



Airport Link / Northern Busway Project

Monthly Environmental Monitoring Report

February 2011

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1.0 Report Purpose and Scope

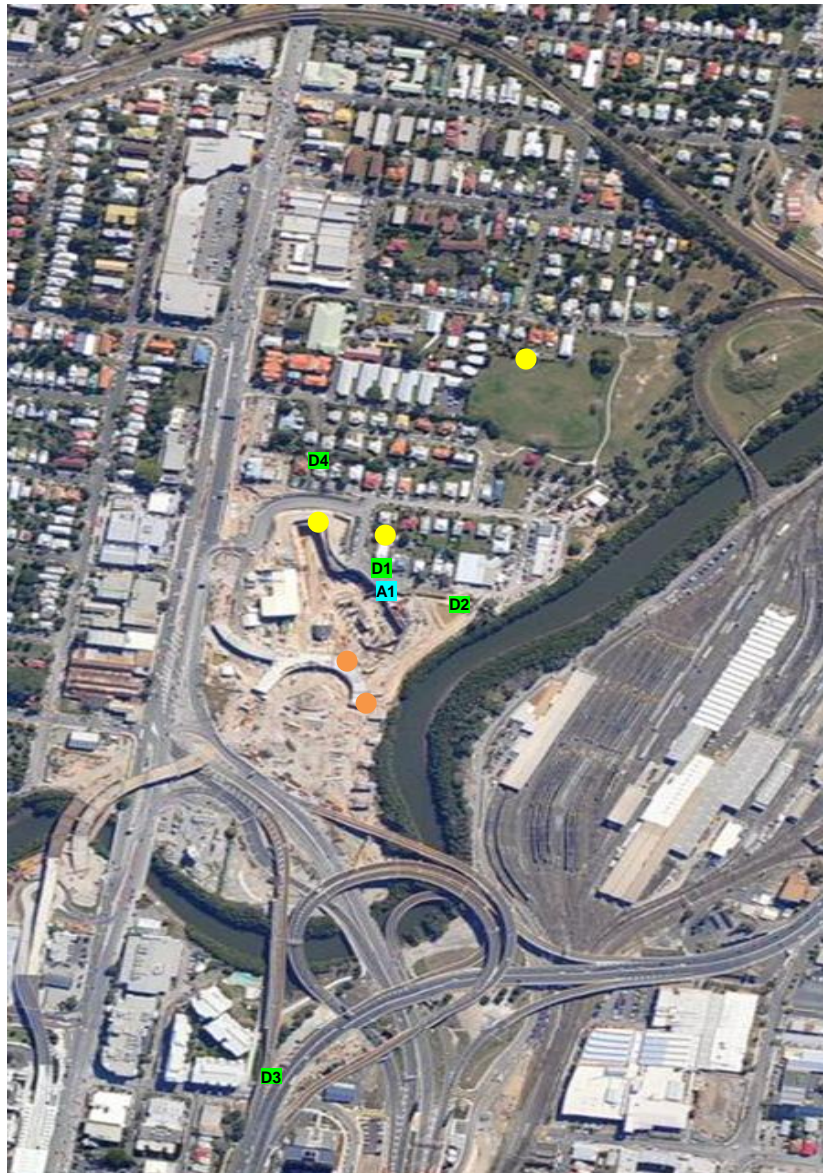
The report has been compiled to summarise the results of noise, air quality and vibration monitoring on the Airport Link and Northern Busway project. The report also compares those results with compliance thresholds for environmental harm, community nuisance and loss of amenity nominated by the Coordinator General (Change Report July 2008 and Woolloowin Worksite Report October 2009).

The monitoring data covered in this report is for the February 2011 reporting period, from 16th January 2011 to 15th February 2011.

2.0 Monitoring Locations

Several monitoring locations exist within the project area as described in Figures 1-5. Note that the aerial photograph overlays used in Figures 1-5 do not accurately portray the extent of the project's progress to February 2011, though do serve a useful purpose in relating the monitoring locations to existing structures and infrastructure.

Bowen Hills Monitoring Locations



Source: NearMap 2010

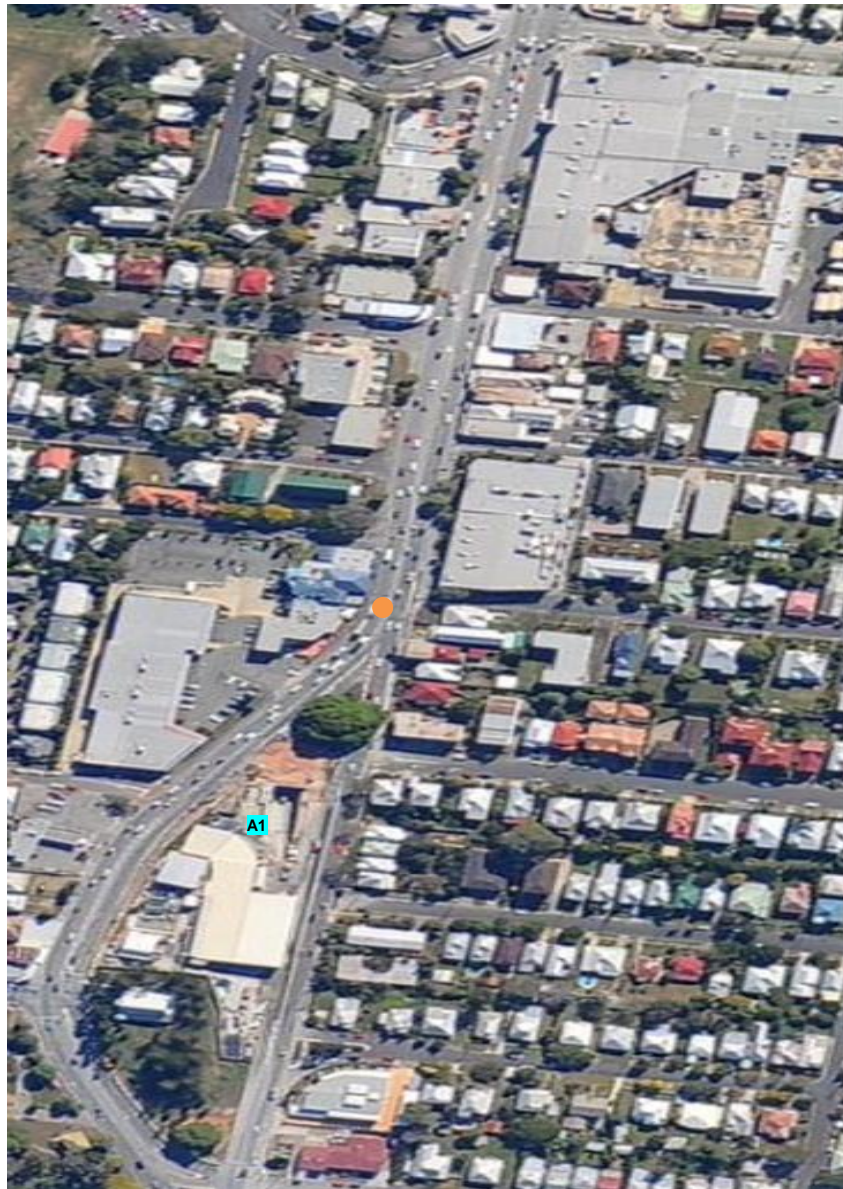
Figure 2.1 – Bowen Hills Monitoring Locations

Legend

- Noise (during construction)
- Vibration
- Air (PM₁₀)
- Air (Dust Deposition)

Note: locations are indicative only

Truro Street Mid Tunnel Monitoring Locations



Source: NearMap 2010

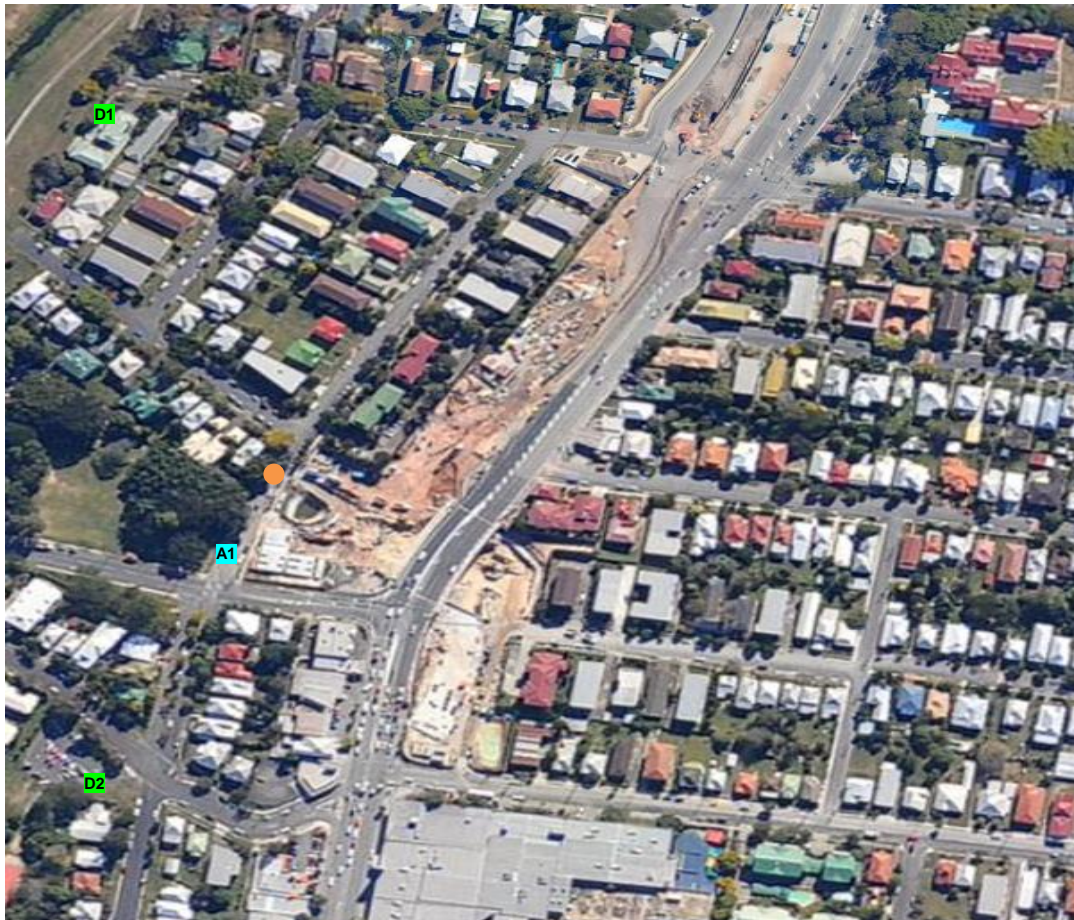
Figure 2.2 – Truro Street Mid Tunnel Monitoring Locations

Legend

- | | |
|--------------------------------|---------------------------|
| ● Noise (during construction) | ● Air (PM ₁₀) |
| ● Vibration | ● Air (Dust Deposition) |

Note: locations are indicative only

Northern Busway Monitoring Locations



Source: NearMap 2010

Figure 2.3 – Northern Busway Monitoring Locations

Legend

● Noise (during construction)
● Vibration

● Air (PM₁₀)
● Air (Dust Deposition)

