



# **Airport Link / Northern Busway Project**

## **Monthly Environmental Monitoring Report**

**January 2011**

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## **1.0 Report Purpose and Scope**

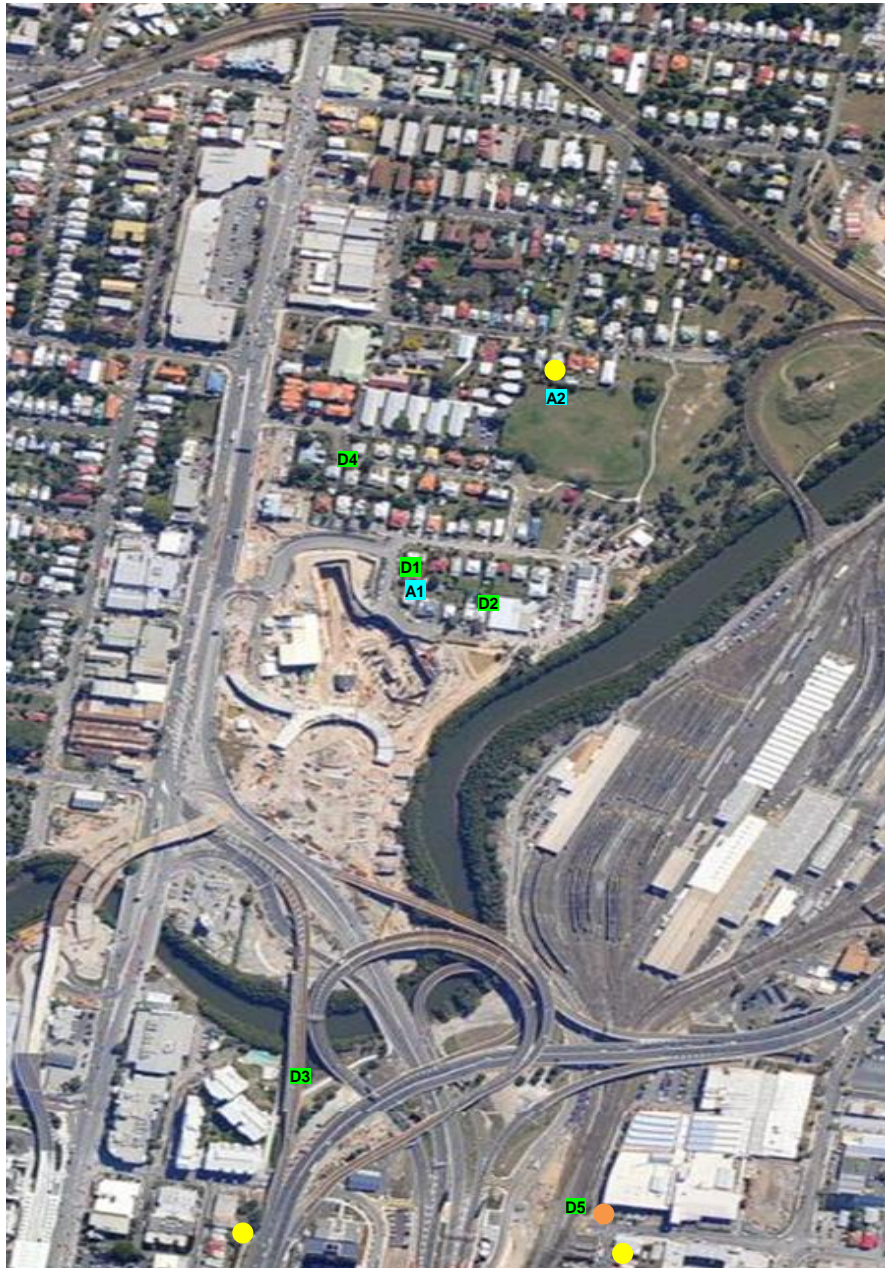
The report has been compiled to summarise the results of noise, air quality and vibration monitoring on the Airport Link and Northern Busway project. The report also compares those results with compliance thresholds for environmental harm, community nuisance and loss of amenity nominated by the Coordinator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

The monitoring data covered in this report is for the January 2011 reporting period, from 11<sup>th</sup> December 2010 to 15<sup>th</sup> January 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 January 2011, though do serve a useful purpose in relating the monitoring locations to existing structures and infrastructure.

## Bowen Hills Monitoring Locations



Source: NearMap 2010

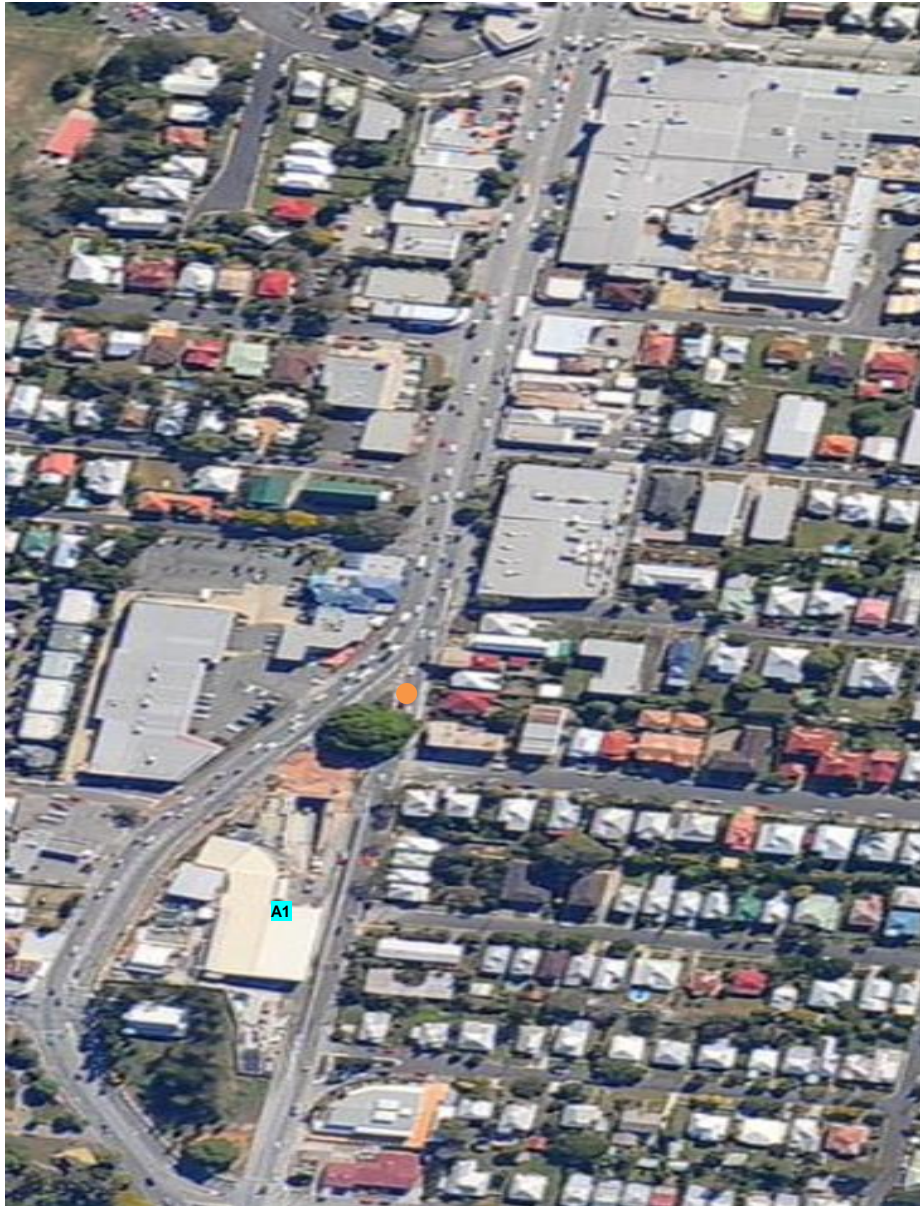
**Figure 2.1 – Bowen Hills Monitoring Locations**

**Legend:**

- |  |   |
|--|---|
| <span style="color: yellow;">●</span> Noise (during construction ) | <span style="color: blue;">●</span> Air (PM <sub>10</sub> ) |
| <span style="color: orange;">●</span> Vibration                    | <span style="color: green;">●</span> Air (Dust Deposition)  |

