Mapping Reassurance Using Survey Data

Spatially Enabling ENCAMS

Local Environmental Quality Survey and West Midlands Police Feeling the Difference Survey Using COSMOS

Birmingham City Council

COSMOS
Community Safety Mapping On-line System

ENCAMS
Runs the Keep Britain Tidy campaign

Safer & Cleaner

"All effort in reducing crime is wasted if people do not

Feel the Difference"

How do we best understand Problem?

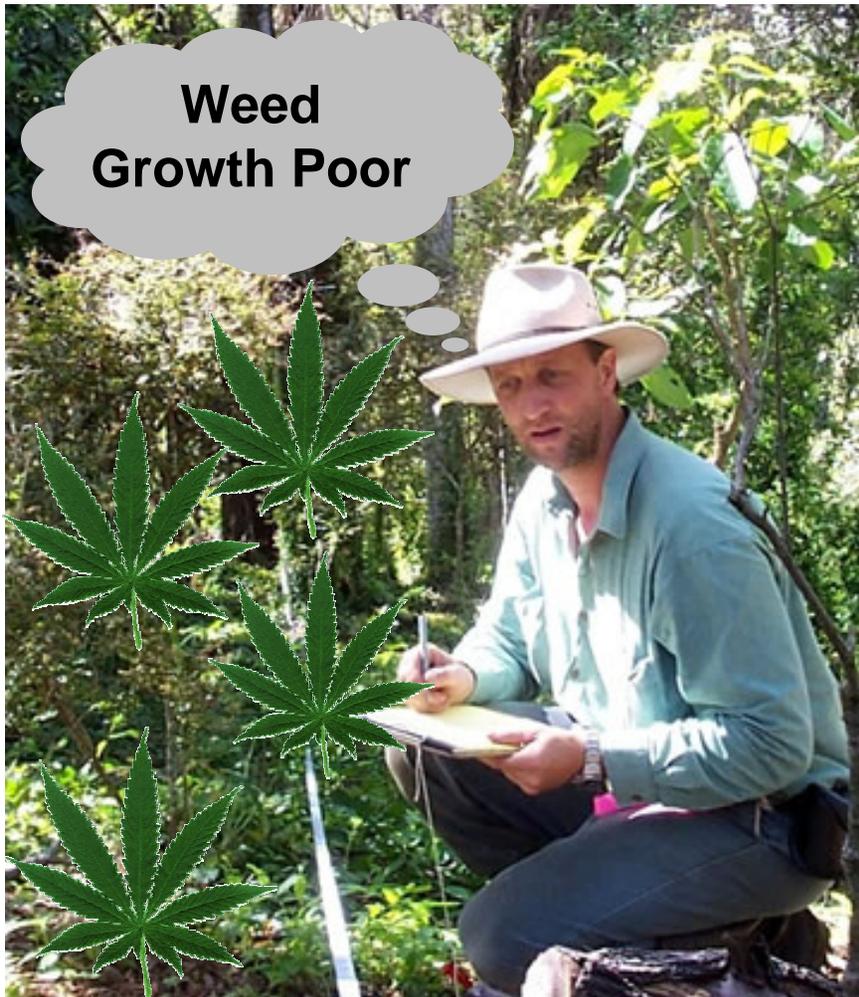- Need to fill knowledge Gaps
- Enable Targeted Service provision

Cleaner….