Note: locations are indicative only

Kedron Monitoring Locations



Source Nearmap 2010

Figure 2.4 – Kedron Monitoring Locations

Legend

- Noise (during construction)
- Vibration

- Air (PM₁₀)
- Air (Dust Deposition)

Note: locations are indicative only

Woolloowin Monitoring Locations



Source Nearmap 2010

Figure 2.5 – Woolloowin Monitoring Locations

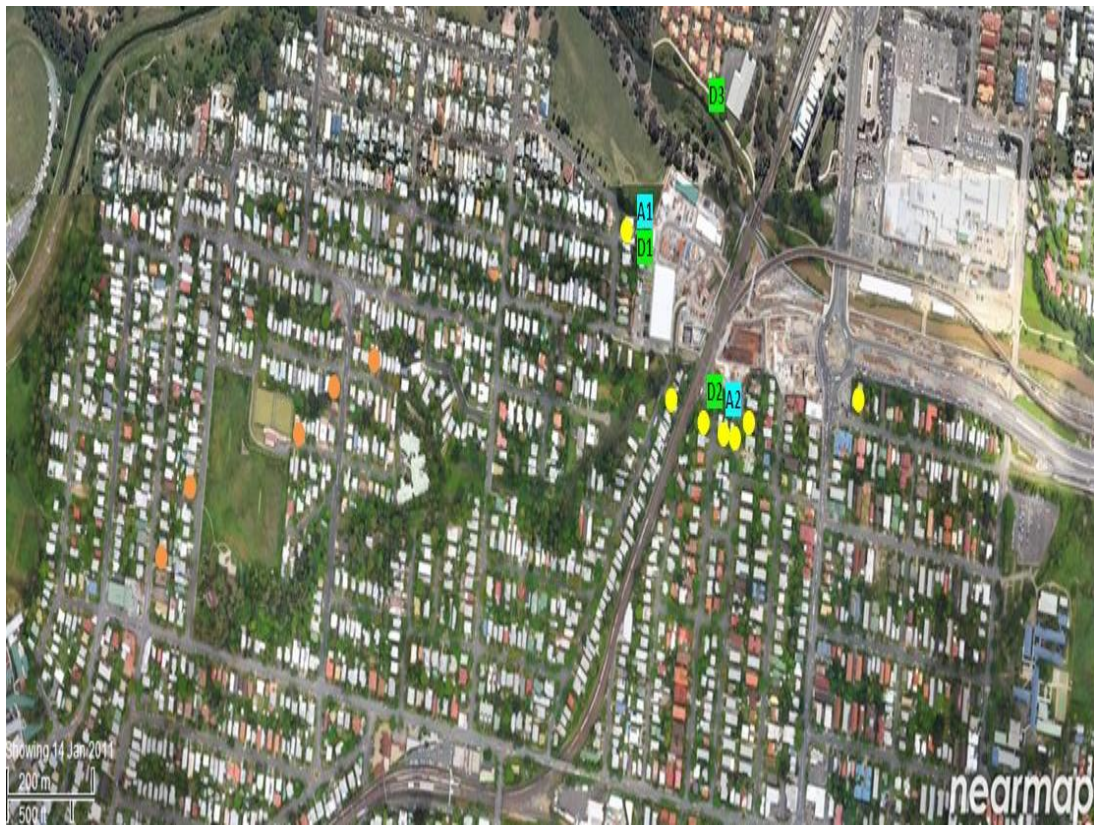
Legend

- Noise (during construction)
- Vibration
- Air (CO and NO₂)

- Air (PM₁₀/TSP)
- Air (Dust Deposition)

Note: locations are indicative only

Toombul Monitoring Locations



Source Nearmap 2010

Figure 2.6 – Toombul Monitoring Locations

Legend

- Noise (during construction)
- Vibration

- Air (PM₁₀)
- Air (Dust Deposition)

Note: locations are indicative only

3.0 Noise Monitoring

TJH undertakes regular monitoring of noise levels at a variety of locations across the project to help measure impacts and assist the team plan works and appropriate mitigations if required. The type and timing of monitoring is influenced by the activities being undertaken and relevant Noise Goals (inside buildings and residents living areas where allowed at night and during the day)

Monitoring involves 'attended' monitoring (where a member of the TJH environment team is observing noise sources and durations whilst noise measurements are taken).

3.1 Overview of Noise Mitigation Measures

Generally the main strategies adopted in order to mitigate noise during construction works have included the following:

1. Undertake noise modelling for sections of works adjacent to sensitive receptors.
2. Reasonable and practical mitigation measures that have been implemented to date include the following:
 - a. Temporary noise barriers (precast concrete barrier and plywood):
 - i. Lutwyche Road (Lutwyche, Kedron)
 - ii. Gympie Road (Kedron)
 - iii. Truro Street on all sides of works (Lutwyche)
 - iv. Stafford Road (Kedron)
 - v. Rose Street (Wooloowin)
 - vi. Kalinga Park (Toombul)
 - vii. KBB Worksite (Kedron)
 - b. Temporary noise barrier (shipping container) installations:
 - i. Perry Street, (Kedron)
 - ii. Kalinga Park (Toombul)
 - iii. Federation/Morris Street (Bowen Hills)
 - c. Acoustic shed has been built around the tunnel portals / shafts at:
 - i. Truro Street
 - ii. Wooloowin
 - iii. Kalinga Park (410 launch box)
 - d. Consultation with property owners prior to commencing works and during construction works
 - e. Installation of mitigation measures at affected residents on a case-by-case basis
 - f. Investigating the early installation of permanent noise barriers at early stages
 - g. Acoustic shielding of various plant
 - h. Regular awareness, training and reinforcement of work behaviours of staff, subcontractors, spoil haulage drivers, and delivery drivers to prevent or minimise noise generation in work areas
 - i. Use of temporary acoustic treatment (e.g. sound curtains around onsite generators and access/ egress from sites)
 - j. Installation of directional reversing alarms (e.g. 'squawkers') on plant (especially those working out of normal working hours)

3.2 Noise Monitoring Results

The results of TJH monitoring efforts are summarised for each project area in Tables 3a-d

Table 3a: Noise Monitoring Results – Bowen Hills Civils

Location	Monitoring Period	Average L _{Aeq} (15 min) (dBA)	CoG Goal L _{Aeq} (15 min) (dBA)	Average L _{A10} (15 min) (dBA)	CoG Goal L _{A10} (15 min) (dBA)	Comments
14 Gallway Street, Bowen Hills						
Single Storey House (Living Room)	25/01/2011 3:04pm - 3:19pm	38.6	45	36.2	55	<p>Monitoring Type Attended. Internal. Windows and Doors closed</p> <p>Noise Sources The dominant noise source throughout the period was traffic moving along Lutwyche Road. TJH noise sources included a bobcat in Area 1 and rock hammering on the underside of CC102. Other noise sources included birds and internal noise</p> <p>Discussion Monitoring was to assess the level of impact being caused to residents in proximity to the CC102 bulk excavation works. Results were within CoG goals</p> <p>Mitigation Mitigation was not required as results were within CoG goals</p>
Single Storey House (Living Room)	14/02/2011 11:03am -11:17am	39.0	45	37.3	55	<p>Monitoring Type Attended. Internal. Windows and Doors closed</p> <p>Noise Sources The dominant noise source throughout the period was hammering on the CC102 site. Other TJH noise sources included a bobcat in Area 1, a grinder operating and piling in Area 3. Other noise sources included internal noise, a helicopter and an ambulance</p> <p>Discussion Monitoring was to assess the level of impact being caused to residents in proximity to the CC102 bulk excavation works. Results were within CoG goals</p> <p>Mitigation Mitigation was not required as results were within CoG goals</p>
64 Cartwright Street, Bowen Hills						
Two Storey House (Living Room)	14/02/2011 3:14pm - 3:29pm	41.4	45	42.1	55	<p>Monitoring Type Attended. Internal. Windows and Doors closed</p> <p>Noise Sources The dominant noise source throughout the period was trains moving along the Ferny Grove rail line. The only TJH noise source noted was a rock hammer operating onsite intermittently. Other noise sources included internal noise, birds and insects</p> <p>Discussion Monitoring was to assess the level of impact being caused to residents in proximity to the Bowen Hills worksite. Results were within CoG goals</p> <p>Mitigation Mitigation was not required as results were within CoG goals</p>

Location	Monitoring Period	Average L _{Aeq} (15 min) (dBA)	CoG Goal L _{Aeq} (15 min) (dBA)	Average L _{A10} (15 min) (dBA)	CoG Goal L _{A10} (15 min) (dBA)	Comments
29 Galloway Street, Bowen Hills						
Two Storey House (Living Room)	15/02/2011 11:42am -11:57am	45.4	45	44.4	55	<p>Monitoring Type Attended. Internal. Windows and Doors closed</p> <p>Noise Sources The dominant noise sources throughout the period was a vacuum truck operating out the front of the property where monitoring was occurring. Other TJH noise source noted included a rock hammer operating intermittently and a piling rig working in Area 3. Other noise sources included internal noise, birds and insects</p> <p>Discussion The noise level for LAeq was above the CoG goal. A combination of TJH activities, external noise sources, including traffic and birds, contributed to the levels recorded</p> <p>Mitigation Vacuum truck operation was scheduled during day time to minimise the noise impact. Works in the area only occurred for a short duration and the community was notified prior to the works commencing.</p>

Table 3b: Noise Monitoring Results – Toombul

Location	Monitoring Period	L _{Aeq} (15 min) (dBA)	CoG Goal L _{Aeq} (15 min) (dBA)	L _{A10} (15 min) (dBA)	CoG Goal L _{A10} (15 min) (dBA)	Comments
89 Jackson Street, Clayfield						
Double Storey Timber House (front Bedroom)	20/01/2011 9:17am – 9:31am	41.5	45	40.8	55	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (site hum, bang/drop, rattle gun/jack hammering, engine rev) plus non-TJH sources (birds, resident, train)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall</p>

Double Storey Timber House (front Bedroom)	01/2011 9:35am – 9:49am	36.6	45	36.7	55	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (site hum, rattle gun/jack hammering, bang/drop, hammering) plus non-TJH sources (birds, resident, train, plane, traffic)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall</p>
Double Storey Timber House (Front Bedroom)	20/01/2011 2:03pm – 2:21pm	41.1	45	41.7	55	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (site hum, reverse beeper, engine rev, bang/drop, air release) plus non-TJH sources (train, birds, thunder, plane, resident)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall</p>
83 Stuckey Road, Clayfield						
Double Storey Queenslander, (Lounge Room)	07/02/2011 9:14am – 9:30am	36.8	45	37.6	55	<p>Monitoring Type Internal attended monitoring, windows and doors closed, air-conditioning on</p> <p>Noise Sources TJH noise sources (grinder, hammering/steel fixing, engine rev, jet blasting, bang/drop) plus non-TJH sources (train, birds, siren, traffic)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall and double stack containers. This property has received air conditioning and external blinds from TJH to further mitigate noise. At the time of monitoring, this air conditioner was in use and the windows and doors were closed</p>
Double Storey Queenslander, (Lounge Room)	07/02/2011 9:31am – 9:45am	37.6	45	37.5	55	<p>Monitoring Type Internal attended monitoring, windows and doors closed, air-conditioning on</p> <p>Noise Sources TJH noise sources (hammering/steel fixing, engine rev, grinder, TJH horn, jet blasting) plus non-TJH sources (resident, train, birds, dog)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall and double stack containers. This property has received air conditioning and external blinds from TJH to further mitigate noise. At the time of monitoring, this air conditioner was in use and the windows and doors were closed</p>

