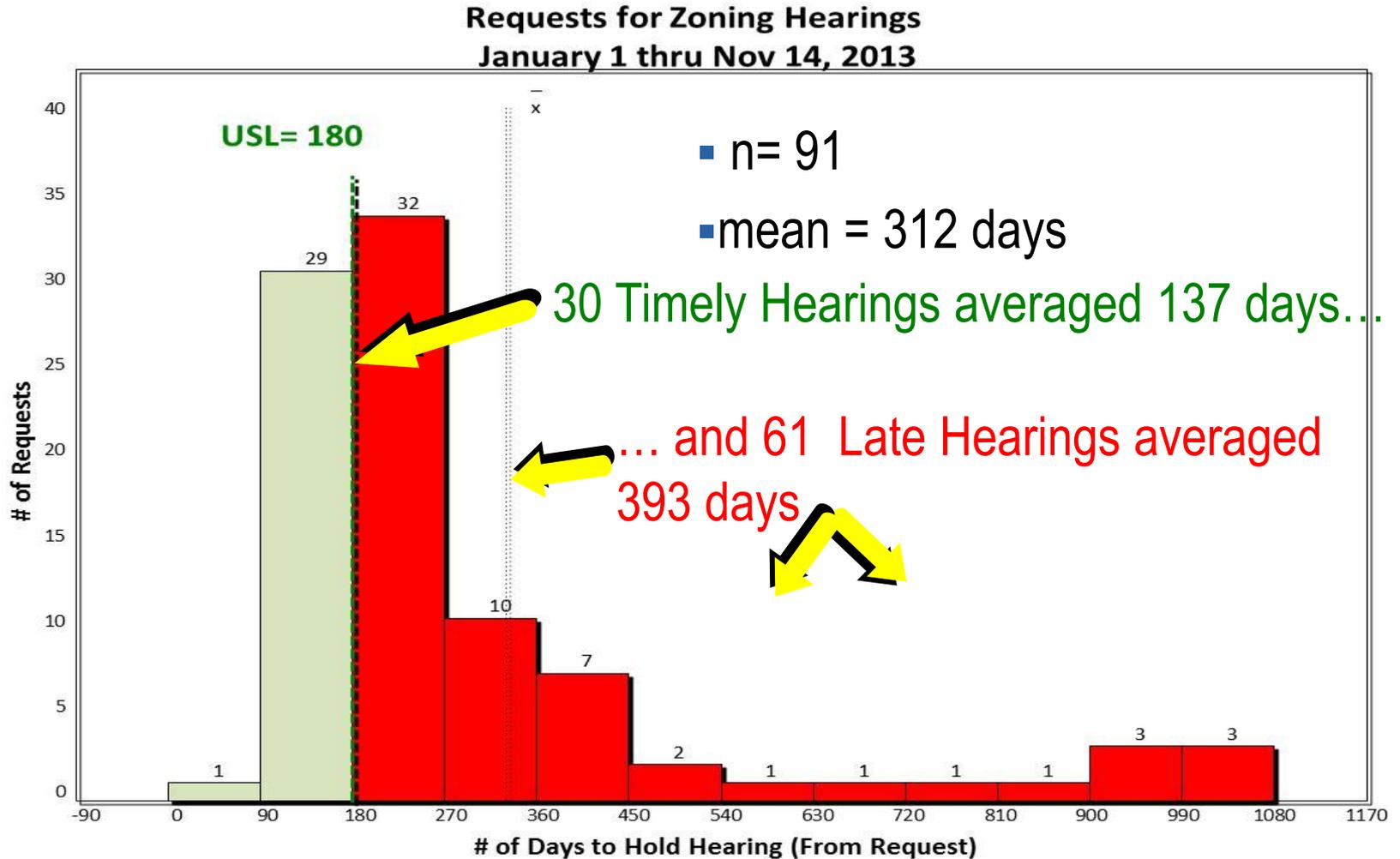


The team next looked closer at the Gap.