- Citywide Survey of Environmental Quality by ENCAMS for BCSP

- Approached COSMOS to spatially enable survey results

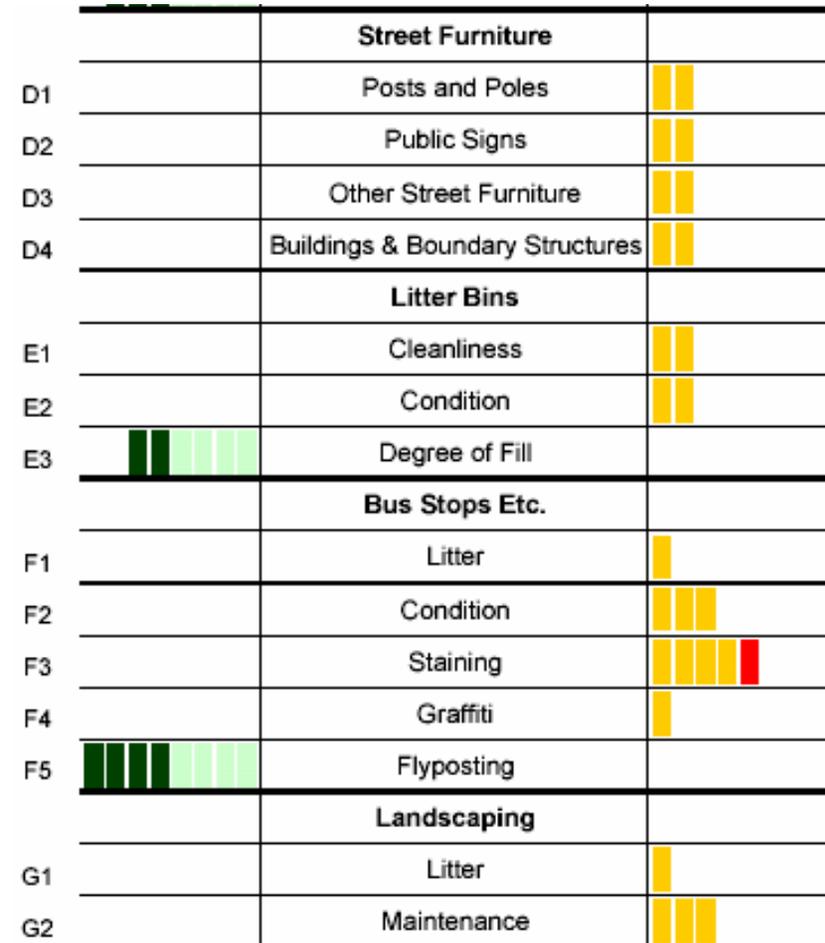- Thematically map Local Environmental Quality Survey for Birmingham
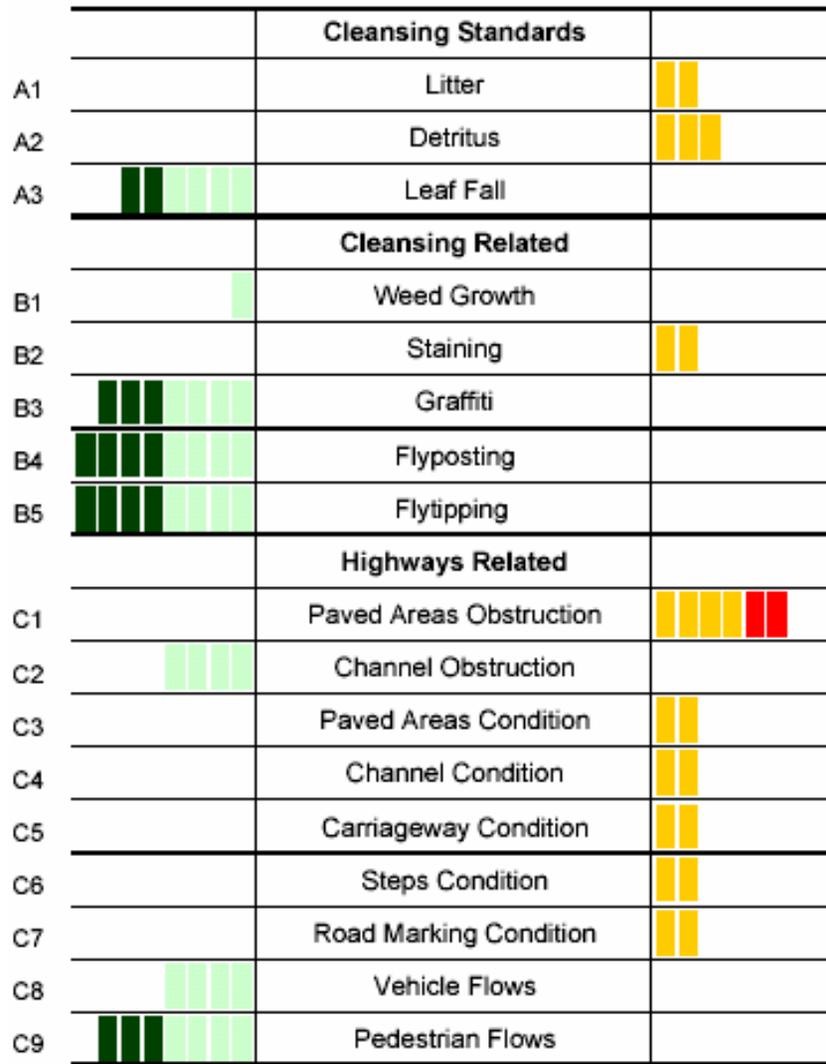
Method:

http://users.tpg.com.au/users/frizzle/gallery/images/transect.jpg

- 50m Transects
- 12 Land Use Classes
- 30 Transects per Landuse by District
- Measure 250+ variables
- Grouped to 31 Indicators
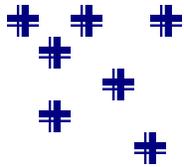- Given an SQI Score (-8 to +8)

Gauge Charts
Environmental Indices All Areas City Wide

EnCams
Runs the Keep Britain Tidy campaign

	Cleansing Standards	
A1	Litter	
A2	Detritus	
A3	Leaf Fall	
	Cleansing Related	
B1	Weed Growth	
B2	Staining	
B3	Graffiti	
B4	Flyposting	
B5	Flytipping	
	Highways Related	
C1	Paved Areas Obstruction	
C2	Channel Obstruction	
C3	Paved Areas Condition	
C4	Channel Condition	
C5	Carriageway Condition	
C6	Steps Condition	
C7	Road Marking Condition	
C8	Vehicle Flows	
C9	Pedestrian Flows	

	Street Furniture	
D1	Posts and Poles	
D2	Public Signs	
D3	Other Street Furniture	
D4	Buildings & Boundary Structures	
	Litter Bins	
E1	Cleanliness	
E2	Condition	
E3	Degree of Fill	
	Bus Stops Etc.	
F1	Litter	
F2	Condition	
F3	Staining	
F4	Graffiti	
F5	Flyposting	
	Landscaping	
G1	Litter	
G2	Maintenance	

Good   Satisfactory   Unsatisfactory   Poor

How do we Map Quality for Small Areas?
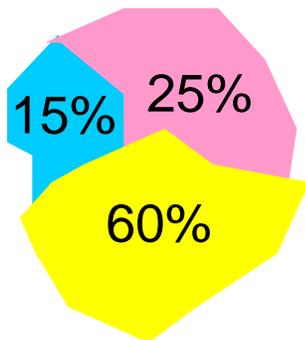
Transects