Unit 4/10 Wongara Street, Clayfield						
3 Storey Apartment Block, (2 nd floor, Bedroom/Study)	11/02/2011 15:53pm – 16:08pm	61.9	45	59.5	55	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (bang / drop, piling, excavators tracking) plus non-TJH sources (traffic, fauna, train)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Exceedance primarily due to noises associated with peak hour traffic on EWA and Sandgate Road</p> <p>Mitigation Measures Double stacked shipping containers.</p>
78 Elliot Street, Clayfield						
Double Storey Queenslander (Dining Room)	14/02/2011 3:36pm – 3:50pm	43.7	45	43.5	55	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (engine rev, pressure release, bang/drop, reverse beeper, TJH horn) and non-TJH sources (resident, train, plane, birds)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Include a 6m noise wall and double stack containers and air conditioning</p>
Double Storey Queenslander (Dining Room)	14/02/2011 3:54pm – 4:08pm	46.4	45	46.5	55	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (scaffolding, engine rev, TJH horn, bang/drop) and non-TJH sources (resident, birds, wind chime, train, plane)</p> <p>Discussion Monitoring indicates that CoG goals for LAeq are being exceeded. It should be noted that the session was heavily influence by non-TJH noise sources including trains and resident/s speaking. The LAeq level after excluding non-TJH noise sources was 37.5dB, therefore satisfying CoG goals</p> <p>Mitigation Measures Include a 6m noise wall and double stack containers and air conditioning</p>

Table 3c: Night Shift Noise Monitoring Results – Toombul

Location	Monitoring Period	L _{Aeq} (15 min) (dBA)	CoG Goal L _{Aeq} (15 min) (dBA)	L _{Amax} (15 min) (dBA)	CoG Goal L _{Amax} (15 min) (dBA)	Comments
1 Mabel Street, Clayfield						
Highset Weatherboard Queenslander (front Bedroom)	25/01/2011 20:13pm – 20:28pm	35.4	40	41.6	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (site hum, crane movement & engine rev, bang / drop) plus non-TJH sources (residents dog, plane & traffic)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures This property has electricity bills paid</p>
78 Elliott Street, Clayfield						
Highset Weatherboard Queenslander (rear Dining Room)	25/01/2011 19:46pm – 20:01pm	45	40	49.8	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (vent fans, chillers, bang / drop) plus non-TJH sources (geckos, resident, train, traffic)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Monitoring was undertaken to assess noise impact without mitigation. Exceedance was due to both TJH and non-TJH noise sources</p> <p>Mitigation Measures Mitigation for property includes air-conditioning and payment of electricity bills</p>
Highset Weatherboard Queenslander (rear Dining Room)	25/01/2011 19:26pm – 19:41pm	44.6	40	N/A	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (site hum, vent fans, bang/drop, engine revs & crane movement) plus non-TJH sources (crickets, gecko's, residents, train)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. It should be noted that the monitoring results were influenced by internal noise sources from residents preparing & cooking dinner in the kitchen at the time</p> <p>Mitigation Measures Mitigation for property includes air-conditioning and payment of electricity bills</p>

89 Jackson Street, Clayfield						
Highset Weatherboard Queenslander (rear Dining Room)	27/01/2011 20:02pm – 20:17pm	39.7	40	45.2	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (vent fans, gantry movement, cranes, engine revs) plus non-TJH sources (geckos, crickets, resident, train, traffic)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures This property has not received mitigation</p>
Highset Weatherboard Queenslander (rear Dining Room)	27/01/2011 20:20pm – 20:35pm	36.4	40	39.5	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (vent fans) plus non-TJH sources (geckos, crickets, resident, train, traffic and a plane)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures This property has not received mitigation</p>
54 Kalinga Street, Clayfield						
Double Storey rendered, (rear upper Bedroom)	07/02/2011 19:35pm – 19:50pm	39.2	35	43.8	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed. Mitigation applied</p> <p>Noise Sources TJH noise sources (bang / drop, engine rev) plus non-TJH sources (air conditioner, resident, train, plane, washing machine)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Please note that the air conditioner operating in the bedroom at the time contributed to CoG goal exceedance</p> <p>Mitigation Measures Mitigation for property includes double glazed windows to bedroom and air conditioning</p>
3 Mabel Street, Clayfield						
Highset Weatherboard Queenslander (rear upper Bedroom)	09/02/2011 19:32pm – 19:47pm	45	40	45.5	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources Non-TJH sources (plane, resident, train, wildlife – cricket, gecko). There were no audible TJH sources throughout this monitoring period</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Please note the resident had the TV in operation down stairs which contributed to CoG goal exceedance</p> <p>Mitigation Measures The property has been approved for mitigation (air conditioning) and is awaiting finalisation/installation</p>

Highset Weatherboard Queenslander (rear upper Bedroom)	09/02/2011 19:54pm – 20:09pm	42.3	40	57.7	50	<p>Monitoring Type External attended monitoring, stakeholder's upper back deck</p> <p>Noise Sources TJH noise sources (crane engine, bang / drop) plus non-TJH sources (geckos, residents, train, traffic, plane, fauna)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Traffic and wildlife have contributed to CoG goal exceedance</p> <p>Mitigation Measures The property has been approved for mitigation (air conditioning) and is awaiting finalisation/installation</p>
Highset Weatherboard Queenslander (rear upper Bedroom)	10/02/2011 19:56pm – 20:11pm	43.7	40	47.9	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (bang / drop) plus non-TJH sources (geckos, resident, ceiling fan, plane, dog, fridge motor)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. Please note the fridge motor and ceiling fan in the room contributed to CoG goal exceedance</p> <p>Mitigation Measures The property has been approved for mitigation (air conditioning) and is awaiting finalisation/installation</p>
Highset Weatherboard Queenslander (rear upper Bedroom)	10/02/2011 20:14pm – 20:22pm	37.9	40	42.9	50	<p>Monitoring Type Internal attended monitoring, windows and doors Closed</p> <p>Noise Sources TJH noise sources (bang / drop) plus non-TJH sources (geckos, resident, train, fridge, ceiling fan, train, car horn)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures The property has been approved for mitigation (air conditioning) and is awaiting finalisation/installation</p>
79 Elliott Street, Clayfield						
Double Storey Queenslander (lower Bedroom)	15/02/2011 20:07pm – 20:22pm	44.5	40	51.4	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (vibrators, concrete pumps, bangs, cranes, engine revs) plus non-TJH sources (train, car horn, plane, resident, wildlife)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded during. The exceedance is due to both TJH and non-TJH activities. A NCR was raised regarding this exceedance.</p> <p>Mitigation Measures Mitigation for the property includes air conditioning.</p>

Double Storey Queenslander (lower Bedroom)	15/02/2011 20:24pm – 20:39pm	38.8	40	45.4	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (vibrators, concrete pumps, bangs, cranes, engine revs) plus non-TJH sources (train, car horn, plane, resident, wildlife)</p> <p>Discussion Monitoring indicates that CoG goals are being met</p> <p>Mitigation Measures Mitigation for the property includes air conditioning</p>
Double Storey Queenslander (lower Bedroom)	15/02/2011 20:46pm – 21:01pm	49.4	40	56	50	<p>Monitoring Type Internal attended monitoring, windows and doors open</p> <p>Noise Sources TJH noise sources (crawler crane, vibrations from agitators, concrete pumps, engine revs, bang/drops) plus non-TJH sources (train, wildlife)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. A NCR was raised regarding this exceedance.</p> <p>Mitigation Measures Mitigation for the property includes air conditioning</p>
Double Storey Queenslander (lower Bedroom)	15/02/2011 21:05pm – 21:20pm	41.5	40	52.7	50	<p>Monitoring Type Internal attended monitoring, windows and doors closed</p> <p>Noise Sources TJH noise sources (crawler crane, bangs/drops, concrete pumps, engine revs) plus non-TJH sources (wildlife, train)</p> <p>Discussion Monitoring indicates that CoG goals are being exceeded. A NCR was raised regarding this exceedance.</p> <p>Mitigation Measures Mitigation for the property includes air conditioning</p>

3.3 Compliance with Noise Goals

Exceedences of the Coordinator General's Noise Goals as a result of TJH construction activities (or a combination of external and TJH construction activities) have been found during this monitoring period at:

- 79 Elliott Street, Clayfield.

4.0 Air Quality Monitoring

TJH undertakes regular monitoring of air quality levels at a variety of locations across the project to help measure impacts and assist the team to plan works and appropriate mitigations if required.

Monitoring involves sampling of dust deposition (monthly), and real-time respiratory dust (PM10) at a number of locations nominated by the Coordinator General. Real-time monitoring of Total Suspended Particulates (TSP) and CO/NO₂ is also occurring at a location in the vicinity of the Woolloowin Worksite.

Results of monitoring are compared to Air Quality Goals nominated by the Coordinator General (Change Report July 2008 & Woolloowin Worksite Modification October 2009) for the Airport Link and Northern Busway projects.

4.1 Overview of Air Quality Mitigation Measures

The key strategies adopted to mitigate dust and air quality impacts during construction works have included the following:

1. Continual use of water carts
2. Covering of haul vehicles
3. Stabilisation of cleared areas with hardstand materials such as concrete and crushed rock
4. Hydro-mulching and laying geofab to batters
5. Reduction of cleared / exposed soils with concrete paving and geofabric installation
6. Road sweepers

4.2 Air Quality Monitoring Results – PM10/TSP

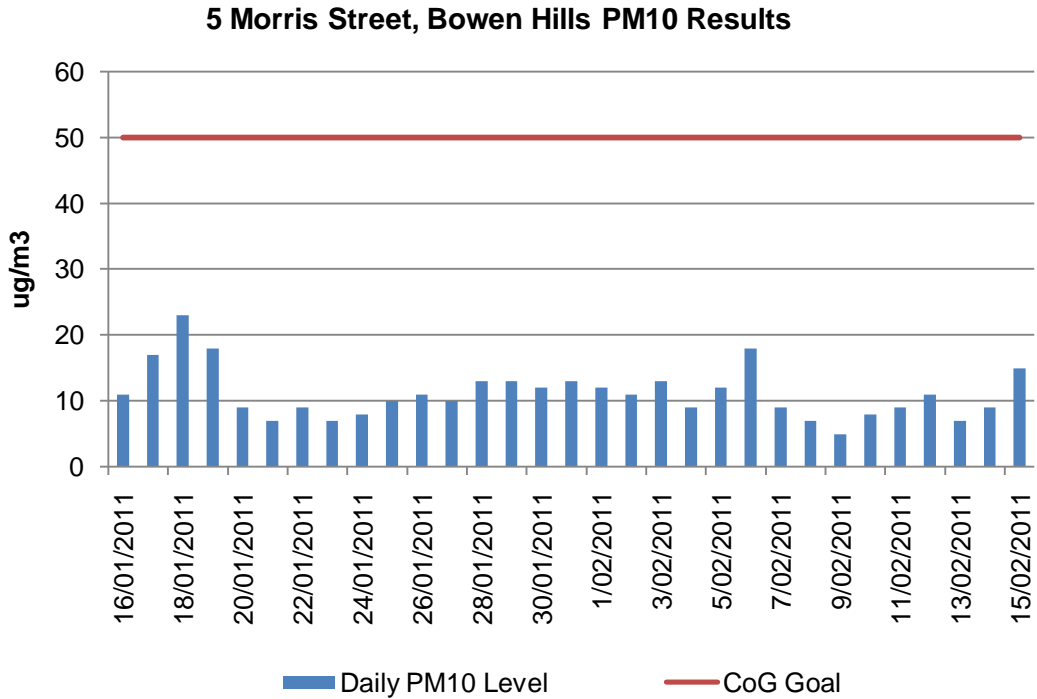


Figure 4.2.1: 5 Morris Street, Bowen Hills PM10 Results (for monitor location see figure 2.1 – A1)

