Brian Varney

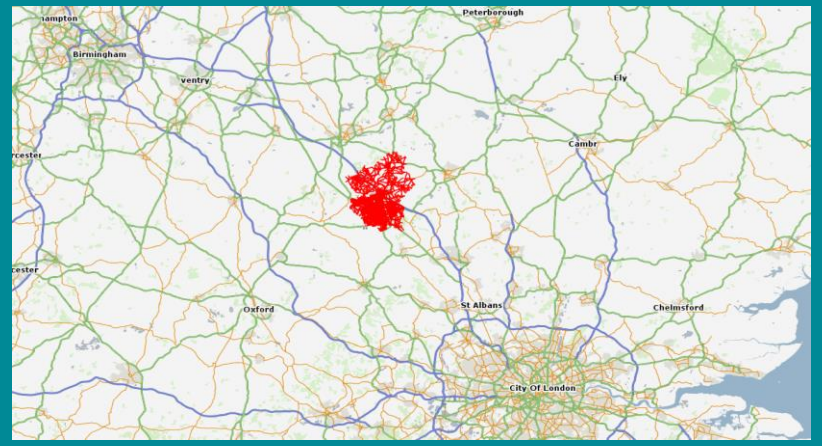
Highway Asset Engineer
Milton Keynes City Council

Milton Keynes City Council

About Milton Keynes

Conceived as a new town in 1967,
Roughly ½ way between London & Birmingham
Approximately 119 Square Miles in area
287,000 people, with 90% living in the Urban area (20% of total area)
More new homes in MK than in any other UK City
Awarded City Status in 2022
It continues to be an innovative and developing City

- Electric Buses
- Driverless vehicle trials
- Starship Delivery Robots
- Driverless pods
- Electric scooter trials



- 130 Roundabouts, on our Grid Roads
- 58,075 Streetlights
- 1,526 Km carriageways
- 1,807 Km footways
- > 280 Km cycleway/footpath network
- 668 Bridges/structures
  - 382 Illuminated underpasses
- 73,173 Gullies

- 1,467 Bus stops/shelters
  - 462 illuminated bus shelters
- 3,220 Illuminated signs
- 77 crossings
- And more…