**Note: locations are indicative only**

## Truro Street Mid Tunnel Monitoring Locations



Source: NearMap 2010

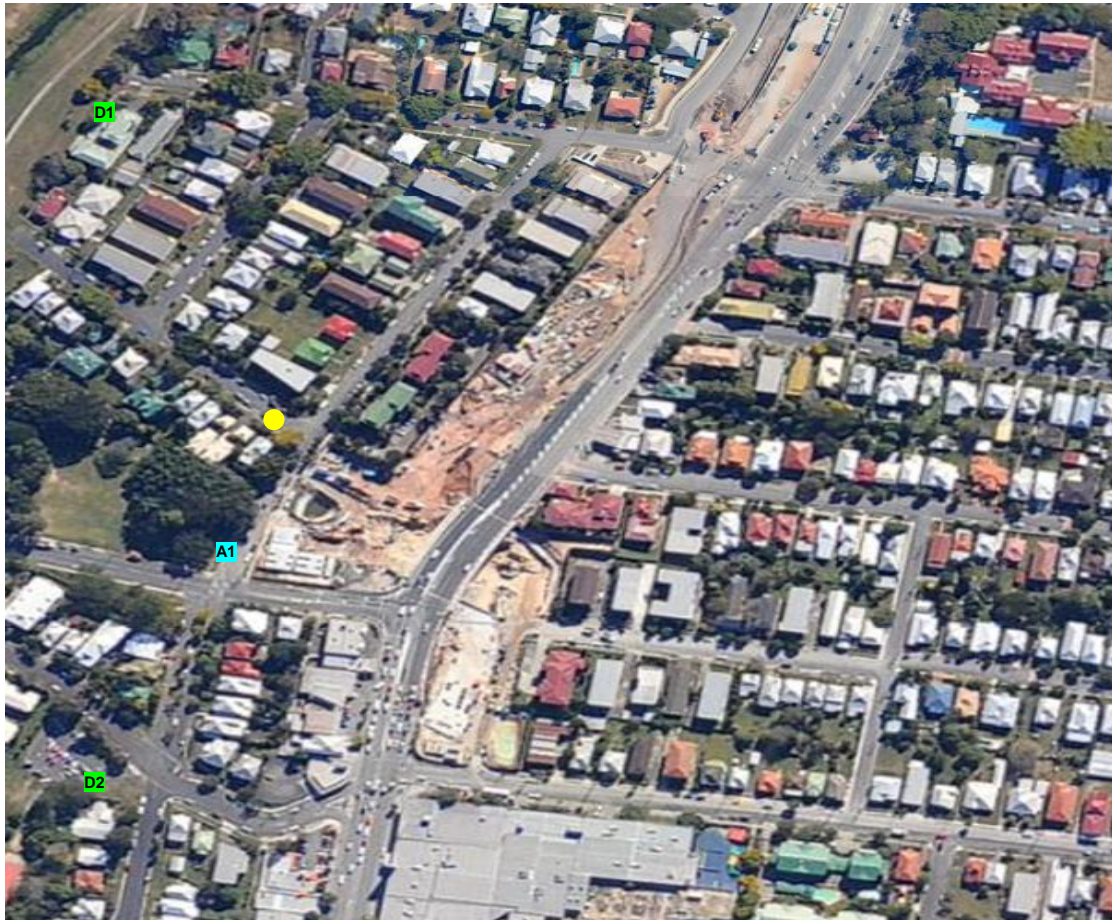
**Figure 2.2 – Truro Street Mid Tunnel Monitoring Locations**

**Legend:**

- |                                |                           |
|--------------------------------|---------------------------|
| ● Noise (during construction ) | ● Air (PM <sub>10</sub> ) |
| ● 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 (PM<sub>10</sub>)
- Air (Dust Deposition)

**Note: locations are indicative only**





## Kedron Monitoring Locations



Source: NearMap 2010

**Figure 2.4 – Kedron Monitoring Locations**

**Legend:**

- |  |   |
|--|---|
|  Noise (during construction ) |  Air (PM <sub>10</sub> ) |
|  Vibration                    |  Air (Dust Deposition)   |

**Note: locations are indicative only**

## Woolloowin Monitoring Locations



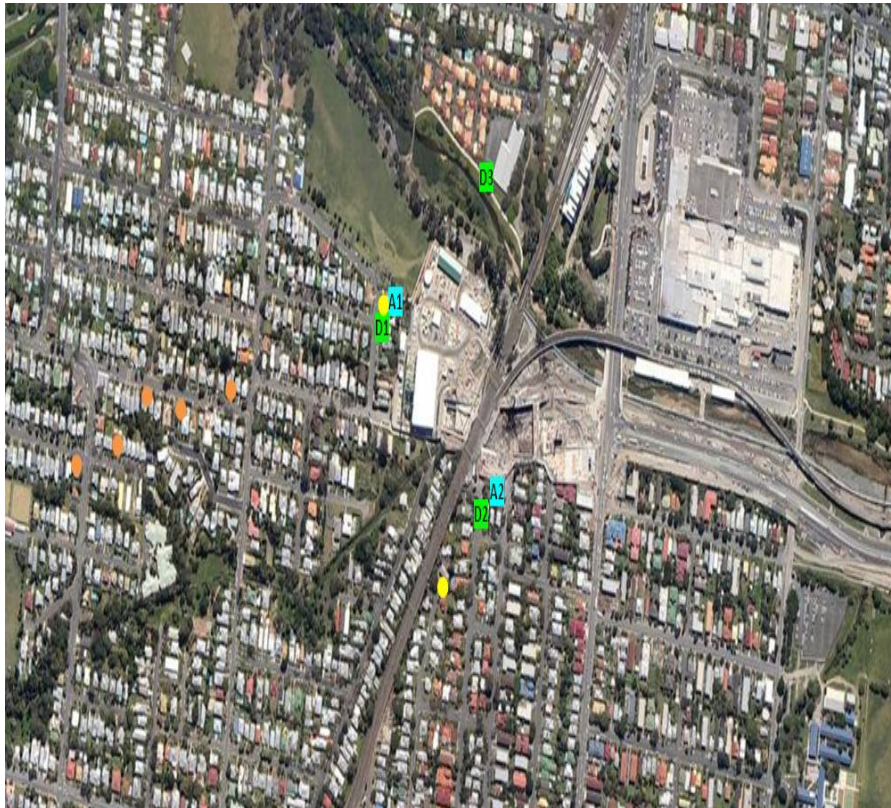
Source: NearMap 2010

**Figure 2.5 – Woolloowin Monitoring Locations**  
**Legend:**

- |   |   |
|---|---|
| <span style="color: yellow;">●</span> Noise (during construction )  | <span style="color: blue;">●</span> Air (PM <sub>10</sub> /TSP) |
| <span style="color: orange;">●</span> Vibration                     | <span style="color: green;">●</span> Air (Dust Deposition)      |
| <span style="color: purple;">●</span> Air (CO and NO <sub>2</sub> ) |   |

**Note: locations are indicative only**

## Toombul Monitoring Locations



Source: NearMap 2010

**Figure 2.6 – Toombul Monitoring Locations**

**Legend:**

- |                                |                           |
|--------------------------------|---------------------------|
| ● Noise (during construction ) | ● Air (PM <sub>10</sub> ) |
| ● Vibration                    | ● 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 St (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-e.

**Table 3a: (Night Time) Noise Monitoring Results – Bowen Hills Civils**

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>Amax</sub> (15 min) (dBA)	CoG Goal L <sub>Amax</sub> (15 min) (dBA)	Comments
<b>64 Cartwright Street, Windsor</b>						
2 Storey House (Main Bedroom)	17/12/2010 5:27am - 5:41am	36.3	40	47.9	50	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering and exiting the TJH carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, a train, and workers talking in the carpark</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH carpark on Cartwright Street. Vehicles parking in the carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>
2 Storey House (Main Bedroom)	20/12/2010 6:11am - 6:25am	31.2	40	35.9	50	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering and exiting the TJH carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, insects, and a train</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH carpark on Cartwright Street. Vehicles parking in the carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>Amax</sub> (15 min) (dBA)	CoG Goal L <sub>Amax</sub> (15 min) (dBA)	Comments
2 Storey House (Main Bedroom)	21/12/2010 5:23am - 5:38am	37.3	40	45.5	50	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering and exiting the TJH carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, a train and internal noise</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH carpark on Cartwright Street. Vehicles parking in the carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>
2 Storey House (Main Bedroom)	22/12/2010 5:29am - 5:44am	37.3	40	46.8	50	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering and exiting the TJH carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, and trains moving along the Ferny Grove rail line</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH carpark on Cartwright Street. Vehicles parking in the carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>

**Table 3b: Noise Monitoring Results – Bowen Hills Civils**

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>A10</sub> (15 min) (dBA)	CoG Goal L <sub>A10</sub> (15 min) (dBA)	Comments
<b>64 Cartwright Street, Windsor</b>						
2 Storey House (Main Bedroom)	20/12/2010 5:11pm - 5:26pm	36.9	45	36.6	55	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering the TJH Carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, and a train</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH Carpark on Cartwright Street. Vehicles parking in the Carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>
2 Storey House (Main Bedroom)	21/12/2010 5:33pm - 5:47pm	30.7	45	30.7	55	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Cartwright Street. Cars entering the TJH Carpark on the eastern end of Cartwright Street were noted intermittently throughout the session. Other noise sources noted were birds, and a train</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents in proximity to the TJH carpark on Cartwright Street. Vehicles parking in the carpark were noted intermittently throughout the session. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>