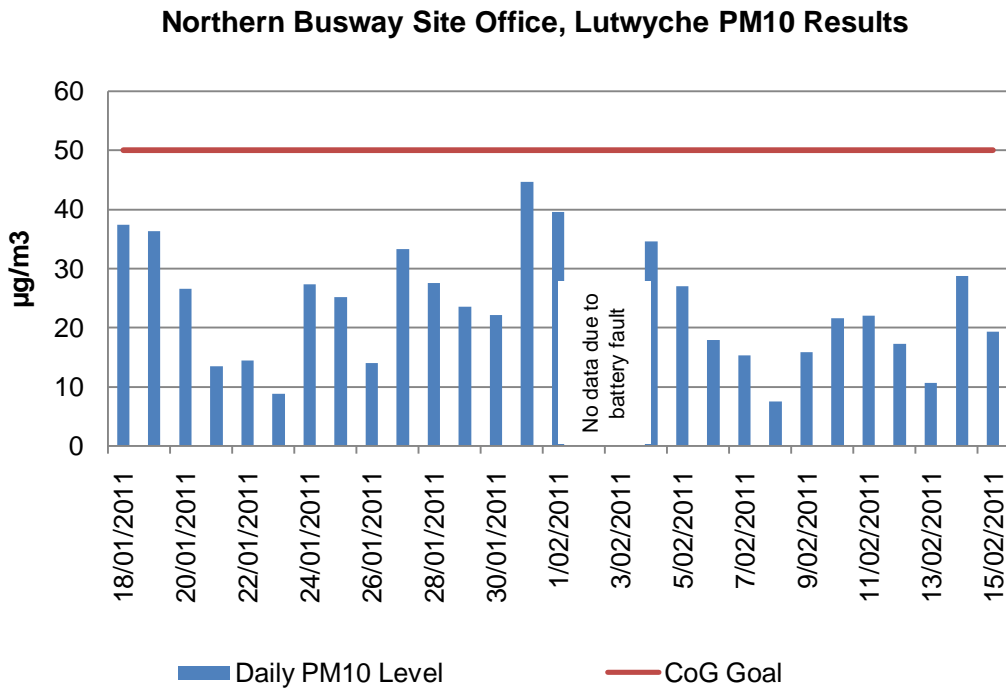


Figure 4.2.2: Northern Busway Site Office, Lutwyche PM10 Results (for location see figure 2.3 – A1)

Erskine Avenue, Kedron PM10 Results

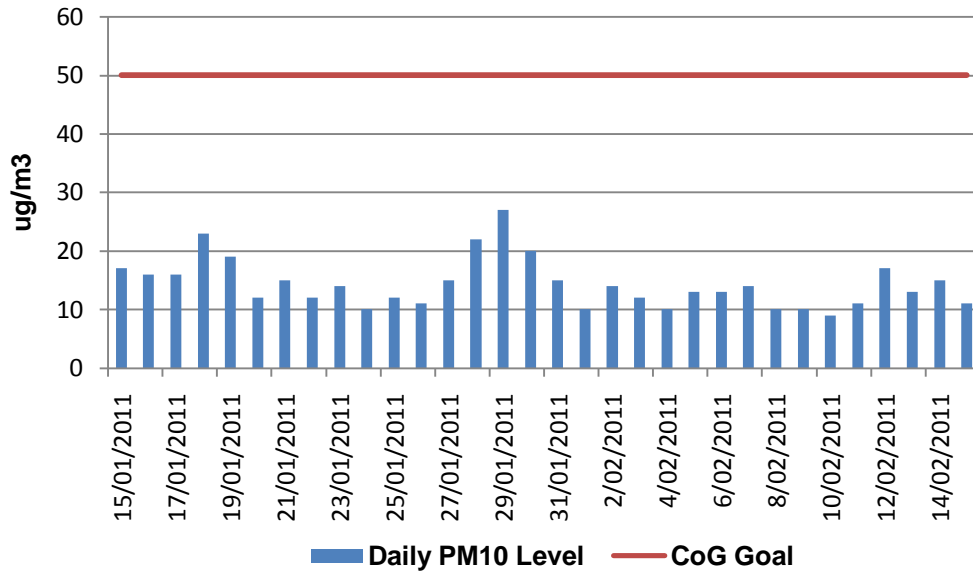


Figure 4.2.3: Erskine Avenue, Kedron PM10 Results (for monitor location see figure 2.4 – A1)

Kedron State High School, Kedron PM10 Results

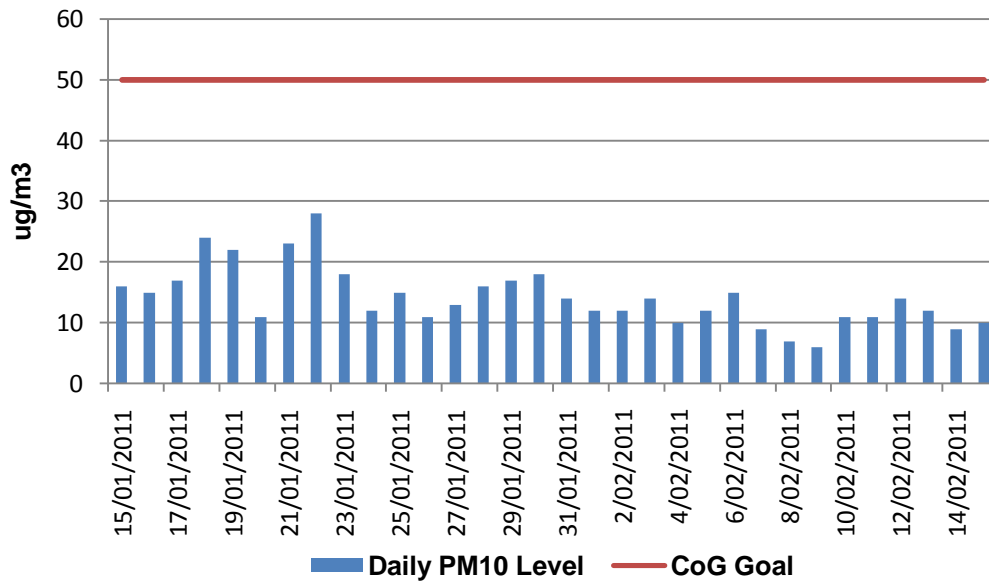


Figure 4.2.4: Kedron State High School (Adj), Kedron PM10 Results (for monitor location see figure 2.4 – A2)

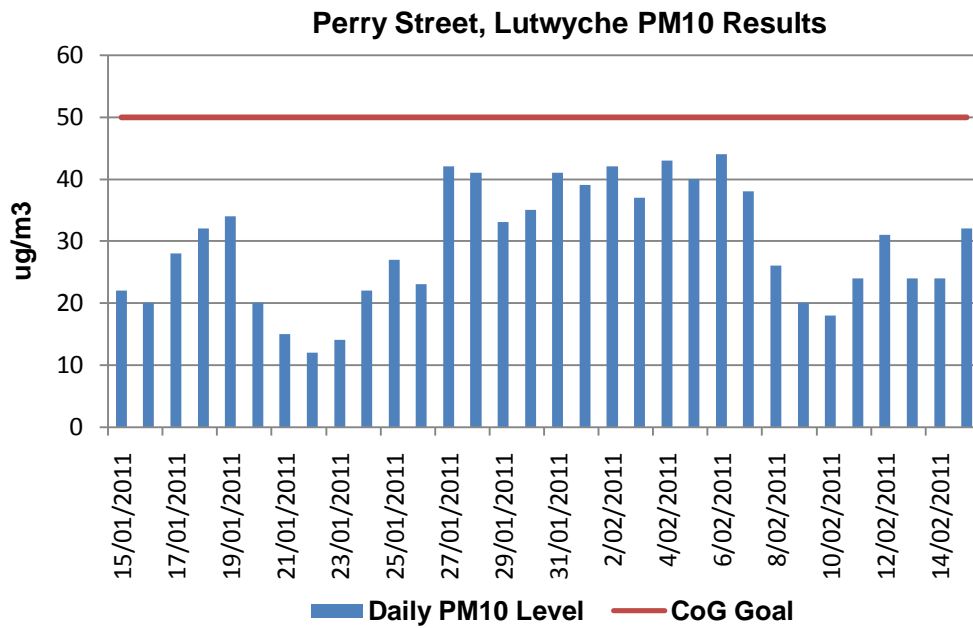


Figure 4.2.5: Perry Street, Lutwyche PM10 Results (for monitor location see figure 2.4 – A3)

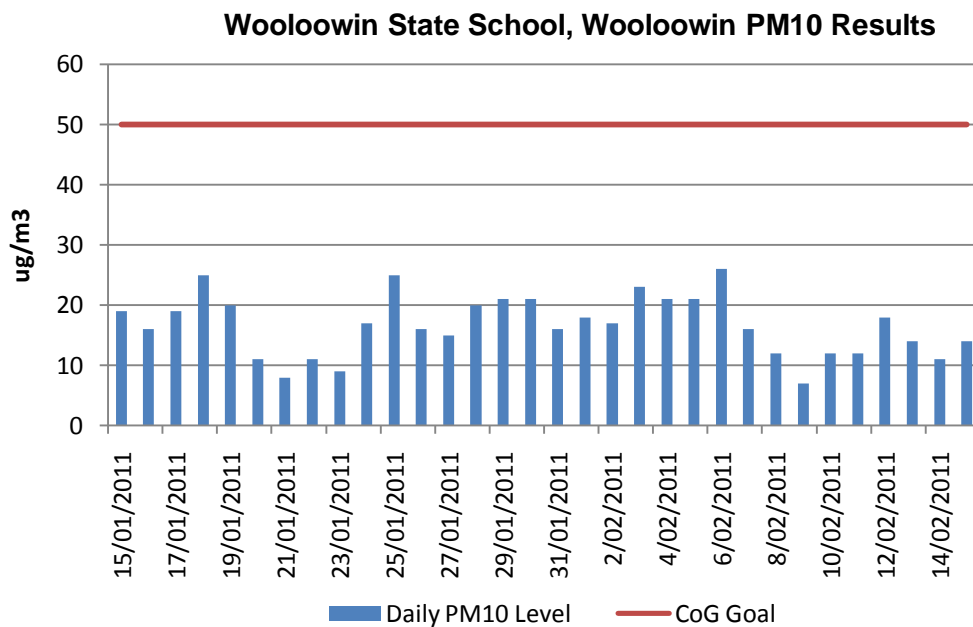


Figure 4.2.6: Woollowin State School, Lutwyche PM10 Results (for monitor location see figure 2.4 – A4)