Milton Keynes City Council

Milton Keynes City Council

Best Improved Performer 2022

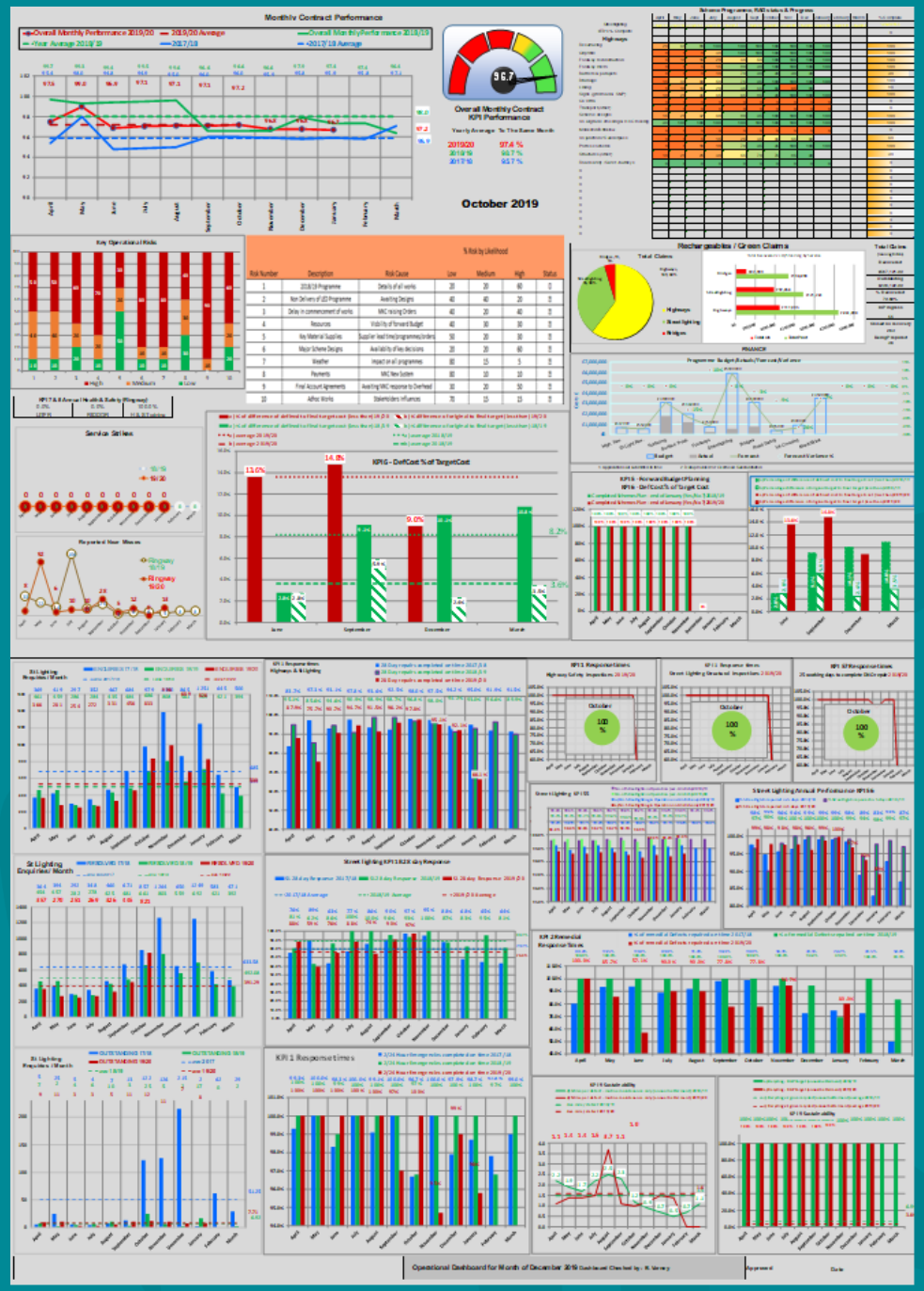
Roads, Highways and Winter Maintenance

At Milton Keynes City Council we've been collecting Monthly Contract Key Performance Indicators for Highways for years.

These measured all areas of performance, across the Highways Maintenance Contract, using KPI's set out in our Term Maintenance Contract.

Everything looked pretty, with lovely charts, with values and averages, indicating how well we were doing, and it certainly helped to manage the Contract.

But this was measuring the Contract, not our performance with regard to the service we were providing to the Citizens of Milton Keynes and the two are not the same.

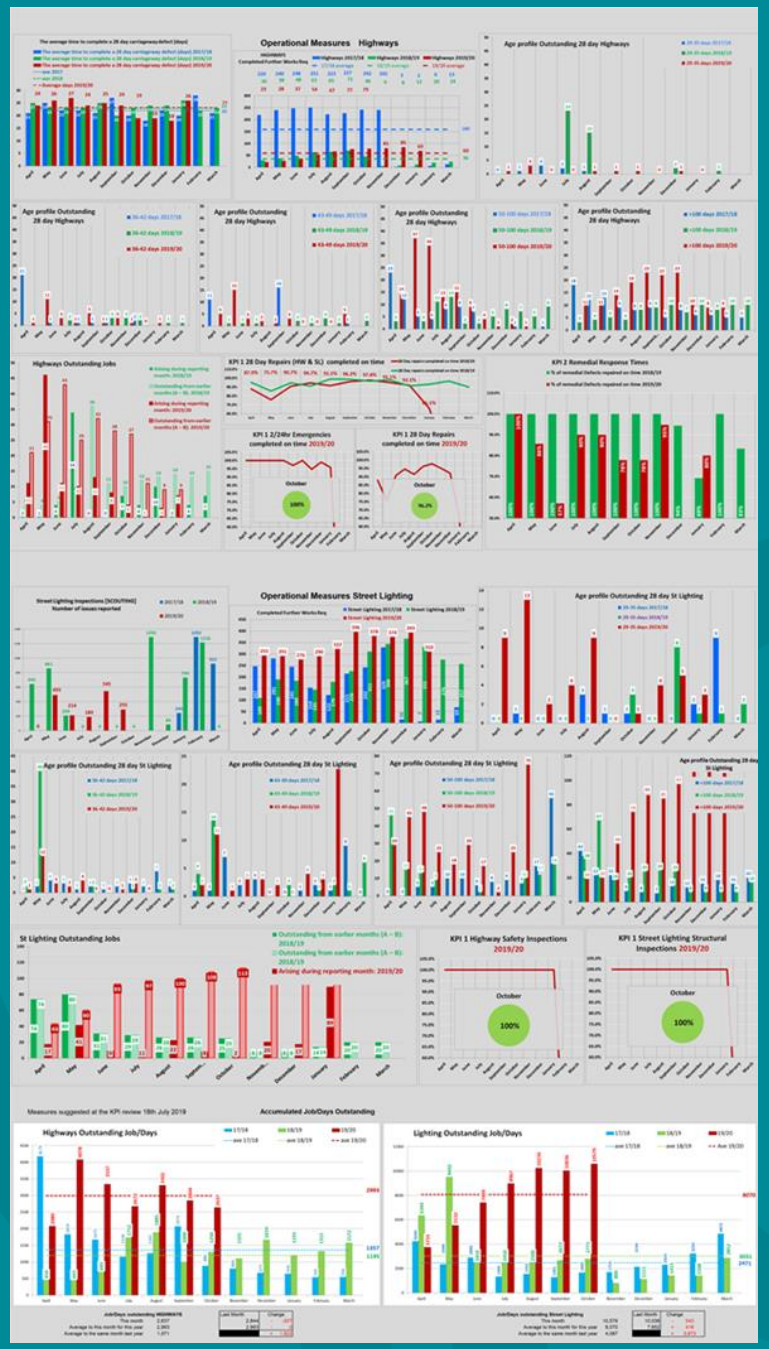


So, we devised a number of Operational Performance Indicators, which challenged the level of service we deliver.