**Table 3c: Noise Monitoring Results – Northern Busway**

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>A10</sub> (15 min) (dBA)	CoG Goal L <sub>A10</sub> (15 min) (dBA)	Comments
<b>2/ 37 Lamington Avenue, Lutwyche</b>						
Ground Floor Unit (Living Room)	14/01/2011 9:40am - 9:54am	38.5	45	39.1	55	<p><b>Monitoring Type</b> Attended. Internal. Windows and Doors closed</p> <p><b>Noise Sources</b> The dominant noise source throughout the period was traffic moving along Lutwyche Road. TJH noise sources noted included the excavator working to excavate the underside of CC602 and trucks entering the Northern Busway site. Other noise sources noted included internal noise and traffic on Lamington Avenue</p> <p><b>Discussion</b> Monitoring was to assess the level of impact being caused to residents within close proximity to the Northern Busway site. TJH activities were noted intermittently throughout the period. Results were within CoG goals</p> <p><b>Mitigation</b> Mitigation was not required as results were within CoG goals</p>

**Table 3d: Noise Monitoring Results – Woolloowin**

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>A10</sub> (15 min) (dBA)	CoG Goal L <sub>A10</sub> (15 min) (dBA)	Average L <sub>AMAX</sub> (15 min) (dBA)	CoG Goal L <sub>AMAX</sub> (15 min) (dBA)	Comments
<b>71 Park Road, Woolloowin</b>								
Single level Brick Flat (Dining Room)	17/12/2010 9:39am – 9:53am	43.6	45	44.3	55	-	-	<p><b>Monitoring Type</b> Attended Noise Monitoring. Doors and Windows Closed</p> <p><b>Noise Sources</b> Site noise included: scrubber, truck, loader, loading, banging and concrete truck arriving and setting up. Other noise sources included: birds, plane and a car starting</p> <p><b>Discussion</b> Trucks were being loaded with spoil in the acoustic shed by the loader. Towards the end of the session the concrete truck arrived. Monitoring indicates that day time CoG goals were met</p> <p><b>Mitigation Measures</b> An acoustic shed and noise wall is in place around Woolloowin Site. 71 Park Road is owned by DMR and is used by TJH for monitoring purposes</p>

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>A10</sub> (15 min) (dBA)	CoG Goal L <sub>A10</sub> (15 min) (dBA)	Average L <sub>AMAX</sub> (15 min) (dBA)	CoG Goal L <sub>AMAX</sub> (15 min) (dBA)	Comments
<b>Consultation Rooms above Shops, 85 Kent Road, Woolloowin</b>								
Stucco, 2 storied Building with wooden floors	7/01/2011 1:14pm – 1:28pm	44.8	45	45.1	55	-	-	<b>Monitoring Type</b> Attended Noise Monitoring. Doors and Windows Closed <b>Noise Sources</b> Voices in the street, internal noise from the occupant moving about, birds, traffic, train, train horn and the wind in the trees <b>Discussion</b> At no time could site activities be heard. Monitoring indicates that day time CoG goals were being met <b>Mitigation Measures</b> An acoustic shed and noise wall is in place around Woolloowin Site
Stucco, 2 storied Building with wooden floors	7/01/2011 1:42pm– 1:56pm	56.4	45	57.1	55	-	-	<b>Monitoring Type</b> Attended Noise Monitoring. Doors and Windows Open <b>Noise Sources</b> Traffic, internal noise from the occupant moving about, birds, train, train horn, wind in the trees, plane and voices in the street <b>Discussion</b> At no time could site activities be heard. The main noise source was traffic (it is on a main arterial road). TJH compliant with noise goals <b>Mitigation Measures</b> An acoustic shed and noise wall is in place around Woolloowin Site
Stucco, 2 storied Building with wooden floors	7/01/2011 2:05pm– 2:19pm	50.4	45	50.5	55	-	-	<b>Monitoring Type</b> Attended Noise Monitoring. Doors and Windows Open <b>Noise Sources</b> Traffic, internal noise from occupant moving about, train, train horn, birds, a drone from the fluorescent light, wind in the trees, children's voices in the street <b>Discussion</b> At no time could site activities be heard. The main noise source was traffic (it is on a main arterial road). During this session a door slammed, this was removed from the data. More data was added to the end to compensate. TJH compliant with noise goals. <b>Mitigation Measures</b> An acoustic shed and noise wall is in place around Woolloowin Site.
Stucco, 2 storied Building with wooden floors	7/01/2011 2:26pm – 2:41pm	40.5	45	41.1	55	-	-	<b>Monitoring Type</b> Attended Noise Monitoring. Doors and Windows Open <b>Noise Sources</b> Traffic, internal noise from occupant moving about, train, train horn, birds, a drone from the fluorescent light, wind in the trees, children's voices in the street, siren, horn and dog barking

Location	Monitoring Period	Average L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	Average L <sub>A10</sub> (15 min) (dBA)	CoG Goal L <sub>A10</sub> (15 min) (dBA)	Average L <sub>AMAX</sub> (15 min) (dBA)	CoG Goal L <sub>AMAX</sub> (15 min) (dBA)	Comments
								<p><b>Discussion</b> At no time could site activities be heard. The main noise source was traffic (it is on a main arterial road). During this session a door slammed, this was removed from the data. More data was added to the end to compensate. TJH compliant with noise goals</p> <p><b>Mitigation Measures</b> An acoustic shed and noise wall is in place around Woollowin Site</p>

**Table 3e: Night Shift Noise Monitoring Results – Toombul**

Location	Monitoring Period	L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	L <sub>Amax</sub> (15 min) (dBA)	CoG Goal L <sub>Amax</sub> (15 min) (dBA)	Comments
<b>68 Widdop Street, Clayfield</b>						
Double storey brick, Bedroom	20/12/2010 21:03pm – 21:17pm	56.87	40	67.3	50	<p><b>Monitoring Type</b> Internal attended monitoring, windows and doors open</p> <p><b>Noise Sources</b> TJH noise sources (excavator) plus non-TJH sources (traffic, wildlife, planes.</p> <p><b>Discussion</b> Monitoring indicates that CoG goals are being exceeded. Noise exceedance was due combination of both TJH (special circumstance works along EWA) and non-TJH source (Traffic flow on Widdop St and East-West Arterial). Noise sources could not be isolated</p> <p><b>Mitigation Measures</b> TJH will supplement the electrical costs for running the stakeholders a/c</p>
Double storey brick, Bedroom	20/12/2010 21:20pm – 21:34 pm	43.67	40	56.0	50	<p><b>Monitoring Type</b> Internal attended monitoring, windows and doors closed.</p> <p><b>Noise Sources</b> TJH noise sources (excavator) plus non-TJH sources (traffic, wildlife, locals)</p> <p><b>Discussion</b> Monitoring indicates that CoG goals are being exceeded. Noise exceedance was due combination of both TJH (special circumstance works along EWA) and non-TJH source (Traffic flow on Widdop St and East-West Arterial). Noise sources could not be isolated</p> <p><b>Mitigation Measures</b> This property has received air conditioning and external house cleaning</p>

Location	Monitoring Period	L <sub>Aeq</sub> (15 min) (dBA)	CoG Goal L <sub>Aeq</sub> (15 min) (dBA)	L <sub>Amax</sub> (15 min) (dBA)	CoG Goal L <sub>Amax</sub> (15 min) (dBA)	Comments
<b>54 Kalinga Street, Clayfield</b>						
Double storey timber, bedroom	10/01/2011 19:50pm – 20:04 pm	38.9	35	49.1	50	<p><b>Monitoring Type</b> Internal attended monitoring, windows and doors closed</p> <p><b>Noise Sources</b> No audible TJH noise sources were identified plus non-TJH sources (wildlife, traffic, plane, train, chimes, wind and residents)</p> <p><b>Discussion</b> Monitoring indicates that CoG goals are being exceeded</p> <p><b>Mitigation Measures</b> This property has received double glazing, air conditioning, house cleaning and blinding installation on windows</p>

### **3.3 Compliance with Noise Goals**

No exceedances of the Coordinator General's Noise Goals have been found during this monitoring period.

### **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/NO<sub>2</sub> 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 geo-fabric installation
6. Road sweepers

## 4.2 Air Quality Monitoring Results – PM10/TSP

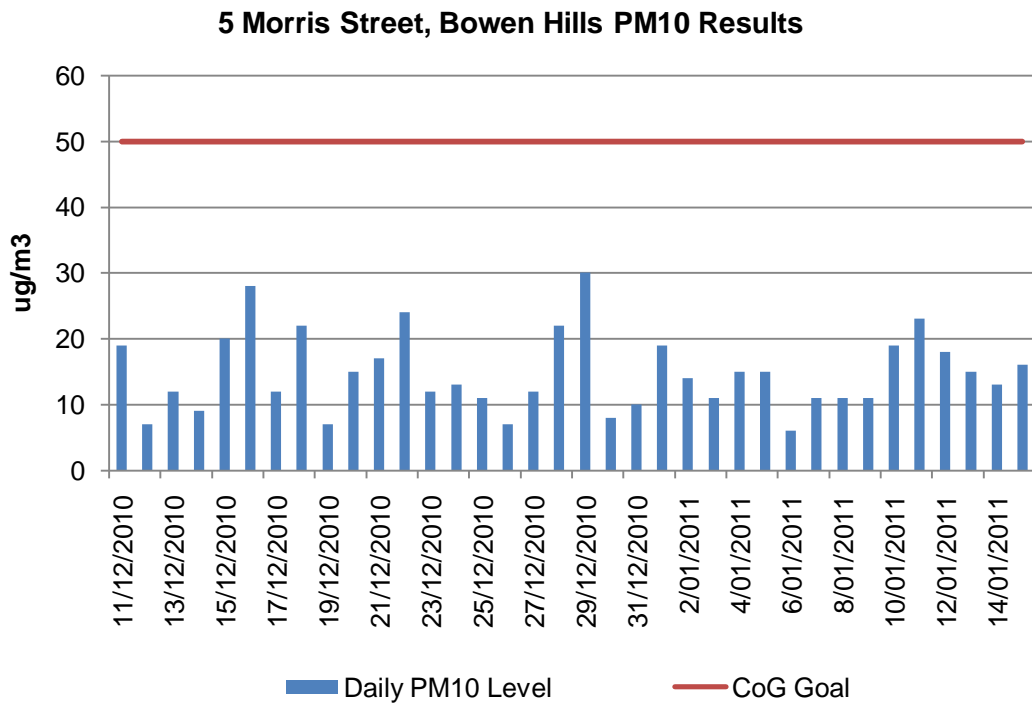


Figure 4.2.1 5 Morris Street, Bowen Hills PM10 Results (for monitor location see figure 2.1 – A1)

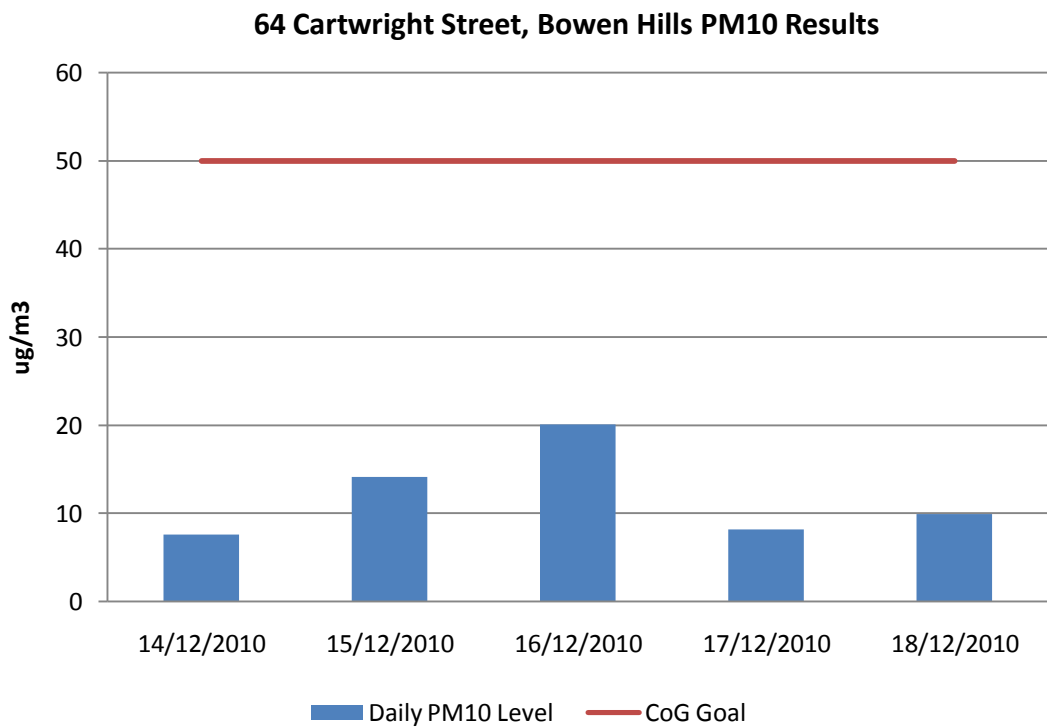


Figure 4.2.2 58 Cartwright Street, Bowen Hills PM10 Results (for monitor location see figure 2.1 – A2)

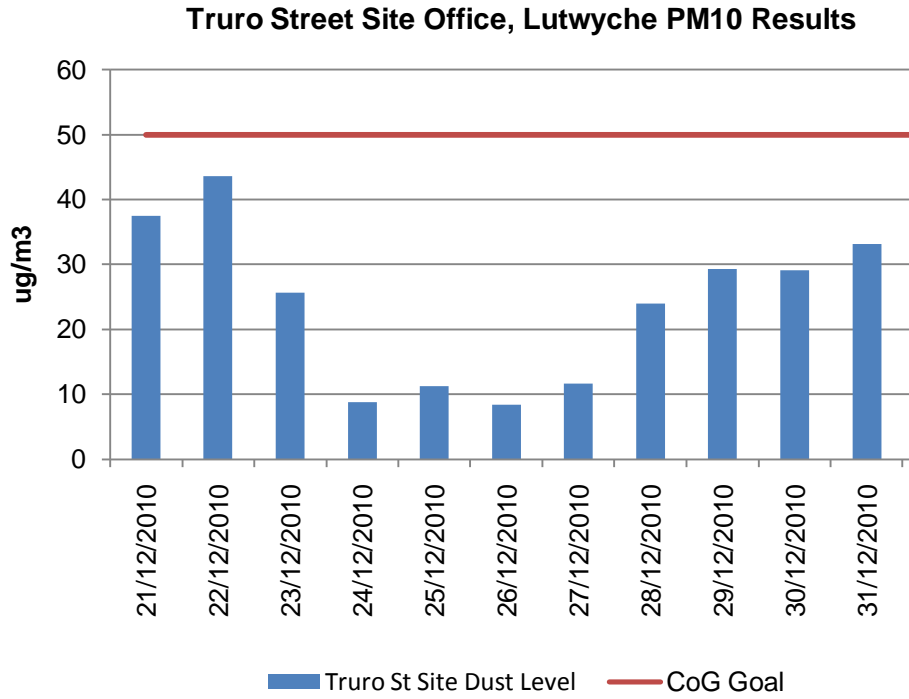


Figure 4.2.3 Truro Street Site Office, Windsor PM10 Results (for location see figure 2.2 – A1)

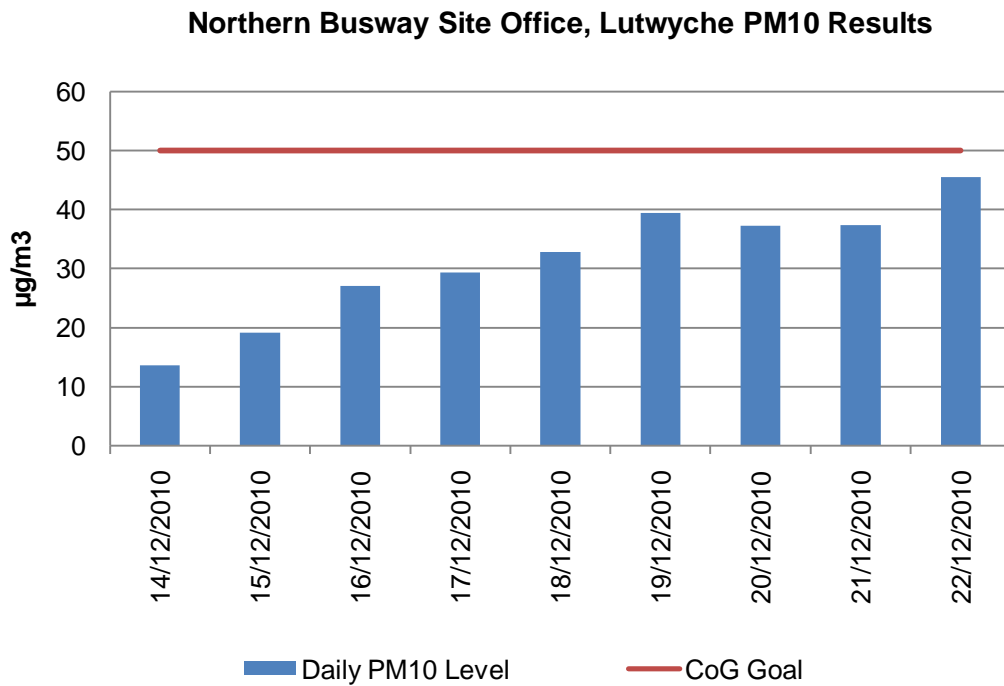


Figure 4.2.4 Northern Busway Site Office, Lutwyche PM10 Results (for location see figure 2.3 – A1)

