

Crime Analysis for Problem Solvers *in 60 Small Steps*

POP/IACA Conference
September 2010



Session Overview

- ▶ Who am I, and What am I doing here?
- ▶ Who are you?
 - Officers? Analysts? Researchers? Other?
- ▶ Who has read the 60 Steps book?
- ▶ Why is the 60 Steps book so valuable?
- ▶ **What's in it anyway???**

Why is Problem Analysis important?

To reduce crime...

we need to know what causes it.

Problem Analysis

An **approach/process** conducted within a law enforcement agency in which formal criminal justice **theory, research methods, and comprehensive data collection and analysis procedures** are used in a **systematic** way to conduct **in-depth examination** of, **develop informed responses** to, and **evaluate** crime and disorder problems.

Why Take a Problem Solving Approach?

- ▶ Offenders rarely caught
- ▶ High-intensity enforcement not sustainable
- ▶ Criminal Justice system overburdened
- ▶ Most of what police are expected to address **isn't crime**
- ▶ Residents care most about non-crime issues

Why 60 Steps Book

- ▶ Rethinking the way we police (POP) and the current methods and roles
- ▶ Requires police to examine problems – in depth
- ▶ Analytical capacity in police departments has been lacking
- ▶ **“One analyst, properly trained and utilized, has the potential to increase many times the productivity and effectiveness of perhaps hundreds of police officers.”**
- ▶ Analysts must now explore sources of info and data well beyond those normally used and stick with a project much longer than traditionally.

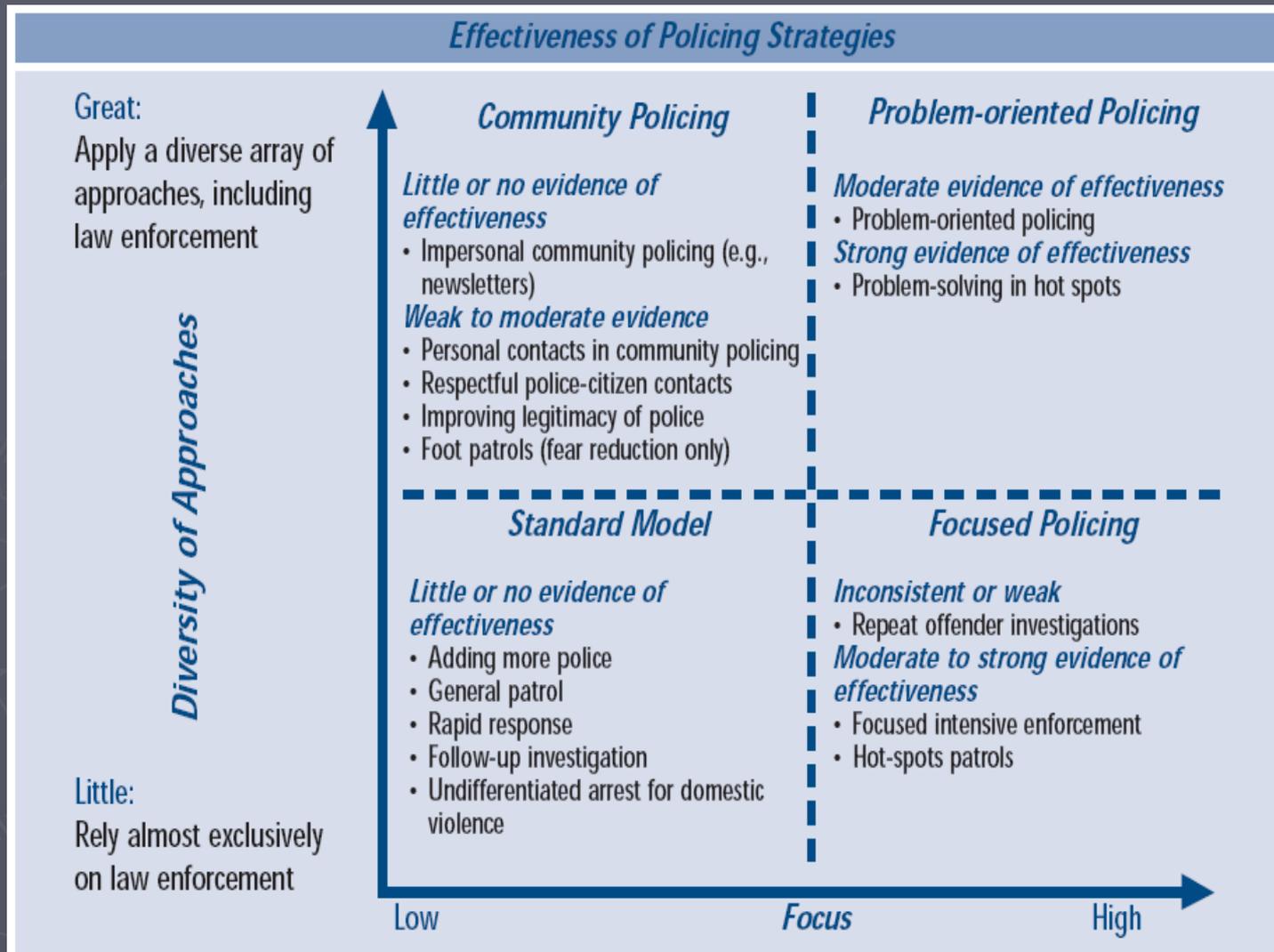
1. Rethink your job

- ▶ Become a crime expert
- ▶ Know what works in policing
- ▶ Promote problem solving
- ▶ Take your place on the project team
- ▶ Learn about environmental criminology
- ▶ Hone your research skills
- ▶ Communicate effectively
- ▶ Enhance your profession

