

Health Impact Assessment of Cardiff's Car Free Days

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Welsh Air Quality Forum

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Cardiff first car free day...

Thursday, September 22nd 2016

- Prompted by World Car Free Day Network initiative and examples from other major cities
- Limited to Park Place, Cathay's
- A trial-run for a major city road
- Coincided with Cardiff Uni. Fresher's Week



Car-free Park Place, Cathays Cardiff. 22nd September, 2016 (looking south). Photo: Author

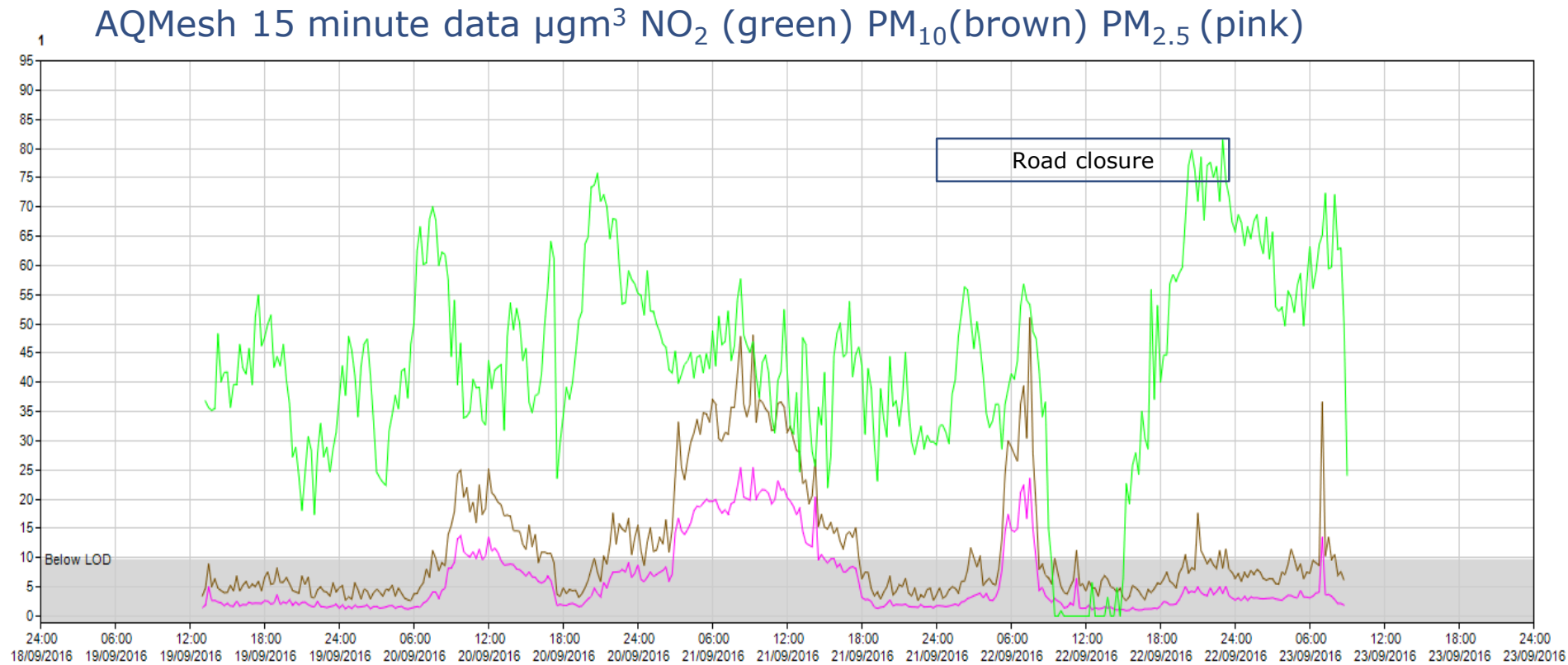
The event aimed to

- Show a street without cars
- Inspire use of sustainable transport
- Assess air pollution levels

Right: Park Place, 'Street Market' included information to promote cycling, public & sustainable transport



