

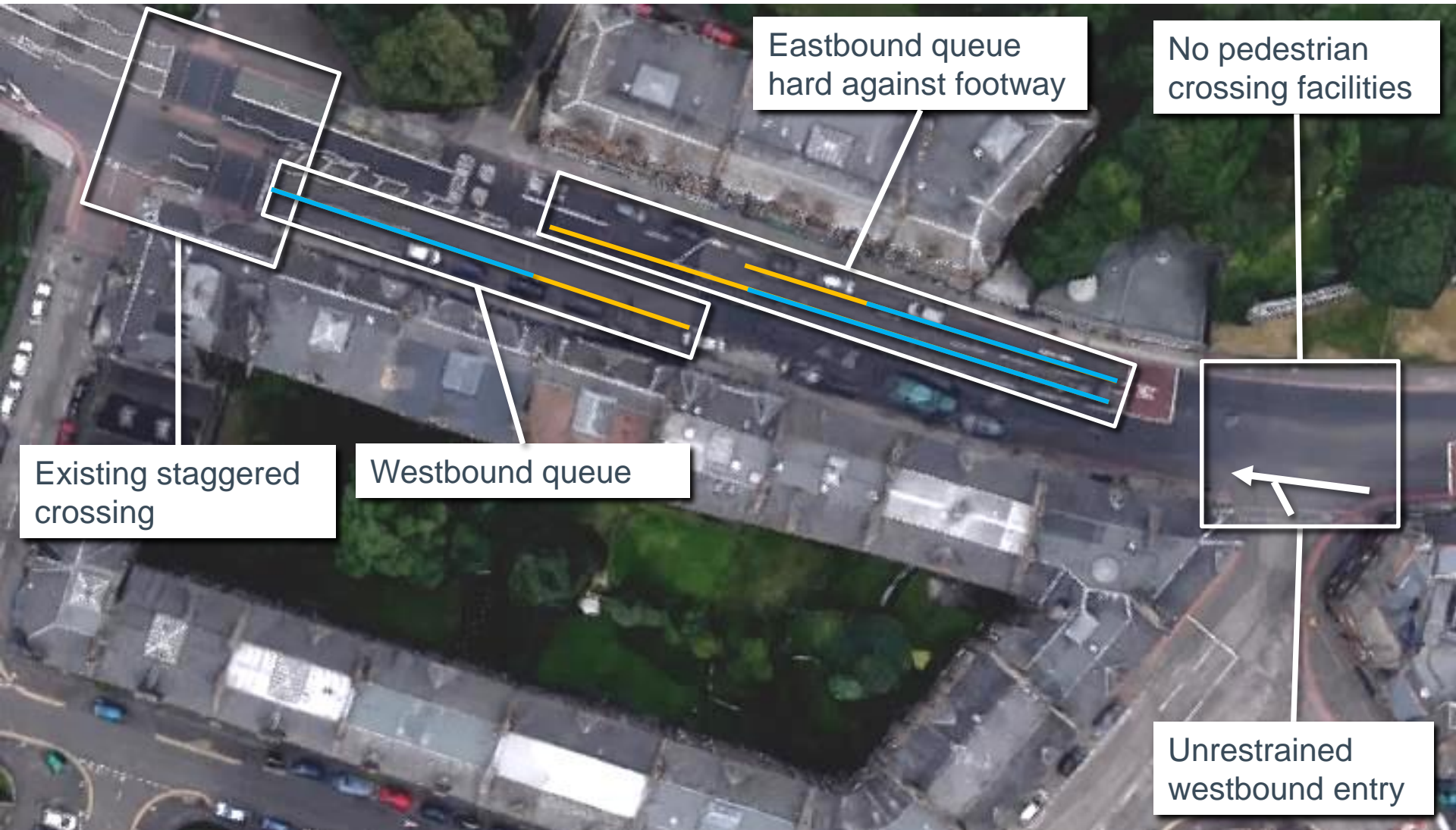
# City Centre West-East Link (CCWEL)

## Roseburn Terrace Traffic Management

17<sup>th</sup> July 2019



# Existing



Eastbound queue  
hard against footway

No pedestrian  
crossing facilities

Existing staggered  
crossing

Westbound queue



Unrestrained  
westbound entry

— AM Peak Queue

— PM Peak Queue

# Proposed

Two-way cycle track.  
Provides buffer (2.7m minimum) for pedestrians to eastbound queue.