2. Be the local crime expert

- ▶ Get away from your computer
- ▶ Talk to officers about what they are seeing
- ▶ Go on ride-alongs and sit w/dispatchers
- ▶ Visit crime scenes and examine reports
 - Check failed attempts
- ▶ Talk to city officials, businesses and private security
- ▶ Ask neighboring analysts about changes in crime targets and methods
- ▶ Ask officers to question offenders
- ▶ Get info from victims about when, where, how
- ▶ Help improve crime incident forms and data capture

3. Know what is effective



4. Become a POP expert

- ▶ Fundamentally about changing the conditions that give rise to recurring crime problems
- ▶ Being proactive vs. call/report focused reactive
- ▶ Dealing with long-term issues vs. one time event or series

5. Be true to POP



6. Be very crime specific

- ▶ Why is it important to be specific?
 - Correctly identifying the underlying problem
 - Asking the right analysis questions
 - Having the most appropriate response strategies
- ▶ **Don't settle for UCR categories!**
- ▶ Responses/strategies for dealing with bank robbery is very different than street robbery...

7. Be guided by SARA



Identifying

neighborhood crime,
disorder and fear problems

Understanding

the conditions that give
rise to these problems

Developing/Implementing
long-term solutions tailored
to relieve the problems

Determining the Impact
(effectiveness) of the
solutions to the problem

8. Use the problem analysis Δ



9. Know opportunity makes the thief

Suppose all situational controls were to be abandoned: no locks, no custom controls, cash left for parking in an open pot for occasional collection, no library check-outs, no baggage screening at airports, no ticket checks at train stations, no traffic lights, etc. would there be no change in the volume of crime and disorder?



-- Gloria Laycock and Nick Tilley, Jill Dando Institute

10. Put yourself in offender's shoes

- ▶ Try to see the crime from the offender's perspective
 - Benefits (why), Effort (how), Risks (how)

11. Expect offenders to react

- ▶ Changes to offenders behavior
 - Displacement and Adaptation
- ▶ Positive unintended effects
 - Diffusion of benefits/Anticipatory benefits

12. Don't be discouraged by displacement doomsters

- ▶ Geographical
 - Crime moves to a different place
- ▶ Temporal
 - Crime moves to a different time
- ▶ Target
 - Changes from 1 target to another
- ▶ Tactical
 - A new method of committing the crime occurs
- ▶ Crime Type
 - A different crime occurs

13. Expect diffusion of benefits

<i>Displacement and Diffusion of Benefits for Burglary of Apartments</i>			
<i>Type</i>	<i>Definition</i>	<i>Displacement</i>	<i>Diffusion</i>
Geographical	Geographic change	Switch to another building	Reduce burglaries in targeted building and in nearby buildings
Temporal	Time switch	Switch from day to evening	Reduce burglaries during day and evening
Target	Switching object of offending	Switch from apartments to houses	Reduce burglaries in apartments and houses
Tactical	Change in method of offending	Switch from unlocked doors to picking locks	Reduction in attacks on locked and unlocked doors
Crime Type	Switching crimes	Switch from burglary to theft	Reduction in burglary and theft

14. Use CHEERS test when defining problems

- ▶ Community
 - Who is affected?
- ▶ Harmful
 - What are the harms created?
- ▶ Expectation
 - What are the expectations for police response?
- ▶ Events
 - What types of events contribute to the problem?
- ▶ Recurring
 - How often do these events recur?
- ▶ Similarity
 - How are the events similar?

15. Know the kind of problem

A Classification Scheme for Common Problems Facing Local Police

<i>BEHAVIORS</i>						
<i>ENVIRONMENTS</i>	Predatory	Consensual	Conflicts	Incivilities	Endangerment	Misuse of Police
Residential						
Recreational			A			
Offices						
Retail		C				B
Industrial						
Agricultural						
Educational						
Human service						
Public ways	G	F		E	D	
Transport						
Open/Transition				H	H	

16. Study the journey to crime

- ▶ Crime Pattern Theory
 - Nodes
 - Paths
 - Edges
- ▶ Ways that offenders find suitable targets:
 - Personal knowledge of victim
 - Work
 - **Overlapping “activity spaces”**
- ▶ Offenders – local vs. not local

17. Know how hot spots develop

- ▶ Crime Generators
 - Places where large numbers of people are attracted for reasons unrelated to crime
- ▶ Crime Attractors
 - Places affording many criminal opportunities well known to offenders
- ▶ Crime Enablers
 - Situations when there is little regulation of behavior at places: rules of conduct are absent or not enforced

Table 2: Diagnosing Hot Spot Mechanisms

	<i>Number</i>	<i>Rate</i>
Crime Attractors	High	High
Crime Generators	High	Low
Crime Enabler	Low (High)	High
Crime Neutral	Low	Low

18. Learn if the 80-20 rule applies

- ▶ Small proportion of X are responsible for a large proportion of outcomes
 - Repeat Offenders
 - Repeat Victims
 - Hot Spots
 - Hot Products
 - Risky Facilities

	Address	No. Robberies	% Robberies	Cum. % Robberies	% Addresses (N=106)	Cum. % Addresses
1	134 E Main St	25	9.23%	9.23%	0.94%	0.94%
2	254 S Clover Av	17	6.27%	15.50%	0.94%	1.89%
3	8012 N Grand Blvd	15	5.54%	21.03%	0.94%	2.83%
4	8210 N Grand Blvd	10	3.69%	24.72%	0.94%	3.77%
5	1430 E Main St	9	3.32%	28.04%	0.94%	4.72%
6	365 W Haverty Rd	9	3.32%	31.37%	0.94%	5.66%
7	3401 N Staple Dr	8	2.95%	34.32%	0.94%	6.60%
8	210 S Daisy Rd	7	2.58%	36.90%	0.94%	7.55%
9	4598 N Roan Rd	5	1.85%	38.75%	0.94%	8.49%
10	132 E Main St	5	1.85%	40.59%	0.94%	9.43%
	Addresses with 4 (5)	20	7.38%	47.97%	4.72%	14.15%
	Addresses with 3 (15)	45	16.61%	64.58%	14.15%	28.30%
	Addresses with 2 (20)	40	14.76%	79.34%	18.87%	47.17%
	Addresses with 1 (56)	56	20.66%	100.00%	52.83%	100.00%
	Total	271	100.00%		100.00%	