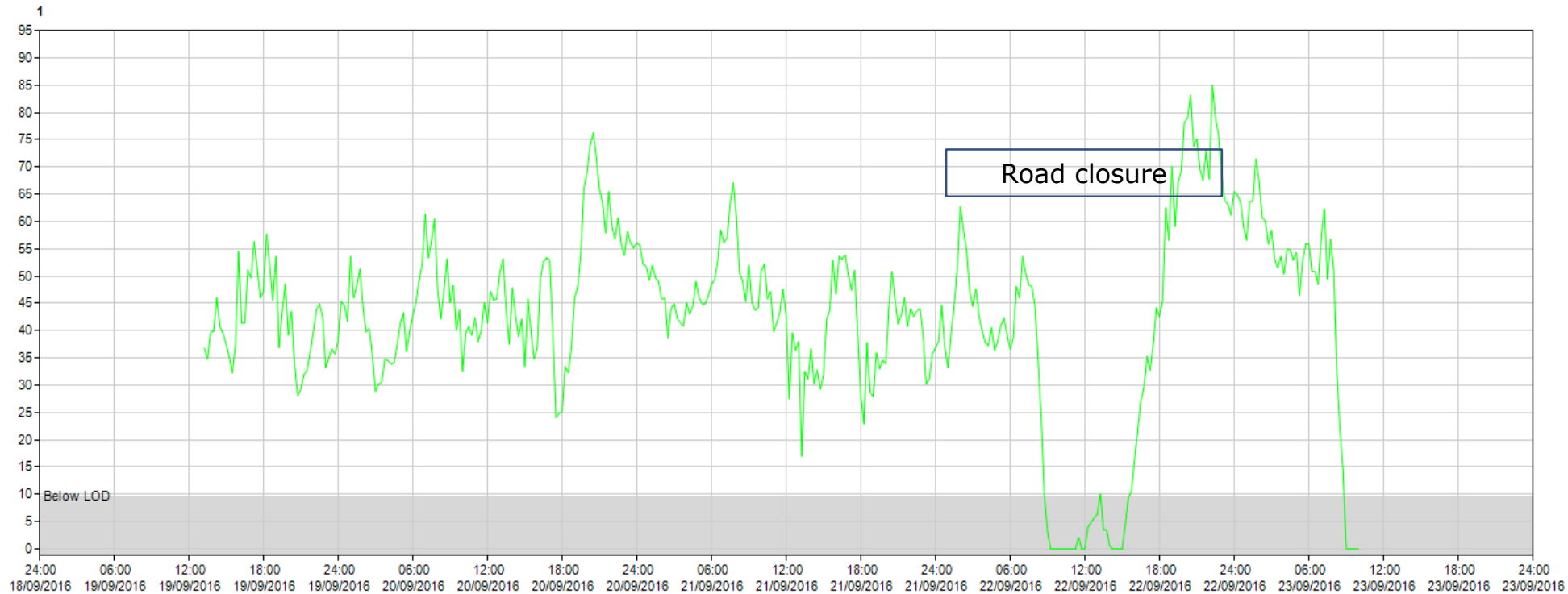
Air quality monitoring (PHW support two monitors for 5 days)



Air quality monitoring

Second monitor results

AQMesh 15 minute data NO₂ µgm³ (green)



Looking north on Park
Place

What about other health impacts?

-
- Limited / no data on wider health impacts (+ve / -ve)
 - What if a Health Impact Assessment (HIA) was applied?*
 - The Gothenburg Consensus (1999) defines HIA as

“a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”

* Wales Health Impact Assessment Support Unit, 2012. *Health Impact Assessment. A practical Guide*. Cardiff: Public Health Wales and Cardiff University

HIA process

* Retrospective HIA chosen to benefit from experience of the first day

Stage	Actions
Screening	review evidence, scale of impacts (+ve or -ve), vulnerable populations desktop/rapid/comprehensive*?
Scoping	terms of reference, roles & responsibilities, plan
Appraisal / Assessment	nature, size, likelihood, distribution of impacts identify actions to address gaps / missed opportunities to improve health
Reporting & recommendations	aim to maximize health & well-being benefits, mitigate -ve impacts, address gaps & inequalities
Monitoring & Evaluation	informed / influenced decision-making by target audience?