### Erskine Avenue, Kedron PM10 Results

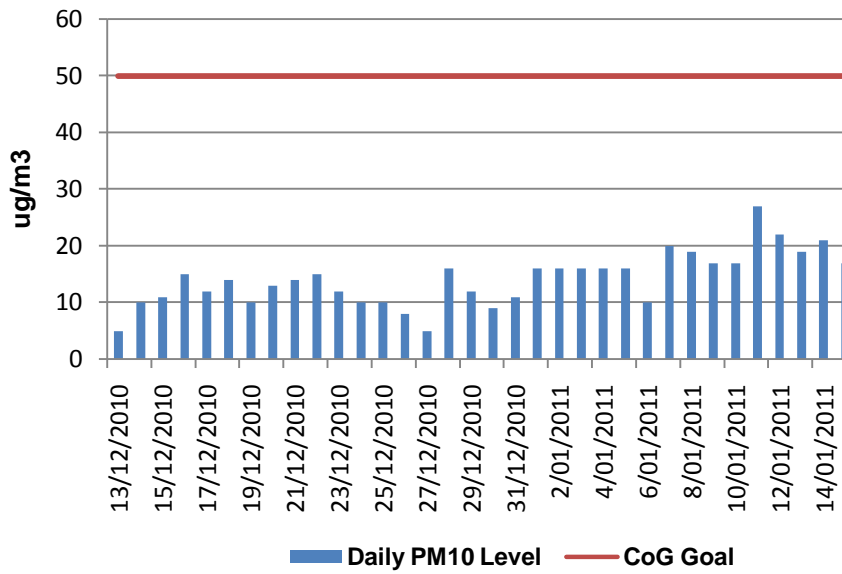


Figure 4.2.5 Erskine Avenue, Kedron PM10 Results (for monitor location see figure 2.4 – A1)

### Kedron State High School, Kedron PM10 Results

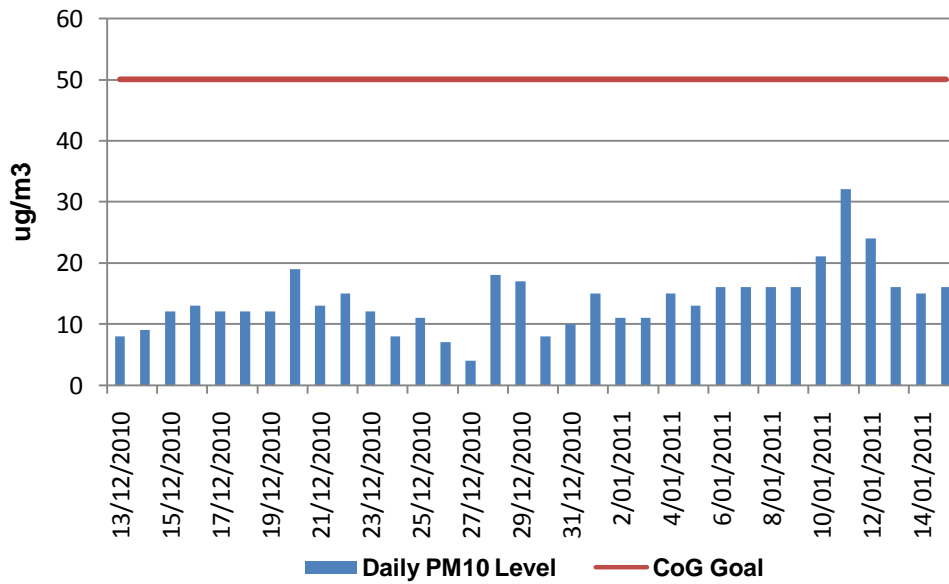


Figure 4.2.6 Kedron State High School (Adj), Kedron PM10 Results (for monitor location see figure 2.4 – A2)

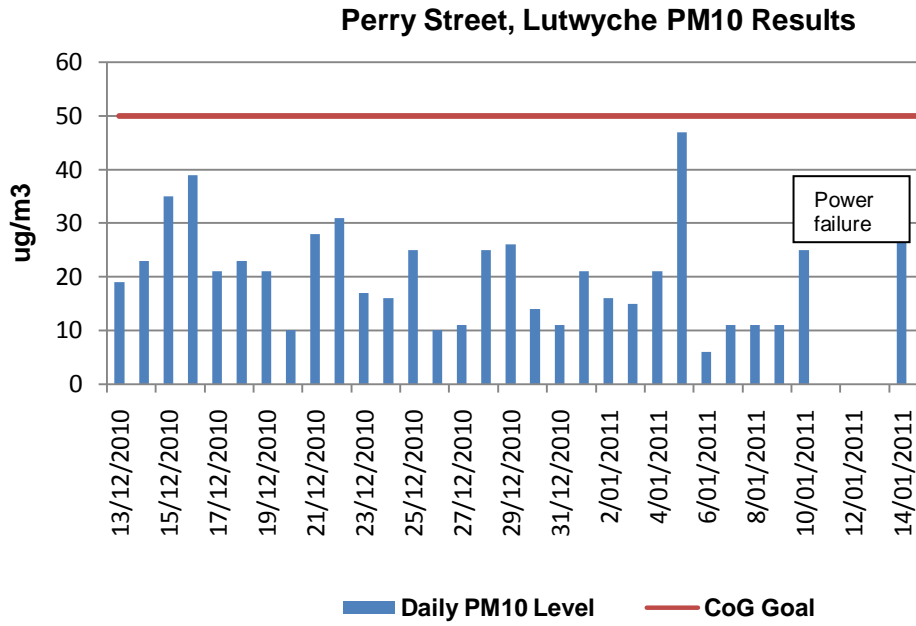


Figure 4.2.7 Perry Street, Lutwyche PM10 Results (for monitor location see figure 2.4 – A3)

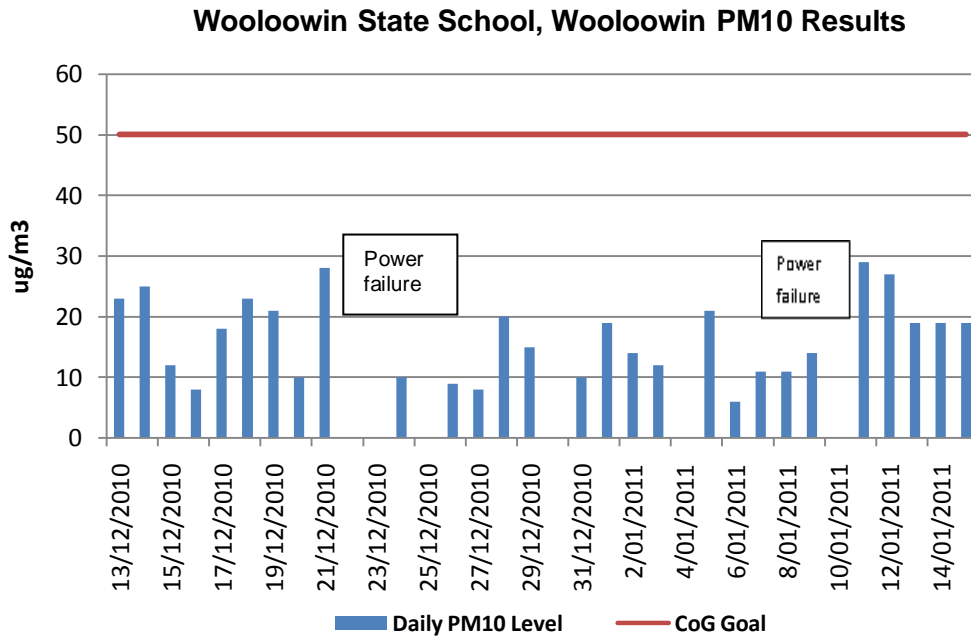


Figure 4.2.8 Woolloowin State School, Lutwyche PM10 Results (for monitor location see figure 2.4 – A4)