Pedestrian crossing facilities introduced

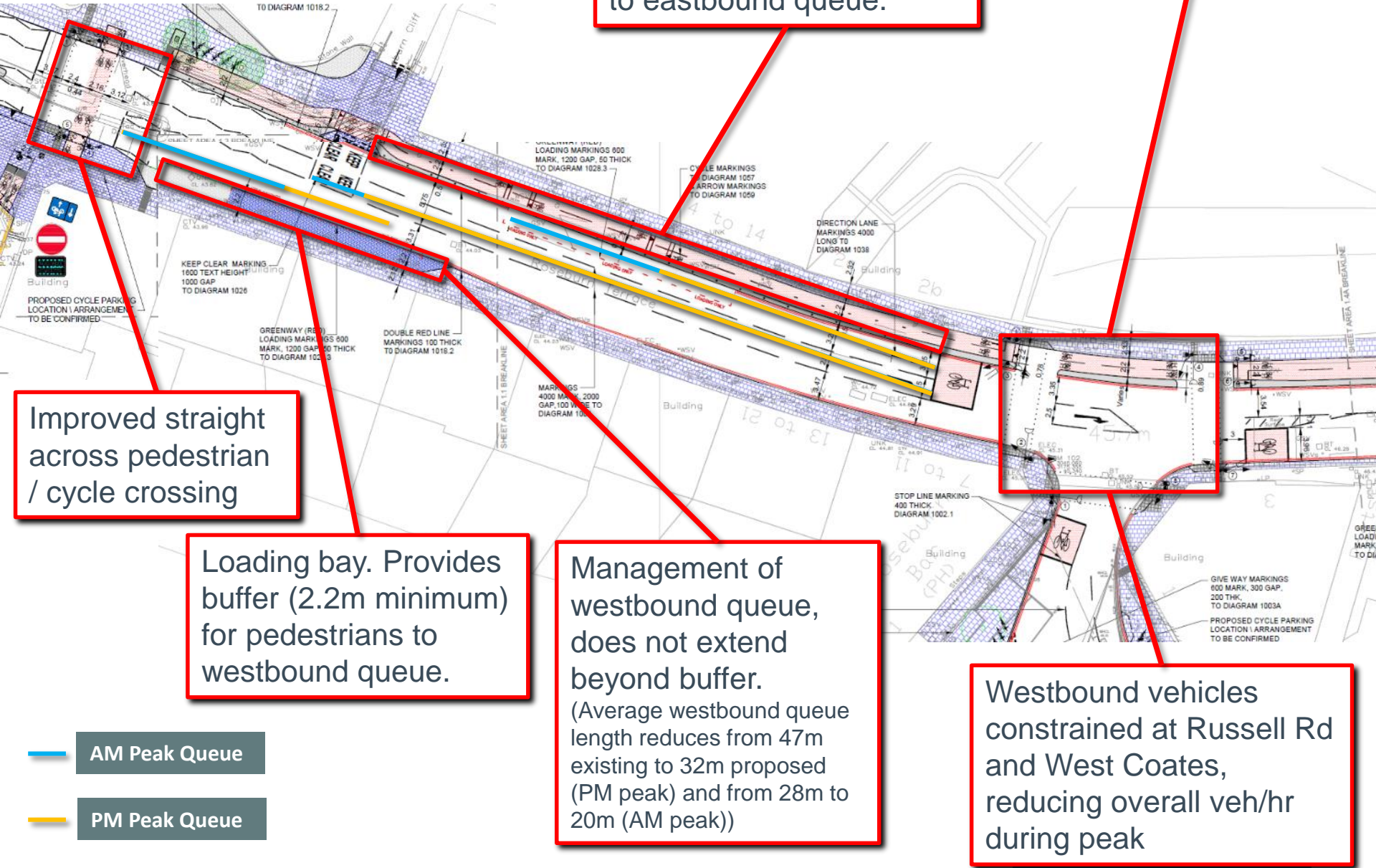
Improved straight across pedestrian / cycle crossing

Loading bay. Provides buffer (2.2m minimum) for pedestrians to westbound queue.

Management of westbound queue, does not extend beyond buffer.  
(Average westbound queue length reduces from 47m existing to 32m proposed (PM peak) and from 28m to 20m (AM peak))

Westbound vehicles constrained at Russell Rd and West Coates, reducing overall veh/hr during peak

- AM Peak Queue
- PM Peak Queue

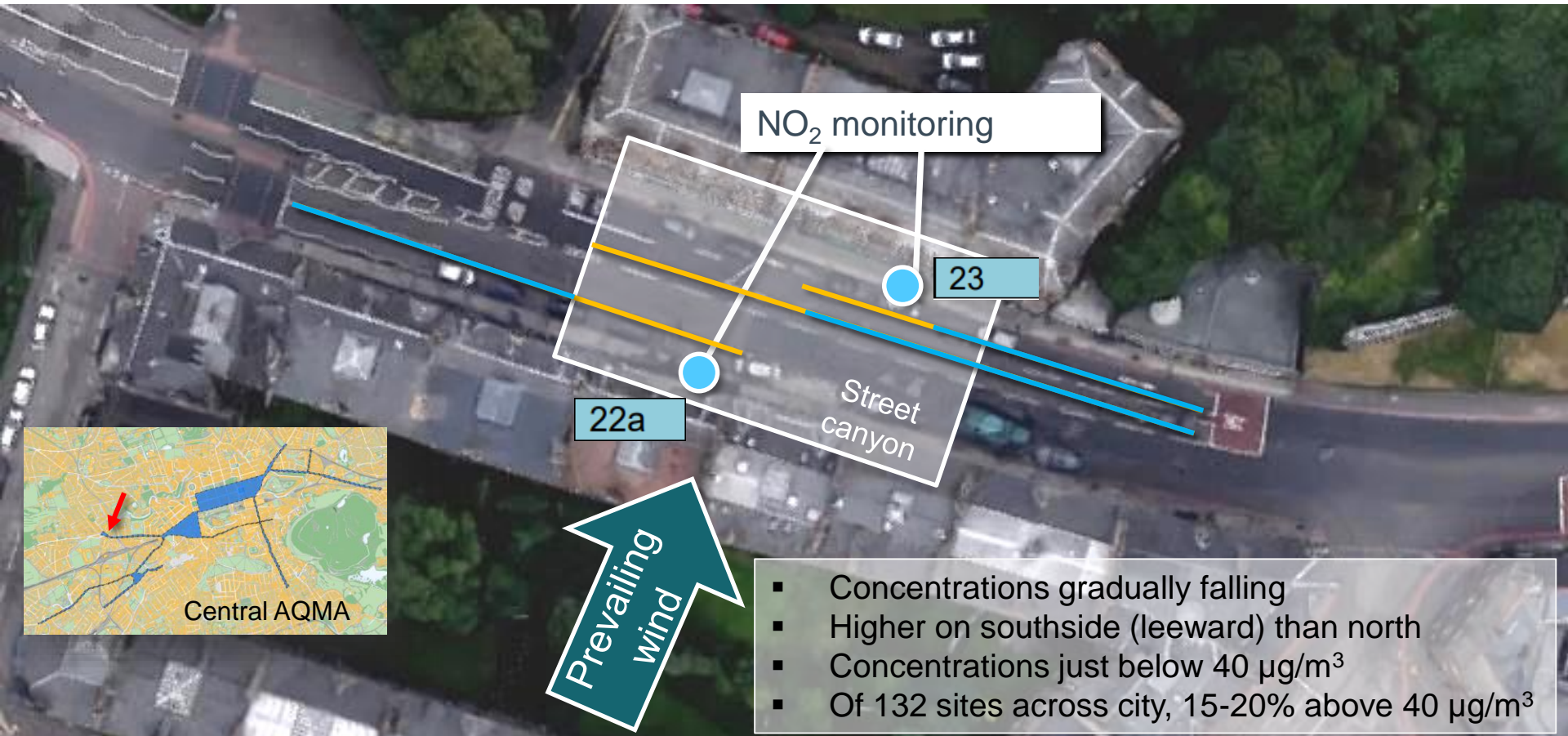


# Roseburn Terrace Proposals – Key points

- Overall **reduction in vehicles** per hour during peak periods.
- Always a buffer between **queueing** vehicles, and footway.
- Westbound vehicles, and westbound queueing are **reduced** as traffic held back on Russell Road (and to a lesser extent West Coates) by new crossings.
- Currently PM queues are worse than AM queues and there is a **net reduction** in PM queue lengths.



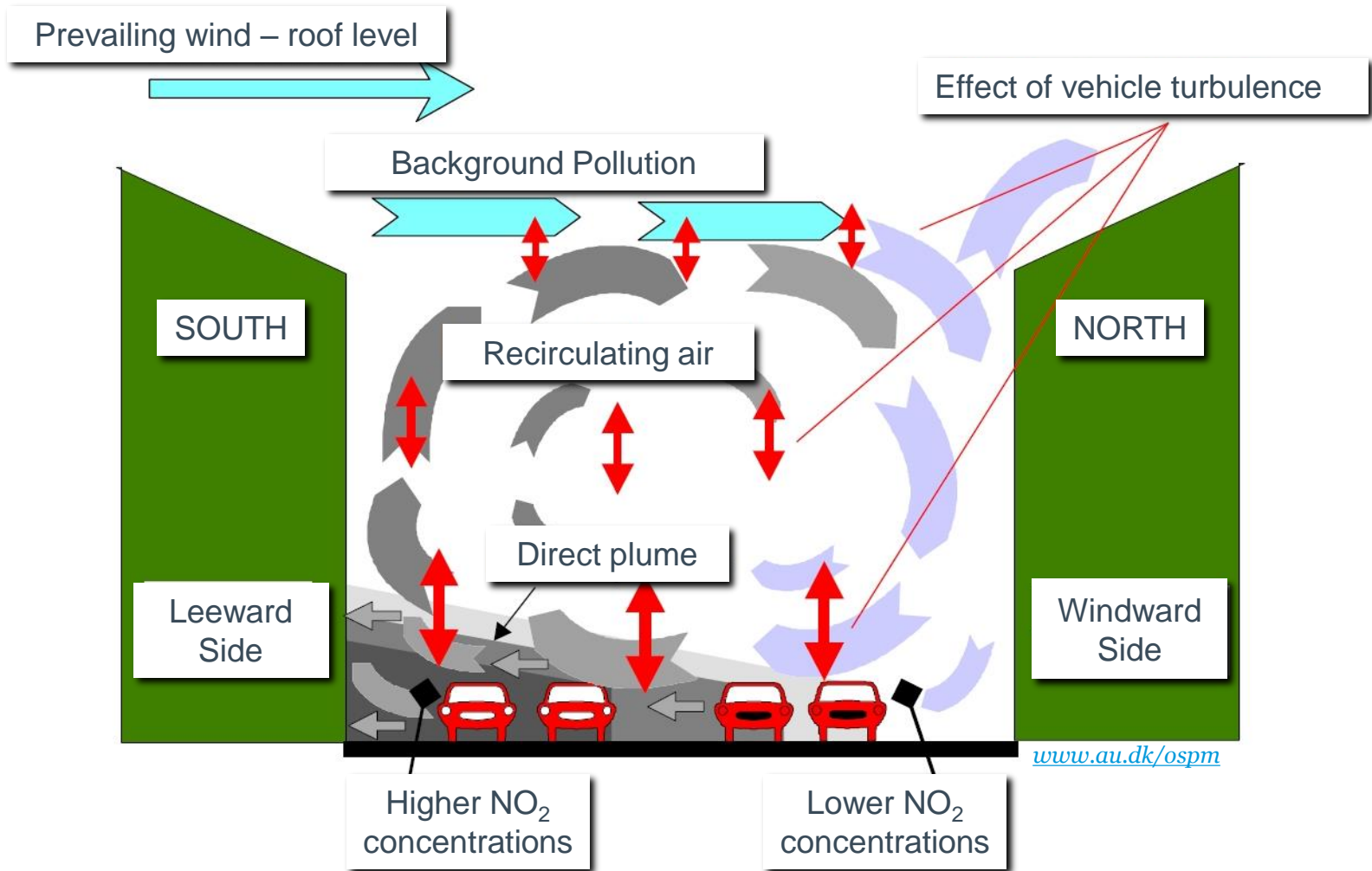
# Current Air Quality Situation



Site ID	Site address	Data Capture (%)	Annual mean concentration (adjusted for bias) µg/m <sup>3</sup> (Façade corrected)						
			2011	2012	2013	2014	2015	2016	2017
23	Roseburn Terrace (EB)	67	34.5	38	35	37	32	32	27
22a	Roseburn Terrace (WB)	83	-	-	-	-	-	-	35

— AM Peak Queue    
 — PM Peak Queue    
 ● NO<sub>2</sub> Monitoring

# Roseburn Terrace Street Canyon



The 'Street Canyon Effect' will only occur when the wind is perpendicular and the wind speed is within certain boundary

# Roseburn Terrace – Air Quality Approach

- The subtle effects of the scheme – do not trigger an air quality assessment
  - Lanes of traffic moving by varying amounts
  - Footway widening
  - Queue lengths and queue durations affected (depending on lane)
  - Vehicle flows changing
  - Parking/loading areas altered
- ‘Traditional’ assessment techniques (ADMS dispersion modelling) may not be best to tease out the subtle effects
- Microsimulation traffic modelling together with instantaneous emissions modelling are best suited to represent the effects of the scheme

# VISSIM / EnViVer

- VISSIM simulates individual vehicles, cycles and pedestrians in a computer model of a road network
  - Includes detailed traffic signal operation and strategies
- EnViVer processes VISSIM outputs to estimate **vehicle emissions**
  - Reports levels of **NO<sub>x</sub>** and **PM<sub>10</sub>** on a map and as tabular data
- Together this provides a congestion sensitive analysis of road network
  - Captures **subtle effects** such as platooning strategies
- Outputs can be compared to assess potential impacts of different schemes

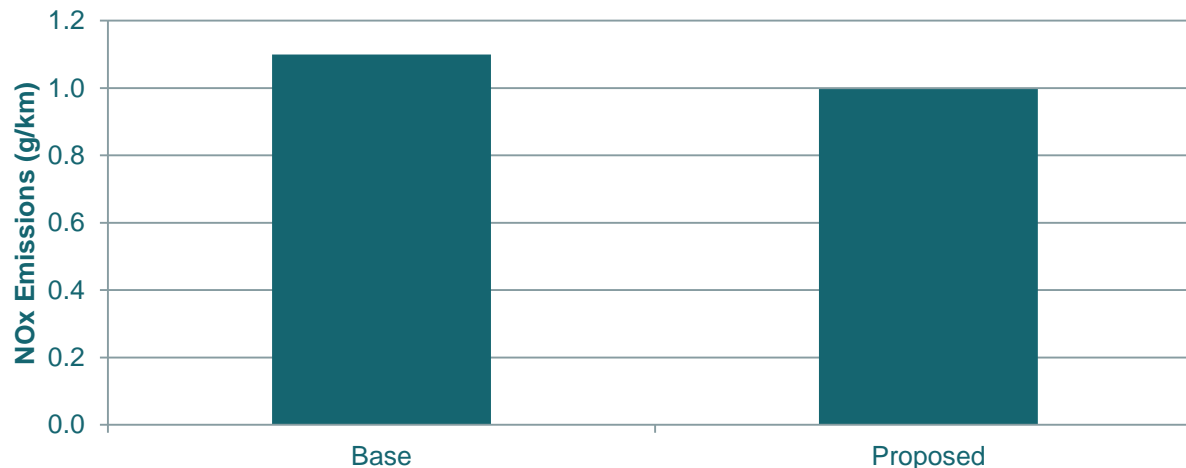


# CCWEL Emissions – Roseburn Terrace

- Emissions overall in Roseburn Terrace to decrease during peak periods
  - 9% NO<sub>x</sub> decrease
  - 1% PM<sub>10</sub> decrease

	NO <sub>x</sub>	PM <sub>10</sub>	units
Base	1.10	0.151	g/km
Proposed	1.00	0.150	g/km
Difference	-0.10	-0.001	g/km
Difference %	-9%	-1%	%

Comparison of NO<sub>x</sub> emissions



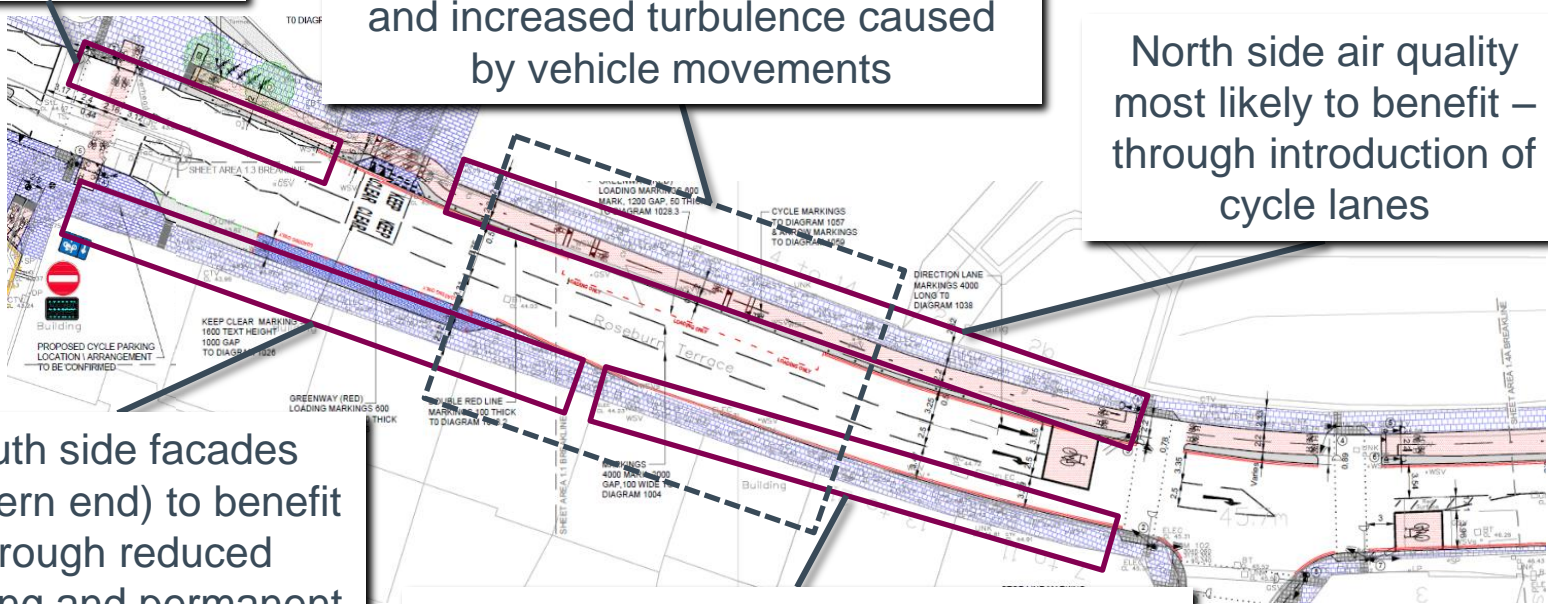
# Roseburn Terrace – Air Quality Key Points

- Overall **reduction in emissions** on Roseburn Terrace in peak periods.
- **Smoother flow** of traffic and **reduced queuing** on Roseburn Terrace

Bus stop moving – will benefit AQ

The ‘canyon effect’ on air quality disturbed through reduced queuing, and increased turbulence caused by vehicle movements

North side air quality most likely to benefit – through introduction of cycle lanes



South side facades (western end) to benefit through reduced queuing and permanent parking/loading bay

Free-flowing westbound traffic closer to south side facades (eastern end), but emissions reduced. Emissions reduction dominating factor. Parking removal promotes smoother traffic flow

# Roseburn Terrace – Continued Monitoring

- Current diffusion tubes will remain in place to **continue measuring NO<sub>2</sub>**
- Caution must be exercised when interpreting future NO<sub>2</sub> results – many factors affect the results (not just CCWEL)
- The effect of CCWEL on queuing, congestion, and vehicle flows to be gauged
- CCWEL will promote cycling
- Edinburgh's LEZ will ensure concentrations continue to drop
- Signals can in the future be altered to refine traffic movement and emissions