Example:
In our Contract, if a 28 day job takes more than 28 days, the Contractor is in default.

- Contractually, 29 days is the same as 100 days because a default is a default
- There was no incentive for the Contractor to focus on jobs that were already in default.
- But this really matters to the Citizen.

A new Measure recorded the accumulative number of days, outstanding 28 day jobs were outstanding for. We then applied this measure to all Priority Levels.
This focussed the minds of the Client and the Contractor, when it became a visible Operational Performance measure.
It also measured Actual Operational Performance, not Contract Performance.



But how meaningful was the data?

Many of our charts recorded AVERAGES
and each month the Average was reported.

So, what's wrong with that? you might ask…

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and each month the Average was reported.

So, what's wrong with that? you might ask…

Well, an Average is only an Average.

Let's look at these two data sets…
Clearly, they are not the same.

	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Measure	80	20	80	20	80	20	80	20	80	20	80	20

	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Measure	60	40	60	40	60	40	60	40	60	40	60	40

Many of our charts recorded AVERAGES
and each month the Average was include in the Performance Report.

So, what's wrong with that? you might ask

Well, an Average is only an Average.

Let's look at these two data sets… Clearly, they are not the same.

The average for both data sets = 50

The important measure is missing, and that is the variation across the data (capability).

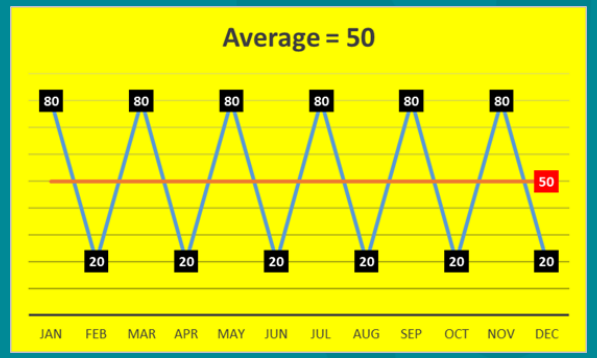
	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Measure	80	20	80	20	80	20	80	20	80	20	80	20

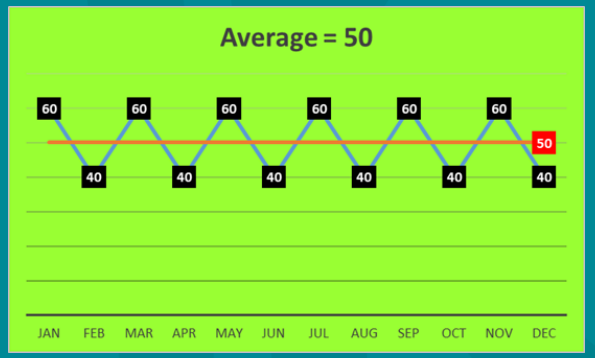
	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Measure	60	40	60	40	60	40	60	40	60	40	60	40

The yellow data has a wide variation, from 80 to 20.

The Green data has a narrower variation, from 60 to 40.

So, for the Customer the variation in performance is important, with narrow variation being more consistent and better than a wide variation.