The HIA (retrospective)

Screening identified

- Broader health determinants e.g. lifestyle, social, community influences, living & environmental
- Identified relevant health indicators & vulnerable groups e.g. TFL Healthy Streets approach*

* Saunders, L., *An Introduction to Healthy Streets*. [online] Available at <https://healthystreets.com/home/lucysaunders/> [Accessed 02 March 2018]. Transport for London, 2017. *Guide to the Healthy Streets Indicators*. London: Transport for London

Scoping

- Geographical area / resources / timescales / steering group

Assessment (a checklist)

- Was indicator considered / measured?
- Findings from the day
- Displacement considered?
- Recommendations - based on experience

*

Health determinants & indicators			
<p>Event objectives</p> <p>What a car free street looked like</p> <p>Residents & commuters leave car at home / use alternative ways to travel.</p> <p>Encourage sustainable travel</p> <p>Measure air quality</p>	Noise	<p>Lifestyles</p> <p>Increased opportunity for physical activity</p> <p>People feel relaxed</p> <p>Places to stop and rest</p> <p>Shade and shelter</p> <p>Things to see and do during event</p>	<p>Social & Community Influences on Health</p> <p>Isolation</p> <p>Community able to access and participate</p> <p>Neighbourliness</p> <p>Sense of belonging / Local pride / Community identity</p>
<p>Mental Wellbeing</p> <p>Neighbourliness</p> <p>Access to open space</p>	<p>Living & Environmental Conditions affecting health</p> <p>Road / Injury hazards</p> <p>Attractiveness of area / Green space</p> <p>Community safety</p> <p>Smell/odour e.g. traffic fumes</p> <p>Waste disposal</p> <p>Quality and safety of play areas</p>	<p>Economic Conditions Affecting health</p> <p>Improved access to shopping and services within closure</p>	<p>Access & quality of services</p> <p>Improved pedestrian & cycling</p> <p>Medical services / Other caring services</p> <p>Shops and commercial services /</p> <p>Impacts upon business</p> <p>Public amenities</p> <p>Transport including parking.</p>
<p>Macro economic, Environmental & sustainability</p> <p>Government policies / Economic development</p> <p>Climate change / Biological diversity</p>			

Vulnerable Groups

Age related

- Adults and children with lung or heart conditions (primarily for air quality impacts)
- Children and young people (road safety)
- Older people (including vulnerability to poor air quality)

Geographical

- Areas known to exhibit poor economic and/or health indicators
- Isolated/over-populated areas
- Unable to access services and facilities

Who suffer discrimination or other social disadvantage

- Physical or learning disabilities/difficulties (for access and egress impacts)

Others

- Students (event linked to Fresher's Fayre)
- Noise sensitive individuals e.g. with cardiovascular effects; sleep disturbance; cognitive development; hearing impairment, annoyance

Results of HIA

-
- Demonstrated a car-free street
 - Promoted sustainable travel & consulted on future options
 - No survey of car use / alternate transport (limited resources)
 - Reduced nitrogen dioxide and particulate matter. Interpretation required e.g. variations in traffic, emissions from nearby roads, weather, regional pollution
 - Other indicators not assessed
 - Some indicators could have been assessed e.g. Traffic Regulation Order consultation – but feedback not collated
 - Anecdotal feedback only e.g. online (Wales Online)
 - Existing data sources not used e.g. traffic & bicycle counters, accident statistics
 - Displacement impacts not assessed