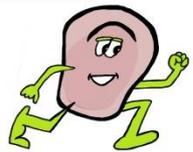


Stratify the Problem

The team stratified Hearing Requests using a histogram and found...



The team looked closer at comparing the **Late** to the **Timely** Hearings.



Stratify the Problem

The team compared the **LATE Hearings** to the **TIMELY Hearings** and found...

Process Requests for Zoning Changes			
Overall Average	61 Late Hearings	30 Timely Hearings	Difference
12	14	7	7
215	276	77	199
59	67	38	29
26	35	16	20

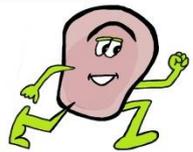
•M1: Avg. # days – Application Date to Routing Date

•M2: Avg # days – Routing Date to Last Departmental Review

•M3: Avg # days – Last Dept Review to Pre-Kit Routed

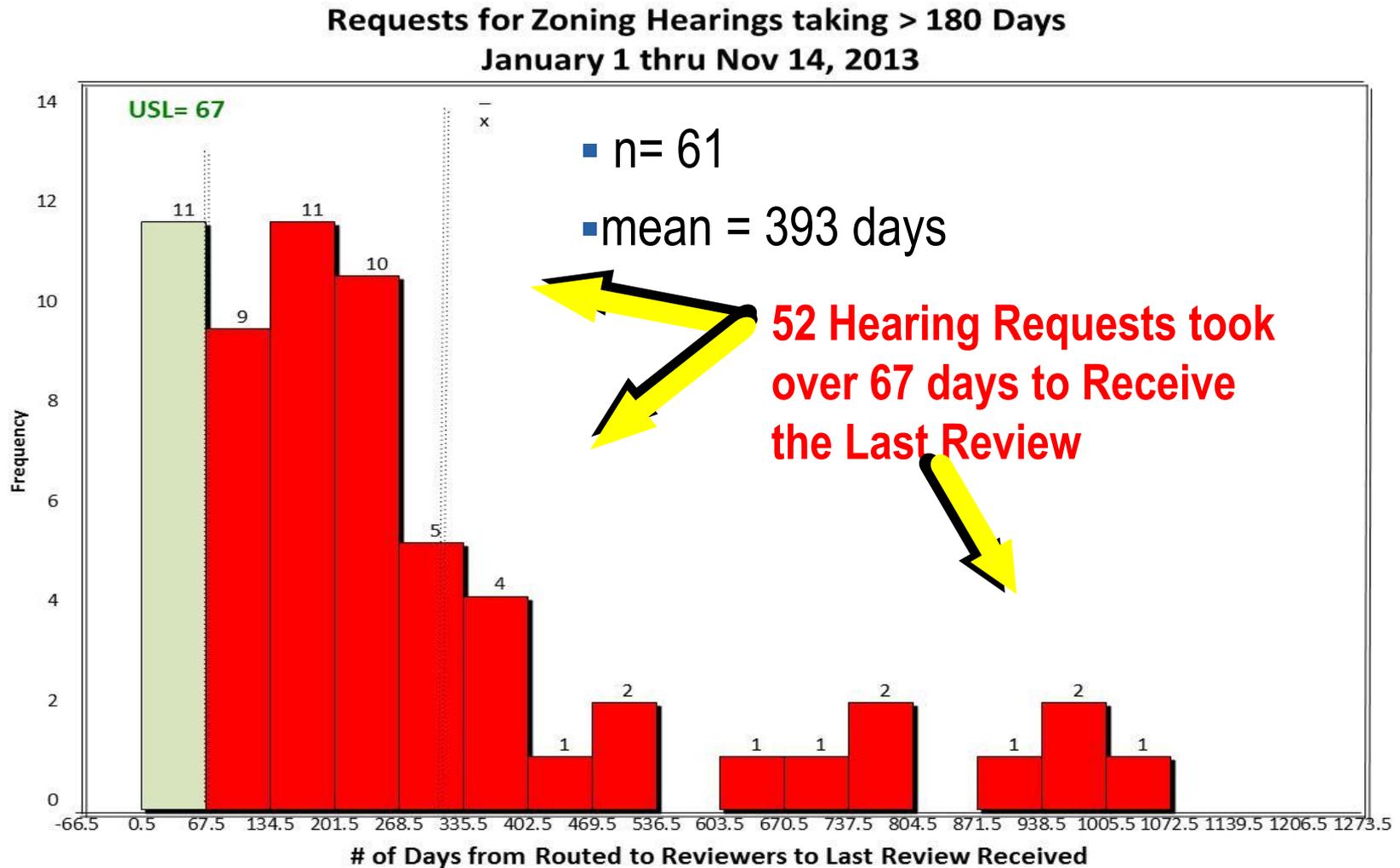
•M4: Avg # days – Pre-Kit Routed to Hearing Result