71 Park Road, Woolloowin PM10 Results

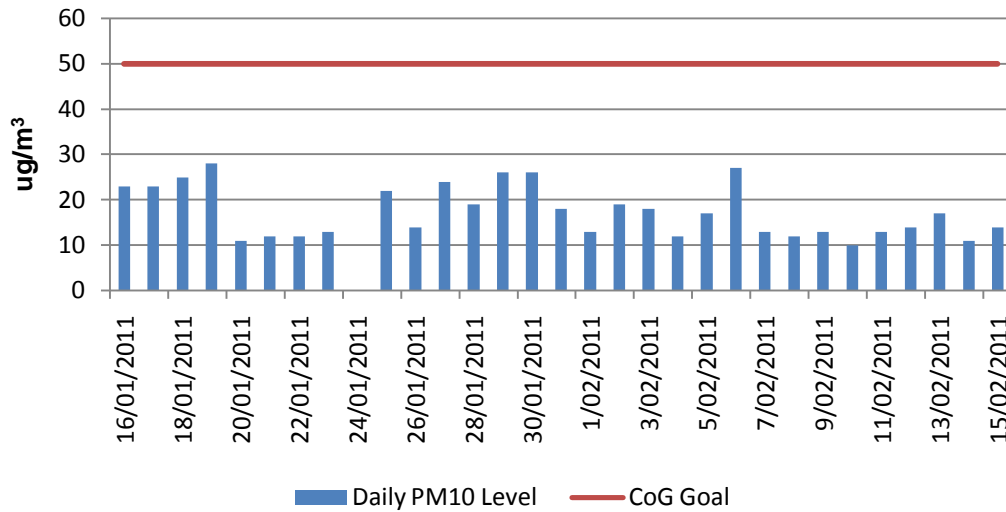


Figure 4.2.7: 71 Park Road, Woolloowin PM10 Results (for monitor location see figure 2.1 – A1)

71 Park Road, Woolloowin PM2.5 Results 16/01/2011 to 15/02/2011

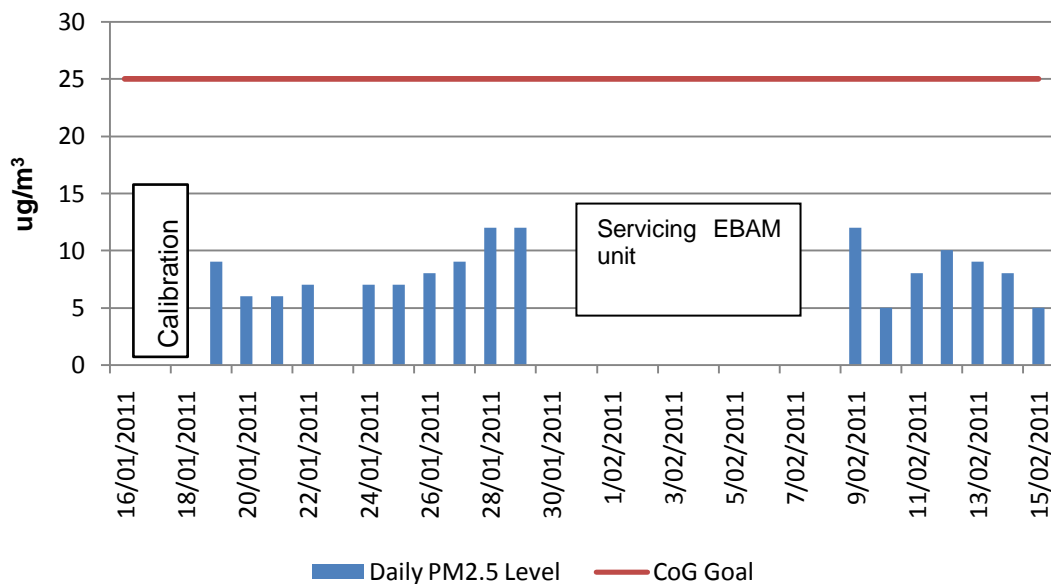


Figure 4.2.8: 71 Park Road, Woolloowin PM2.5 Results (for monitor location see figure 2.1 – A1)

56 Kalinga Street, Clayfield PM10 Results

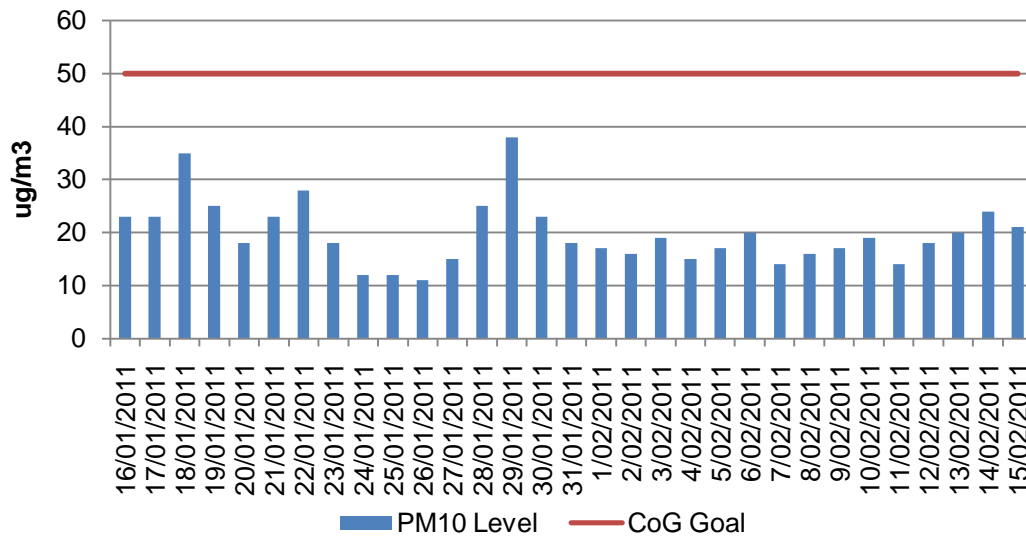


Figure 4.2.9: Kalinga Street, Toombul PM10 Results (for monitor location see figure 2.6 – A1)

5 Mabel Street, Clayfield PM10 Results

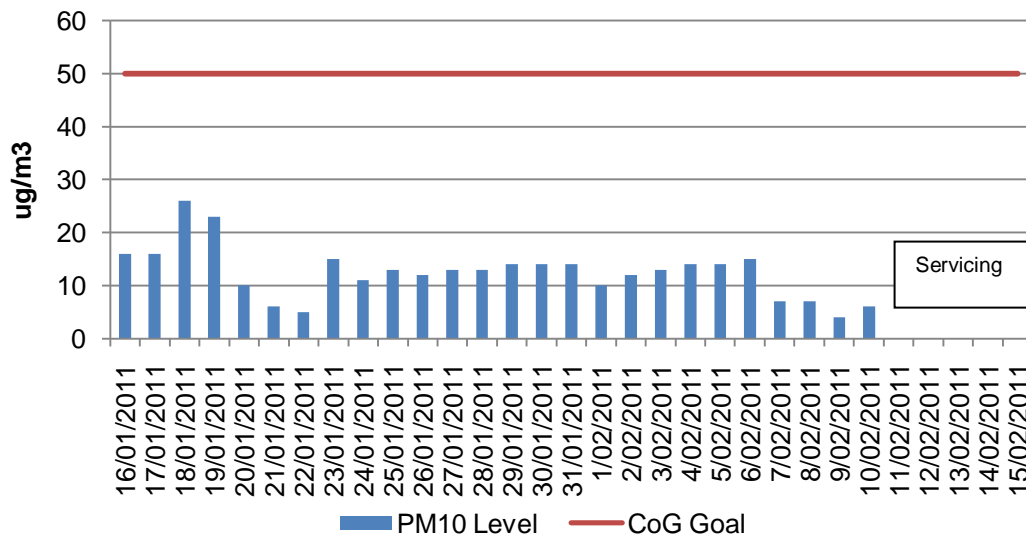


Figure 4.2.10 Kalinga Park Adj Alma Road, Toombul PM10 Results (for monitor location see figure 2.6- A2)

4.3 Air Quality Monitoring Results – Dust Deposition Results

Dust deposition monitoring is undertaken on a monthly basis using a bottle and funnel placed 2m ± 0.2m above ground level in accordance with Australian Standard AS 3580.10.1: 2003. It should be noted that in most locations the placement of the deposition gauges does not meet the standard due to location and security issues. Note: due to lab processing times and field placement some results are not available at time of report writing thus will be included in next month's report.

5 Morris Street, Bowen Hills Dust Fallout Sep 2010 - Feb 2011

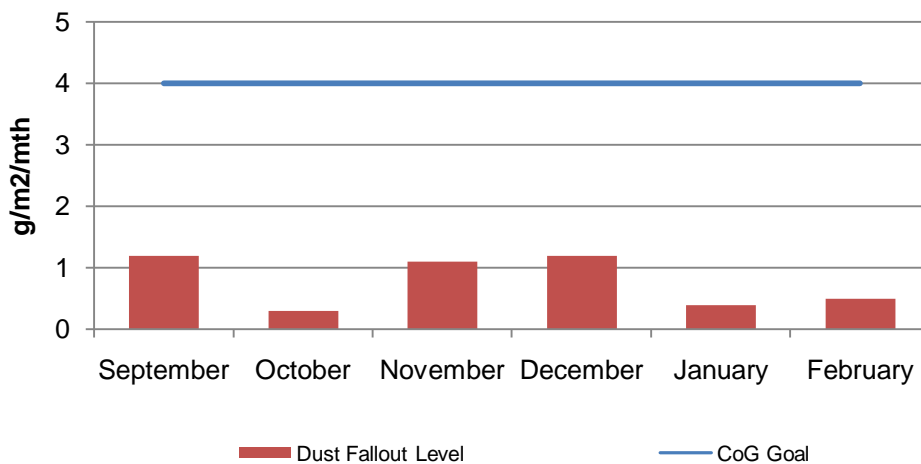


Figure 4.3.1: 5 Morris Street, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1 – D1)