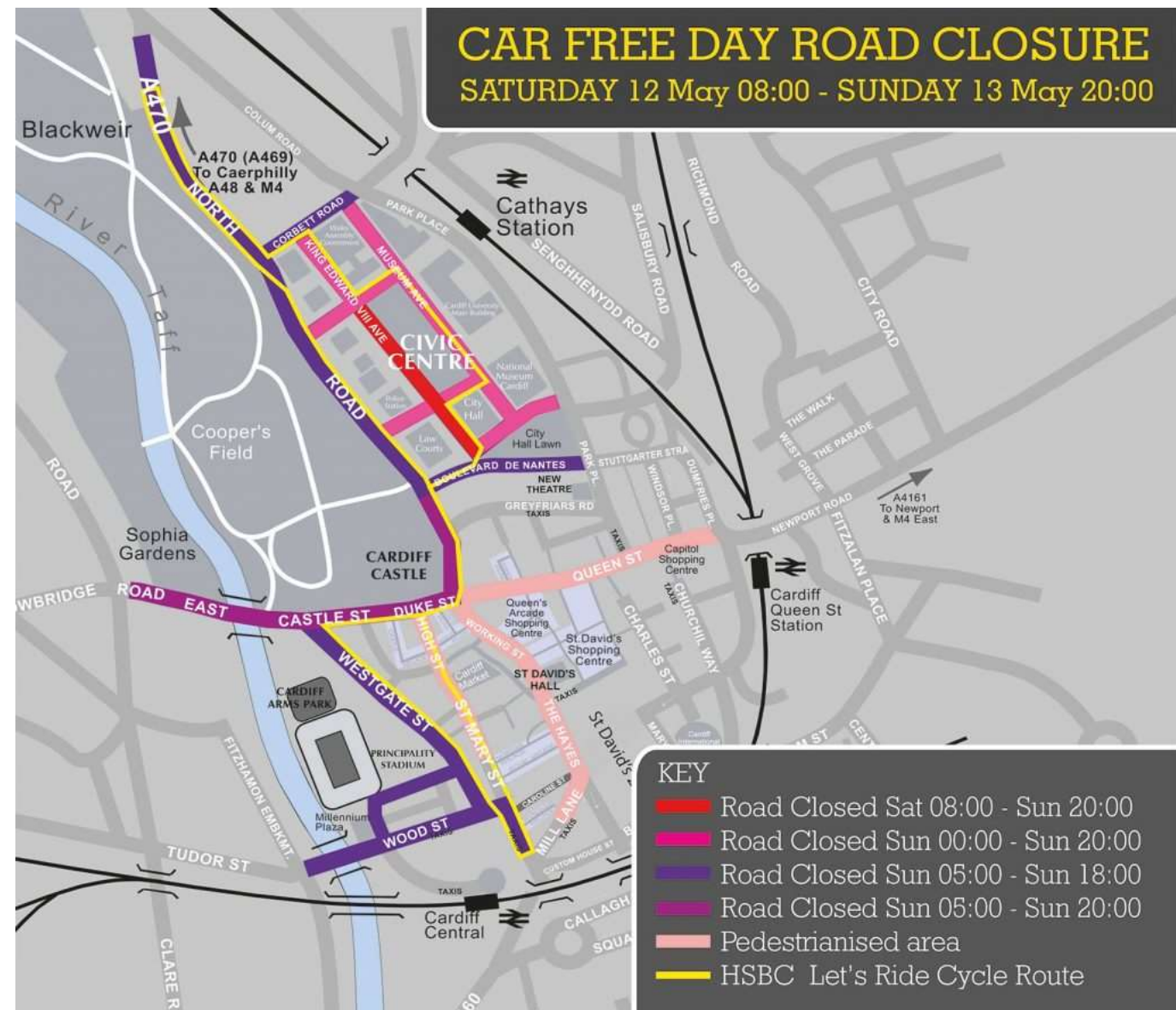
HIA Recommendations

- Engage stakeholders / technical support / resources – early
- Use Traffic Regulation Order consultation to identify potential impacts / vulnerable groups
- Consider surveys - including social media, to collate feedback
- Use existing data sources e.g. traffic / bicycle counters, pollution monitoring networks, accident statistics
- Use traffic management data to identify diversion routes - where displacement impacts could be assessed
- Health indicators applied & developed to inform planning of future car free days (proportionate to context)

Car free Day II

Sunday, 13th May 2018

- Information on sustainable travel
- HSBC 'Let's Ride' Cardiff cycle event
- Family-friendly, on-street entertainment & activities



Working Group

City of Cardiff Council

Transport, Communications, Environmental Health (Noise & Air Quality)

Cardiff & Vale Local PH team

Consultant in Public Health Medicine,

Public Health Wales (PHW)

Environmental Public Health Specialist

Cardiff Metropolitan university MSC student dissertation

Agreed actions

Air Quality

monitor at Castle Street, Westgate Street, others...?

Traffic / Transport

to survey 4 cordon points (week before & event day)

Noise

develop proposal for noise monitoring

Active/Sustainable Travel

conduct on-site survey of uptake

Other

bus passenger data

social media/email monitoring & reporting

Results for second car free day

Event	Estimated 10,000 people attended (5,000 cycled HSBC 'Let's Ride' route)
City Centre Footfall	28% increase in pedestrian footfall vs. previous year (footfall cameras)
Bus Use	Cardiff Bus more passengers vs. a normal 'event day' Stagecoach +5% increase in passengers vs. a normal Sunday
Social	#carfreeDIFF trending on social media with 703 posts (requires analysis)
Cardiff Highways	Every building/business/resident in city centre visited, TRO advertised on street and Western Mail/Echo Generated requests for more information on closures / travel planning advice No complaints to date, feedback 'very positive'

Air Quality (AQ)

- 3 AQ Mesh monitors
(correction factor applied via co-location checks at reference sites)
- comparing daily average from Sunday 13th to Sunday 20th

Location	Reduction in nitrogen dioxide %
Castle/Duke Street	86.52%
Westgate St	84.2%
Newport Road (outside of road closure)	35.8%

Traffic on surrounding roads

Location	Traffic counts
	Car free day vs. previous Sunday
Newport Road	-25%
Central Link	-16%
Cathedral Road	-22%
Bute Street	-11%
Clare Road	-8%
Moira Terrace	-30%
Fitzalan Place	-8%
North Rd	-31.3% (vs. the following Sunday)



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Noise

Monitor on Westgate Street (within road closure)

- Highest measured indicator 1.7dB lower vs. comparator weekend.

Limitations

- Location on façade (consent / secure)
- Non-residential building, above two bus stops.
- Individual noise events not identified.
- On street entertainment could have introduced noise
- Did noise increase elsewhere?



Time	Sound Pressure Level	Sound Pressure Level
	($L_{A10, 3\text{hour}}$) 13 th May 2018	($L_{A10, 3\text{hour}}$) 20 th May 2018
10:00 – 13:00	71.7	74.2
11:00 – 14:00	71.9	73.6
12:00 – 15:00	72.4	72.0
13:00 – 16:00	72.3	71.1
14:00 – 17:00	72.5	70.5

HSBC UK Let's Ride

post-event survey results

Overall event

94.51% rated overall experience excellent or good

Majority attending their first British Cycling mass participation event

Most arrived between 11am-12pm, spent 2-3 hours, completed 1-3 laps of route

Top-rated elements included traffic-free route, accessibility,

Marketing Top 3 ways people found out about event email from British Cycling, BC website & social media

Main reasons for attending included: Traffic-free route, to have fun, to be active, ride location.

Main motivators to ride, improve health & fitness, for fun, to enjoy scenery & surroundings

Demographics

Predominantly white / aged 35-54 / slightly more males attending

Mostly core cyclists who attended and already cycle daily or once a week

Majority of attendees currently cycle on their own or with family



Discussion

Overall aim - encourage sustainable travel (cultural / modal shift)

- Are event based days representative? (Cardiff City FC parade overlapped) What if a working weekday?
- Second day assessment was an evolution. However, limited resources (monitoring, personnel & financial)
- HIA approach applied proportionately
- Collaboration – co-ordinated, multiple smaller projects (traffic data a proxy for noise / air quality?)
- Available evidence suggests positive impacts upon health indicators measured
- Need to assess relevant health indicators & displacement to avoid unintended consequences

Acknowledgements

Cardiff City Council Gethin Shields (& colleagues), Craig Lewis, Gwyn Mapp

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HSBC 'Lets ride' event:-



Thank You

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