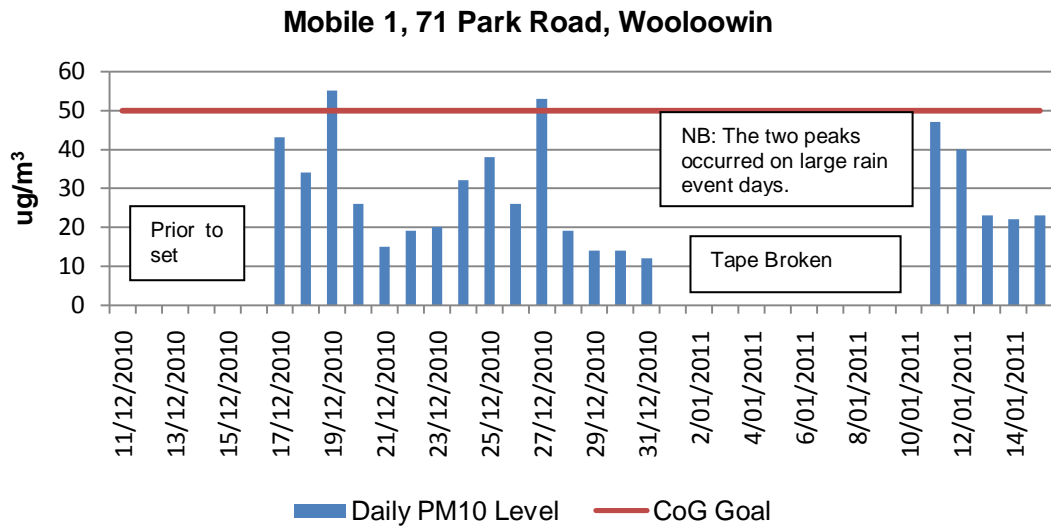


Figure 4.2.9 71 Park Road, Woolloowin PM10 Results (for monitor location see figure 2.1 – A1)

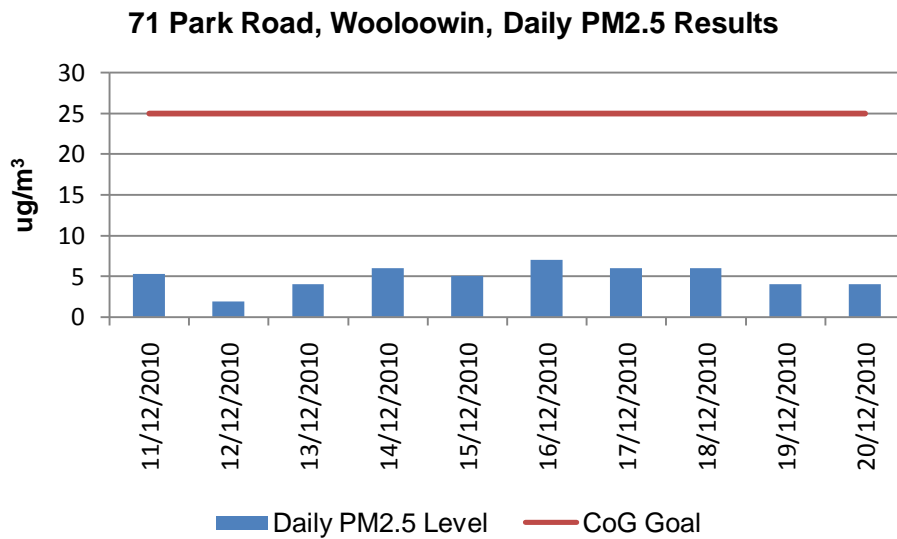


Figure 4.2.10 71 Park Road, Woolloowin PM2.5 Results (for monitor location see figure 2.1 – A1)

### 71 Park Rd, Wooloowin, Daily TSP Results

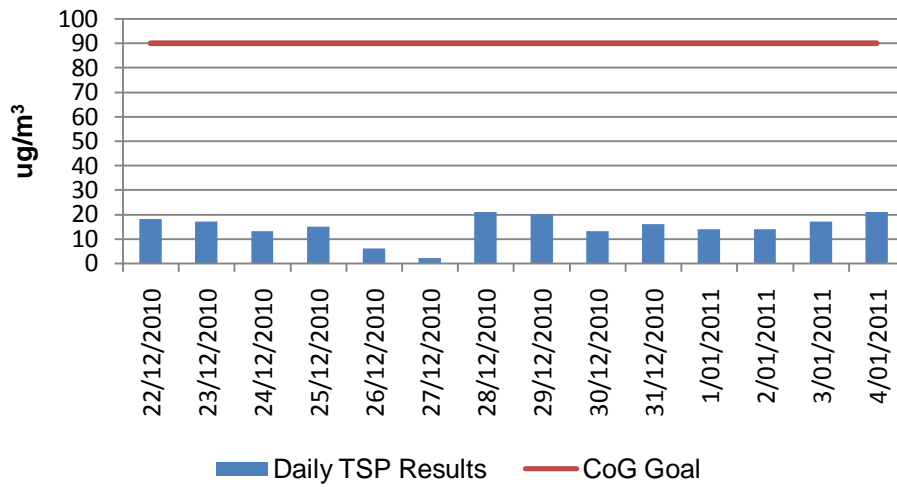


Figure 4.2.11 71 Park Road, Wooloowin TSP Results (for monitor location see figure 2.1 – A1)

### 56 Kalinga Street, Clayfield PM10 Results

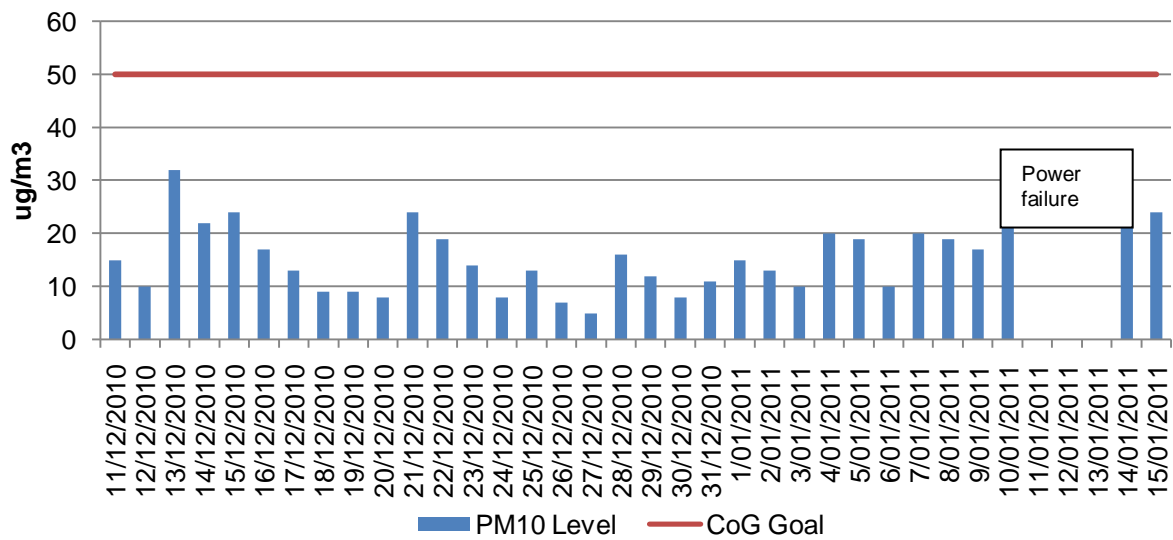


Figure 4.2.12 56 Kalinga Street, Toombul PM10 Results (for monitor location see figure 2.6 – A1)

### 4.3 Air Quality Monitoring Results – Dust Deposition Results

Dust deposition monitoring is undertaken on a monthly basis using a bottle and funnel placed  $2\text{m} \pm 0.2\text{m}$  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 Aug 2010 - Jan 2011

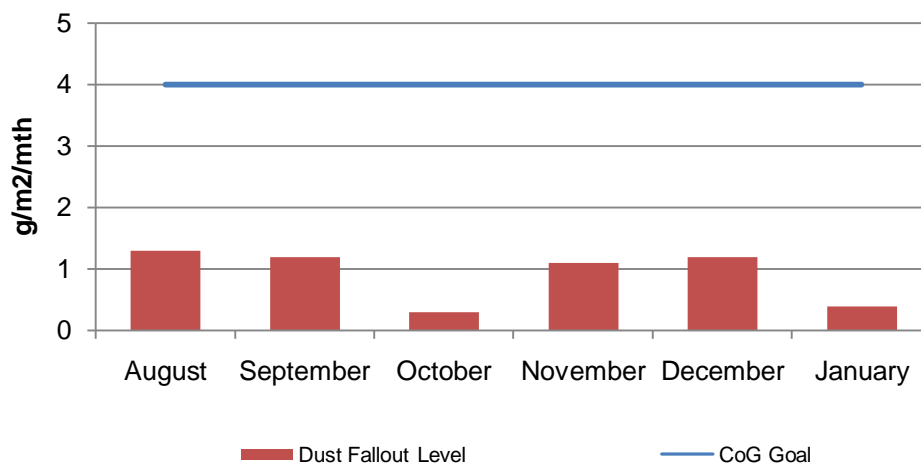


Figure 4.3.1 5 Morris Street, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1 – D1)