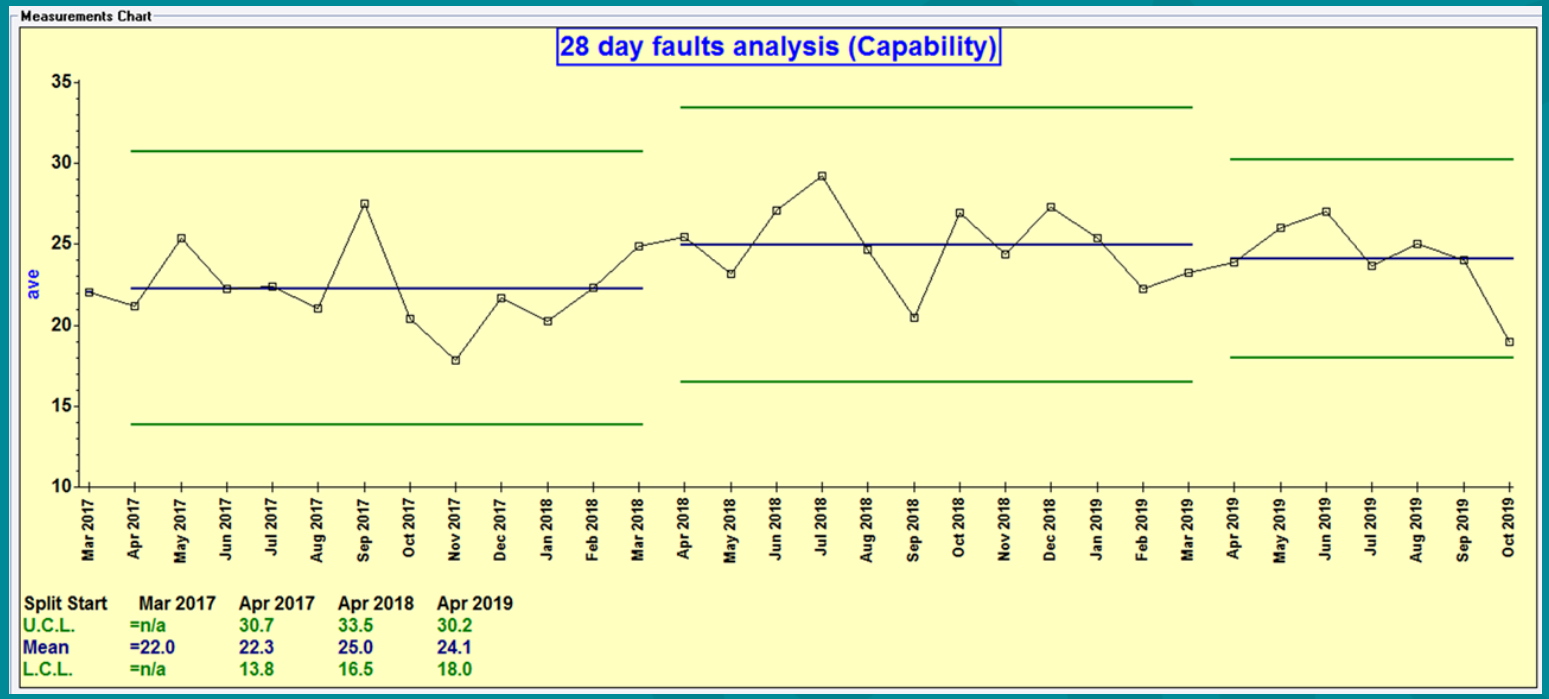




so we introduced measures that would record Capability.
The variation across the average.

Using Standard Deviation calculation, the charts we produced defined the change in Capability.

The Capability chart shows data for three years from
April 2017 to March 2018
April 2018 to March 2019
April 2019 to October 2019 (part year)



The blue line is the Average
The top Green Line is the UCL
The bottom Green line is the LCL

UCL is the highest we could reasonably expect
LCL is the Lowest we could reasonably expect
2017 Variation = 30.7 – 13.8 = 16.9
2018 Variation = 33.5 – 16.5 = 17
2019 Variation = 30.2 – 18.0 = 12.2
(Caveat 2019 = only 7 months, up to October only)

So, to produce a more accurate comparison,
lets use just the four months from July to October.

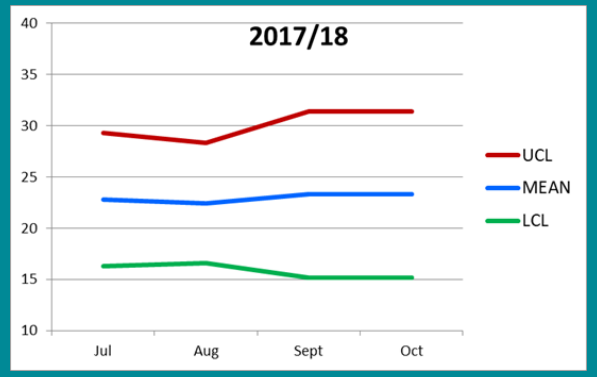
The data in the table below records the numbers,
but of course the charts tell the story…

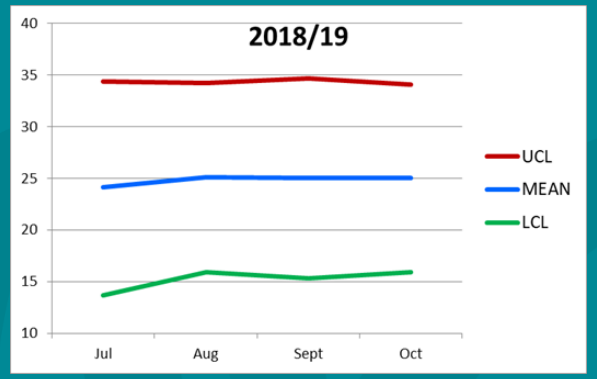
It can be seen that the variation increased for the four months in 2018/19, compared to 2017/18, and narrowed significantly in 2019/20 (when we introduced the measures).

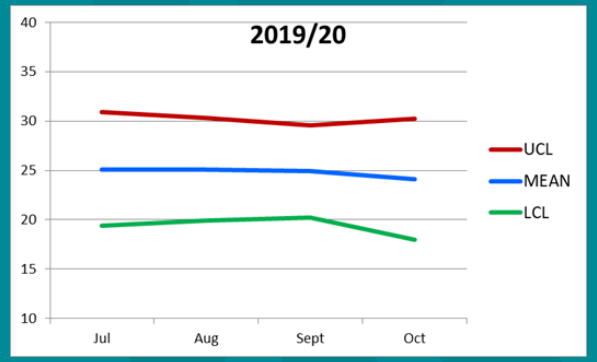
2017/18 Variation gap = 57.1
2018/19 Variation gap = 76.6
2019/20 Variation gap = 43.5

However, the 2019/20 chart is showing a trend toward the variation increasing as winter months approach.
(even though the average is dropping)

		Jul	Aug	Sept	Oct
UCL	2017/18	29.3	28.3	31.4	31.4
MEAN		22.8	22.4	23.3	23.3
LCL		16.3	16.6	15.2	15.2
UCL	2018/19	34.4	34.2	34.7	34.1
MEAN		24.1	25.1	25	25
LCL		13.7	15.9	15.3	15.9
UCL	2019/20	30.9	30.3	29.6	30.2
MEAN		25.1	25.1	24.9	24.1
LCL		19.4	19.9	20.2	18







So, we have the data….
But what do we do with it?

Well, if we focus our analysis on the data records that are highest in measure, particularly those outside the UCL and **understand why there is variation**,
we can reduce the variation…..

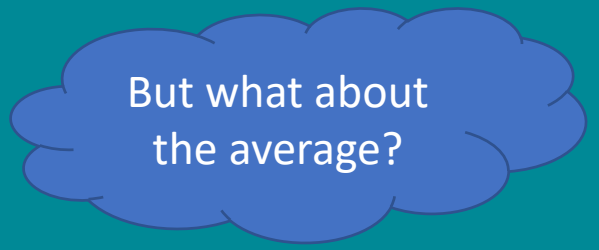
….And then we deliver improvement.

In our data sets we saw the Average was the same for both data, that with narrow variation and that with wide variation.
Comparing averages means nothing.

We could improve the numbers significantly if we had more resource - “throw more money at it”. But that doesn’t really improve anything, that’s just delivering more of the same thing.

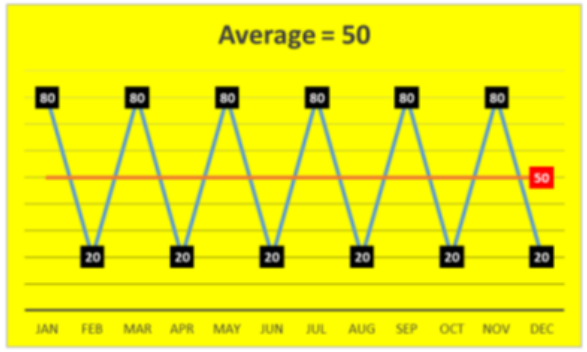
Improvement only comes from reducing the Variation and narrowing the gap between UCL and LCL.

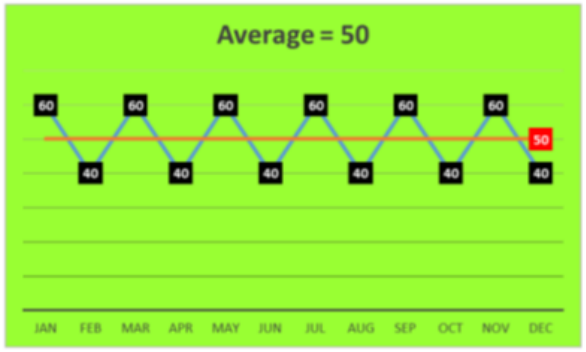
This is all about improving the value for money and getting the best out of a finite resource, and we do that by understanding variation and increasing consistency.



Measure	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	80	20	80	20	80	20	80	20	80	20	80	20

Measure	Jan	feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	60	40	60	40	60	40	60	40	60	40	60	40





So to re-cap…..

The most valuable measure is ‘Variation’.
Variation shows the extremes in performance.

Understanding and reducing Variation is better for the customer. It provides consistency, helps to shape customer expectation and reduces customer frustration.

The Capability chart demonstrates our actual capability to deliver that area of the service.

The UCL and LCL indicate what Variation in service we might reasonably expect.

Focussing on data at the extremes and outside of the UCL and LCL is where we’ll find improvement… Understand those variations and act on them, and the Variation gap will narrow.

We deliver improvement by;

- Using the data to inform **Business Intelligence** - Understand how the work, works.
- Developing action plans – **Challenge** what we do and how we do it: Do It differently.
- Measuring and monitoring, with **Meaningful Data** = Learning and Business Improvement

Thank You
Any Questions?

Milton Keynes
City Council

Milton Keynes
City Council

IMPROVING BRITAIN'S CROSSINGS TO ENCOURAGE WALKING FOR LOCAL EVERYDAY JOURNEYS.

CYNTHIA GAMES MA

LIVING STREETS

WHAT TO EXPECT

- **PRIORITISING PEDESTRIANS TO ENCOURAGE WALKING**
- **BARRIERS TO WALKING**
- **CROSSINGS IN CONTEXT**
- **SOLUTIONS :REFINING WAITING TIMES FOR CROSSING SIGNALS**
- **SOLUTIONS: IMPROVING CROSSINGS MAKING WALKING SAFER, EASIER, MORE CONVENIENT**

LIVING STREETS
WHO ARE WE

LIVING STREETS

WE ARE LIVING STREETS, THE UK CHARITY FOR EVERYDAY WALKING.