Site Office, Bowen Hills Dust Fallout Sep 2010 - Feb 2011

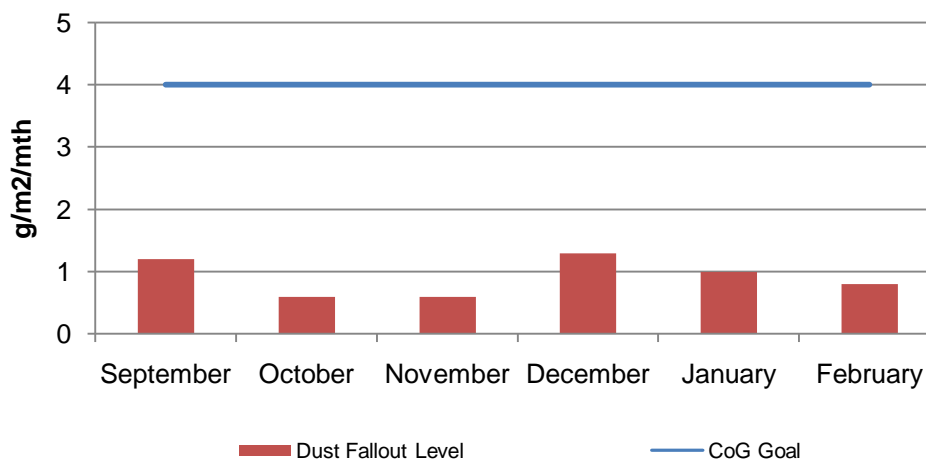


Figure 4.3.2: Site Office, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D2)

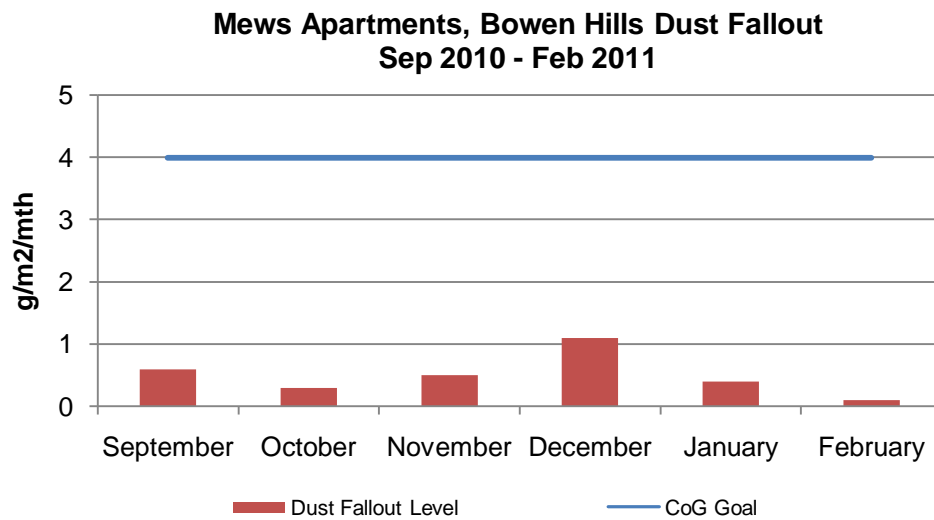


Figure 4.3.3: Mews Apartments, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D3)

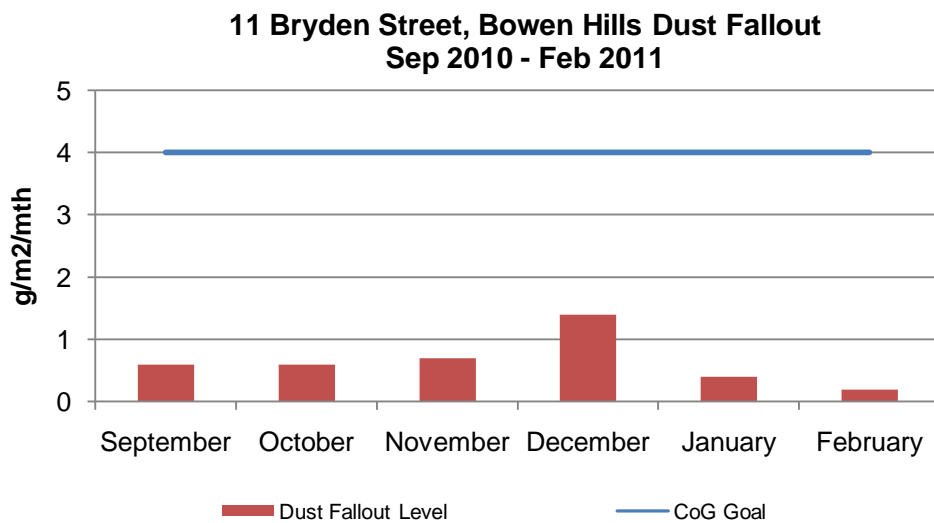


Figure 4.3.4: 11 Bryden Street, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D4)

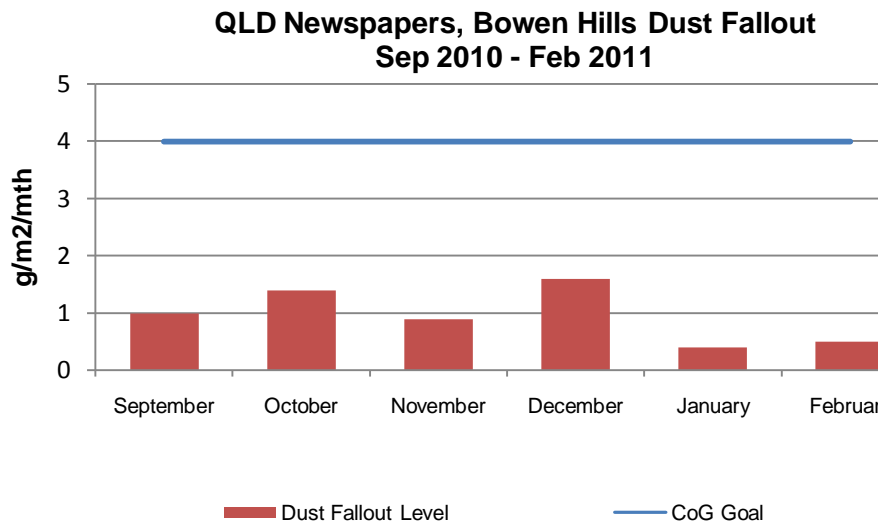


Figure 4.3.5 : Qld Newspapers, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D5)

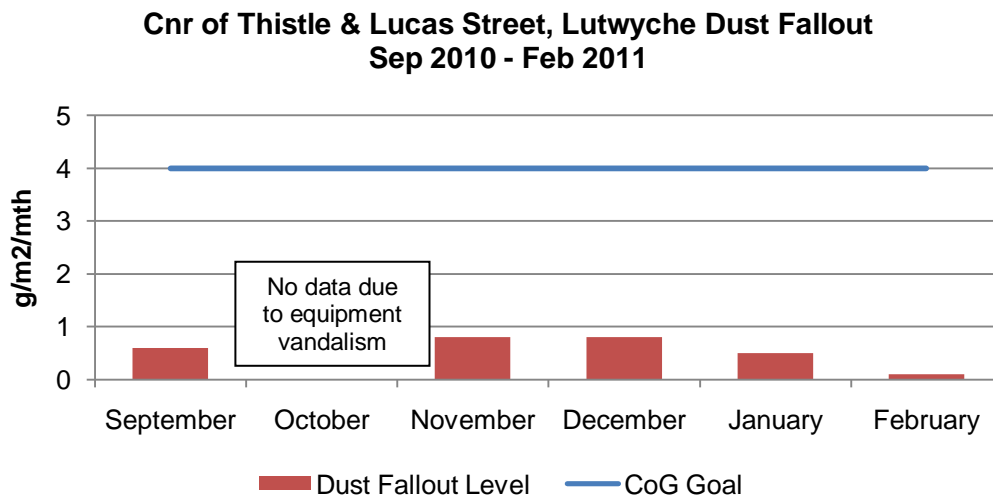


Figure 4.3.6: Cnr of Thistle & Lucas Street, Lutwyche Dust Fallout Results (location refer to figure 2.3 – D2)

Kedron Brook Reserve, Northern Busway Dust Fallout Sep 2010 - Feb 2011

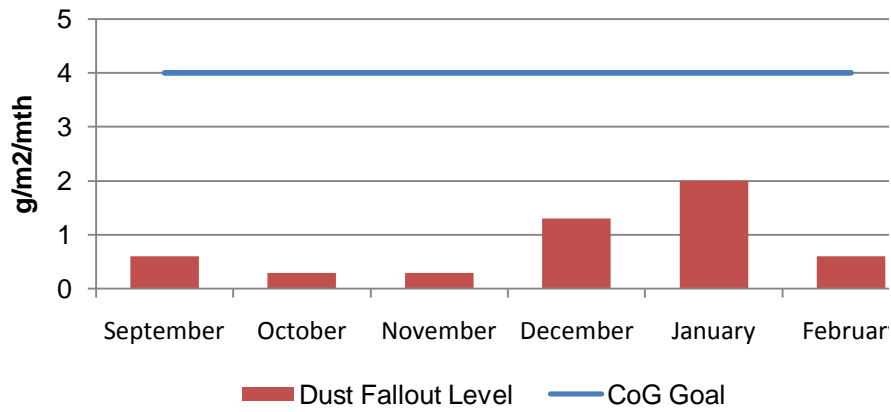


Figure 4.3.7: Kedron Brook Reserve, Northern Busway Dust Fallout Results (location refer to figure 2.3 – D1)

Dust Fallout Erskine Avenue, Kedron, Sep 2010 - Feb 2011

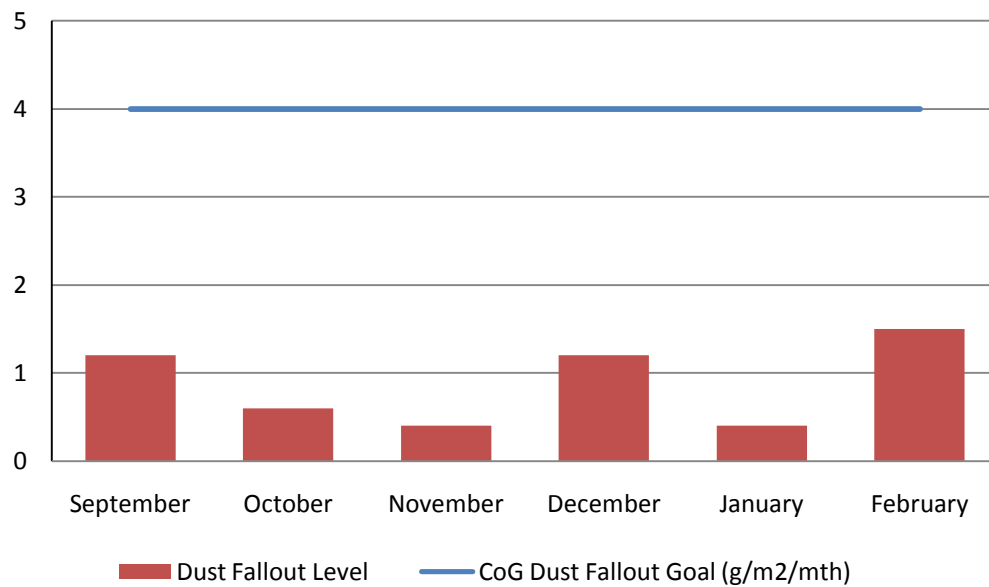


Figure 4.3.8: Erskine Avenue, Kedron Dust Fallout Sep 2010 – Feb 2011 (for monitor location see figure 2.4 – A1)