19. Research your problem

- ▶ Center for Problem-Oriented Policing
www.popcenter.org
(also note Problem Analysis Module on page)
- ▶ NCJRS Abstracts Database
www.ncjrs.gov
- ▶ Jill Dando Institute of Crime Science
www.jdi.ucl.ac.uk
- ▶ Crime Reduction Website, Home Office
www.crimereduction.gov.uk
- ▶ Australian Institute of Criminology
www.aic.gov.au

20. Formulate hypotheses

... about the causes of the problem

- ▶ Clearly state the hypotheses
 - have an idea of what you should observe if your hypothesis is correct and what you'd observe if your hypothesis is wrong
- ▶ Don't be wedded to them
- ▶ Use data to objectively test them

21. Collect your own data

- ▶ Crimes
- ▶ Arrests
- ▶ Calls for Service
- ▶ Field Interviews
- ▶ Traffic Data (cites and collisions)
- ▶ **Don't restrict yourself to the common police data!**

21. Collect your own data

- ▶ Visual assessments
- ▶ Environmental surveys
- ▶ Maps
- ▶ Time graphs
- ▶ Photos/video
- ▶ Intelligence info
- ▶ Police interviews
- ▶ Police records
- ▶ Stakeholder canvass
- ▶ Neighborhood surveys
- ▶ Business surveys
- ▶ Student surveys
- ▶ School personnel surveys
- ▶ Parent surveys
- ▶ Offender interviews
- ▶ Victim interviews

22. Examine data distributions

▶ Average case

- Mean, Median and Mode

▶ Variation/Spread of cases

- Range and Standard Deviation

23. Diagnose your hot spot

<i>Concentration, Mapping and Action</i>			
<i>Concentration</i>	<i>Hot spots shown as:</i>	<i>Action level</i>	<i>Action examples</i>
Places - at specific addresses, corners, or facilities	Dots	Facility, corner, address	Closed circuit television in a parking garage, changing the way alcohol is served in bars.
Victims	Dots	Victims' addresses	Helping victims prevent further crimes through target hardening.
Streets - along streets or block faces	Lines	Along paths, streets, and highways	Creating cul-de-sacs, changing traffic patterns, altering parking regulations.
Area - neighborhoods	Shaded areas	Neighborhoods, regions and other areas	Community partnerships, neighborhood redevelopment.