We have long been a beacon for walking with a heritage stretching back to 1929. We are a campaigning charity governed by our volunteer trustees, with a network of members, local groups and supporters. Through our projects we are making a direct impact, encouraging thousands more to walk their everyday journeys.

WHY WALKING

Walking = zero carbon, zero emissions, zero cost, efficient use of space and it's good for your health

LIVING STREETS

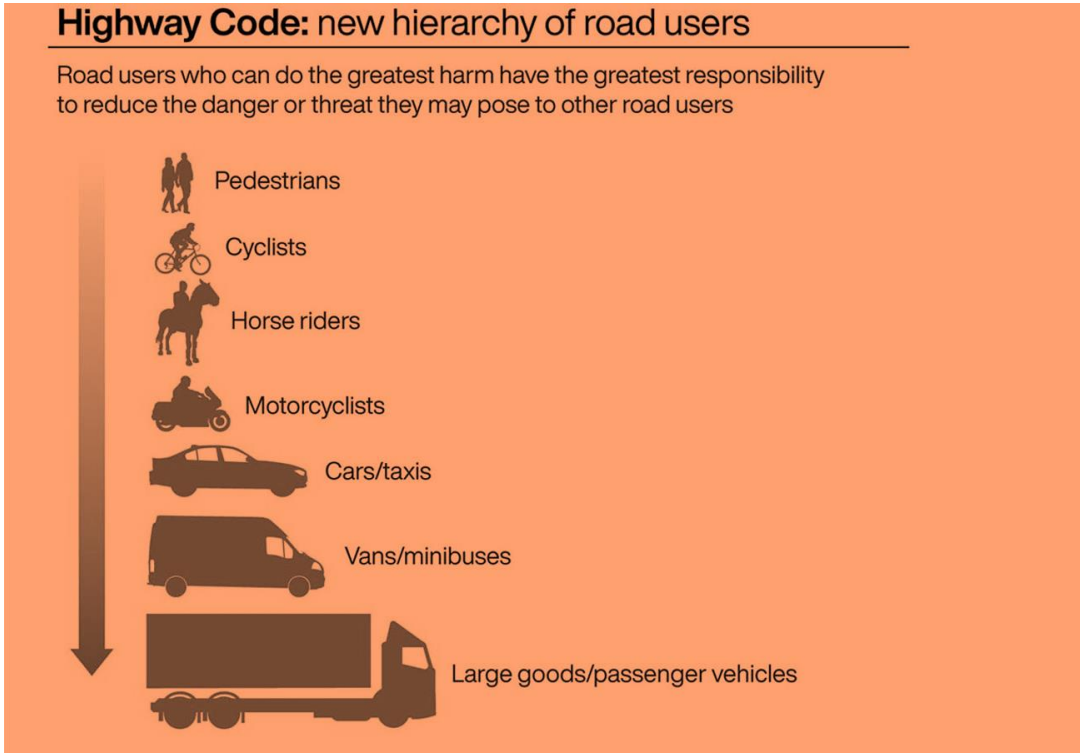
ACTIVE TRAVEL AND DECARBONISATION

The more people travelling actively, the fewer people driving and contributing to the carbon footprint.

Brand (2021): Climate Change Mitigation impacts of active travel

HIGHWAY CODE

Clarifying the Law: the new heirarchy



LIVING STREETS

BARRIERS TO WALKING

We can do better!

- Safe Space to Cross
- Crossings that take a long time to cross
- “Green wave” systems that prioritise road traffic
- Speed and volume of road traffic
- Built Environment & Urban Planning
- Taking the child’s point of view?
- Street furniture – or lack of it
- Signage
- Maintenance

CAR-CENTRIC THINKING

Challenging “motonormativity”

Cars are not bad in themselves - BUT

- People assume car presence
- Planners assume car access is essential
- Other street users “work around” cars
- We need to rethink!


/sites/carltonreid/2023/01/17/car-blindness-normalizes-dangers-of-motoring-reveals-study/?

Forbes

Car Blindness Normalizes Dangers Of Motoring, Reveals Study

Carlton Reid Senior Contributor ⓘ
I have been writing about transport for 30 years.

Follow

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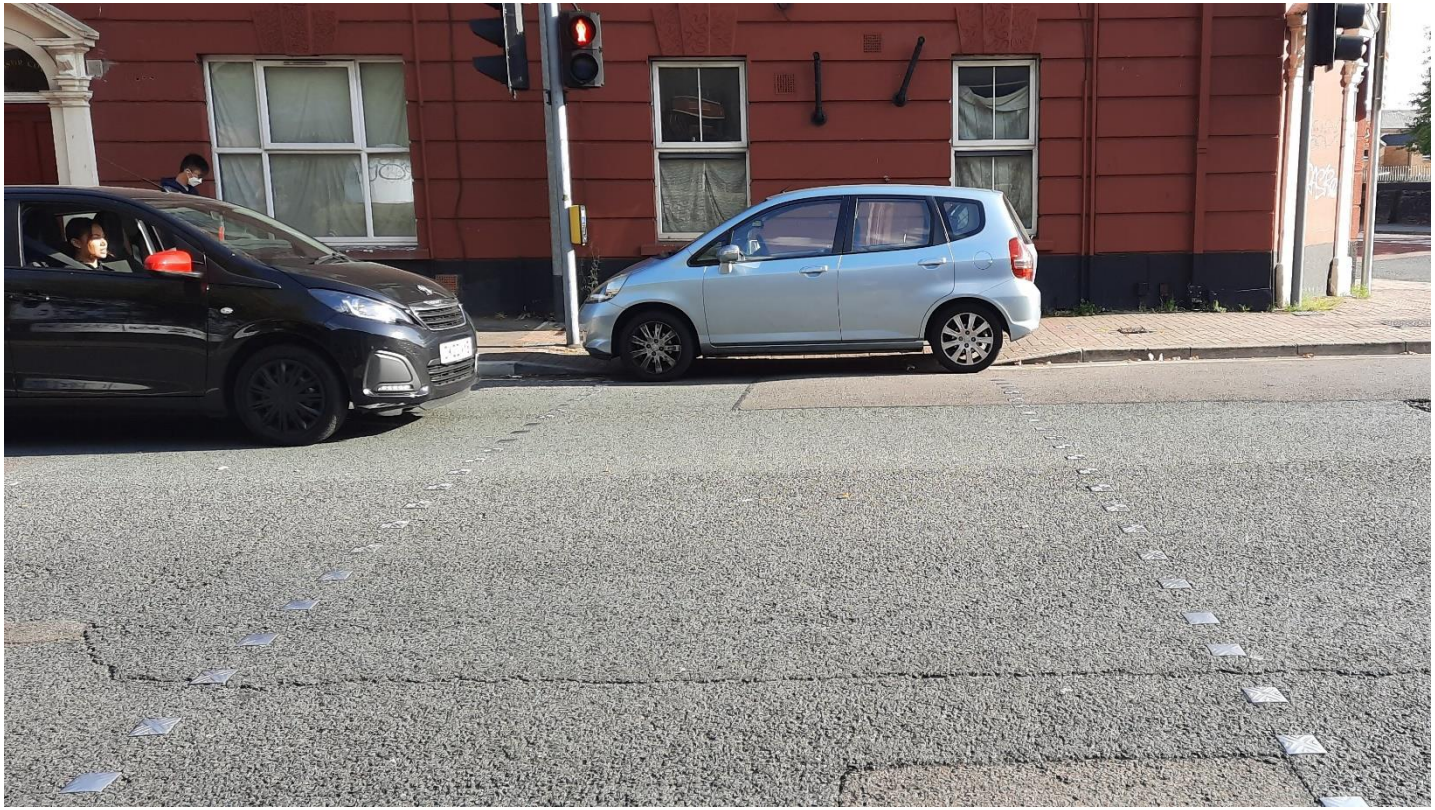
Jan 17, 2023, 03:20am EST

Flowers and tributes lay at the scene where baby Ciaran Lee Morris was killed in Brownhills High ... [+] GETTY IMAGES

isAr7-5jLbqmei9ToENvZHhABIP7U9Rdgu-ayg9AKoAGHg7...src_id=591891358_18668380054_143626828558

DRIVER BEHAVIOUR

A Cardiff/Caerdydd example



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THE HIGH STREET

THE PEDESTRIAN POUND

The business case for better streets and places

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LIVING STREETS

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People who walk and cycle take more trips to the high street over the course of a month