Landuse Mapped

District Landuse Quality Calculated

Industrial = **-5**
Open Space = **+3**
Watersides = **+5**

Target Area Landuse %

15% 25% 60%

Interpolated Score

25% Industrial = **-5**
15% Watersides = **+3**
60% Open Space = **+5**

SCORE = **+2.2**

- Transects are geocoded

- Land Use is mapped

- Aggregated results by Land Use for a District

- Extrapolate using Land Use as a predictor of Quality

- Ward made up of
  - 25% Industrial
  - 15% Watersides
  - 60% Open Space

- Calculate Quality Score District Score and Landuse of Target Area

COSMOS
Community Safety Mapping On-line System

Home   Mission   Contacts   Links   **Analysis**

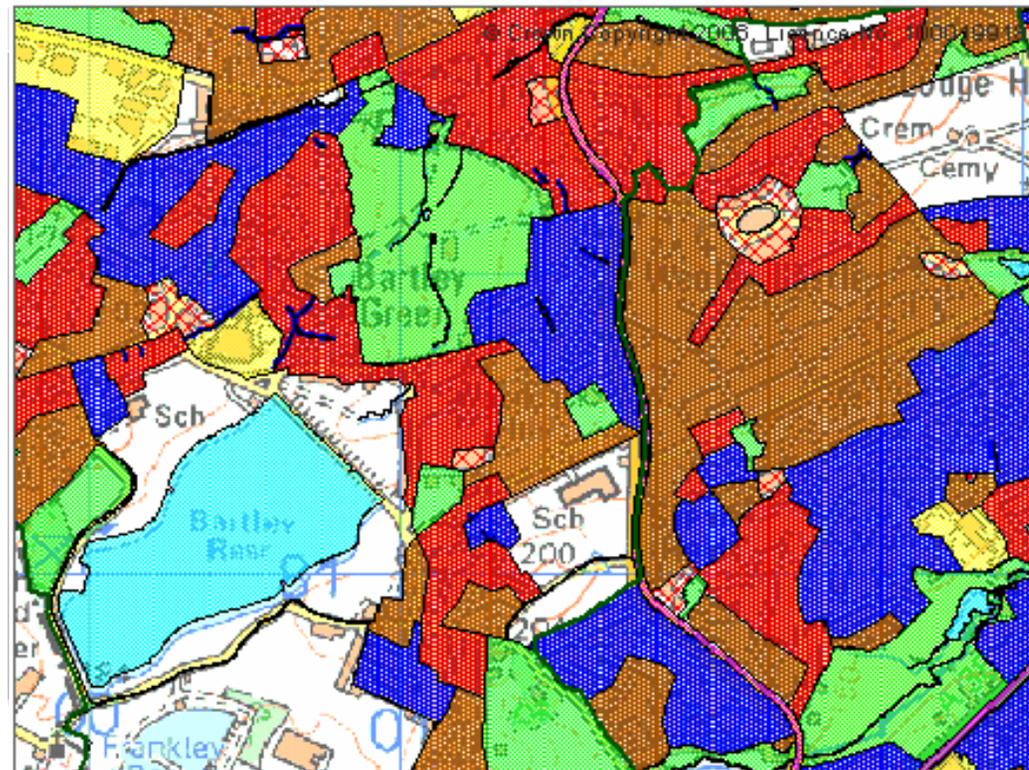Define Area < Choose Output < Environmental Quality

Mapping Landuse

Environmental Quality

Report Area	Edgbaston Birmingham District

EnCams Land Use Key

- High Density Housing
- Industry/ Warehousing/ Retail Sheds
- Low Density Private Housing
- Low Density Social Housing
- Main Roads
- No Data
- Other Housing
- Public Open Space
- Secondary Retail and Commercial
- Transport Infrastructure