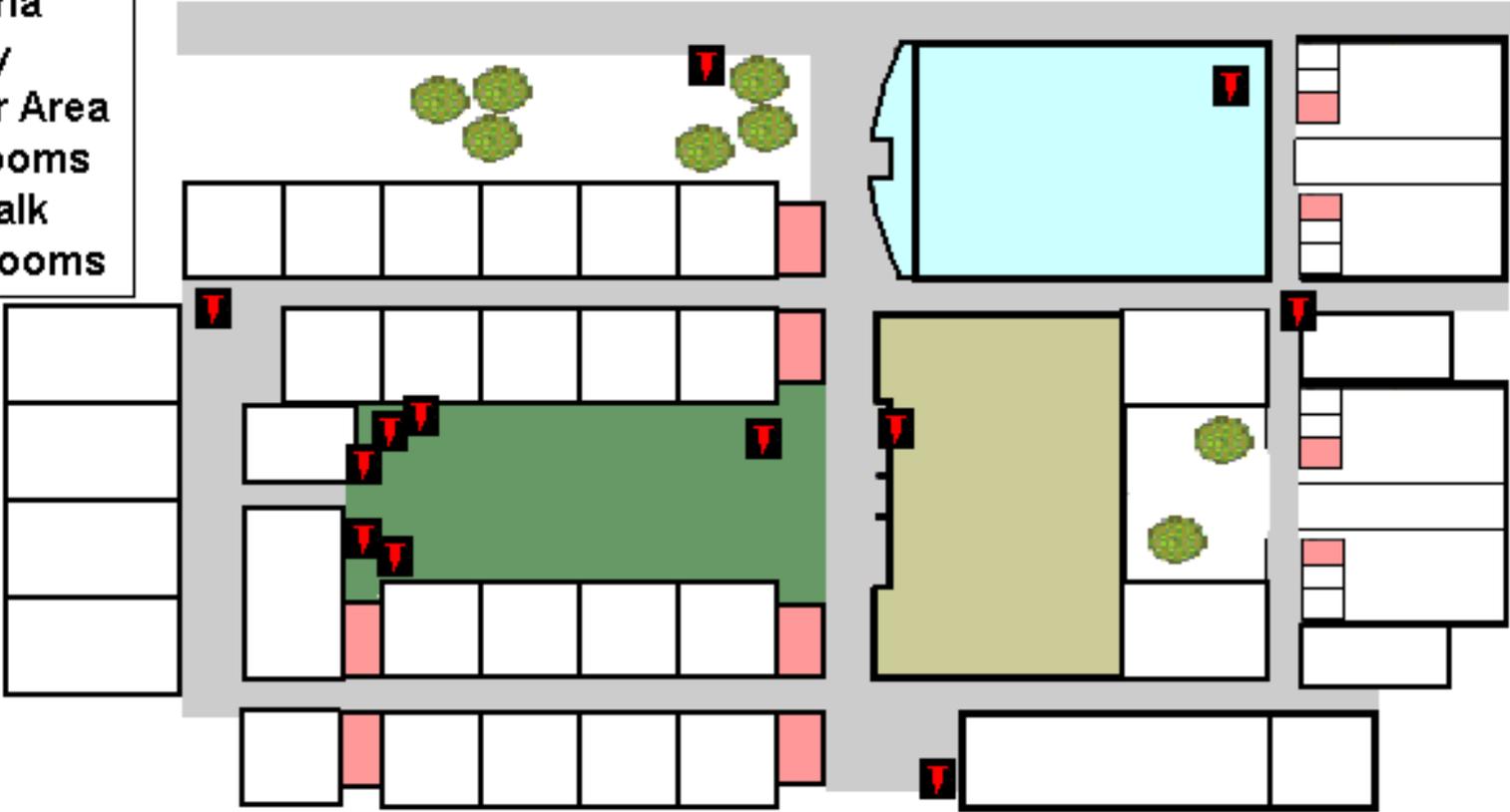
24. Know when to use high-def maps

- To understand why a particular location/building is having a crime problem, the crimes need to be divided into specific categories and their locations *within* the location/building need to be mapped.
- When would this be important?

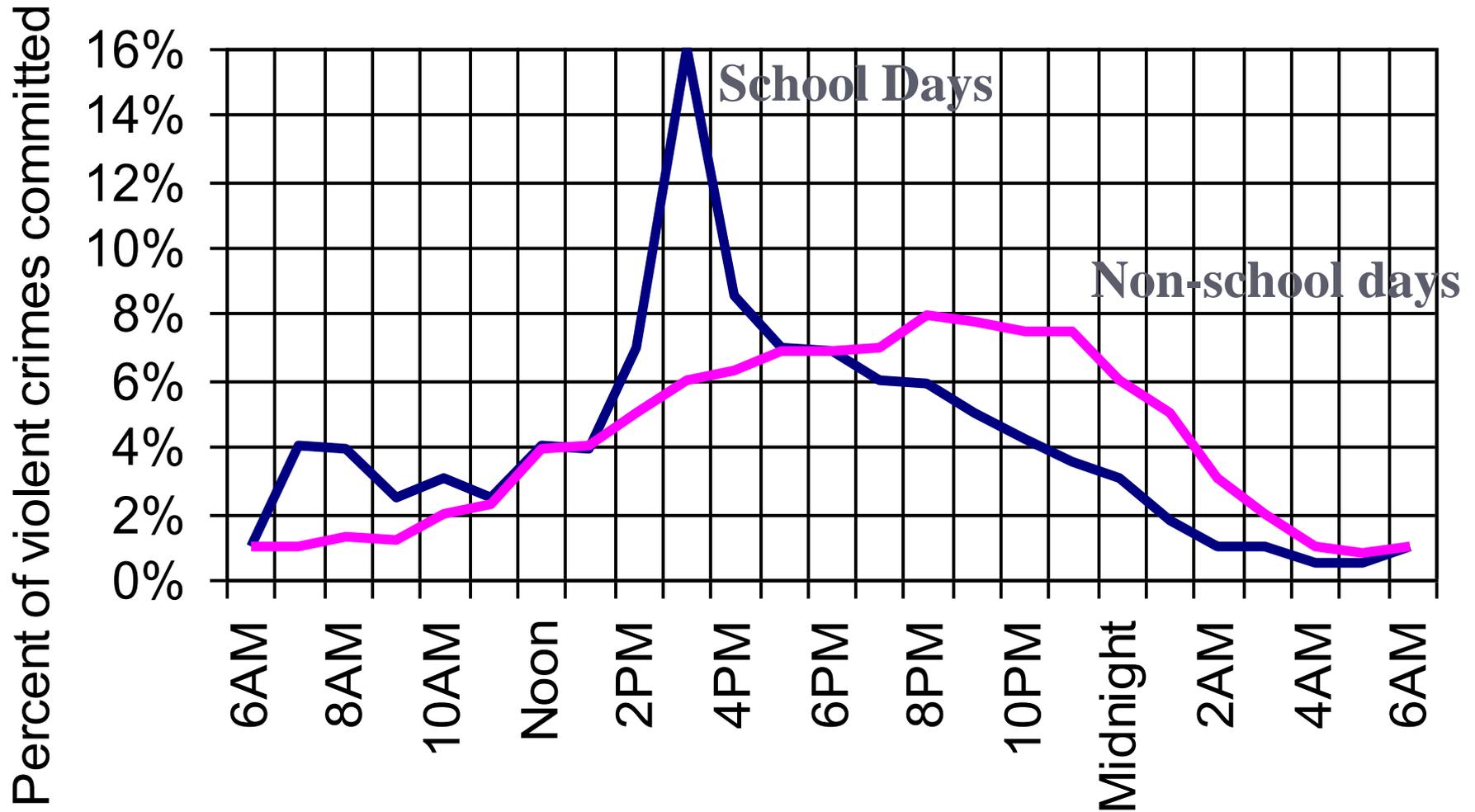
Analysis of drugs on a school campus

Legend

-  Drug Finds
-  Cafeteria
-  Library
-  Locker Area
-  Bathrooms
-  Sidewalk
-  Classrooms



25. Pay attention to rhythms



Source: Juvenile Offenders and Victims:
1996 Update on Violence.

26. Take account of long-term change

- Time course of a problem
 - Overall trend – getting worse or better
 - Cycles – seasonal, daily, weekly
 - Random fluctuations – caused by minor influences
- Time Series Analysis
 - Compare days or weeks or months
 - Not only used for analysis but assessment
 - Tells you what to expect if you do nothing about the problem

27. Know how to use rates and denominators

- Rates help to understand if the *number of targets* contributes to the problem.
 - Rates describe the number of crimes/incidents per target at risk
- Calculating rates
 - **What denominator should be used for...**
Residential burglary? Disorder in parks?
Vehicle theft from parking lots?
- Emphasis on high numbers or rates?