The team looked more closely at the 61 LATE Hearings in the second process step of receiving reviews from various reviewers.

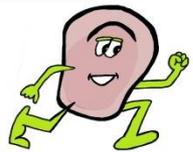


Stratify the Problem

The team stratified the 61 Requests in the review process step and found...



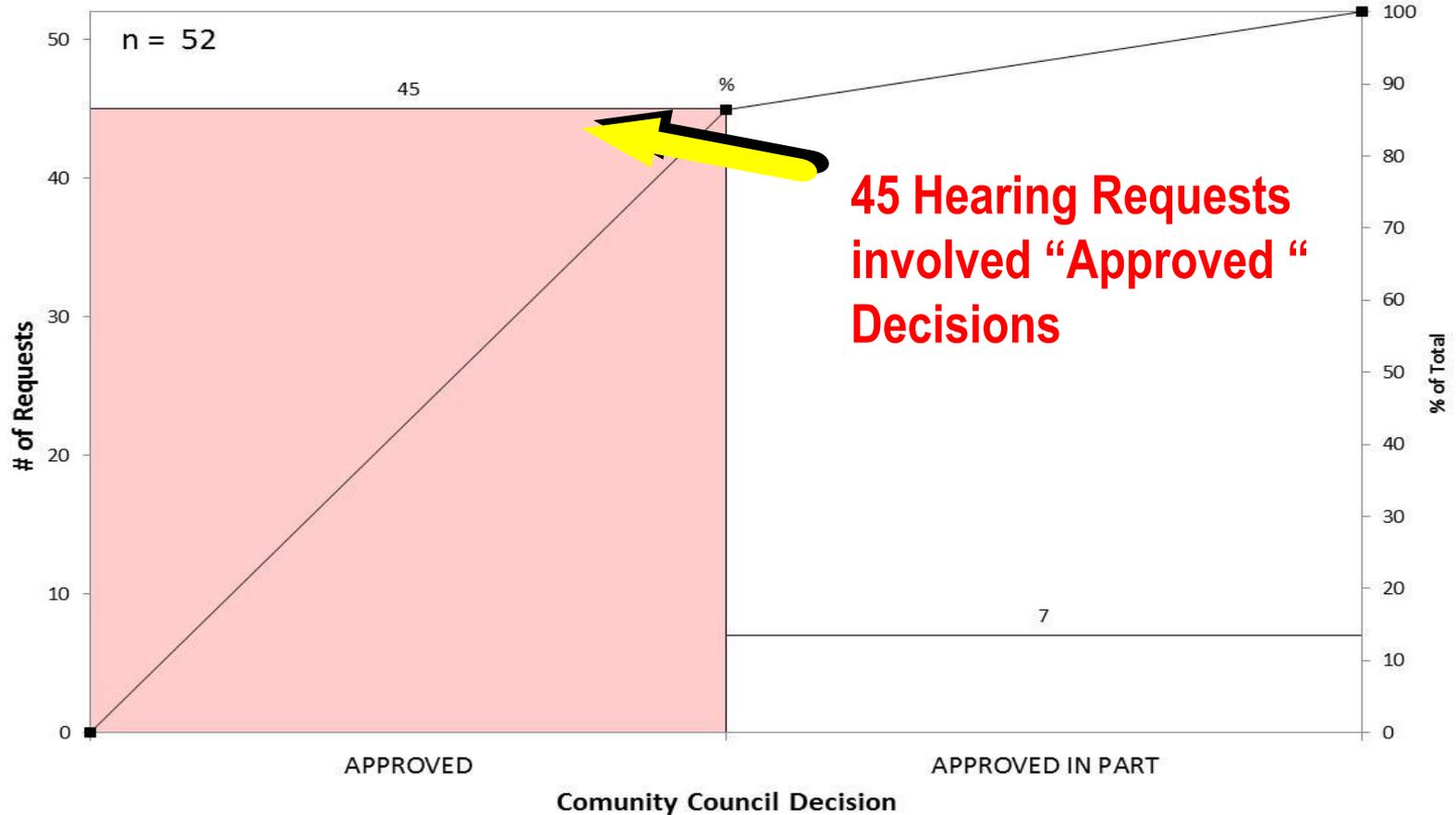
The team looked closer at these 52 Hearing Requests.