Print

SQI Key
- Poor
- Unsatisfactory
- Satisfactory
- Good

- ○ Pan
- ⊙ Zoom In
- ○ Zoom Out
- ○ Info
- ○ Gauge

Dialogs
- Search
- Layers

Key
- Land Use

COSMOS
Community Safety Mapping On-line System

Home Mission Contacts Links **Analysis**

Define Area < Choose Output < **Environmental Quality**

Environmental Quality

Report Area	Edgbaston Birmingham District

Print

Selection
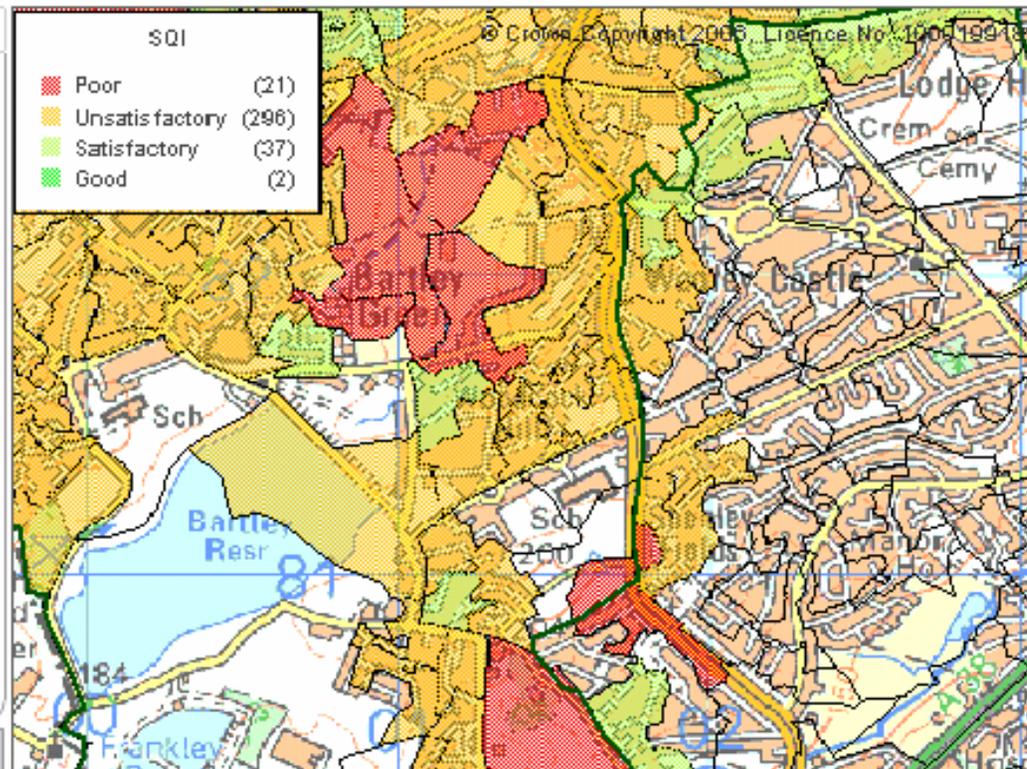
Areas: Census Output Area ▼

☐ Indicators (All)
- ☐ Litter
- ☐ Detritus
- ☐ Graffiti
- ☐ Flytipping
- ☐ Flyposting
- ☐ Staining
- ☐ Weed Growth
- ☑ Bin Condition
- ☐ Bin Degree of Fill
- ☐ Leaf fall

District Table >   Update View >

SQI
- ▦ Poor (21)
- ▦ Unsatisfactory (296)
- ▦ Satisfactory (37)
- ▦ Good (2)

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SQI Key
- Poor
- Unsatisfactory
- Satisfactory
- Good

○ Pan
⦿ Zoom In
○ Zoom Out
○ Info
○ Gauge

Dialogs

Search

Layers

Key

Land Use

LEQS Gauge Chart

									Category								
					●	●		**Cleansing Standards**									
								Litter	●								
●	●	●	●	●	●	●	●	Leaf fall									
								Detritus	●	●	●						
			●	●	●	●		**Cleansing Related**									
								Weed Growth	●								
								Staining	●	●	●						
●	●	●	●	●	●	●	●	Graffiti									
●	●	●	●	●	●	●	●	Flytipping									
●	●	●	●	●	●	●	●	Flyposting									
								Highway Infrastructure	●								
								Paved Areas Obstruction	●	●	●	●	●	●	●		
		●	●	●	●	●	●	Channel Obstruction									
								Paved Area Condition	●	●	●						
								Channel Condition	●	●	●						
								Carriageway Condition	●	●	●						
								Steps Condition	●	●							
								Road Marking Condition	●	●							
			●	●	●	●		Vehicle Flows									
		●	●	●	●	●	●	Pedestrian Flows									

Users can interrogate the maps to produce environmental quality gauge charts

We can help improve the environment…

What about feeling safer?

Feel Safer….

- Force-wide household survey of perceptions of safety.
  - (Over 20K in Birmingham alone)
- Spatially enable survey results
- Flexible geographic reporting and thematic mapping at neighbourhood level.
- Link perception to crime hotspots and environmental quality at the neighbourhood level.
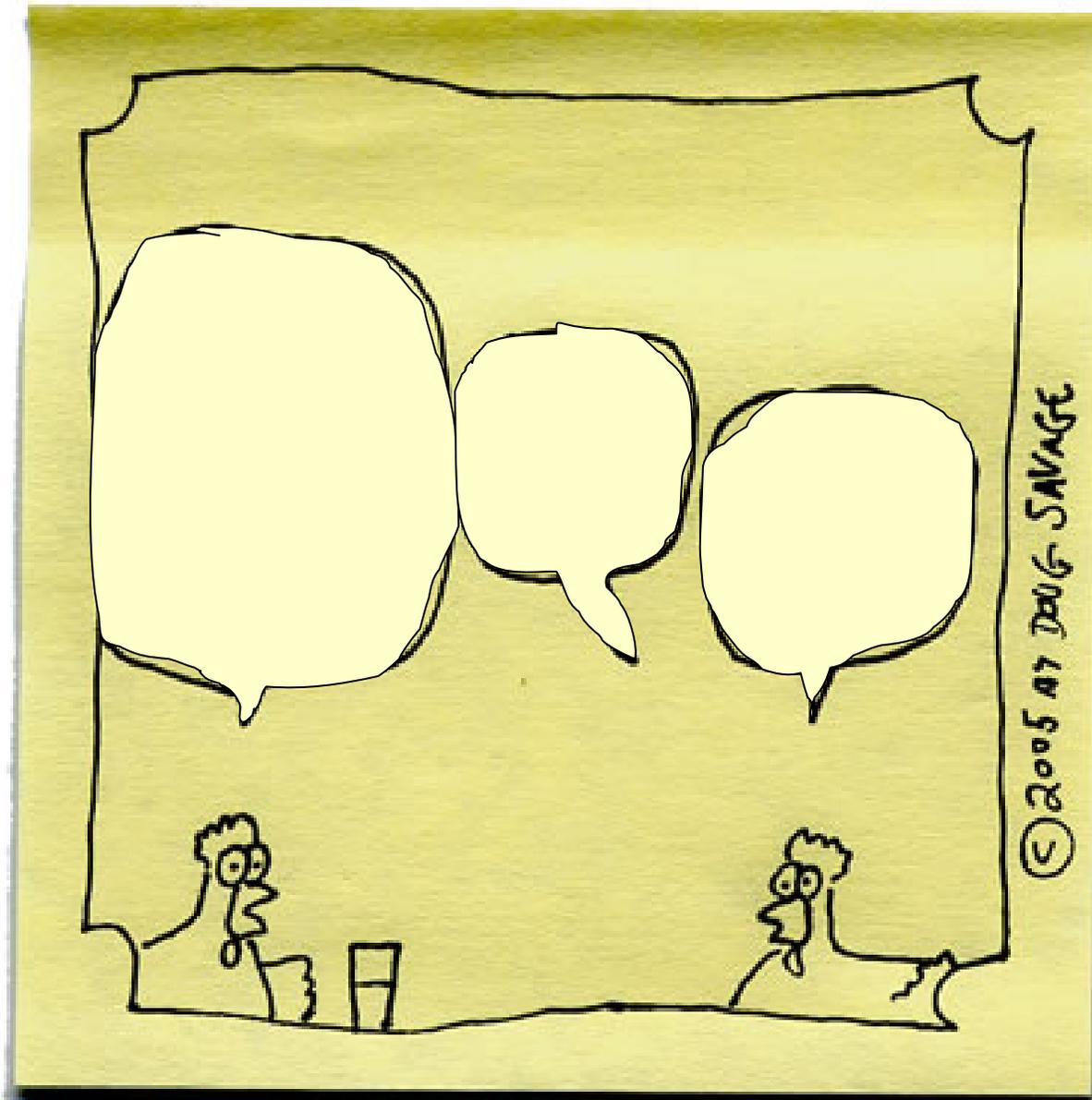
Measuring Perception

Perception…..

…Half Full?

…Half Empty?

Analyst ……

..250ml water

http://www.fenwaynation.com/me-glass.jpg

Thresholds of perception differ!

The Hall Green Effect!

The British 'Wisteria Lane Effect'

Method:

- Household Survey
- Post coded Results
- Over 40K Surveys in West Midlands to date
- Measures:
  - Perceptions of Crime
  - Quality of Service
  - Community Cohesion
- ACORN
  - Postcode Classification

How do we Map Perception for Small Areas?

Survey Results

ACORN by Postcode

ACORN Results Calculated
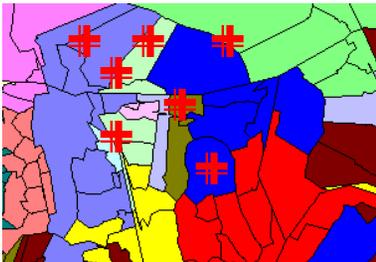
Type 1 = 85% Feel Safe
Type 2 = 76% Feel Safe
Type 3 = 58% Feel Safe
(….57 Types)

Target Area
ACORN %

25%

15%

60%

Interpolated Score by %Popn
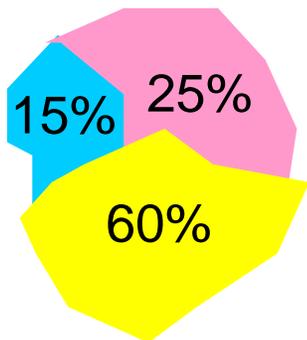
25% Type 1 ⎫ Overall
15% Type 2 ⎬ 67.4%
60% Type 3 ⎭ Feel Safe

- Survey results are geocoded and Matched to an ACORN Type
- Aggregated results by ACORN Type
- Extrapolate using ACORN as a predictor of survey response
- Ward made up of
  - 25% ACORN Type 1
  - 15% ACORN Type 2
  - 60% ACORN Type 3
- Calculate Safety based on make up of ACORN Type in the Area

Table			
Report Area	BIRMINGHAM Local Authority District		
Report Date	-		
Title	Survey – Feeling the Difference Aged 18 24, Aged 65 or over by 10a. Safe in the dark (All)		

Category	Aged 18 24 p/c	Aged 65 or over p/c	TOTAL
Safe in dark	65.38	42.81	51.56
Unsafe in dark	24.96	36.78	32.19
Other	2.46	10.78	7.56
Neither	7.20	9.63	8.69