#### Site Office, Bowen Hills Dust Fallout Aug 2010- Jan 2011

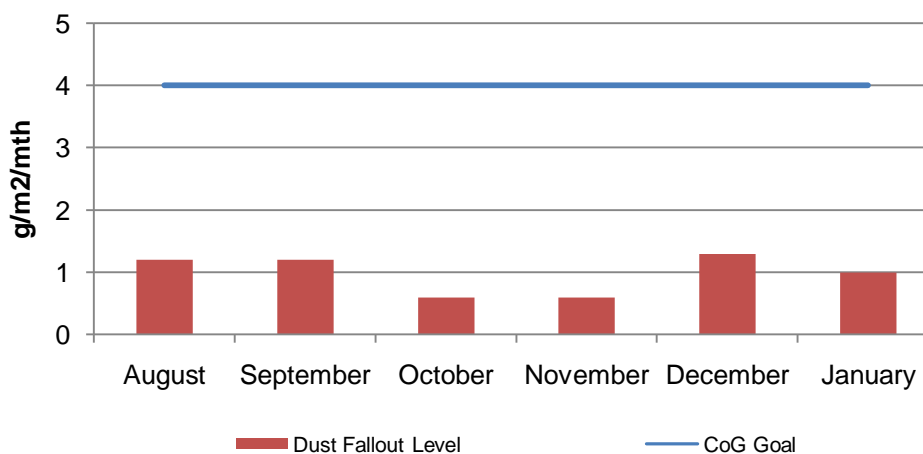


Figure 4.3.2 Site Office, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D2)

### Mews Apartments, Bowen Hills Dust Fallout Aug 2010- Jan 2011

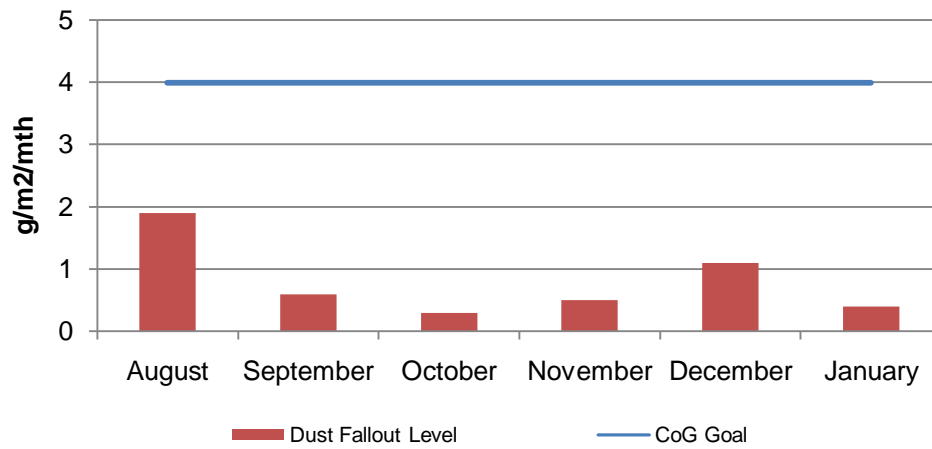


Figure 4.3.3 Mews Apartments, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D3)

### 11 Bryden Street, Bowen Hills Dust Fallout Aug 2010- Jan 2011

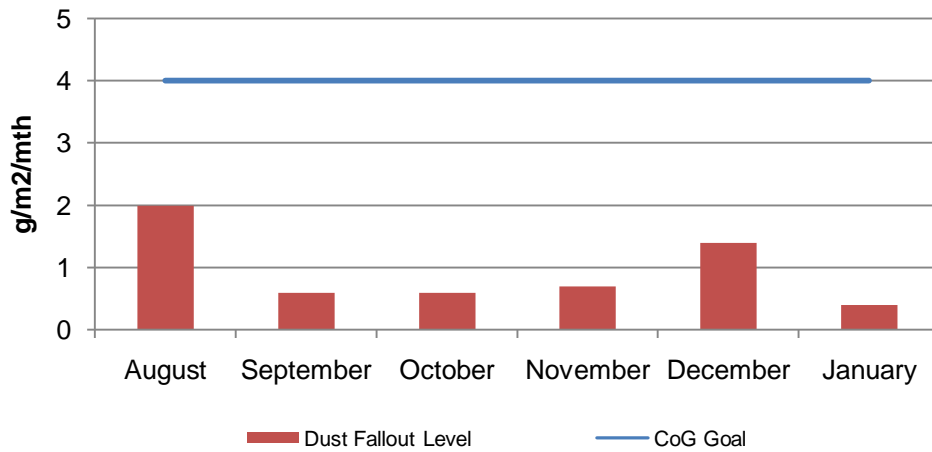


Figure 4.3.4 11 Bryden Street, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D4)

### QLD Newspapers, Bowen Hills Dust Fallout Aug 2010 - Jan 20

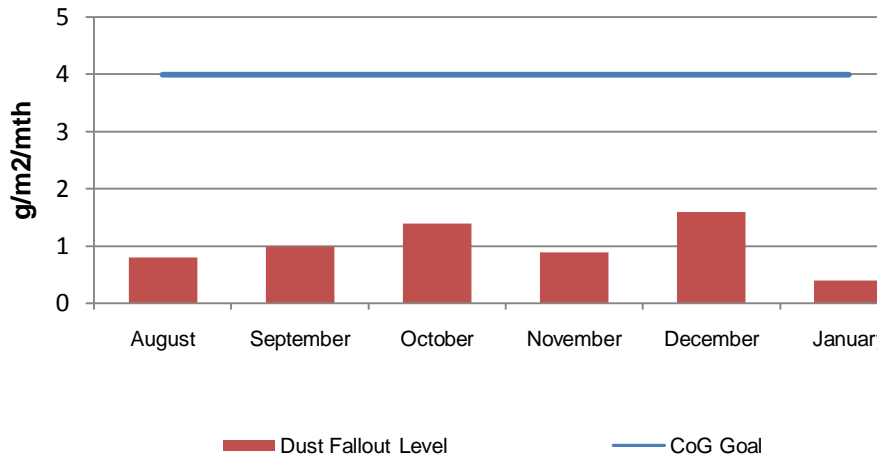


Figure 4.3.5 Queensland Newspapers, Bowen Hills Dust Deposition Results (for monitor location refer to figure 2.1- D5)

### Cnr of Thistle & Lucas Street, Lutwyche Dust Fallout Aug 2010 - Jan 2011

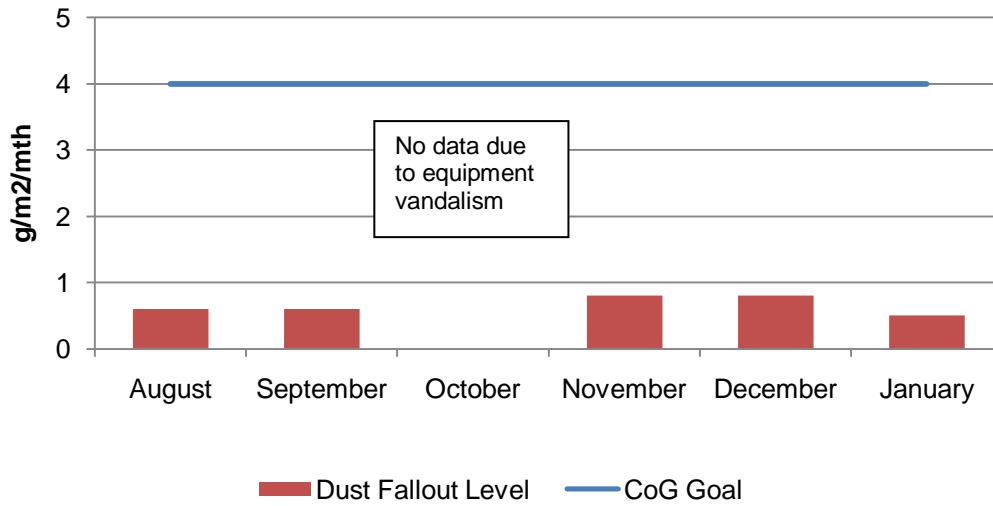


Figure 4.3.6 Cnr of Thistle & Lucas Street, Lutwyche Dust Fallout Results (location refer to figure 2.3 – D2)

### Kedron Brook Reserve, Northern Busway Dust Fallout Aug 2010- Jan 2011

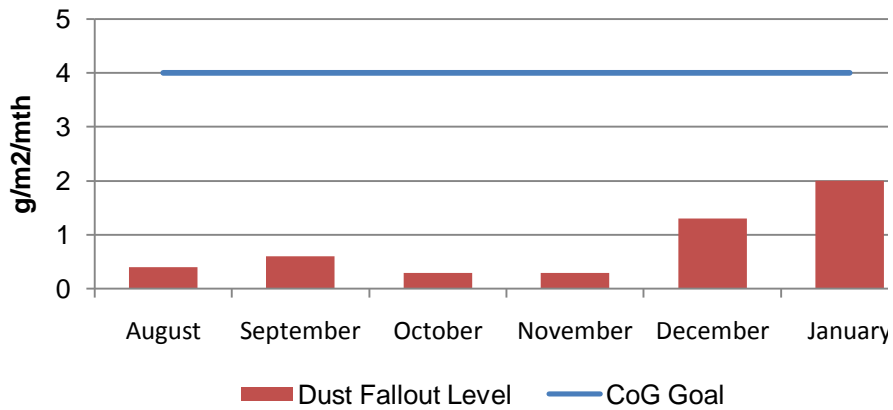


Figure 4.3.7 Kedron Brook Reserve, Northern Busway Dust Fallout Results (location refer to figure 2.3 – D1)

### 68 Park Rd, Wooloowin Dust Fallout July 2010 to December 2010

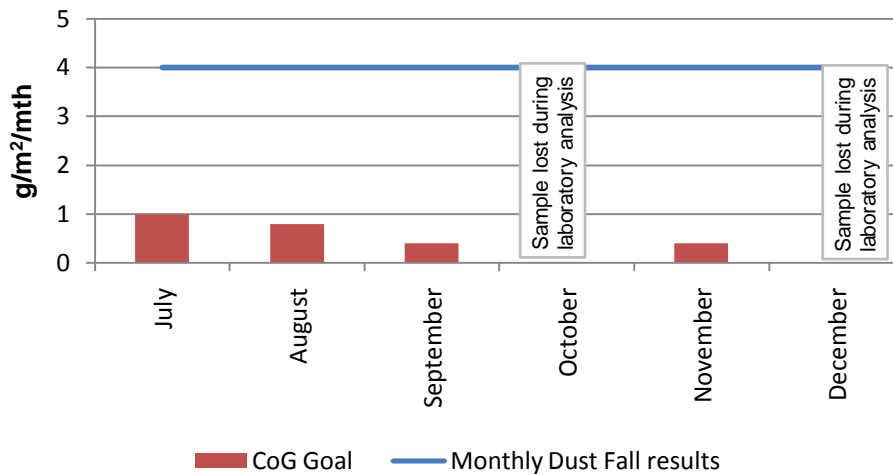


Figure 4.3.8: 68 Park Road, Wooloowin Dust Deposition Results (for monitor location refer to figure 2.1)

#### 4.4 CO/NO<sub>2</sub> Monitoring – Wooloowin Worksite

TJH undertakes regular monitoring of CO/NO<sub>2</sub> in the vicinity of the Wooloowin Worksite. Monitoring involves real-time sampling and results of monitoring are compared to Air Quality Goals nominated by the Coordinator General in the Wooloowin Worksite Modification Change Report - October 2009.

## Gas Monitoring Results



Gas Monitor at 71 Park Road, Woolloowin					
Date	Peak Date and Time	CO (mg/m <sup>3</sup> ) Peak	CoG CO Limit (mg/m <sup>3</sup> )	NO <sub>2</sub> (mg/m <sup>3</sup> ) Peak	CoG NO <sub>2</sub> Limit (mg/m <sup>3</sup> )
11/12/2010 – 15/01/2011	22:00 6/01/2011	0.45	11	-	-
	14:00 6/01/2011	-	-	50.26	250

Note:

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

For Nitrogen dioxide (NO<sub>2</sub>) a 1 hour averaging period is used

### 4.5 Compliance with Air Quality Goals

At 71 Park Road, Woolloowin, the two peaks of PM10 results occurred on 19th and 27th December 2010 on large rain event days due to high moisture content in the EBAM. There were no exceedences of the Coordinator Generals Air Quality Conditions from Airportlink construction activities during this reporting period. Dust fallout results from Kedron and Toombul areas were not available at the time of reporting, these results will be reported in the next month's monitoring report.

## 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-g

**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

**Table 5b: 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	12/12/2010-15/01/2011	0.99	2	Monitoring road header tunnelling and extraction of blasted rock. Results within goals for heritage building
Woolloowin State School, 663 Lutwyche Road	15/12/2010-15/01/2011	1.52	2	Monitoring car park construction works. Results within goals for heritage building.

**Table 5c: Blast Monitoring Results Summary - Kedron Tunnels Blasting**

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
<b>17/12/2010</b>				
Wooloowin State School, 663 Lutwyche Road	17/12/2010 20 seconds	4.95	25	Results are within adopted goals
BCC Substation 134 Kedron Park Road	17/12/2010 20 seconds	1.78	25	Results are within adopted goals
Anglican Church 671 Lutwyche Road	17/12/2010 20 seconds	2.41	25	Results are within adopted goals
Department of Emergency Services, Park Road	17/12/2010 20 seconds	4.83	25	Results are within adopted goals

**Table 5d: Blast Monitoring Results Summary - Kedron Civils Blasting**

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
<b>18/12/2010</b>				
15 Park Terrace	20 seconds	4.32	25	Results are within adopted goals
<b>20/12/2010</b>				
15 Park Terrace	20 seconds	5.21	25	Results are within adopted goals

**Table 5e: Blast Monitoring Results Summary - Wooloowin Tunnels Blasting**

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal Day time (mm/s)	Comments
<b>17/11/2010 (not previously reported)</b>				
71 Park Road	17/11/2010 20 seconds	5.97	25	Results are within adopted goals
105 Kent Road	17/11/2010 20 seconds	7.24	25	Results are within adopted goals
Kent Road (Bus Stop)	17/11/2010 20 seconds	4.44	25	Results are within adopted goals

85 Kent Road	17/11/2010 20 seconds	5.59	25	Results are within adopted goals
Woolloowin Animal Hospital 86 Kent Road	17/11/2010 20 seconds	2.29	10	Results are within adopted goals
112 Kent Road	17/11/2010 Continuous	4.19	25	Results are within adopted goals
<b>18/11/2010 (not previously reported)</b>				
71 Park Road	18/11/2010 20 seconds	2.92	25	Results are within adopted goals
Kent Road (Bus Stop)	18/11/2010 20 seconds	3.68	25	Results are within adopted goals
Woolloowin Animal Hospital 86 Kent Road	18/11/2010 20 seconds	3.17	10	Results are within adopted goals
85 Kent Road	18/11/2010 20 seconds	7.49	25	Results are within adopted goals
112 Kent Road	18/11/2010 Continuous	1.27	25	Results are within adopted goals
<b>14/12/2010</b>				
71 Park Road	14/12/2010 20 seconds	2.67	25	Results are within adopted goals
57 Park Road (Bus Stop)	14/12/2010 20 seconds	3.17	25	Results are within adopted goals
Woolloowin Animal Hospital 86 Kent Road	14/12/2010 20 seconds	4.19	10	Results are within adopted goals
<b>7/01/2011</b>				
71 Park Road	5/01/2011 20 seconds	2.03	25	Results are within adopted goals

57 Park Road (Bus Stop)	5/01/2011 20 seconds	6.48	25	Results are within adopted goals
Woolloowin Animal Hospital 86 Kent Road	5/01/2011 20 seconds	<2.00	10	Results are within adopted goals

**Table 5f: Vibration Monitoring Results Summary – Woolloowin**

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
71 Park Road, Woolloowin	13/12/2010 to 14/12/2010	2.79	5	Results are within CoG goals

### 5.3 Compliance with Vibration Goals

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

### 6.0 Community enquiries and complaints

A total of 108 community complaints were reported to the project between 16 December 2010 and 15 January 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 December 2010 to 15 January 2011		
Issues	No.	No. of stakeholders
Parking	14	14
Traffic Management	13	13
Water/Flooding	13	10
Site noise out-of-hours	12	12
Construction vehicle movements	11	10
Other	8	8
Tunnelling	5	5
Worker Behaviour	4	4
Driver Behaviour	4	4
Truck noise	4	4
PUPs service outage	4	5
Pedestrian/Cyclists	4	4
Road condition	3	2
Site noise	3	2
Property Impacts	3	3
Consultation	3	3
Site dust	2	2
Haulage	2	2

Complaints Raised: 16 December 2010 to 15 January 2011		
Issues	No.	No. of stakeholders
Mitigation	2	2
Lane closure	2	2
Other	24	24
<b>Total complaints</b>	<b>108</b>	<b>95</b>

### 6.1 Top 10 Issues Raised:

