

Bureau of Pollution Control and Prevention

# Increasing Pollution Complaint Response Capacity



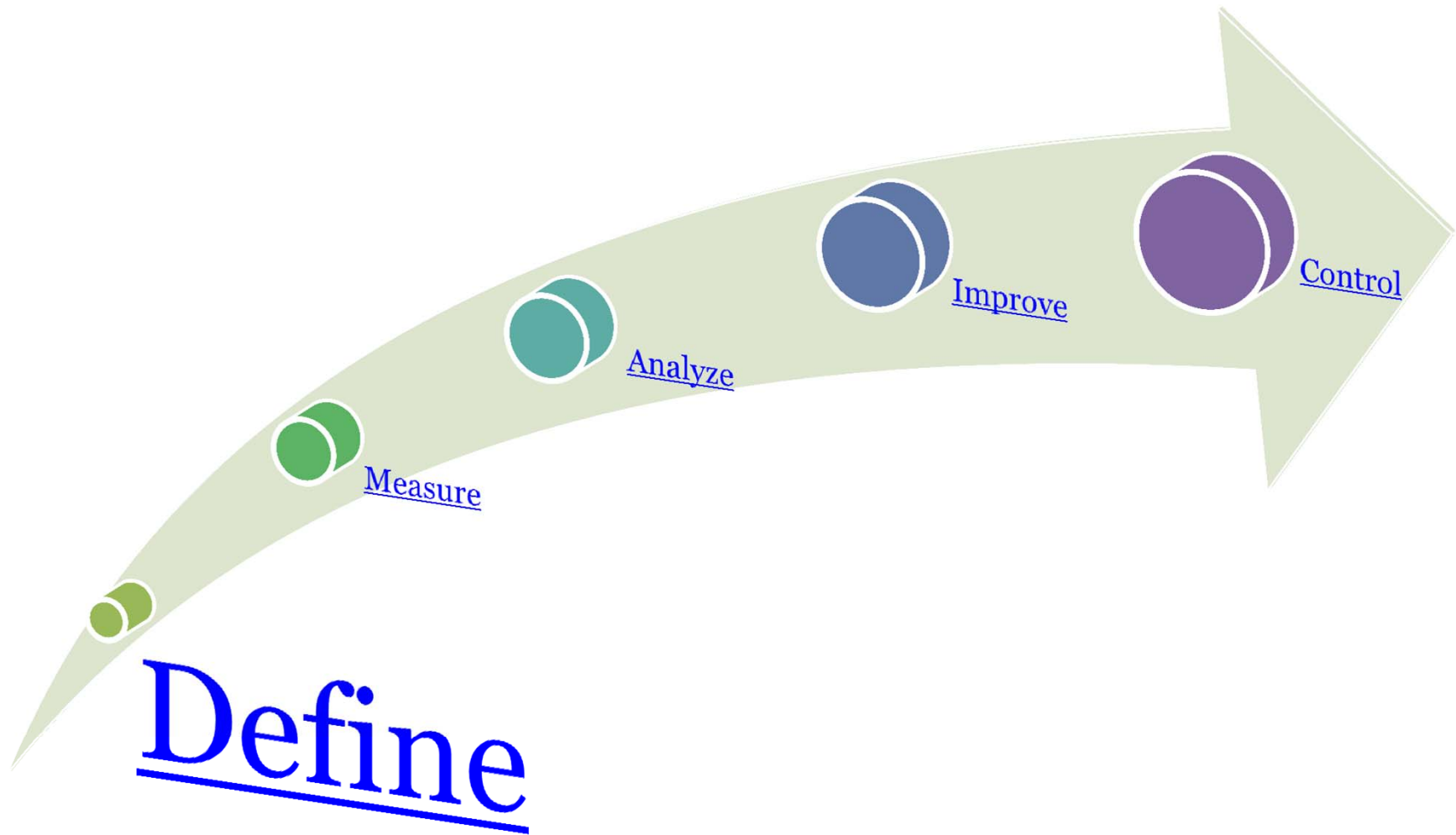
Lean Six Sigma Green Belt Project

12/18/2013



# Increasing Pollution Complaint Response Capacity through DMAIC Tool

- ☐ [Define](#)
- ☐ [Measure](#)
- ☐ [Analyze](#)
- ☐ [Improve](#)
- ☐ [Control](#)





## Define: Bureau Overview

- Bureau of Pollution Control and Prevention (BPCP)
  - Mission: Protect public health by improving the quality of ambient air, surface water, and land in Houston
  - Issue Areas: Air and water quality, landfills, industrial and municipal wastewater treatment plants, illegal dumping, illicit discharges and storage of solid/hazardous waste
  - Programs/Workloads: Complaint response, area surveillance, investigations, complaint enforcement and follow up, environmental monitoring, permitting and rule-making comments, state mandated hazardous site audits, and community outreach



# Define: Problems and Mission Statement

- Problems:
  - ❑ Staff reductions: (due to attrition and budget cuts)
    - Previously: Bureau of Air Quality Control - 40 employees for air issues
    - After 7/2010: BPCP - 37 employees for air, water, and land issues
  - ❑ Additional responsibilities: August 2013, Texas First District Court of Appeal reverses trial court judgment regarding Air Pollution Abatement Program that was ruling in favor of Business Coalition for Clean Air
- Result: lacking the capacity to fulfill all obligations
- Goal: Increase pollution complaint response capacity by eliminating waste, thus also improving quality and quantity of output by BPCP



Define

Measure



## Measure: Observations

- Transportation/Motion:
  - Driving time (more than 45 minutes between locations;  
Average of about 30 minutes)
  - Multiple trips back to the office
- Inventory:
  - Investigators print out multiple copies of electronically accessible reports
  - Administrative Assistants spending large parts of their day either printing forms or filing copies of permits and reports
- Waiting Time:
  - Needs additional GRIMM dust detector



# Measure: Observations

- Over Processing: unfriendly Lagan system
  - Wrong due dates
  - Investigators manually entering data in “other comments” section
  - Only one type of complaint available
  - Have to return to office for anything involving Lagan
  - Manually search for Notice of Violations (NOVs), Citations
- Defect:
  - No standard reporting format
  - No standard procedure for complaint response
  - Variance in investigation protocol and experience
  - Some investigators miss what others catch
  - Information just kept at investigator’s desk

# Measure: Data

- Water complaints: 10% of total complaints; Soil: 3-5% (not in Lagan)

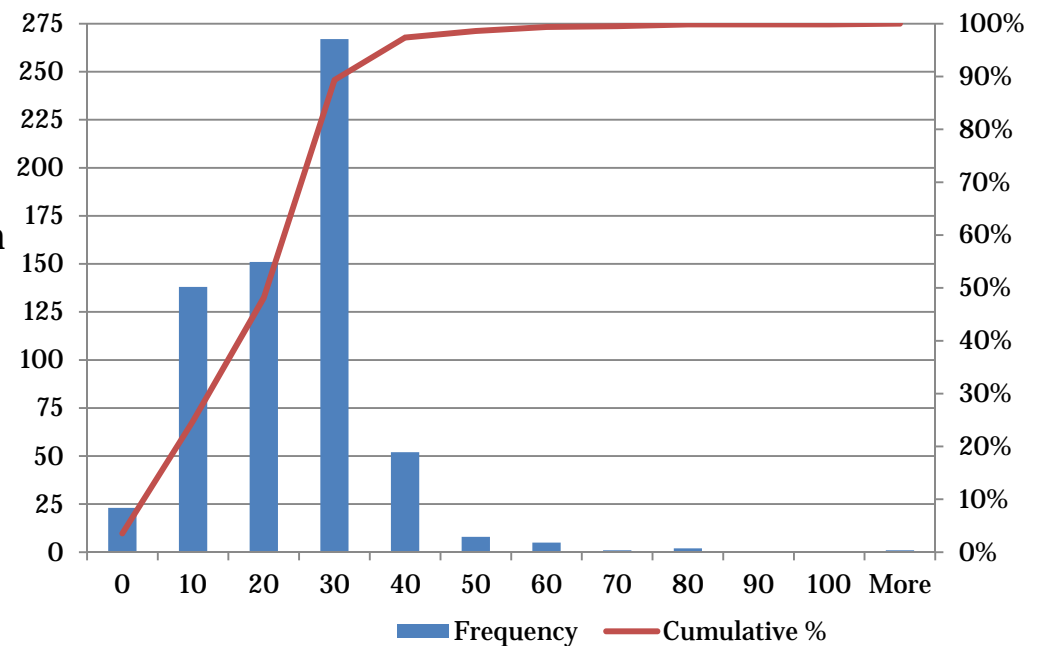
- 643 air complaints/FY13

- Average time to close: 19 days
- Value Add Time: 1 - 3.5 hours
- Takt Time: 3.2 Hours/Complaint

2.5 complaints/day

55 complaints/month

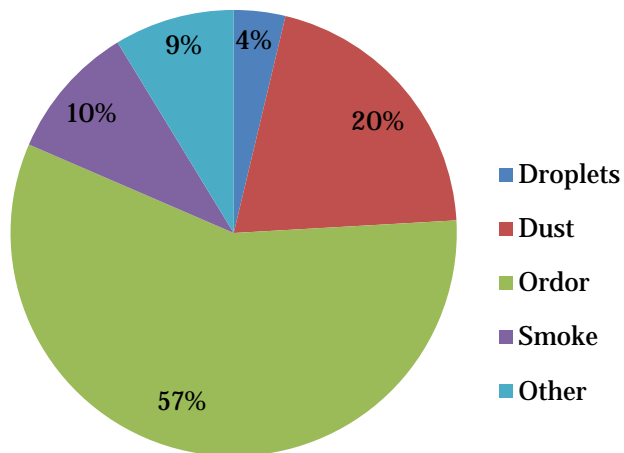
Days to Close



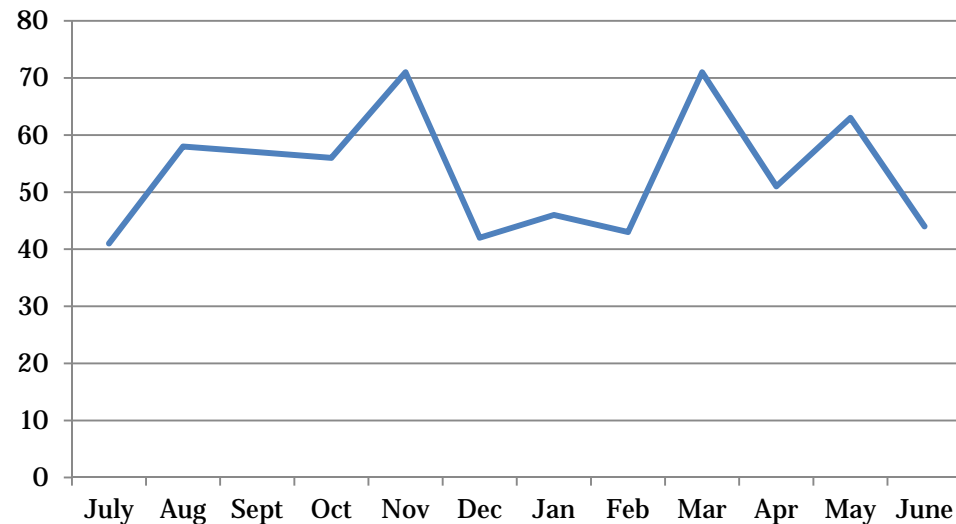
## Measure: Data

- 44 out of 643 afterhours air complaints
- 45 complaints on the weekend
- Most complaints require around 2 follow ups
  - Checking permits, ensuring compliance, or later surveillance

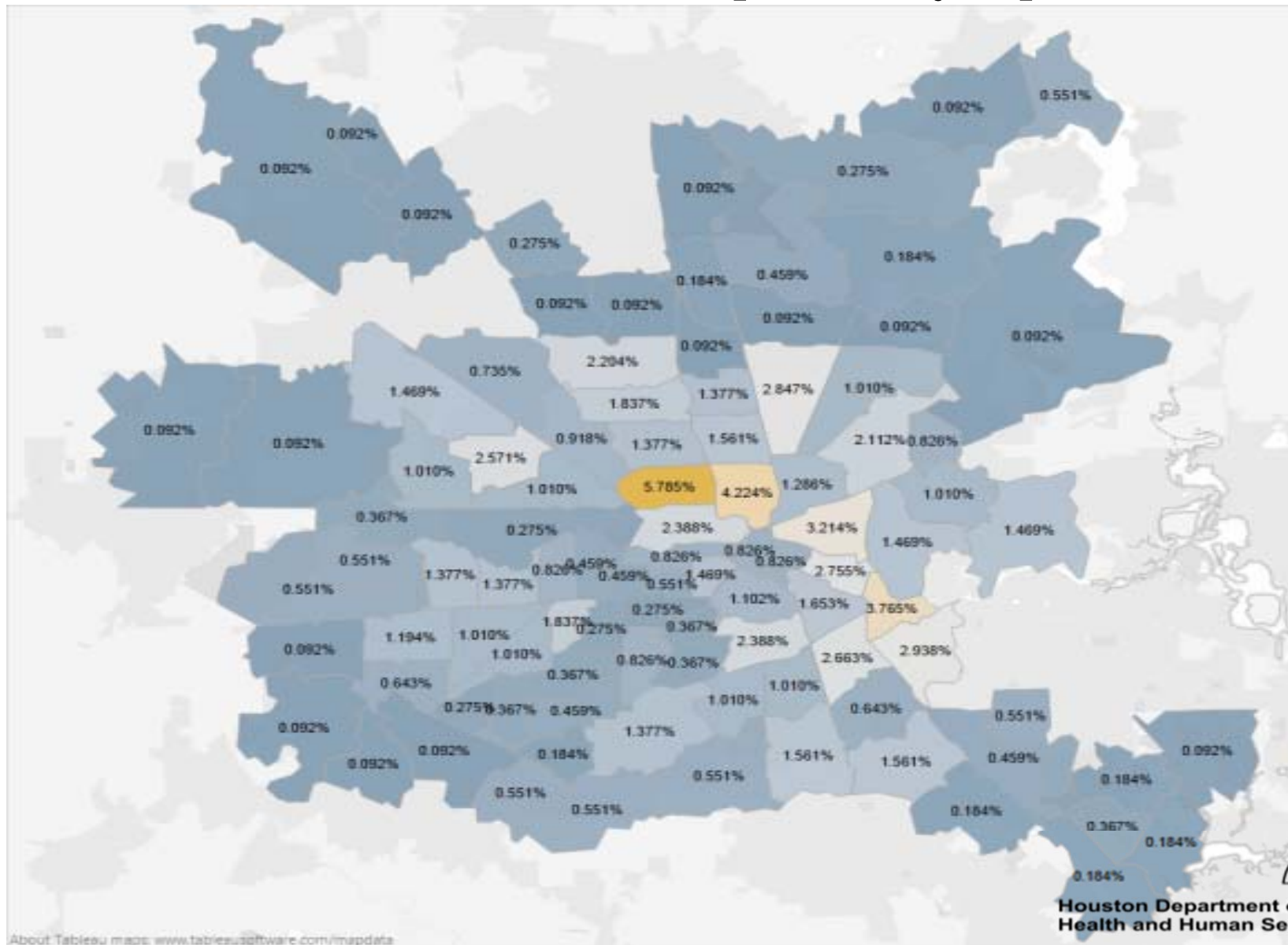
### Complaints by Type



### Complaints by Month



## Measure: Break Down of Air Complaints by Zip Code





Houston Department of  
Health and Human Services



## Analyze: Cost of Driving

<b>FY13</b>		
Cost per Mile	0.277964514	dollars (Fuel + Maintenance)
Total Mileage	76303.4	miles
Pure Driving Cost	\$ 21,209.64	

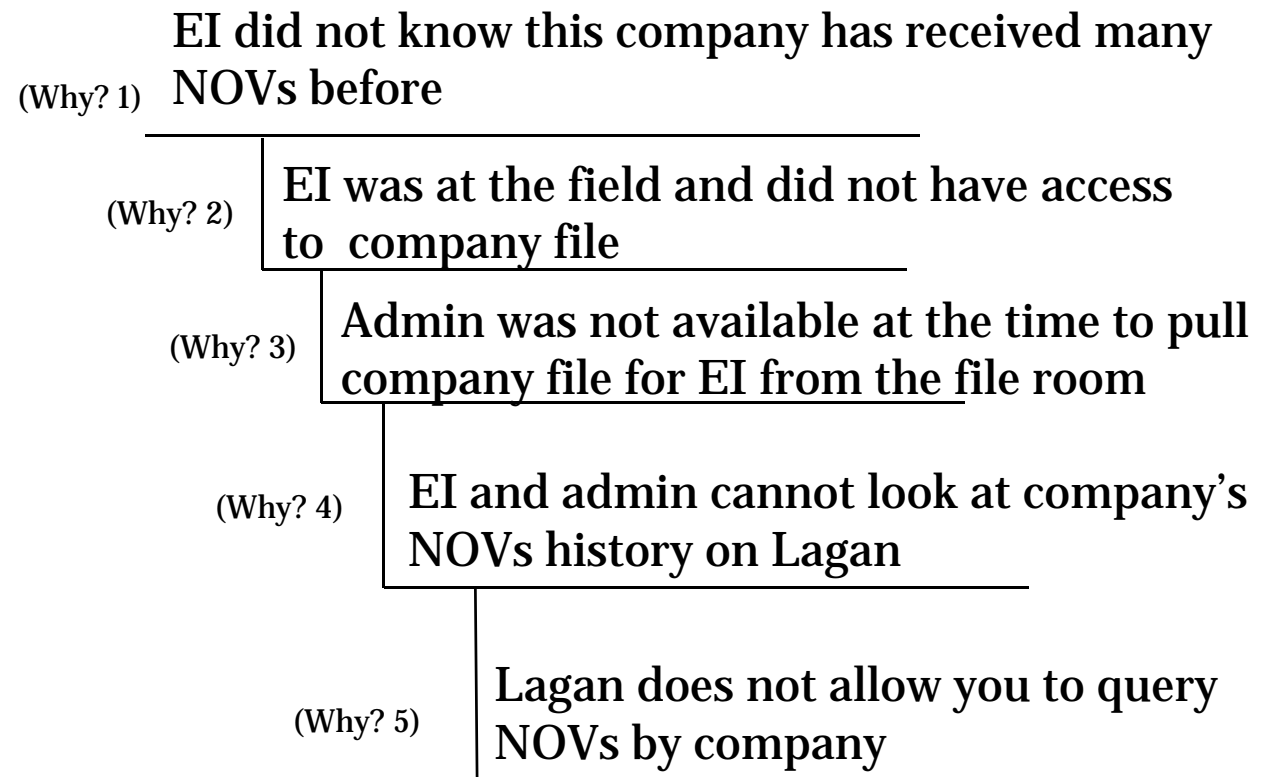
**\* Using fleet management cost**

# Analyze

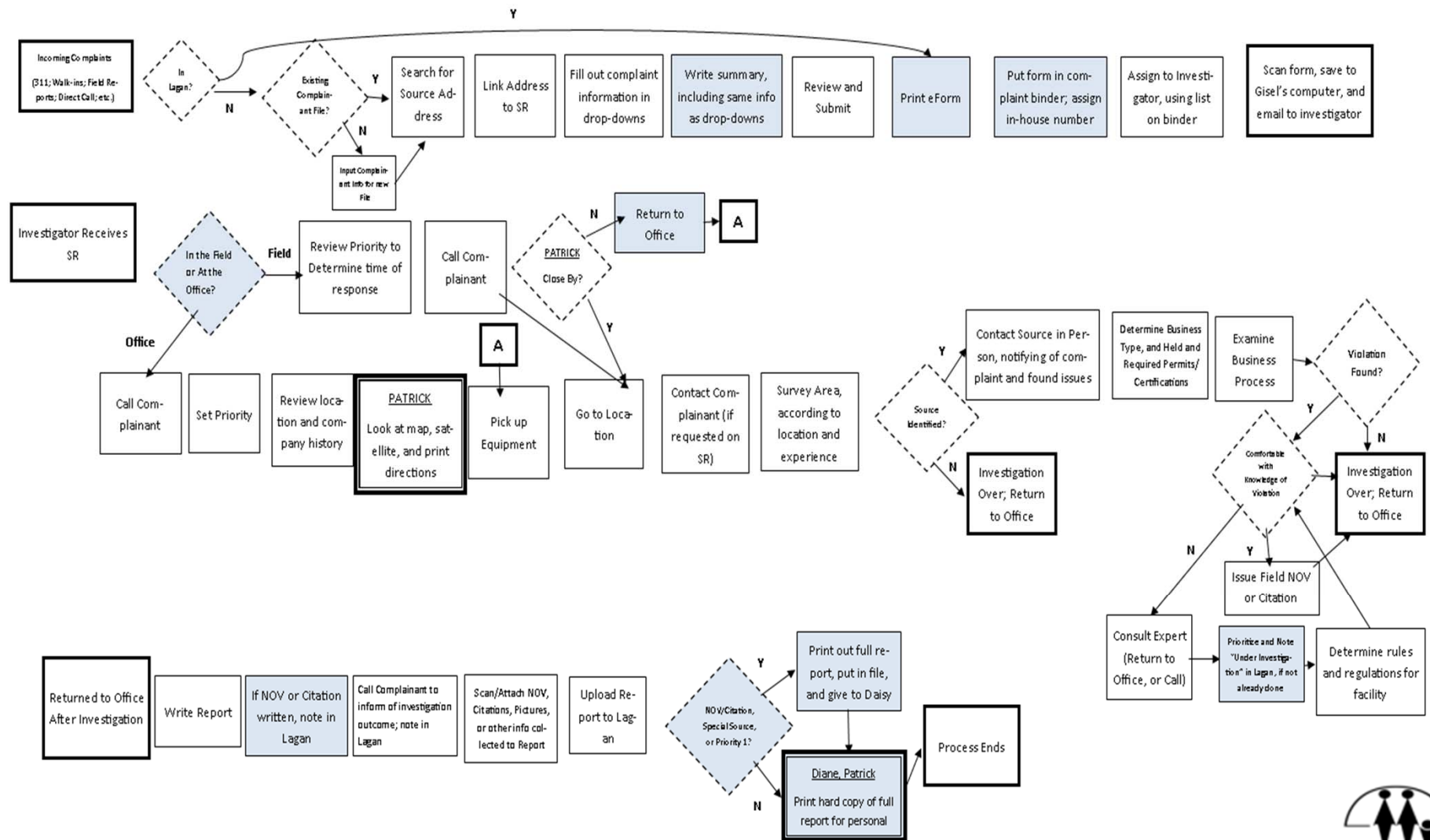
Month	# Case Received	# Cases Closed
July	41	53
Aug	58	41
Sept	57	60
Oct	56	66
Nov	71	65
Dec	42	61
Jan	46	28
Feb	43	37
Mar	71	60
Apr	51	65
May	63	64
June	44	48

# Analyze: The 5 Why's

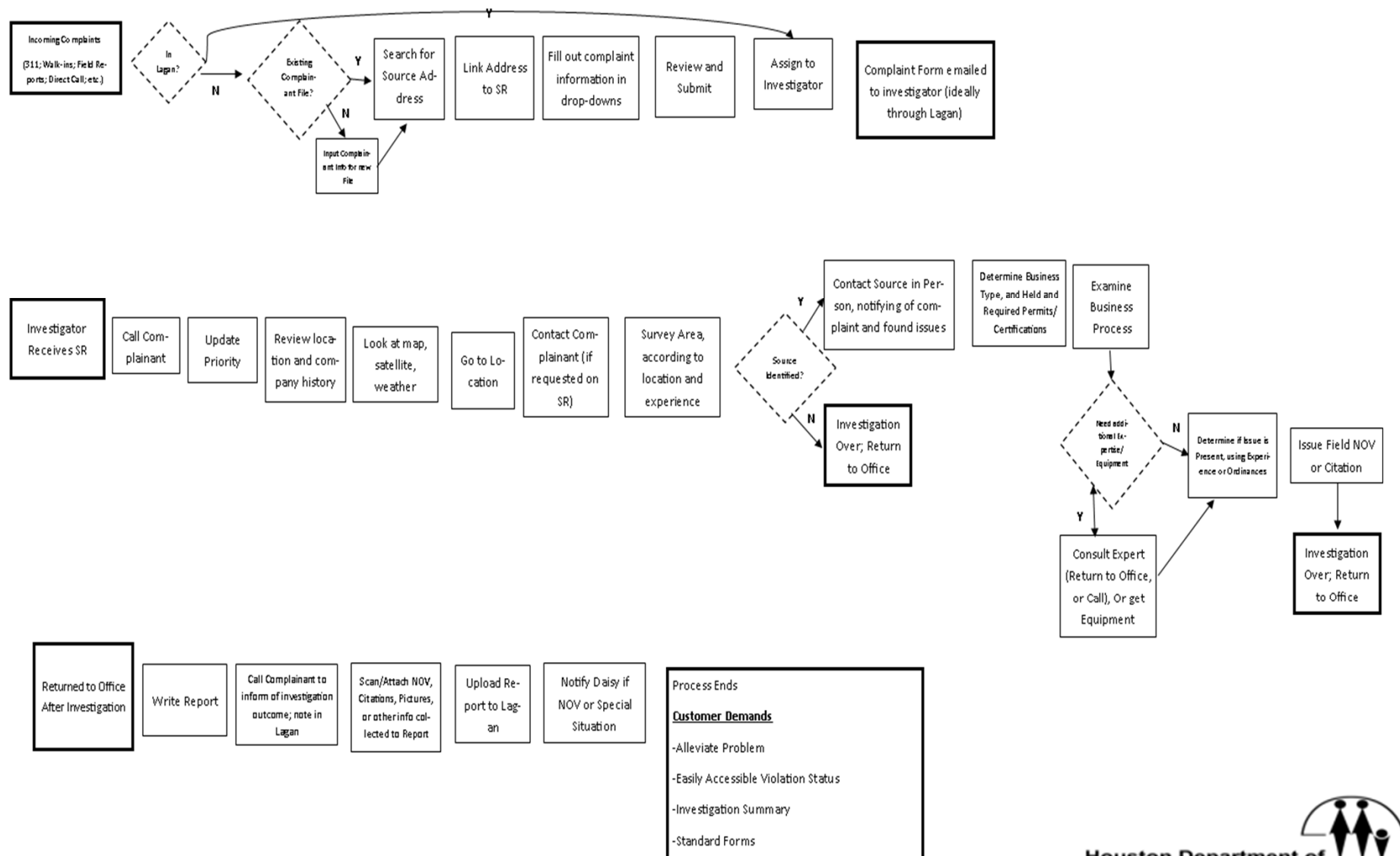
**Problem: EI gave a NOV instead of a citation to violator**

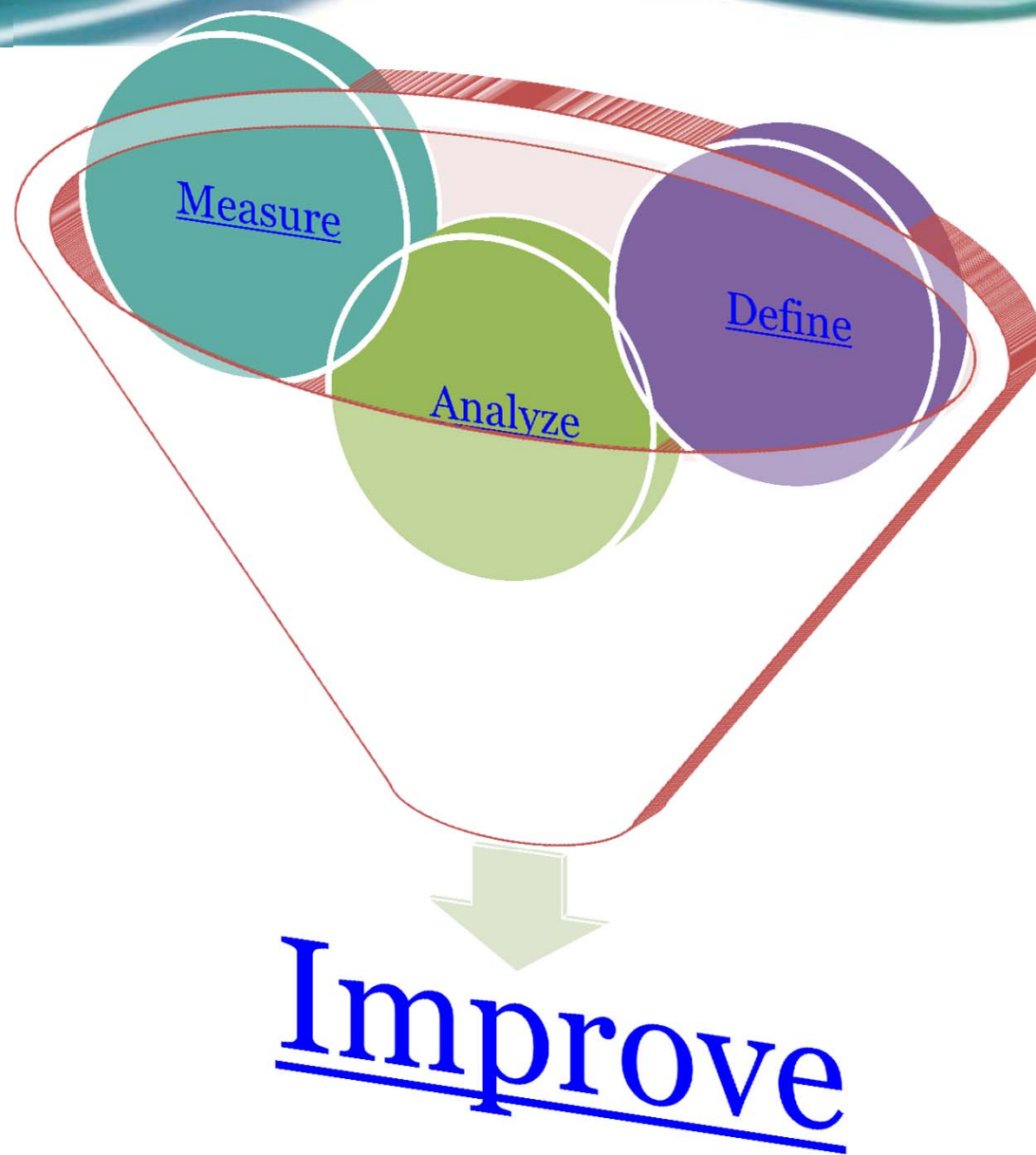


# Analyze: Current State (~50 steps)

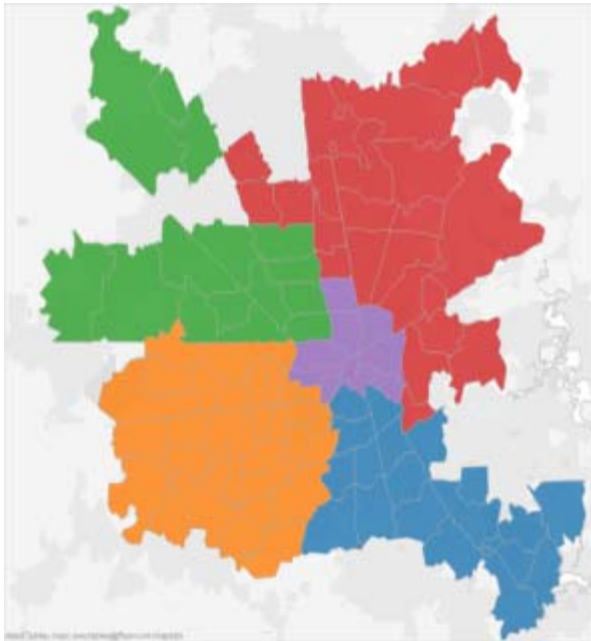


# Analyze: Future State (~39 steps)

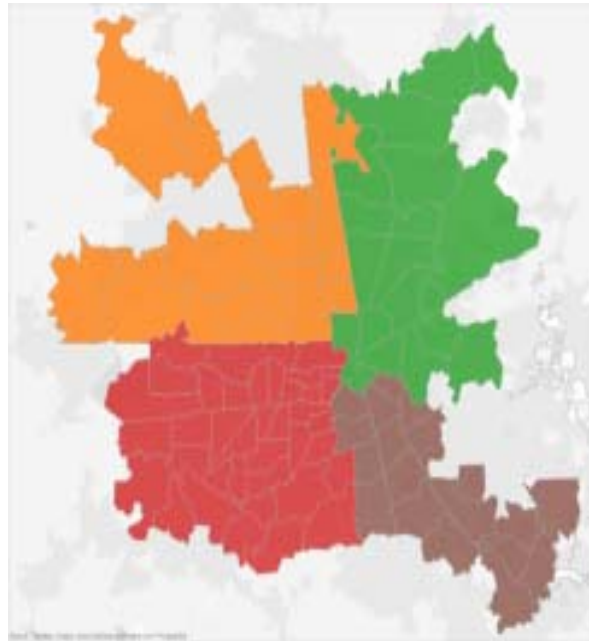




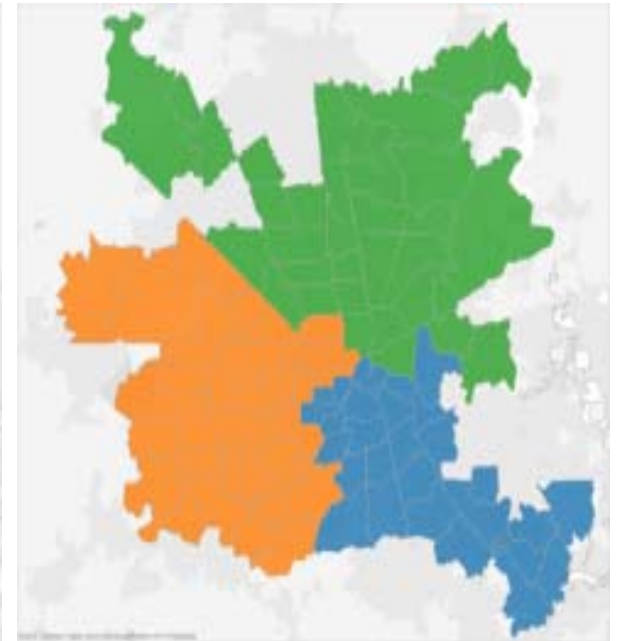
# Improve: District Map



5 districts



4 districts



3 districts

- SE: Body Shop, Refinery, Metal Recycle. NE, SW, NW: Combination
- Furthest two points are now about 40 minutes apart within a district, with the smallest district having a maximum of 15 minutes between points.

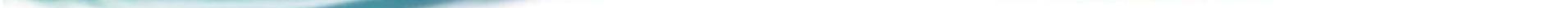
# Improve: District System

FY13 (w/o district system)	Cases	Percentage
Daisy James	1	0.2%
Darryl Tate	138	21.5%
Diane Williams	85	13.2%
Elmer Neal	96	14.9%
JoAnn Huffman	107	16.6%
JoAnn Moore	1	0.2%
Nguyen Ly	116	18.0%
Patrick Lee	65	10.1%
Sonja Lewis	5	0.8%
Unknown	29	4.5%
Grand Total	643	100.0%

FY13 (with district system)	Count of Date Received	Percentage
District Brown	161	25.0%
District Green	157	24.4%
District Orange	153	23.8%
District Red	163	25.3%
#N/A	9	1.4%
Grand Total	643	100.0%

## Monthly Distribution

FY 13 (with district system)	July-Aug	%	Sept-Oct	%	Nov-Dec	%	Jan-Feb	%	Mar-Apr	%	May-June	%	Total	%
District Brown	20	20%	24	21%	28	25%	22	25%	39	32%	28	26%	161	25%
District Green	27	27%	32	28%	25	22%	22	25%	30	25%	21	20%	157	24%
District Orange	24	24%	32	28%	31	27%	19	21%	20	16%	27	25%	153	24%
District Red	28	28%	23	20%	28	25%	25	28%	29	24%	30	28%	163	25%
#N/A	0	0%	2	2%	1	1%	1	1%	4	3%	1	1%	9	1%
Grand Total	99	100%	113	100%	113	100%	89	100%	122	100%	107	100%	643	100%
Differences (highest vs. lowest)	8	8%	9	8%	6	5%	6	7%	19	16%	9	8%	9.5	1%



Houston Department of Health and Human Services  
Bureau of Pollution Control and Prevention (BPCP)  
Complaint Investigation Report

Houston Department of  
Health and Human Services

**Complaint Request:** Complaint Number  
**Date/Time Received:** Click here to enter a date and time  
**Date/Time Investigated:** Click here to enter a date and time  
**Site/Facility Name:** Residential? Company?  
**Site/Facility Address:** Location Address  
**Weather Conditions:** Weather Information  
**Source Registration:** Permit #      **Reason:** Explain Reason  
**Refer to Source Registration for Confirmation:** Select Action

### Introduction:

**Investigation:**

**Process Description:**

**Complaint & Compliance History:**

### Conclusion:

**Written by:** Select Name.

**Date:** [Click here to enter a date](#)



Houston Department of Health and Human Services

# Improve: Standard Ordering Form

HOUSTON DEPARTMENT OF HEALTH AND HUMAN SERVICES FOUNDATION, INC.

**Bureau of Pollution Control and Prevention**

7411 Park Place Blvd. Houston, Texas 77087 (832) 393-5730

## Order Form

Date 7/31/20013 Name Gisel Chavez  
HDHHS Division BPCP  
Phone Number 832-393-5730

Vendor Information				
Company Name <u>Bob Shirt Company</u>				
Address <u>1234 Main Street</u>				
<u>Houston, TX 77456</u>				
Phone Number <u>713-123-4567</u>				
Contact Person <u>John Doe</u>				

Item #	Quantity Requested	Description of Items	Estimated Unit Price	Total Price
M140	4	Polo White Small)	\$21.38	\$85.52
M140	5	Polo White (Large)	\$21.38	\$106.90
JN30	1	Jacket (Small)	\$43.29	\$43.29
	92	Logo	\$4.40	\$404.80
				\$0.00
				\$0.00
TOTAL				\$640.51

# Improve: Investigation Report Standard of Work

Bureau of Pollution Control and Prevention Investigation Report Standard of Work			
Investigator:	Lagan SR Case		
Auditor:	Date:		
<b>DOES REPORT DOCUMENT?</b>			
	Yes	No	N/A
1. Complainant's contact prior to investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Accurate and justified prioritization?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Complainant's concerns?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Information relative to impact and seriousness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Time and Date of Investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Weather Conditions, wind direction, wind speed, humidity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Location and discussion of area survey observations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Contact with complainant, relative or neighbor at the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The confirmation or absence of pollutant during the investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Pollutant was traced from origination point to complainant's location?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Use of screening instrument and observation of screening data if above ESLs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Comparison of data to ESLs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Reason complaint is confirmed or unconfirmed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How pollutant affected public health, property or environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Reason that pollutant is objectionable or offensive?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Determination of applicability of ordinances, state and federal regulations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Authorizations or ordinances, state and federal regulations violated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. NOV or Citation issued?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Complainant was contacted with the results of the investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Investigation conclusion and resolutions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Photographs, opacity, screening instrument data or sample analysis taken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Compliance history within report?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Was referral to appropriate agency indicated in report? If not, was reason provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. If follow-up needed, was it indicated in report? If not, was reason provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Comments:			
<b>LAGAN Checklist</b>			
	Yes	No	N/A
25. Was complaint contacted within 24 hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Was case taken within five days?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Complaint prioritized appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Due dates updated appropriately for each task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Was e-Form updated thoroughly and accurately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Was event note added for NOV or Citation ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Was event notes added for Source Registration verification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Closure within 30 days?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Closure within 45 days?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Comments:			
<b>Total Score:</b> _____ X 3 points = _____ out of possible 99 Revised 8/29/2013			

# Improve: Field Investigation Standard of Work

## Bureau of Pollution Control and Prevention Field Investigation Standard of Work

Investigator(s):	
Lagan SR Case	Date:

Investigation Type:	
<input type="checkbox"/> Odor	<input type="checkbox"/> Dust
<input type="checkbox"/> Smoke	<input type="checkbox"/> Hazardous Waste
<input type="checkbox"/> Landfill	<input type="checkbox"/> WWTP
<input type="checkbox"/> Fish Kill	<input type="checkbox"/> Water/Threat to MS4
<input type="checkbox"/> Other _____	

Yes No N/A

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Page 1 of 2  
Revised 8/29/2013

1. Did the investigator contact the complainant for specific details?
2. Did the investigator discuss and document alleged adverse effects on the complainant's health, property, animals or vegetation or impact to public health?
3. Did the investigator prepare for safety concerns?
4. Did request guidance from Sr. Project Manager?
5. Did the investigator appropriately determine and document complaint priority?
6. Did the investigator document dates, times, frequency and duration that the complainant(s) experienced the problem?
7. Did the investigator verify complaint history via LAGAN or BPCP files?
8. Did the investigator survey upwind, downwind, and at the location of the problem to identify and eliminate other potential area sources?
9. If pollution is not ongoing and complaint is reported after the event, did the investigator check the wind direction and speed at the time of the complaint to establish possible sources?
10. Did investigator consider the location and distance of the complainant from source since, if winds are low, proximity is more important than wind direction?
11. Did the investigator identify himself to the complainant and explain the purpose of the visit?
12. While at the complainant's home, were attempts made to detect the pollutant or locate a source using applicable tools?
13. If recurring complaint, while at the complainant's home did investigator discuss or suggest use of citizen's evidence, affidavits, odor logs, etc.?
14. Did investigator contact the alleged source, or if identified, contact a source, responsible party or regulated entity (RE) and explain the purpose of the visit?
15. Did investigator use applicable safety equipment?

## Bureau of Pollution Control and Prevention Field Investigation Standard of Work

Yes No N/A

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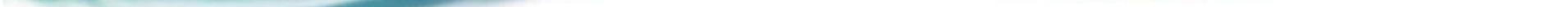
Total Number of "No" \_\_\_\_\_  
Total Number of "Yes" or "N/A" \_\_\_\_\_ X 3 Points = \_\_\_\_\_

Quality Review Field Audit Score: \_\_\_\_\_ out of possible 99

Page 2 of 2  
Revised 8/29/2013

Houston Department of  
Health and Human Services



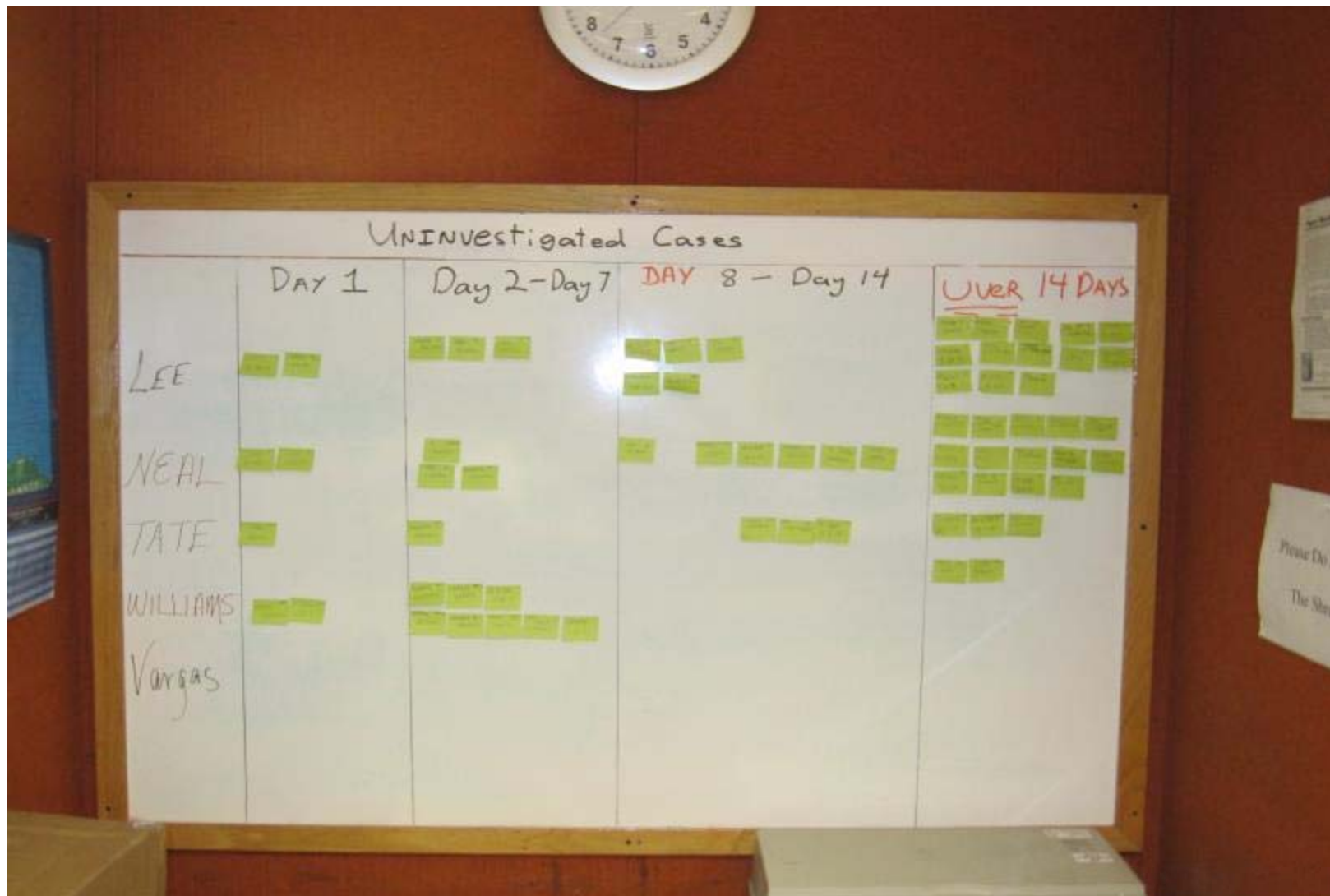


# Improve: Surveillance Log (After)

		Jul-13						Aug-13						Sep-13						Oct-13						Nov-13						Dec-13						Jan				
SOURCE NAME	SOURCE ADDRESS	NL	JV	PL	DT	EN	DW	NL	JV	PL	DT	EN	DW	NL	JV	PL	DT	EN	DW	NL	JV	PL	DT	EN	DW	NL	JV	PL	DT	EN	DW	NL	JV	PL	DT	EN	DW	NL	JV	PL		
Almeda Sims	1239 1/2 Almeda Road 77045			2						2																																
Big K Environmental	423 E Little York 77076	2						1										1						1																		
Bodner Iron and Metal	3660 Schalker Dr. 77026						3						3																													
Coastal Crushed Concrete	3603 Cherry St. 77026						3						3																													
CES Environmental	4904 Griggs 77021				1													2																								
CFF/Derichbourg (Metal Recycler)	#1 Wharf Rd 77012										1						1																									
Clinton Road ( Dust Plan)	9100 - 9800 Blk Clinton	1						2																																		
Cook Composites and Polymers	2434 Holmes Rd 77051						3			1								1					2																			
CMC Recycling	2015 Quitman St						3						3																													
Darling International	3701 Schalker 77026						3						3				1						1					3														
Dee Foundries	2408 Everett 77009			2						2						1						1																				
Downstream Environmental	3737 Walnut Bend 77042				1								2									2				2																
Gas/Haps Reduction Initiative Air	Multiple Locations																																									
Gas/Haps Reduction Initiative MS4	Multiple Locations																																									
Goodyear Tire & Rubber	2000 Goodyear 77017	3			1			1			2						2					2						1	1													
Holmes Road Area	Multiple Locations				1							3							3			2																				
Holmes Road Recycling (Metal Recycler)	2820 Holmes Rd 77051					1						1						1					2																			
Houston Refining	12000 Lawndale 77012				1																																					
Katz Coffee	1003 W 34th St 77018																1							1			2															
Kirsch Landscaping	2625 Mills Branch 77345															1											3															
Lift Station West Hedrick	1707 W Hedrick 77011				1						1											1																				
Limeco Inc.	4221 Schumier 77048																																									
Mauser	4004 Homestead 77028										2					1						1					4															
Memorial Cremaatorium & Mortuary	5525 Pine 77081																	4					3																			
Miller Funeral & Cremation Services	7723 Beechnut 77074																2					1																				
NuStar	7220 JW Peavey 77011				1						1						1					1																				
Oil Patch & Sand Blast	5308 Oates Rd 77013																					1				3																
Petrologistics	9822 LaPorte 77017	3			1			1			1						2						2					1	1													
Rhodia	8615 Manchester 77015										1											1				2																
Rock Crushers Dust Reduction Plan	Multiple Loactions	4						2																																		
Rose Metals (Metal Recycler)	2902 Center 77007																																									
Sims South	3100 Galveston Rd 77017			2						2	1							2					2				2															
SouthWaste (GTM)	6407 Hurst 77008			2						2							1						1																			
Southwest WWTP	4211 Beechnut 77096			2						2																																
Titun Gunite	1727 DeSoto 77091																	1					1				2															
TX Petrochemical (TPC)	8600 Park Place Blvd. 77012	3			1			1			1						2						2					1	1													
	8945 Manchester 77012				1						1					1																										
United Site Services	421 E Little York 77076	2						1									1																									
Upper Brays WWTP	13525 W Houston Center77082			2						2	2								3				2				2															
West 11th Street Lift Station																		5					3																			
Wallisville/Oates Road Area (Dust Redution Plan)	Multiple Locations	3						2																																		
Ruffino Waste Transfer Station OFF LIST	9730 Ruffino Rd																																									



# Improve: Visual Control





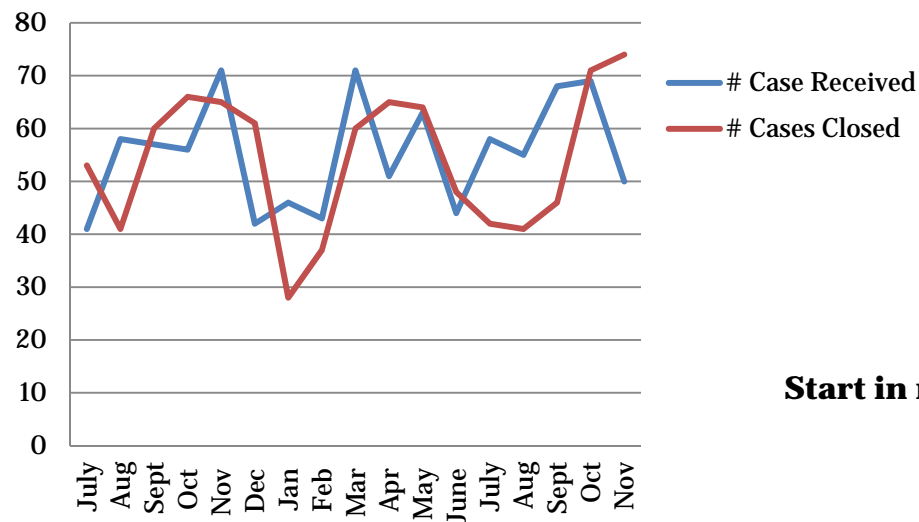
# Improve: Lagan System

- Changes to Lagan system
  - Fixed the issues of current tasks not having correct due dates
  - Integrated water and soil complaints into Lagan
  - Create Enforcement Action section
  - Add Source Registration section
  - Request 311 staff to survey complaint caller about “how did you know to call 311 for your environmental concerns?”
  - Add Community Outreach section
  - Add Idling to the options for “What type of pollution is present”
  - Add generic service request for Follow up case

# Improve: Others

- Reduced filling/inventory of Texas Commission on Environmental Quality (TCEQ) permits by eliminating unnecessary water permit storage
- Streamline administrative procedures
- Eliminated wasteful paperwork

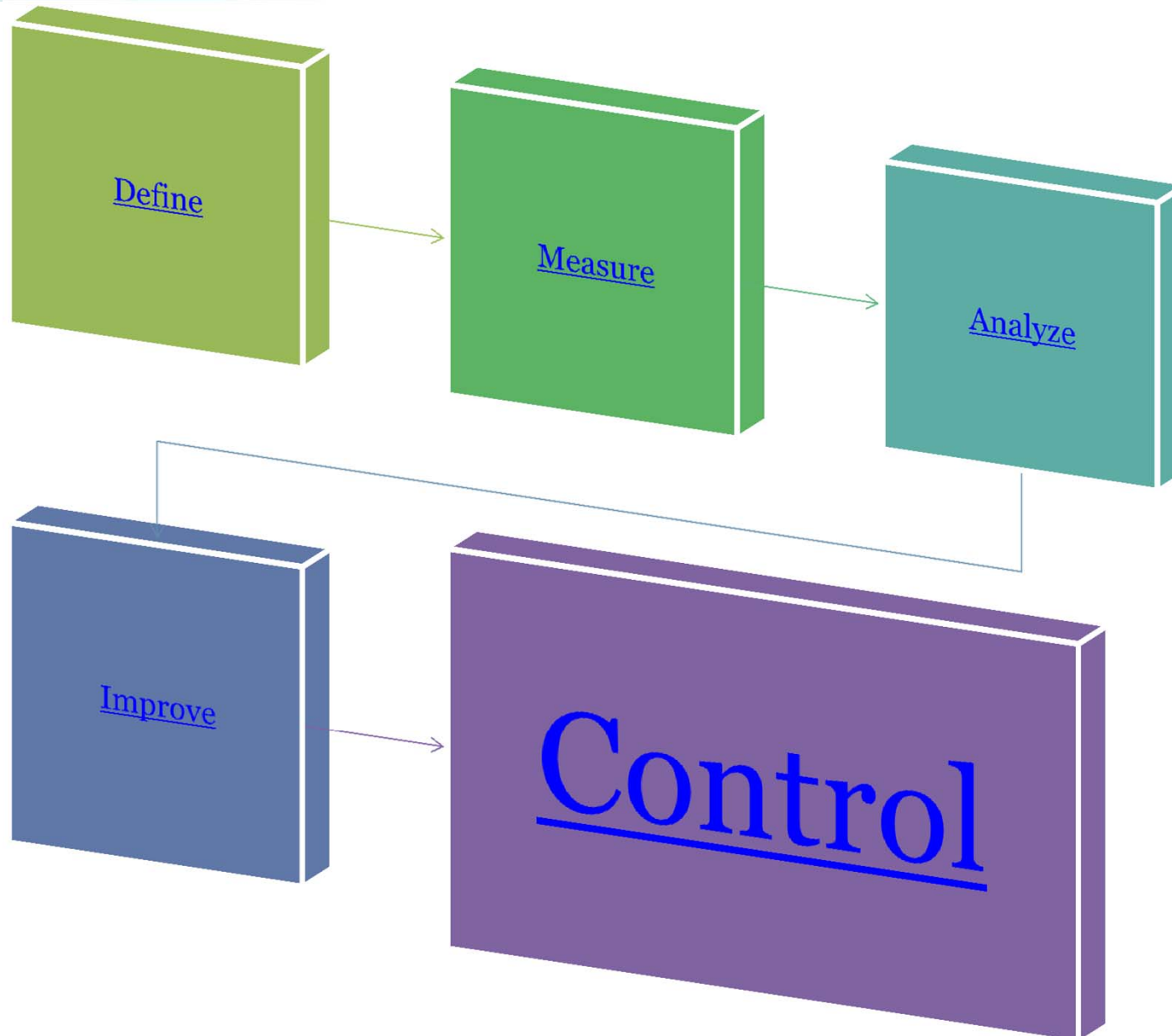
**Complaints by Month**



Start in mid Sept →

Month	# Case Received	# Cases Closed
July	41	53
Aug	58	41
Sept	57	60
Oct	56	66
Nov	71	65
Dec	42	61
Jan	46	28
Feb	43	37
Mar	71	60
Apr	51	65
May	63	64
June	44	48
July	58	42
Aug	55	41
Sept	68	46
Oct	69	71
Nov	50	74








# Control

- Next Steps/Pending
  - Additional Funding for GRIMM Dust Detector Equipment
  - Mobile Equipment for Environmental Investigators
- Tracking Outputs to Measure Success
  - Review complaint cases each month
  - Adjust districts if workload unbalanced
- Follow Up on Process
  - Maintain contact between interested parties
    - Weekly communication
    - Biweekly meetings
    - Continued observations



# Q & A