Examples of COSMOS Outputs
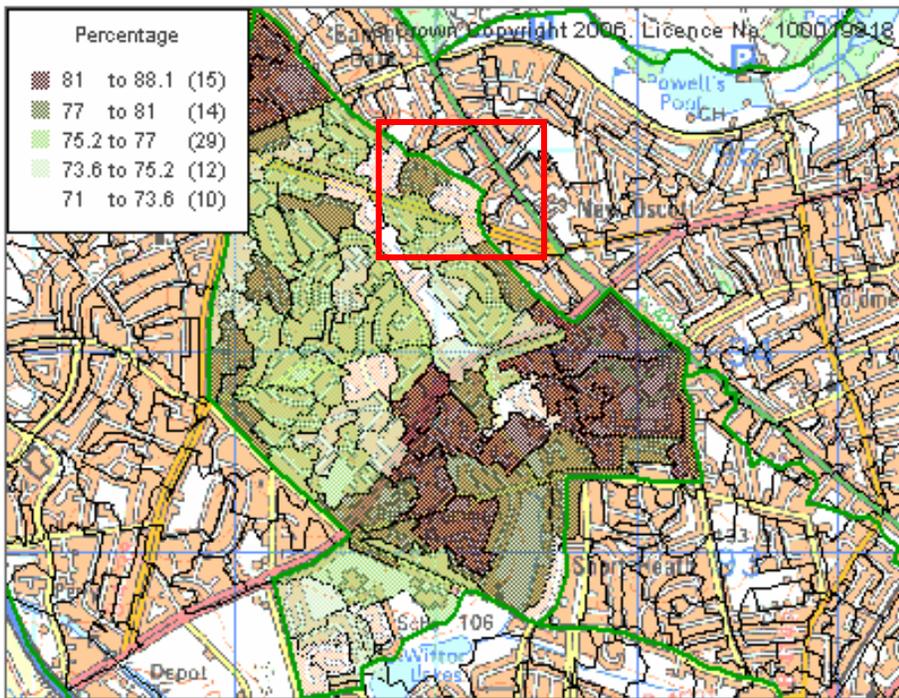
Survey - Feeling the Difference
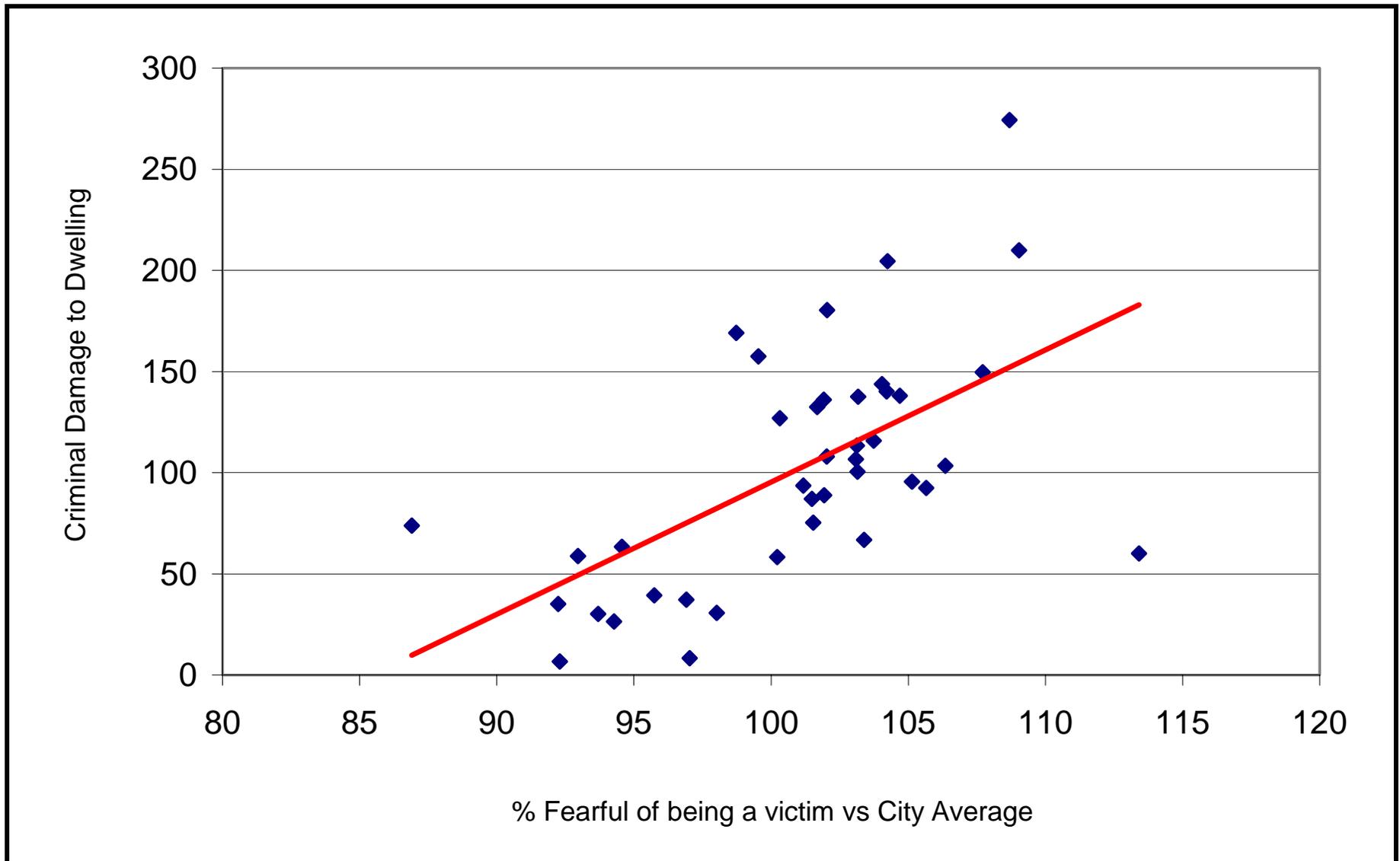Agree live harmoniously
by Census Output Area
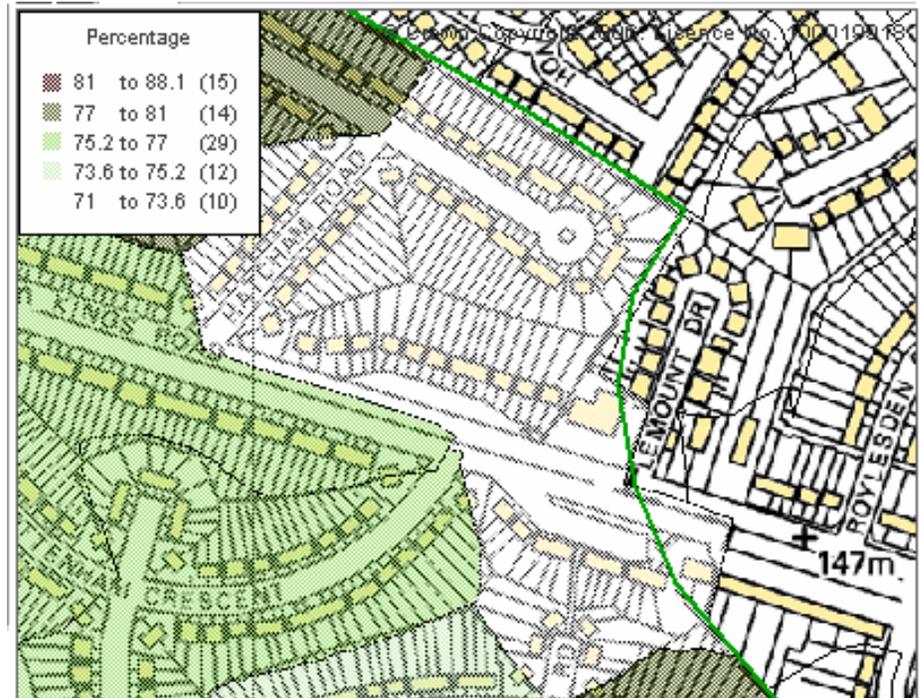
Survey - Feeling the Difference
Agree live harmoniously
by Census Output Area