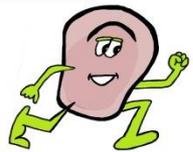
Stratify the Problem

The team stratified the 52 Hearing Requests many ways and found...

Requests for Zoning Hearings taking > 180 Days and >67 days to Review
- January 1 thru Nov 14, 2013



The team looked closer at these 45 Hearing Requests.

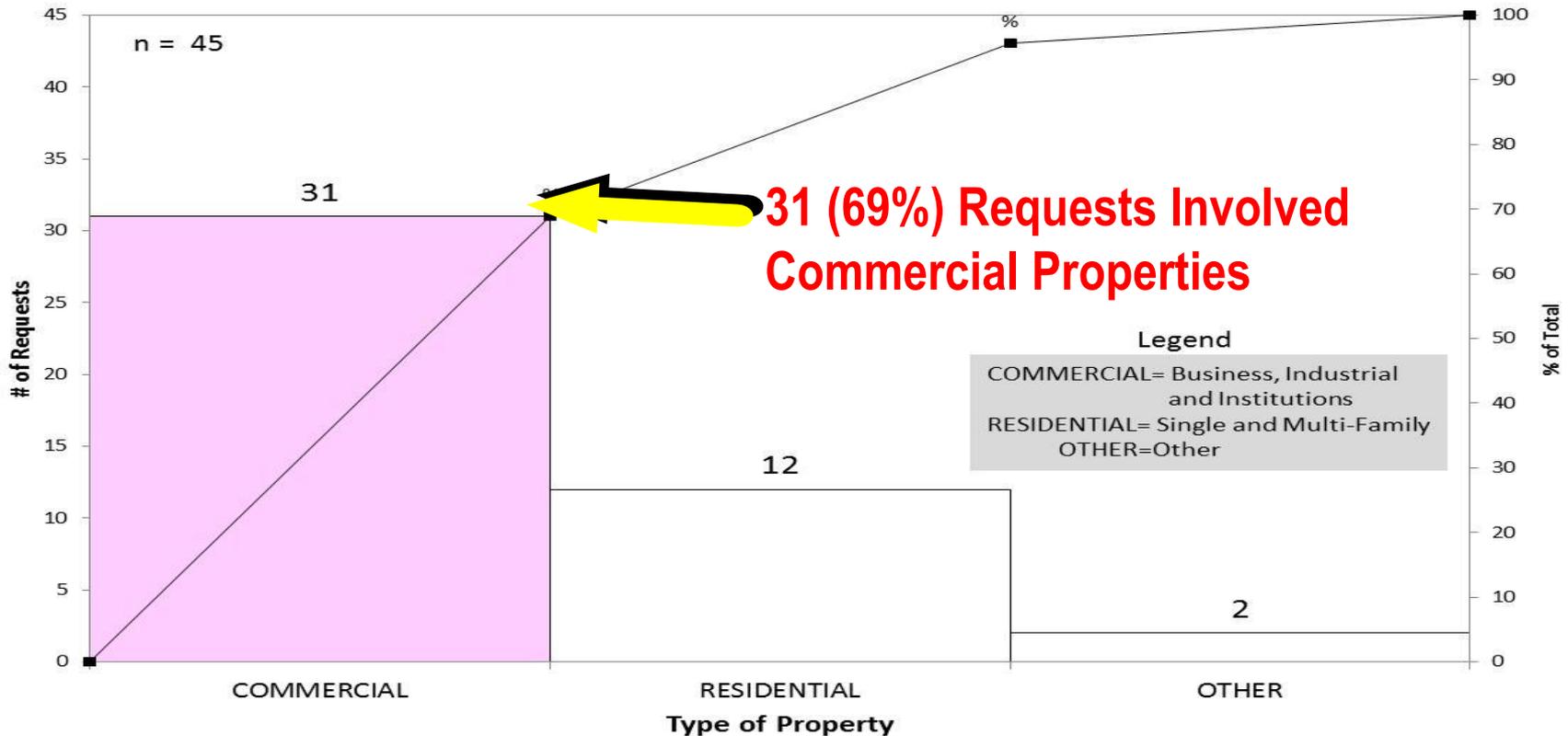


Stratify the Problem (Continued)

The team stratified the 45 Hearing requests many ways and found...

5.,6.,7.,8. ✓

Approved Requests for Zoning Hearings taking > 180 Days and >67 days to Review - January 1 thru Nov 14, 2013



Problem Statement: *"31 Approved Commercial Zoning Requests that took greater than 180 Days for a Hearing required over 67 Days to Receive the Last Review"*



Identify Potential Root Causes

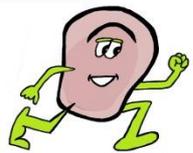
The team reviewed 16 Hearing Requests' documentation and interviewed involved staff before conducting Single Case Bore Analysis.

Single Case Bore Analysis

Problem Statement: "31 Approved Commercial Zoning Requests that took greater than 180 Days for a Hearing required over 67 Days to Receive the Last Review"