Average number of visits to local town centre each month, by mode


16 visits


12 visits


8 visits

Source:, TfL 2014

CROSSINGS IN CONTEXT

LIVING STREETS

CROSSINGS

Giving Pedestrians Time To Cross

CROSSINGS

Giving Pedestrians Space To Cross

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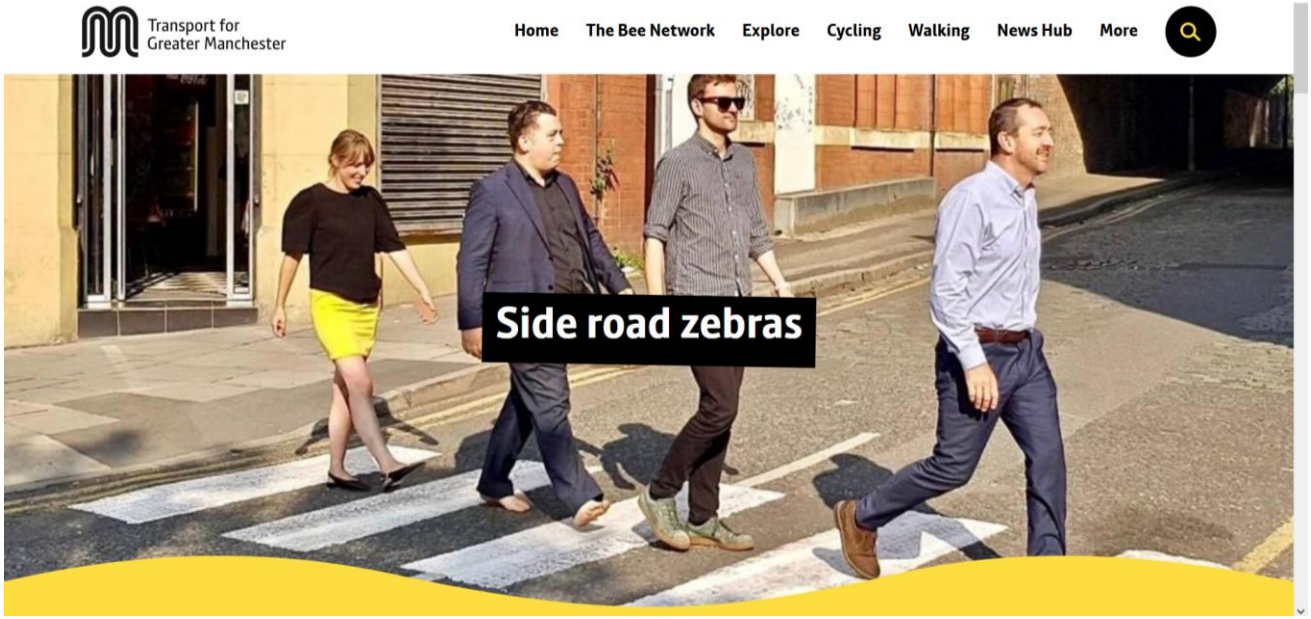
CROSSINGS

Creative Crossings



REFINING TIMING

Solutions we can implement

- Increase crossing times: (1.2m/s to 1.0m/s)
- Decrease waiting times for Green light
- Countdown crossings – increase time allowed
- Smart Toucan Crossings – responsive signals

LIVING STREETS

POLICY CHOICES AT LOCAL LEVEL

Promoting a walking agenda requires policy choices.

- Speed – 20mph
- Priority - crossings
- Cutting clutter and pavement parking
- Controlled Parking Zones
- Space reallocation
- Traffic reduction
- 20 minute neighbourhoods

LIVING STREETS

ANY QUESTIONS?

THANK YOU!

cynthia.games@livingstreets.org.uk

LIVING STREETS

Cumbria's Plastic Roads

Serving the people of Cumbria

The scope:

Research project investigating into the sustainability and suitability of using waste plastic additives in highway construction.

Local Authorities need to learn to push technology and to collaborate with others. Live labs allowed us collaborate and push innovation without compromising existing budgets


ADEPT
Association of Directors of
Environment, Economy, Planning & Transport
LIVE LABS
Cumbria
County Council
University of
Nottingham
UK | CHINA | MALAYSIA
AGGREGATE
INDUSTRIES
Shell Bitumen
Cumbria
County Council
Serving the people of Cumbria

Initial Objectives

- Improving design life of the highways by using waste plastic additives
- Explore optimum pavement design / spec when waste plastic additive used
- Seek to produce a business model for authorities to adopt creating a circular economy
- Ensure use of plastic in surfacing does not pose a risk to the environment or people
- Develop partnerships across other highway authorities in the UK where ‘plastic roads’ have been used and those seeking advice

Road Trials Undertaken

- Robust site selection criteria and testing requirement
- Essential to incorporate a control
- Multiple site parameters to consider – speed, urban/rural, exposed/sheltered, trafficking volumes, mainline/junctions
- 10 trials (6 road and 4 quarry) undertaken using different material types and additives
- 5 year monitoring and inspection programme (PTS)

What was Learnt – the good

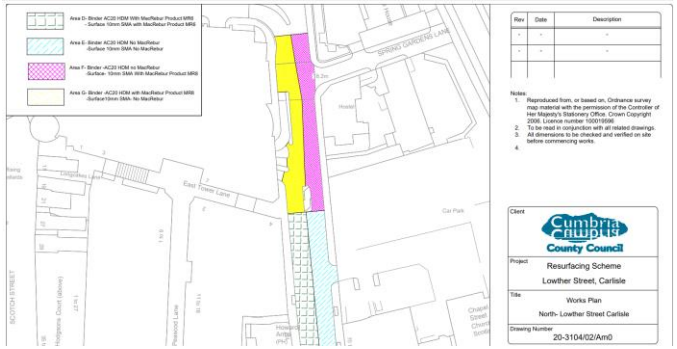
- Road trials have proved to be an excellent way to evaluate performance of new materials
- In two years new ideas have come along and were included where possible (Shell)

- All our Live Labs project partners shared an appetite to be innovative and push boundaries
- Maintaining research independence

What was Learnt – the bad

- Legal and procurement challenges in project set-up
- Sharing issues sooner at Live Labs Programme level
- Literature review highlights still more research to do on whole subject not just project specific
- Don’t underestimate the importance of clear communication

Successes



- Delivery of a fully independent research project
- Working with Live Labs nationally has raised awareness of other initiatives to help with decarbonisation goals and helped established new networking partnerships
- Future years monitoring and testing will continue to feed into DfT ‘Library’