Practical Usage

- **Performance Management of Reassurance Objectives**
  - Local Area Agreement
  - Crime & Disorder Strategy
  - Local Delivery Action Plans
- **Neighbourhood Level Analysis**
  - Strategic Assessment
  - Problem Profiles
  - Control Plans
- **Identifying Signals of Fear**

MANAGE RESOURCES & RISK

Fearful Vs Criminal Damage to Dwelling

Identifying Fear Signals

| Pearsons Correlation: For all Wards in Birmingham (N=40)		Composite Index (Incident)	Rowdy Nuisance Behaviour (Incident)	Criminal Damage not Dwelling (Signal)	Criminal Damage to Dwelling (Signal)	Clean Index (Signal)	Noise Nuisance (Signal)	Abandoned Vehicles (Signal)	Detritus (Signal)	Litter (Signal)	% List Vandalism & Graffiti (Signal)	% List Drugs as Problem (Signal)	% List Teens as Problem (Signal)
Fear	% Not Safe O/S Day	+99	+99	+99	+99	+99	+99	+99	+0	+99	-95	+99	-0
Fear	% Not Safe O/S Night	+99	+99	+99	+99	+99	+99	+99	+0	+99	-0	+99	+0
Fear	%Fearful of Victim	+0	+0	+0	+99	+0	-0	+99	+0	+0	+99	+0	+99

Identifying Fear Signals

- Links with % fearful of becoming a victim

- Correlates with
  – Criminal damage to dwelling
  – Abandoned vehicles
  – Graffiti as problem in neighbourhood
  – Teenagers as problem in neighbourhood
  – Not feel safe Outside after dark

- Does Not Correlate with
  – Criminal damage non dwelling
  – Rowdy Nuisance Behaviour
  – Litter/Detritus
  – Noise Nuisance
  – Composite Index of Priority