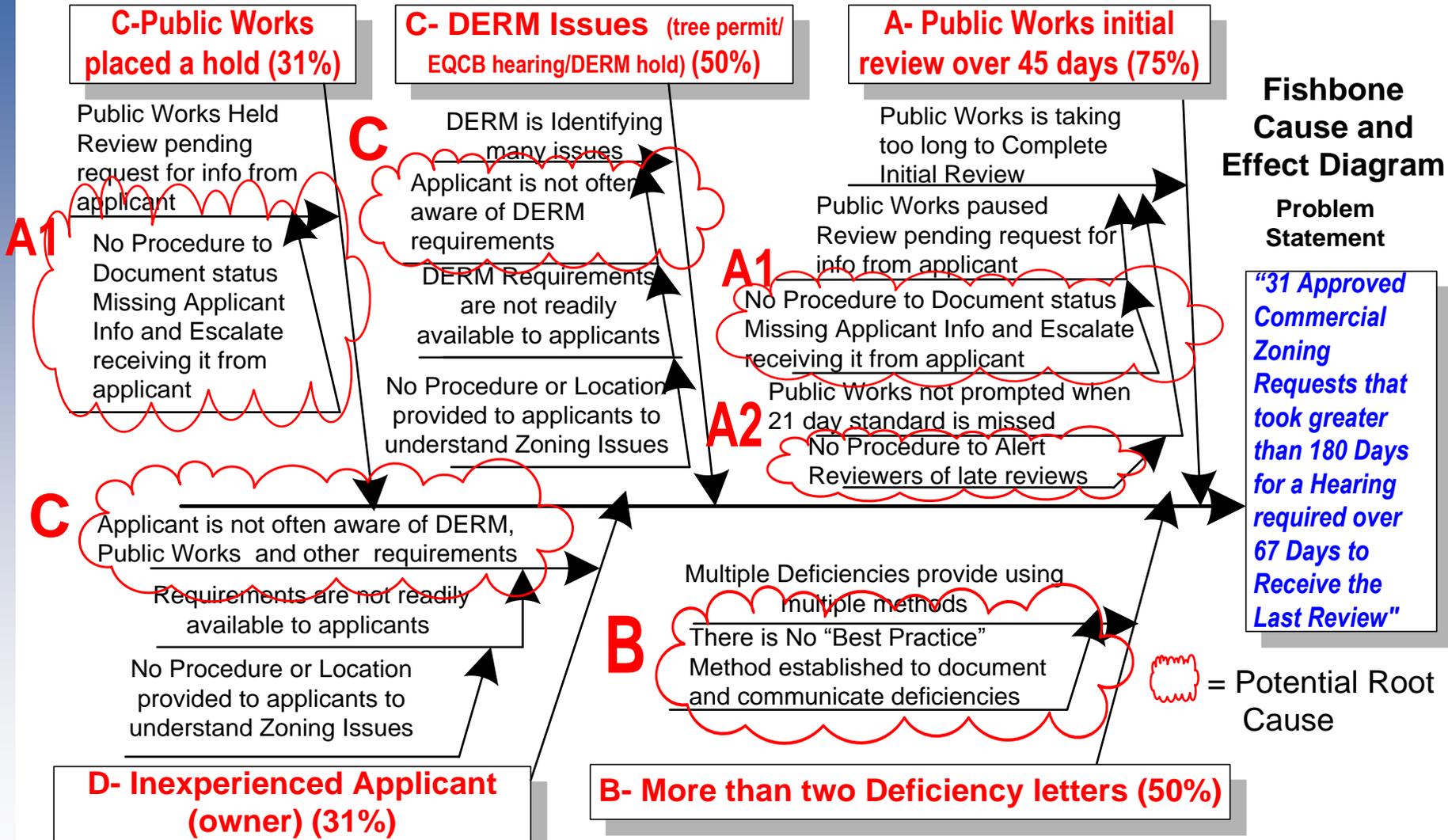
Reasons or Factors (That possibly contributed to Late Review of request)	Sampled 16 of the 31 Zoning Requests														Total	Percentage		
	13-9-CZ10-1 Z2013000009	13-7-CC-1 Z2012000138	12-10-CZ8-2 Z2012000020	13-1-CZ8-1 Z2012000054	13-10-CZ12-1 Z2013000719	13-2-CZ8-3 Z2012000077	13-9-CZ11-2 Z2012000120	13-7-CZ5-1 Z2012000079	12-12-CZ8-1 Z2011000135	13-7-CZ15-1 Z2012000123	13-10-CZ10-2 Z2012000142	13-10-C14-1 Z2012000138	13-10-CZ8-1 Z2012000102	13-5-CZ8-2 Z2012000083			13-5-CZ8-1 Z2012000030	13-11-CZ10-1 Z2012000111
1) Missed July dead line-no hearings in August	X																1	6%
C 2) DERM Issues (tree permit/EQCB hearing/DERM hold)	X					X	X	X		X		X	X		X		8	50%
B 3) More than two Deficiency letters	X		X		X			X		X	X		X	X			8	50%
4) Required CAO to establish correct process for hearing (DRI vs. Hearing)		X															1	6%
5) Traffic Study (required by Zoning)		X															1	6%
6) Applicant's negotiation of recommendantion			X			X		X						X			4	25%
A 7) Public Works initial review over 45 days	X		X	X		X	X	X	X	X	X		X	X	X		12	75%
E 8) Public Works placed a hold				X	X		X	X				X					5	31%
9) Deficiencies found late in the process							X								X		2	13%
10) Deferred/ lack of quorum (one or more times)									X				X				2	13%
11) Dead Line Letter issued											X						1	6%
D 12) Inexperienced Applicant (owner)					X		X				X	X		X			5	31%
13) Deferred/ neighbors protest or other												X	X				2	13%
14) School Board hold												X					1	6%

The team next looked closer at these four (4) factors.

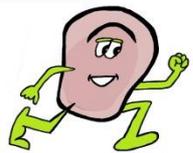


Identify Potential Root Causes

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



The team next looked to verify these four (4) Potential Root Causes.

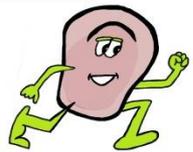


Verify Root Causes

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
A1 No Procedure to Document status Missing Applicant Info and Escalate receiving it from applicant	Team reviewed the Procedures for deficiencies and verify that there is Complete written procedure on how deficiencies are documented and escalated	Root Cause
A2 No Procedure to Alert Reviewers of late reviews	Review system alerts and verified there is no system alerts built into zoning system. The team verified there is no written procedure to notify reviewers of review deadlines and overdue reviews	Root Cause
B There is No "Best Practice" Method established to document and communicate deficiencies	Reviewed policies and procedures and verified no Written instruction on how to document and communicate deficiencies.	Root Cause
C Applicant is not aware of DERM, Public Works, or other requirements for efficient, successful, hearing	Case Analysis and Single Bore Analysis verified that departmental reviews are the longest part of the process; and requirements are often substantial (EQCB, traffic studies, etc.)	Root Cause

All four (4) were validated as root causes.

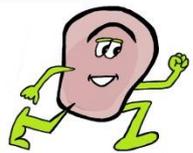


Identify and Select Countermeasures

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

Countermeasures Matrix		
Problem Statement	Verified Root Causes	Countermeasures
<p>“31 Approved Commercial Zoning Requests that took greater than 180 Days for a Hearing required over 67 Days to Receive the Last Review”</p>	<p>A1 - No Procedure to Document status Missing Applicant Info and Escalate receiving it from applicant</p>	<p>A1/B1- Establish Deficiency Procedure for all Reviewers to include written description on deficiency, who deficiency is communicated to; statement of how this deficiency affects timeline</p>
	<p>A2 - No Procedure to Alert Reviewers of late reviews</p>	<p>A3- Program Alerts into Zoning System to be sent to Reviewers and Mgmt for: "24 hours until Review Due" and "Review Past Due as of</p>
	<p>B - There is No “Best Practice” Method established to document and communicate deficiencies</p>	<p>A2/B2- Establish Deficiency Policy for Applicants to require a meeting prior to 3rd deficiency in order to discuss 3rd deficiency</p>
	<p>C - Applicant is not aware of DERM, Public Works, or other requirements for efficient, successful hearing</p>	<p>C1- Require Pre-Submittal Meeting with multiple depts/agencies for New or Inexperienced Applicants</p> <p>C2- Generalized Checklist for Applicants for common types of businesses or zoning areas</p> <p>C3- Make available the procedure to Applicant on How to search for other Successful Zoning changes</p>

The team selected 6 countermeasures for implementation.



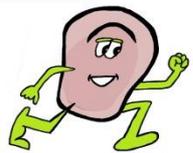
Identify Barriers and Aids

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

Countermeasure(s): Implement 6 Countermeasures to Reduce time to Zoning Hearings

Barriers		Aids
Impact (H, M, L)	Forces against Implementation	Forces For Implementation
H	1) Push Back from Public Works/DERM /Zoning <i>(Supported by Aid:A,B,C,D)</i>	A) Management very supportive of team's efforts
M	2) Limited Staff availability <i>(Supported by Aid:A,B,C,D)</i>	B) More Timely Resolutions of Deficiencies
M	3) IT Availability to Program and Legacy System Issues <i>(Supported by Aid:A,B,C,D)</i>	C) More Accurate Submissions
L	4) Push Back from Applicants <i>(Supported by Aid:B,C)</i>	D) More transparent and Accountable Process

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



Lessons Learned

- 1) The Stratification (Drill-down) process using Paretos and Histograms was very important in allowing the data to direct the team to the root cause area.
- 2) Learned that the difference between process time from application to hearing date is very different from actual work time regarding the application
- 3) It is important to identify Subject Matter Experts (SMEs) early in the process to help the team out in the area the data will take the team for root causes.
- 4) Learned that Zoning reviews is an iterative process involving many parties across and outside Miami-Dade County government

Next Steps

- 1) Continue to monitor the countermeasures and performance results.