Dust Fallout Kedron State High School, Kedron, Sep 2010 - Feb 2011

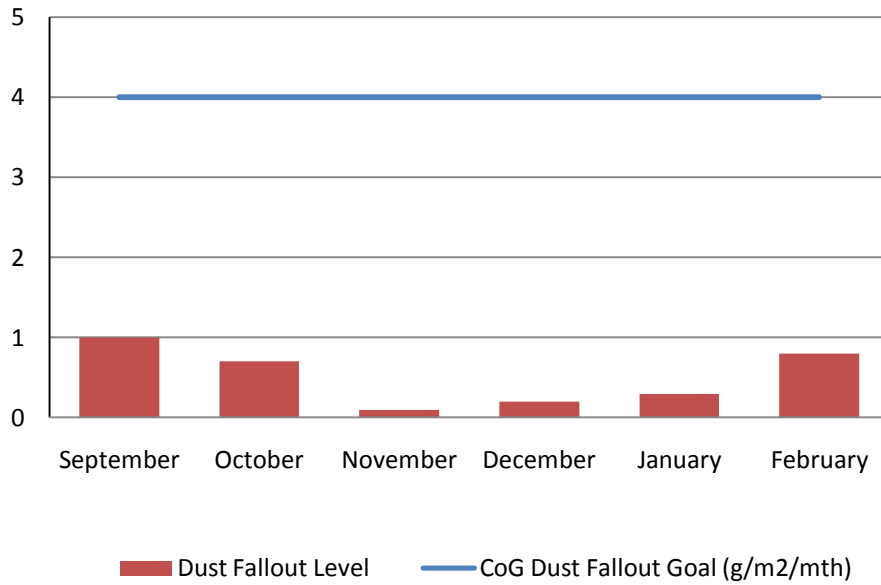


Figure 4.3.9: Kedron State High School, Dust Fallout Sep 2010 – Feb 2011 (for monitor location see figure 2.4 A2)

Dust Fallout Perry Street Lutwyche, Sep 2010 - Feb 2011

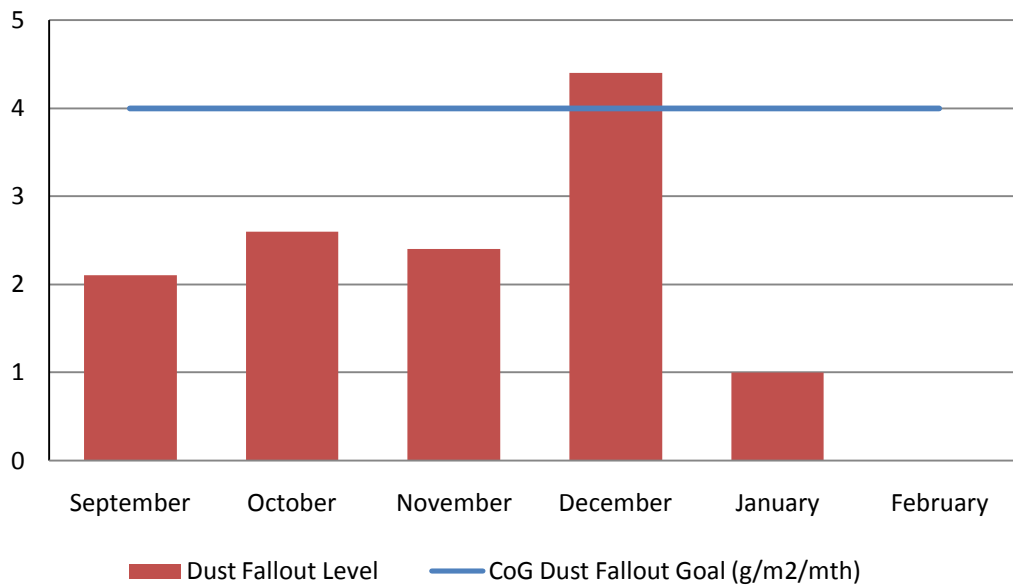


Figure 4.3.10: Perry Street, Lutwyche Dust Fallout Sep 2010 – Feb 2011 (for monitor location see figure 2.4 – A3)

Dust Fallout Wooloowin State School, Wooloowin, Sep 2010 - Feb 2011

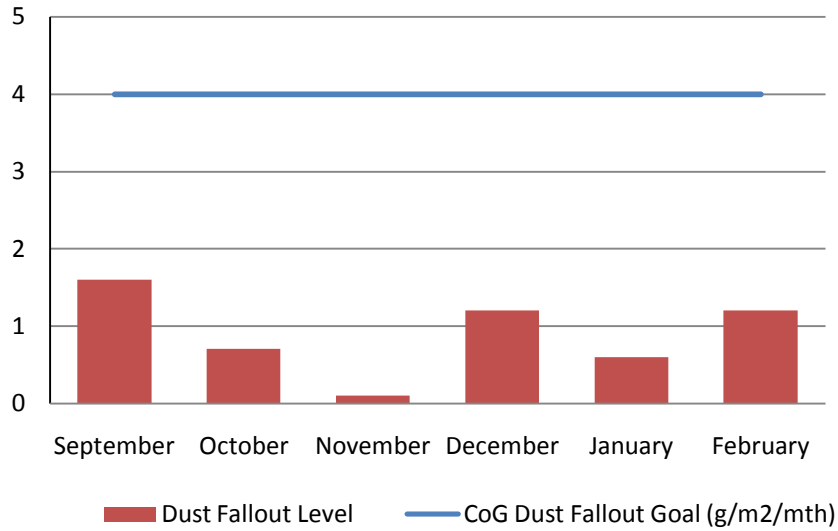


Figure 4.3.11: Wooloowin State School, Dust Fallout Sep 2010 – Feb 2011 (for monitor location see figure 2.4 – A4)

Dust Fallout 228 Gympie Road, Kedron, Nov 2010 - Feb 2011

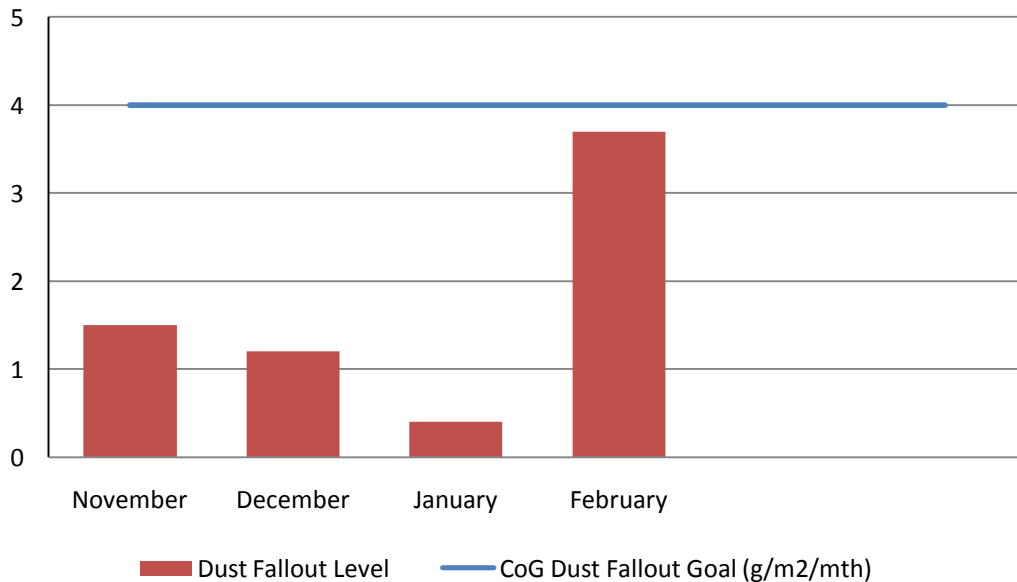


Figure 4.3.12: Gympie Road, Kedron Dust Fallout Nov 2010 – Feb 2011 (for monitor location see figure 2.4)

68 Park Road, Woolloowin Dust Fallout Sep 2010 to Feb 2011

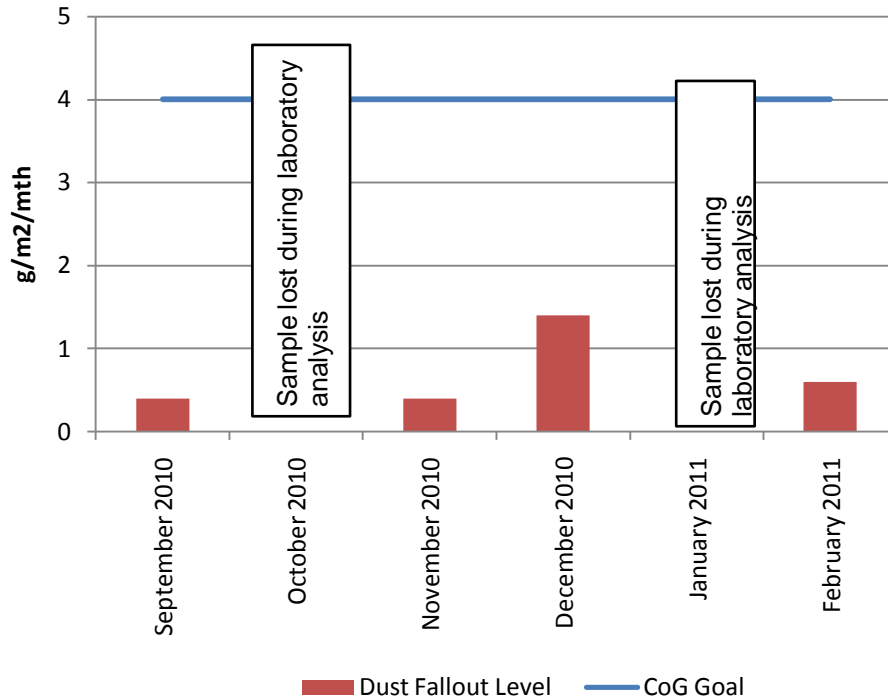
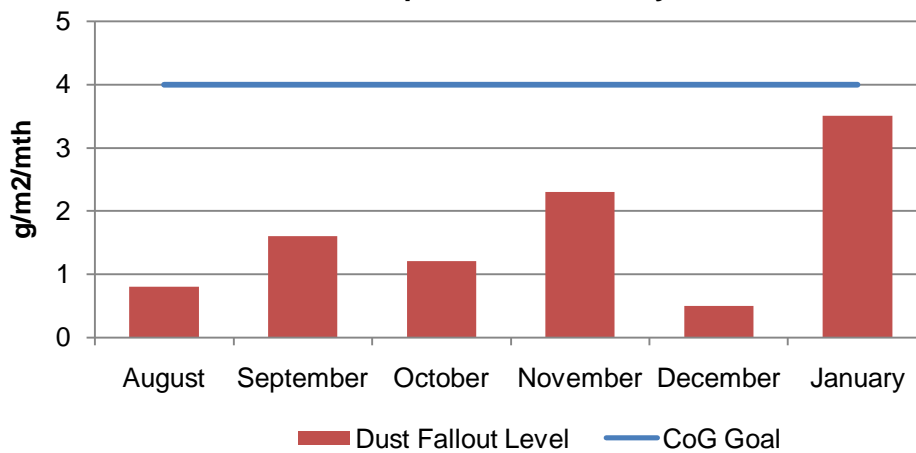
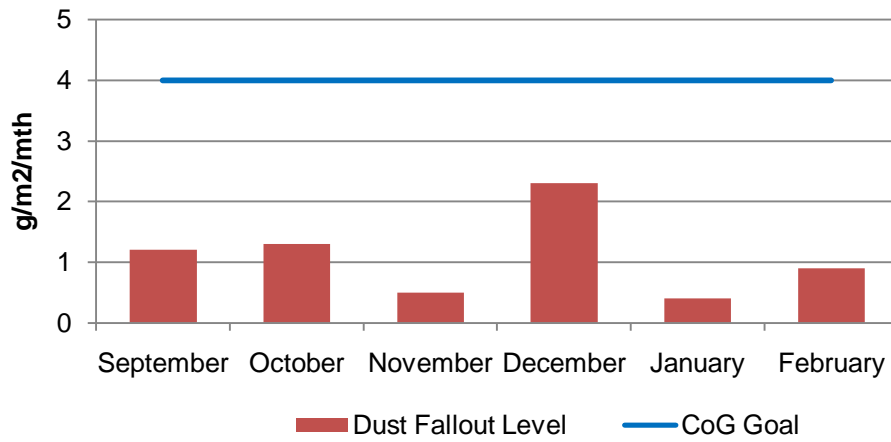