Fearful Vs Litter

ENCAMS: Litter

% Fearful of being a victim vs City Average
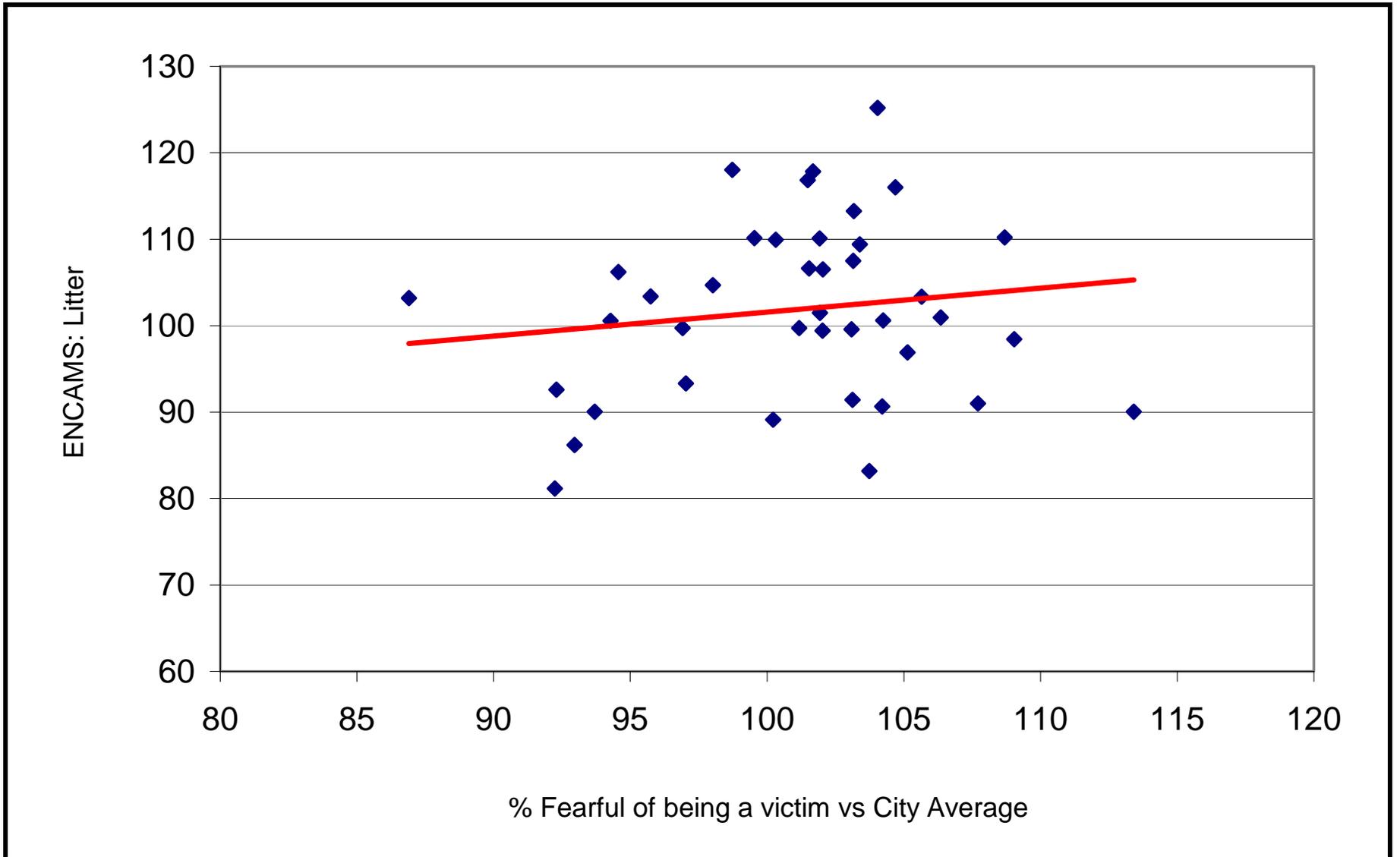
What is Fear! - Fearful Vs Not feel Safe
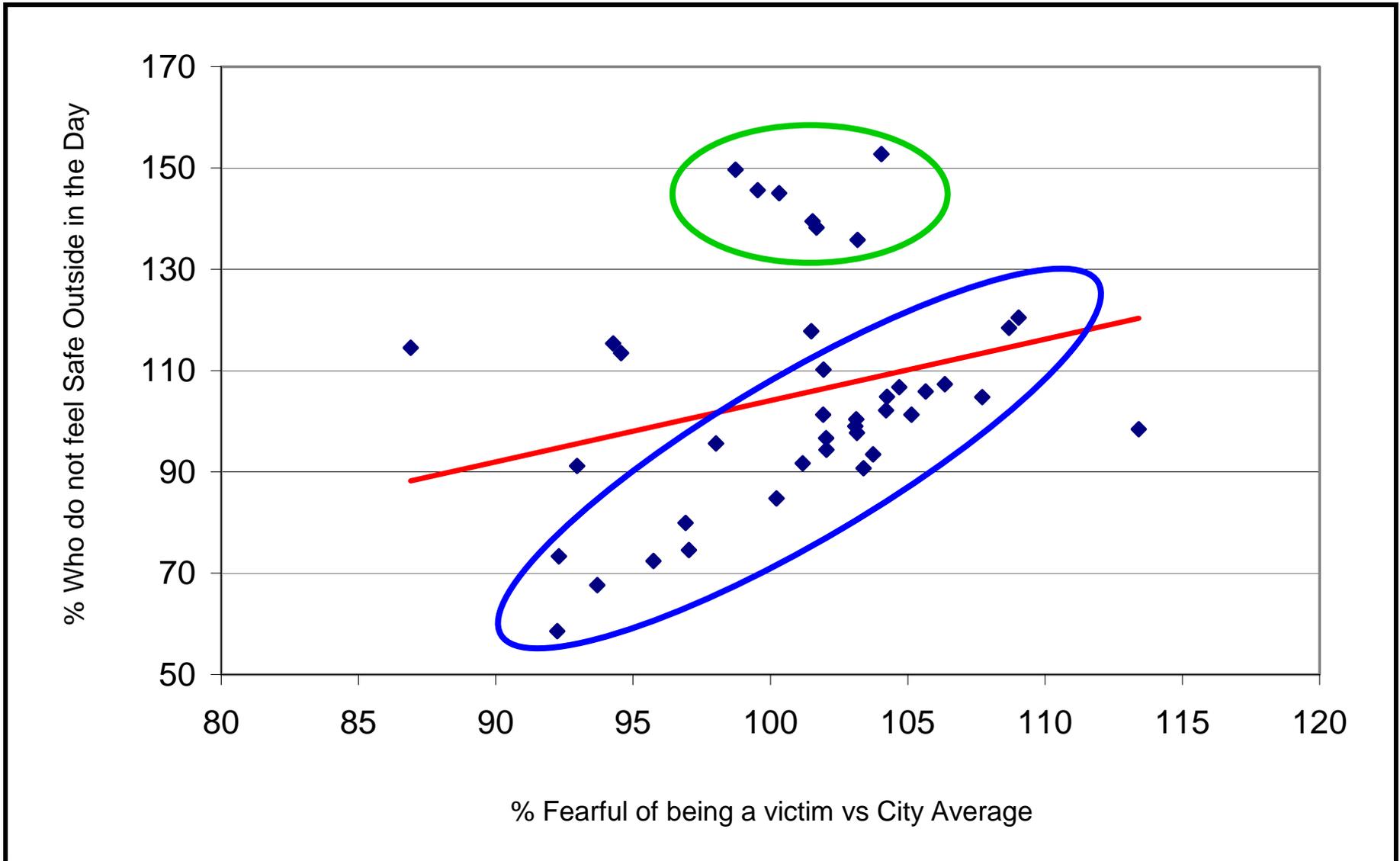
Results – Perception Key Performance indicators

Question	2004/05 (Waves 1-4)	Waves 8-11 (2006)	Change
How safe or do you feel when outside in your neighbourhood during the day? (% Safe)	89.4%	94.0%	+4.6%
How safe do you feel when outside in your neighbourhood after dark? (% Safe)	55.2%	61.0%	+5.8%
To what extent do you agree that your neighbourhood is a place where people from different backgounds and communities can live together harmoniously? (% Agree)	81.3%	92.0%	+10.7%

Next Steps

- Environmental Survey
  - Survey Top Up with Hand-Held Mobile Devices
  - Complete citywide survey every 6 months
  - Mapping change & progress

- Public Reassurance
  - **MYNEIGHBOURHOOD.info** (Interactive Public Access Web site)
  - Neighbourhood based crime mapping
  - On-line survey/polls (compare results with your neighbourhood)
  - Neighbourhood Toolkit

MyNeighbourhood

My Neighbourhood provides the West Midlands with a web mapping application using the latest crime figures provided by West Midlands Police.

Have your **say** ↘

Spotlight on your area

YES ☒
NO ☐

View the **polls** ↘

My Neighbourhood provides an accurate visual demonstration of the current state of crime.

| Home | Have your say | View the polls | Privacy Policy |

www.myneighbourhood.info

Mapping Environmental Quality

Spatially Enabling ENCAMS

Local Environmental Quality Survey

Using COSMOS

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