Comparing Risk Rates

■ Which lot is riskier to park in?

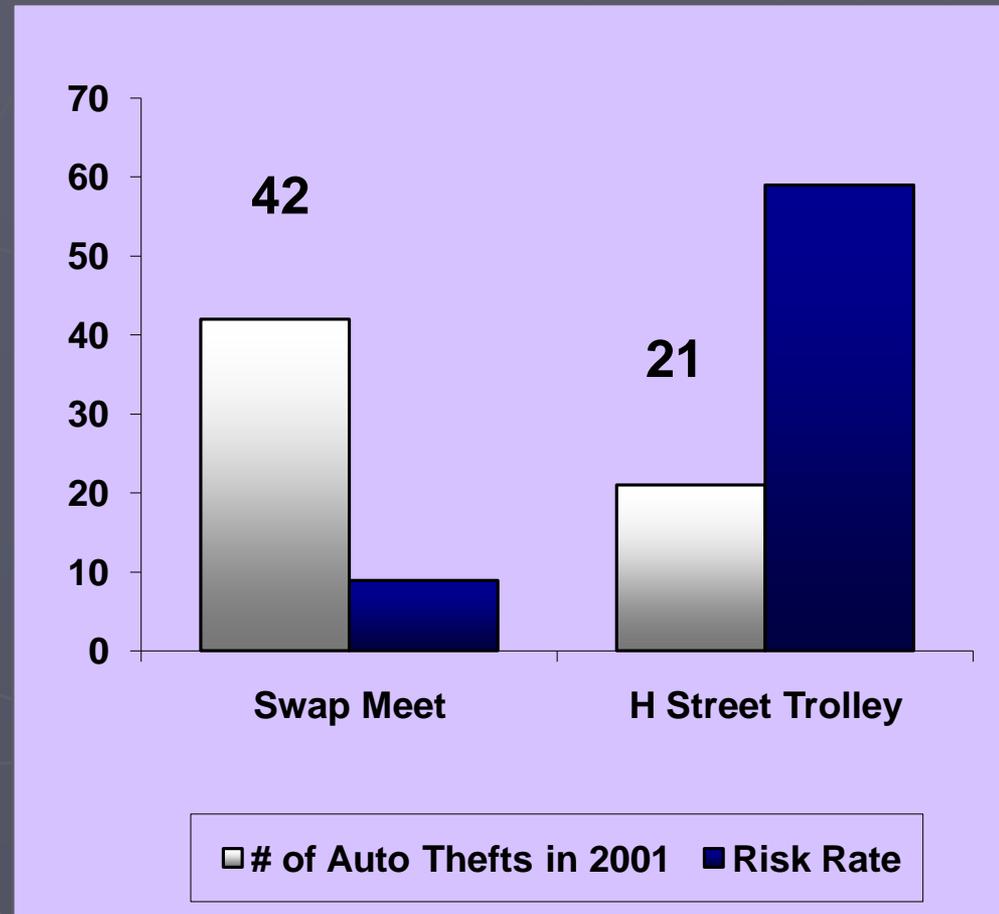
■ *Swap meet*

- Huge (2,500 spaces)
- Open only 2 days a week
- Park time: 1.5 hours

OR

■ *H Street Trolley*

- Tiny (300 spaces)
- Open 7 days a week
- Park time: 8 hours

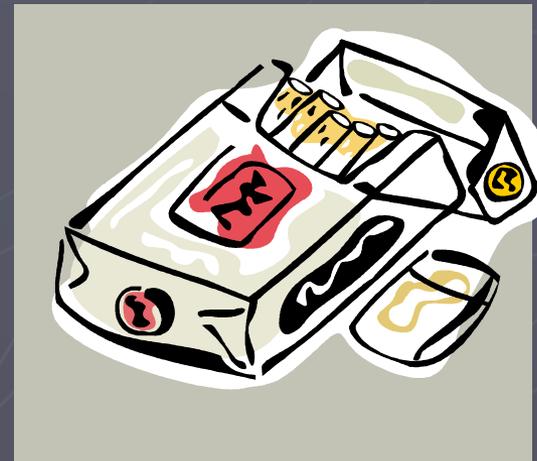


28. Identify risky facilities

- ▶ What are risky facilities?
- ▶ Why are they risky?
 - Random variation
 - Reporting practices
 - Many targets
 - Hot products
 - Location
 - Repeat victimization
 - Crime attractors
 - Poor management

29. Be ready for repeat victimization

- ▶ Focusing on RV increases police effectiveness
 - direct limited resources to places/people most likely to suffer
 - Maximize impact on crime/disorder problems by focusing on those hardest hit
- ▶ “Virtual” or “near” repeats
- ▶ Hot Dot v. Hot Spot v. Hot Product v. Hot Target



Lightning Strikes Twice, But When?

The risk of a home being re-burglarized is highest:

- A) within 24 hours
- B) 1 to 3 days
- C) 4 to 30 days
- D) 1 to 2 months



B) 1 to 3 days

30. Consider repeat offending

- ▶ Why repeat offenders
 - Impulsive individuals w/weak social attachments
 - Exposure to more crime/disorder opportunities take advantage of them
- ▶ Successful offending leads to more offending
 - Learning from doing
 - Learning from others
 - Prevention erosion

31. Know the CRAVED products

- ▶ **C**oncealable
- ▶ **R**emovable
- ▶ **A**vailable
- ▶ **V**aluable
- ▶ **E**njoyable
- ▶ **D**isposable

32. Conduct case control studies

33. Measure association



34. Look for crime facilitators

- Crime facilitators help offenders commit crimes
- Each facilitator can counter specific crime prevention methods

<i>Crime prevention method</i>	<i>Type of facilitator used</i>		
	<i>Physical</i>	<i>Social</i>	<i>Chemical</i>
Increase Risk	•	•	•
Increase Effort	•	•	•
Reduce Rewards		•	
Remove Excuses		•	•
Reduce Provocations	•	•	

35. Understand the crime from beginning to end

▶ Approaches

- Precursors, transactions, and aftermath
- Pre-crash, crash, and post-crash
- **“Scripts” (standard actions performed in a particular order)**

▶ Vehicle Theft for Joyriding

36. Be sure to answer the 5 “W” (and one “H”) questions

- ▶ **W**hat happened?
- ▶ **W**here did it happen?
- ▶ **W**hen did it happen?
- ▶ **W**ho was involved?
- ▶ **W**hy did they act as they did?
- ▶ **H**ow did the offender carry out the crime?

37. Know that to err is human

- Prediction errors
 - False Negative
 - False Positive
- Which error is worse?
 - Depends
- Pilot tests

Table 1: Types of Prediction Errors

Actual Outcome	YES	NO
YES	A. Accurate True Positives	B. False Negatives
NO	C. False Positives	D. Accurate True Negatives
	Accuracy Rate False Negative Rate False Positive Rate	$(A+D)/(A+B+C+D)$ $B/(A+B+C+D)$ $C/(A+B+C+D)$

38. Embrace your key role at response

- ▶ Be a part of the team!
- ▶ Become an expert on solutions
- ▶ Find out more about responses
- ▶ Know situational crime prevention
- ▶ Opt for solutions that bring rapid reduction
- ▶ Address situational causes
- ▶ Collect data on feasibility, costs and public acceptability

Situational Crime Prevention Works by Opportunity Blocking in 5 Ways

Increasing
Perceived
Risk



Increasing
Perceived
Effort



Decreasing
Perceived
Reward



Removing
Excuses



Reducing
Provocations



39. Increase the effort of crime

- ▶ Harden targets
 - Locks, screens, reinforcements
- ▶ Control access to facilities
 - Keeping people up to no good out
- ▶ Screen exits
 - People leaving with stolen goods/non-payment
- ▶ Deflect offenders
 - Schedule and coordinate for potential problems
- ▶ Control tools and weapons
 - Limit potential opportunities for weapon use

40. Increase the risks of crime

- ▶ Extend guardianship
 - More people around and aware
- ▶ Assist natural surveillance
 - Defensible space, lighting, etc.
- ▶ Reduce anonymity
 - Knowing people around you
- ▶ Use place managers
 - Increased surveillance and knowledge of environment
- ▶ Strengthen formal surveillance
 - Police, security guards, store detectives, etc.

41. Reduce the rewards of crime

- ▶ Conceal targets
 - Hiding likely theft (or other) items
- ▶ Remove targets
 - Eliminate potential theft (or other) items
- ▶ Identify property
 - Official and unofficial markings
- ▶ Disrupt markets
 - Stolen goods, drugs, etc.
- ▶ Deny benefits
 - Prevent criminal from gaining

42. Reduce provocations

- ▶ Reduce frustration and stress
 - Improve service, waiting time, etc.
- ▶ Avoid disputes
 - Prevent potential rivals from crossing paths
- ▶ Reduce arousal and temptation
 - Avoid situations and goods that often lead to problems
- ▶ Neutralize peer pressure
 - Keep negative peers away
- ▶ Discourage imitation
 - Copycat crimes

43. Remove excuses for crime

- ▶ Set rules
 - Regarding conduct
- ▶ Post instructions
 - Work rules, regulations, road signs, etc.
- ▶ Alert conscience
 - Posting signs that go beyond just noting illegal
- ▶ Assist compliance
 - Provide alternative so crime is not easily committed
- ▶ Control drugs and alcohol
 - Make it more difficult to consume as much (or at all)

Situational Crime Prevention?



54. Tell a clear story

- ▶ What kind of question do you want answered?
- ▶ Structure the account around problem analysis-related theories and approaches.
- ▶ Be sure there is logical flow from basic question, through the framework and findings, to the answers.
- ▶ Outline the story
 1. What is the nature of the problem
 2. What causes the problem?
 3. What should be done about the problem?
 4. Has the response reduced the problem?

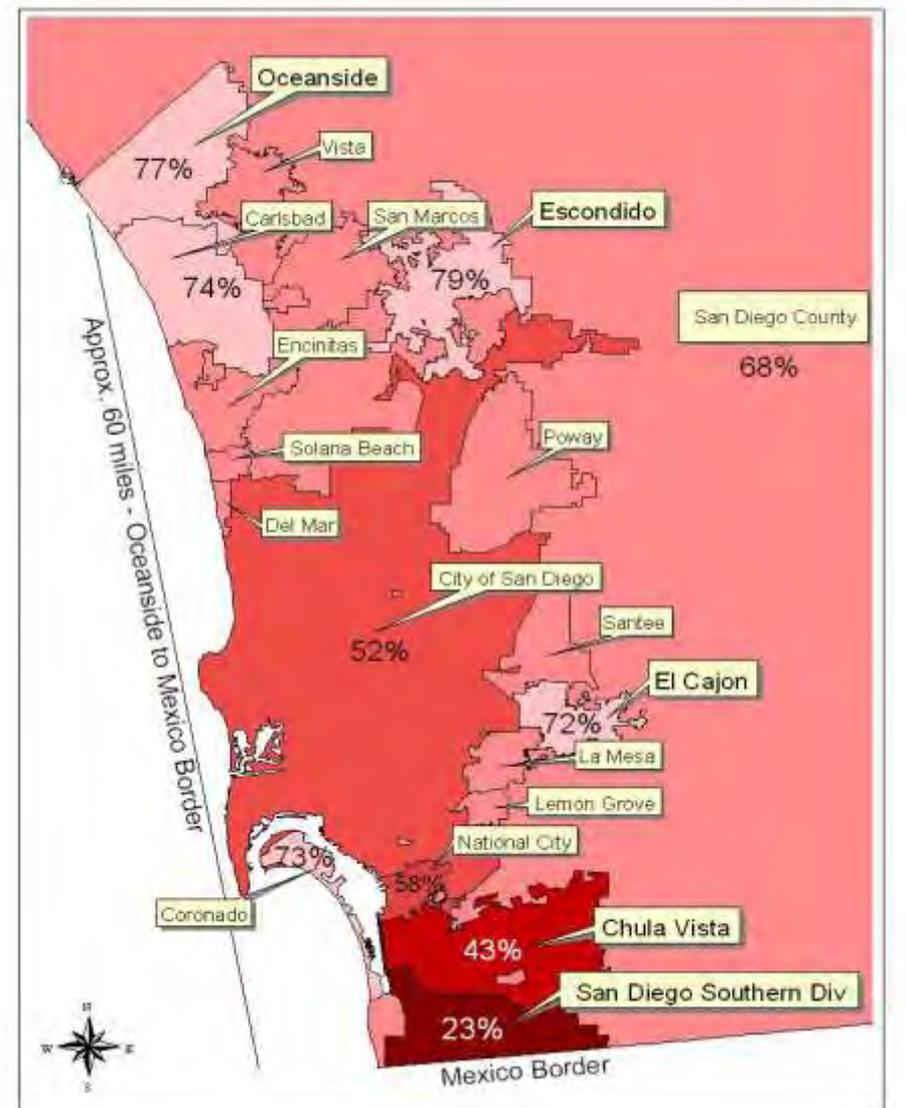
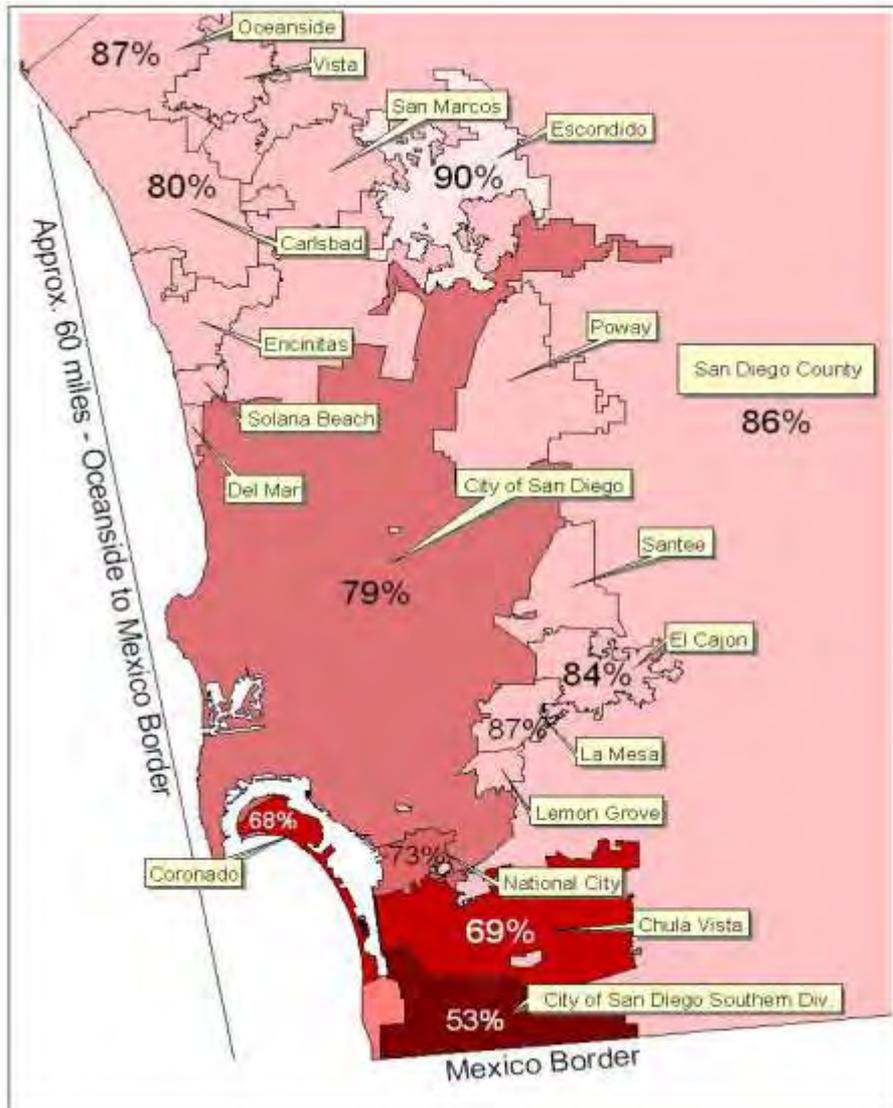
55. Make clear maps

- ▶ Know what info anticipated audience will find useful
- ▶ Keep simple (**eliminate features that don't contribute to understanding the problem**)
- ▶ Avoid graphics that draw too much attention
- ▶ Include details that help viewer understand the problem
- ▶ Include scale and compass
- ▶ Use meaningful color/size gradations to show intensity
- ▶ Apply the correct dimension of crime concentration
- ▶ Make use of tables and figures to go with the maps

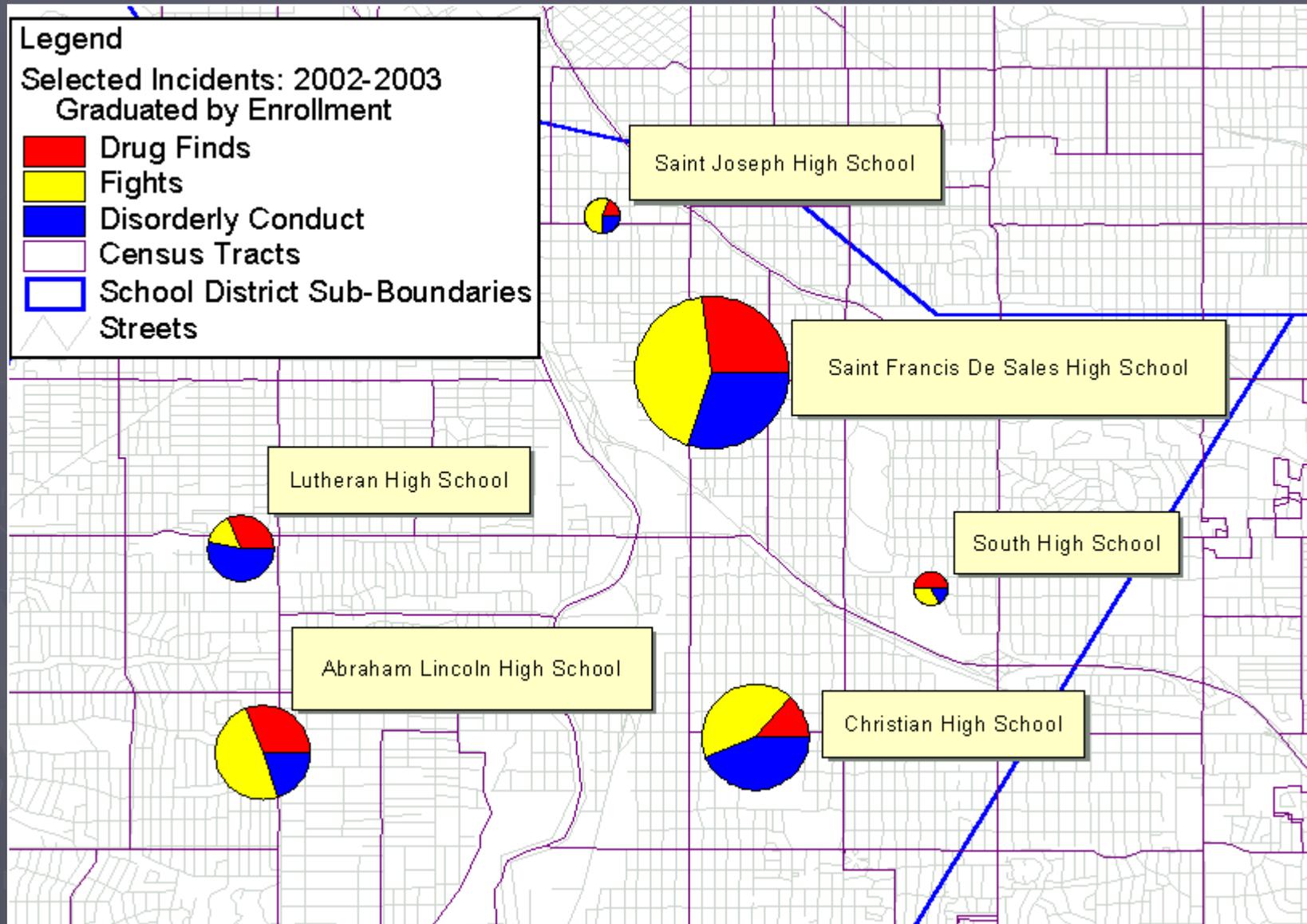
San Diego County Recovery Rates

2001 Recovery Rates - Cars

2001 Recovery Rates - Trucks



Comparison of types of incidents by school



56. Use simple tables

Organize tables to make sense

- ▶ All the causes go in the same direction (usually columns)
- ▶ Summation goes in the direction of the cause (down columns)
- ▶ Comparison of causes goes in the opposite direction (across rows, if causes are columns)

57. Use simple figures

- ▶ **Keep simple. Don't over-package.**
 - Only include content that needs to be conveyed and be sure it can be quickly, easily and accurately interpreted.
- ▶ Do not use superficial effects, like 3-D
- ▶ Use bar charts for data that comes in categories (avoid pie charts)
- ▶ Use line graphs for trends over time.
- ▶ Use labels effectively and choose titles carefully
- ▶ Make the figures stand on their own without help from the text.

58. Organize powerful presentations

- ▶ Begin with a basic question.
- ▶ Use a framework to move through a description of findings.
- ▶ End with a set of specific conclusions.
- ▶ Main focus should be to answer specific questions that will aid decision-making.
- ▶ Do not spend too much time describing methods **(unless it's the appropriate audience)**.

59. Become an effective presenter

- ▶ Preparation
- ▶ Check out room on presentation day
- ▶ Projector (and other AV)
- ▶ Presentation style
- ▶ Presentation software
- ▶ Individual slides
- ▶ Be safe (aka prepared for problems)!

60. Contribute to the store of knowledge

- ▶ Write things up
 - Reports
 - Professional periodicals
 - Popular press articles
- ▶ Present
 - Professional conferences
 - Professional meetings
- ▶ **Don't limit yourself to the crime analysis field**
 - Policing
 - Criminal justice
 - GIS
 - Crime-specific

Implementing Problem Analysis: Benefits and Challenges



Julie's Bonus Step

- ▶ Get yourself and your colleagues a copy today!

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