Figure 4.3.13: 68 Park Road, Woolloowin Dust Deposition Results (for monitor location refer to figure 2.1)

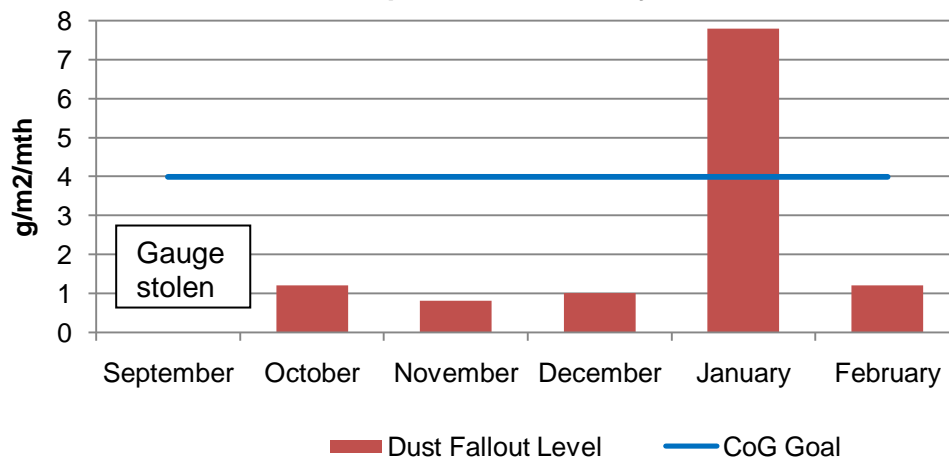
Kalinga Street, Toombul Dust Fallout Level September - February 2010



Mabel Street, Toombul Dust Fallout Level September - February 2010



Bage Street, Toombul Dust Fallout Level September - February 2010



4.4 CO/NO₂ Monitoring – Woolloowin Worksite

TJH undertakes regular monitoring of CO/NO₂ in the vicinity of the Woolloowin Worksite. Monitoring involves real-time sampling and results of monitoring are compared to Air Quality Goals nominated by the Coordinator General in the Woolloowin Worksite Modification Change Report - October 2009.

Gas monitoring results

Gas Monitor at 71 Park Road, Woolloowin					
Date	Peak Date and Time	CO (mg/m ³) Peak	CoG CO Limit (mg/m ³)	NO ₂ (mg/m ³) Peak	CoG NO ₂ Limit (mg/mi ³)
16/01/2011 to 15/02/2011	1:10am 19/01/2011	0.60	11	-	-
	7:00pm 18/01/2011	-	-	49.04	250

Note:

For Carbon monoxide (CO) an 8 hour averaging period is used

For Nitrogen dioxide (NO₂) a 1 hour averaging period is used

4.5 Compliance with Air Quality Goals

There was one dust fallout exceedence recorded in Dec-Jan monitoring period at Toombul sports complex. The exceedence was due to non-TJH sources. An NCR was raised regarding this exceedence.

5.0 Vibration Monitoring

TJH undertakes monitoring of vibration levels at a variety of locations across the project to help measure impacts and assist the team plan works and appropriate mitigations if required. Monitoring involves measuring peak particle velocity (mm/s) at a number of sensitive receptors.

Results of monitoring are compared to Vibration Goals adopted as listed by the Coordinator General (Change Report June 2008 & Woolloowin Worksite Change Report October 2009) for the Airport Link and Northern Busway projects.

5.1 Overview of Vibration Mitigation Measures

The key strategies adopted during this monitoring period to mitigate vibration impacts during construction works have included:

1. Predictive modelling of anticipated risks and impacts.
2. Building condition surveys of properties which are likely to experience vibration levels in excess of the levels for minimal risk of cosmetic damage outlined in the CoG Report.
3. Selection of alternative construction equipment / methodology where possible
4. Review of monitoring data for the activities undertaken

5.2 Vibration Monitoring Results

Monitoring has been undertaken at a variety of sites along the Airport Link Project alignment this period. Results are detailed in Tables 5a-h

Table 5a: Vibration Monitoring Results Summary – Northern Busway

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
Windsor Air Raid Shelter	10/01/11-15/01/11	1.92	2.0	Results are within CoG goals
CC701 Structure	16/01/11-15/02/11	7.20	10.0	Results are within CoG goals

Table 5b: Blast Monitoring Results Summary – Bowen Hills Civils

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
BR107- Abutment A	20/01/11 30 Seconds	<2.5	25.0	Results are within CoG goals
BR107- Pier 17	20/01/11 30 Seconds	15.4	25.0	Results are within CoG goals

Table 5c: Vibration Monitoring Results Summary - Kedron

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
BCC Substation 8 134 Kedron Park Road	15/01/2011-15/02/2011	1.61	2	Monitoring road header tunnelling and extraction of blasted rock. Results within goals for heritage building
Wooloowin State School, 663 Lutwyche Road	20/01/2011-24/01/2011	1.02	2	Monitoring car park construction works. Results within goals for heritage building.

Table 5d: Blast Monitoring Results Summary - Kedron Tunnels Blasting

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
18/01/2011				
49 Park Road	18/01/2011 20 seconds	21.2	25	Results are within adopted goals
57 Park Road	18/01/2011 20 seconds	6.73	25	Results are within adopted goals

Table 5e: Blast Monitoring Results Summary - Kedron Civils Blasting

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
15/01/2011				
12 Park Terrace	20 seconds	2.54	25	Results are within adopted goals
15 Park Terrace	20 seconds	3.56	25	Results are within adopted goals
17/01/2011				
12 Park Terrace	20 seconds	2.16	25	Results are within adopted goals
15 Park Terrace	20 seconds	2.16	25	Results are within adopted goals
18/01/2011				
12 Park Terrace	20 seconds	2.29	25	Results are within adopted goals
15 Park Terrace	20 seconds	4.32	25	Results are within adopted goals
25/01/2011				
12 Park Terrace	20 seconds	2.03	25	Results are within adopted goals
15 Park Terrace	20 seconds	3.05	25	Results are within adopted goals
27/01/2011				
12 Park Terrace	20 seconds	2.41	25	Results are within adopted goals
15 Park Terrace	20 seconds	3.94	25	Results are within adopted goals
28/01/2011				
12 Park Terrace	20 seconds	2.79	25	Results are within adopted goals
29/01/2011				
12 Park Terrace	20 seconds	2.79	25	Results are within adopted goals
15 Park Terrace	20 seconds	5.08	25	Results are within adopted goals

Kedron Park Hotel	20 Seconds	2.67	25	Results are within adopted goals
BCC Substation	20 Seconds	<1.00	25	Results are within adopted goals
31/01/2011				
12 Park Terrace	20 seconds	2.54	25	Results are within adopted goals
15 Park Terrace	20 seconds	4.95	25	Results are within adopted goals
2/02/2011				
12 Park Terrace	20 seconds	2.03	25	Results are within adopted goals
3/02/2011				
12 Park Terrace	20 seconds	1.65	25	Results are within adopted goals
4/02/2011				
12 Park Tce	20 seconds	2.03	25	Results are within adopted goals
15/02/2011				
15 Park Tce	20 seconds	1.52	25	Results are within adopted goals
Kedron Park Hotel	20 seconds	1.52	25	Results are within adopted goals

Table 5f: Blast Monitoring Results Summary - Woolloowin Tunnels Blasting

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
28/01/2011 (3:59pm)				
Kedron State High School	28/01/2011 20 seconds	2.41	25	Results are within adopted goals
37 Park Road (Bus Stop)	28/01/2011 20 seconds	4.70	25	Results are within adopted goals
57 Park Road (Bus Stop)	28/01/2011 20 seconds	3.94	25	Results are within adopted goals
49 Park Road	28/01/2011 20 seconds	5.94	25	Results are within adopted goals

Table 5g: Vibration Monitoring Results Summary – Woolloowin

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
71 Park Road, Woolloowin	09/02/2011 11:47am to 4:24pm	0.76	5	Results are within CoG goals

Table 5h: Vibration Monitoring Results Summary – Toombul

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Goal (Continuous) (mm/s)	Comments
50 Lydia Street, Woolloowin	16/01/2011 – 23/01/2011	0.38	5	Monitoring indicates that CoG goals are being met.
29 Lydia Street, Woolloowin	16/01/2011 – 02/02/2011	0.99	5	Monitoring indicates that CoG goals are being met.
4 Jimbour Street, Woolloowin	16/01/2011 – 09/02/2011	0.75	5	Monitoring indicates that CoG goals are being met.
32 Roseleigh Street, Woolloowin	02/02/2011 – 15/02/2011	1.96	5	Monitoring indicates that CoG goals are being met.
105 Kent Road, Woolloowin	04/02/2011 – 15/02/2011	4.13	5	Monitoring indicates that CoG goals are being met.

5.3 Compliance with Vibration Goals

As a result of vibration monitoring across the project there were no exceedences recorded during the monitoring period.

6.0 Community enquiries and complaints

A total of 208 community complaints were reported to the project between 16 January and 15 February 2011. Issues raised are outlined in the table below. For further details on how we are managing community issues, please refer to the [Community Enquiries and Complaints](#) page of the project website which is updated each month.

Complaints Raised: 16 January to 15 February 2011		
Issues	No.	No. of stakeholders
Parking	36	22
Site noise out-of-hours	30	20
Construction vehicle movements	29	22
Driver Behaviour	19	19
Truck noise	15	14

Complaints Raised: 16 January to 15 February 2011		
Issues	No.	No. of stakeholders
Lane closure	14	14
Traffic Management	13	13
Site noise	12	9
Road condition	12	10
Worker Behaviour	9	8
PUPs noise out-of-hours	6	6
Site dust	6	6
General Construction	5	5
Property Access	5	5
Pedestrian/Cyclists	4	3
PUPs service outage	4	4
Truck dust	3	3
Monitoring	3	3
Spoil haulage driver behaviour	3	3
Tunnelling	3	1
Other	39	38
Total complaints	208	148

6.1 Top 10 Issues Raised:

