



Monthly Environmental Monitoring Report

September 2009

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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).

The monitoring data covered in this report is for the September 2009 reporting period, from 15 August to 15 September 2009.

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 September 2009, though do serve a useful purpose in relating the monitoring locations to existing structures and infrastructure.

Figure 1: Bowen Hills



Legend

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

Note – these locations are indicative only

Figure 2: Truro Street



Legend

- Noise (during construction)
- Air (PM₁₀)

Note – these locations are indicative only

Figure 3: Northern Busway



Legend

- Noise (during construction)
- Air (PM₁₀)

Note – these locations are indicative only

Figure 4: Kedron



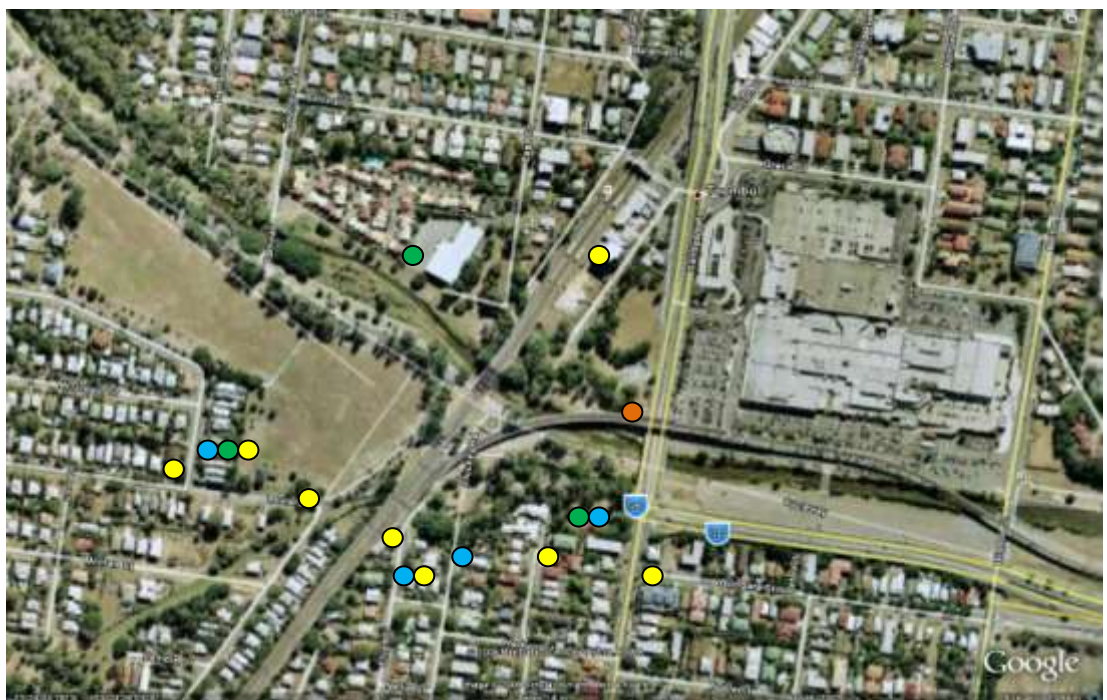
Legend

- Noise (during construction)
- Vibration

- Air (PM₁₀)
- Air (Dust Fallout)

Note – these locations are indicative only

Figure 5: Toombul



Legend

- Noise (during construction)
- Vibration

- Air (PM₁₀)
- Air (Dust Fallout)

Note – these 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). TJH has also undertaken external monitoring to better understand the pre-construction baseline and acoustic environment during works to assist TJH conduct risk assessments and nominate appropriate mitigation measures.

Monitoring involves 'attended' monitoring (where a member of the TJH environment team is observing noise sources and durations whilst noise measurements are taken) and 'unattended' monitoring (where the sound level meter with a data logger is installed and collected at a later time).

Noise monitoring priorities are mostly influenced by predictive modelling undertaken for construction activities, responses from members of the community, access to residents' properties, availability of existing knowledge of the acoustic environment, and results of impact assessments undertaken by the TJH environment team and consultants.

Results of predictive modelling and monitoring are compared to Noise Goals nominated by the Coordinator General (Change Report July 2008) for the Airport Link and Northern Busway Project.

4.0 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. Truro Street on all sides of works
 - iii. Federation Street and Morris Street (Bowen Hills)
 - iv. Lasseter Street / Arnott Street (Kedron)
 - v. Stafford Road (Kedron)
 - b. Temporary noise barrier (shipping container with plywood gap fillers, and extended sheet piles) installations:
 - i. Park Terrace / Lasseter St (Kedron)
 - ii. Perry Street, (Kedron)
 - iii. Formule 1 Hotel (Bowen Hills)
 - iv. Stafford Road Site (Kedron)
 - c. Acoustic shed has been built around the tunnel portal at:
 - i. Truro Street
 - ii. Bowen Hills
 - 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. Investigation of alternative plant and equipment which inherently create less sound during operation.
 - h. Acoustic shielding of various plant.
 - i. Regular awareness, training and reinforcement of work behaviours of staff, sub-contractors, spoil haulage drivers, and delivery drivers to prevent or minimise noise generation in work areas.
 - j. Use of temporary acoustic treatment (e.g. sound curtains around on-site generators and access/egress from sites).
 - k. Installation of directional reversing alarms (eg squawkers) on plant (especially those working out of normal working hours).
 - l. Planning of works to occur wherever possible to normal working hours.
 - m. Planning one-way construction access roads where possible to minimise the amount of reversing.

5.0 Noise Monitoring Results

The results of TJH monitoring efforts are summarised for each project area in Tables 1a-d.

Table 1a: Noise Monitoring Results – Bowen Hills

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
Bowen Hills						
14 Gallway St, Bowen Hills						
Living Room	24/08/09 3:39pm-3:53pm	48.1	45	48.3	55	<p>Monitoring Type Attended, windows and doors closed.</p> <p>Noise Sources Regenerated and airborne noise from Area 2 Hammering and Line Drilling, Road Heading, PUPs Trenching works in Morris St, General Construction.</p> <p>Discussion The peak source of noise was rock hammers working in the CC101 and Northern Busway excavations in Area 2, with regenerated and airborne noise evident. Airborne noise is mostly attenuated by the façade of the property, as well as the noise wall in place and will continue to decrease as the excavation progresses downwards. Regenerated noise from rock hammering and road heading is evident in this property due partly to the construction and limited depth of cover to rock.</p> <p>Mitigation Measures Noise mitigation measures presently installed includes a 5m noise barrier along the F1 property boundary, a 3.5m noise wall along Gallway Lane, and Morris St (mitigation for Area 2 Works). For excavation works in Area 2, the smallest practicable rock hammers are being utilised and work hours are limited to 9am-5pm. Discussions are ongoing regarding additional mitigation measures for this property.</p>
Living Room	24/08/09 3:54pm-4:08pm	52.1	45	52.8	55	
Living Room	28/08/09 4:01pm-4:15pm	47.7	45	49	55	
Living Room	28/08/09 4:16pm-4:30pm	48.7	45	50.6	55	
Living Room	31/08/09 9:36am-9:50am	44.6	45	45.4	55	
Living Room	31/08/09 9:51am-10:05am	48.1	45	49.7	55	
Living Room	Day: 2/09/09-11/09/09	47.4	45	45.1	55	
Front Path (External)	Day: 2/09/09-11/09/09	64.5	-	63.5	-	
Living Room	Night: 2/09/09-11/09/09	40.6	45	37.8	55	

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
35 Northey St, Windsor						
Living Room	24/08/09 2:00pm-2:14pm	46	45	46.2	55	Monitoring Type Attended, windows and doors closed. Noise Sources Road traffic noise only. Discussion Monitoring was undertaken to determine if works from structures construction at Northey St worksite was evident as nearby receivers. Very minimal construction noise was evident, the main noise impacts being from road traffic on Northey St. Mitigation Measures N/A – Exceedances not attributed to Airport Link construction works.
Living Room	24/08/09 2:15pm-2:29pm	45.9	45	46.1	55	
24 Gallway St, Bowen Hills						
Downstairs Living Room	29/08/09 4:01pm-4:15pm	36.7	45	36.9	55	Monitoring Type Attended, windows and doors closed. Noise Sources Regenerated and airborne noise from Area 2 Hammering and Line Drilling, PUPs Trenching works in Morris St, Haulage Trucks, General Construction. Discussion The monitoring on the 29/8 was undertaken with limited site works occurring. The peak source of noise during the monitoring periods from the 8/9-12/9 was short-term PUPs trenching works being undertaken in Morris St for new services, for which no noise controls can be implemented due to limited operational room and the requirement to keep Morris St open. Rock hammers working in the CC101 excavation were the next highest source of impact with regenerated and airborne noise evident. Airborne noise is partly attenuated by the noise wall in place and will continue to decrease as the excavation progresses downwards. Regenerated noise from rock hammering is more evident downstairs than upstairs due to house construction. The monitoring session was undertaken with the windows open with large influence from Lutwyche rd traffic, resident and piling. Mitigation Measures Noise mitigation presently installed includes a 3.5m noise wall along Gallway Lane, Morris St (mitigation for Area 2 Works) and Federation St (mitigation for Area 1 Works). For excavation works in Area 2, the smallest practicable
Downstairs Living Room	29/08/09 4:16pm-4:30pm	39	45	39	55	
Downstairs Front Bedroom	8/09/09 1:00pm-1:14pm	46.0	45	46.9	55	
Downstairs Front Bedroom	8/09/09 1:15pm-1:29pm	46.9	45	46.6	55	
Upstairs Front Study	10/09/09 10:25am-10:39am	49.6	45	49.5	55	
Upstairs Front Study	10/09/09 10:40am-10:54am	47	45	46.6	55	
Upstairs Front Study	10/09/09 1:00pm-1:14pm	44.5	45	45	55	
Upstairs Front Study	10/09/09 1:15pm-1:29pm	46.1	45	47.2	55	
Upstairs Living Room	12/09/09 9:40am-9:54am	45.5	45	46.9	55	

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
Upstairs Spare Bedroom	12/09/09 9:55am-10:09am	44.3	45	46.2	55	rock hammers are being utilised and work hours are limited to 9am-5pm. Federation St will no longer be utilised for haulage when Lutwyche Rd site entrance/exit opens in late September. Discussions are ongoing regarding additional mitigation measures for this property.
Downstairs Living Room	12/09/09 10:18am-10:32am	47.6	45	44.6	55	
20 Gallway St						
Upstairs Front Bedroom	11/09/09 10:38am-10:52am	49.3	45	50.7	55	<p>Monitoring Type Attended, windows and doors closed.</p> <p>Noise Sources Regenerated and airborne noise from Area 2 hammering and line drilling, PUPs trenching works in Morris St, haulage trucks, piling, machinery, general construction, resident and Lutwyche Rd traffic (traffic lights).</p> <p>Discussion One of the peak sources of noise during the monitoring periods was short-term PUPs trenching works being undertaken in Morris St for new services, for which no noise controls can be implemented due to limited operational room and the requirement to keep Morris St open. Rock hammers working in the CC101 excavation were the next highest source of impact with regenerated and airborne noise evident. Airborne noise is partly attenuated by the noise wall in place and will continue to decrease as the excavation progresses downwards.</p> <p>Mitigation Measures Noise mitigation presently installed includes a 3.5m noise wall along Gallway Lane, Morris St (mitigation for Area 2 Works) and Federation St (mitigation for Area 1 Works). For excavation works in Area 2, the smallest practicable rock hammers are being utilised and work hours are limited to 9am-5pm. Federation St will no longer be utilised for haulage when Lutwyche Rd site entrance/exit opens in late September. Discussions are ongoing regarding additional mitigation measures for this property.</p>
Upstairs Front Bedroom	11/09/09 10:53am-11:07am	50.2	45	51.7	55	
Upstairs Front Bedroom	11/09/09 11:15am-11:29am	47.8	45	49.2	55	
Upstairs Front Bedroom	11/09/09 11:30am-11:44am	48.8	45	50.5	55	
11 Bryden St						
Ground Level Bedroom	14/09/09	43.1	45	44.1	55	<p>Monitoring Type Attended, windows and doors closed.</p> <p>Noise Sources Road traffic noise and rock hammering in Area 2.</p> <p>Discussion Monitoring was undertaken in response to complaint from resident regarding</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
Ground Level Bedroom	14/09/09	42.1	45	44.3	55	tunnelling noise. No tunnelling noise was evident during this monitoring period (roadheaders were working at this time. Main noise source was Lutwyche Rd traffic, though rock hammering noise is evident. Mitigation Measures Noise mitigation measures presently installed includes a 5m noise barrier along the F1 property boundary, a 3.5m noise wall along Gallway Lane, and Morris St (mitigation for Area 2 Works). For excavation works in Area 2, the smallest practicable rock hammers are being utilised and work hours are limited to 9am-5pm.

Table 1b: Noise Monitoring Results – Northern Busway

1. 1.1.2 1.1.3

Location	Monitoring Period	Average L _{Aeq} (dBA)	CoG Goal L _{Aeq} (15 min) (dBA)	Average L _{A10} (dBA)	CoG Goal L _{A10} (15 min) (dBA)	Comments
Unit 2 49 Lamington Avenue, Lutwyche 1.1.4 1.1.5 1.1.6 1.1.7						
First storey unit on site boundary.	24/08/2009 4:13pm-4:28pm	61.3	45	62.1	55	Monitoring Type Attended, Internal. Noise Source BR 25 Rotary Drilling rig was working at CC701 installing piles. Discussion Noise monitoring was conducted inside units adjacent to the working pilling rig that registered noise levels that were over the project goals set out in the CoG report. The first 15 minute period at Unit 2 49 Lamington Ave was attended monitoring and then the noise monitor was left inside the unit to log some unattended levels. Mitigation Measures This is currently a timber panel noise wall in place between the property and the works.
	24/08/2009	52.11	45	47.62	55	
	25/08/2009	48.09	45	44.18	55	
	26/08/2009	51.68	45	44.91	55	
	27/08/2009	49.66	45	42.77	55	
	28/08/2009	53.34	45	42.27	55	
Unit 3 45 Lamington Avenue, Lutwyche 1.1.8 1.1.9 1.1.10 1.1.11						
2 nd storey unit on site boundary.	26/08/2009 1.56pm-2.11pm	48.98	45	46.72	55	Monitoring Type Attended, Internal. Noise Source

						Majority of the registered noise source was from the Piling Rig working in CC701.
8 McGregor Avenue, Lutwyche						
			1.1.12	1.1.13	1.1.14	1.1.15
Living Room	28/08/2009 11.31- 11.46am	41.35	45	40.11	55	Monitoring Type Attended, Internal. Noise Source No construction noise was heard throughout monitoring period. Peaks resulted from traffic noise which was the dominant noise source throughout monitoring period. Discussion House located on side street off Lamington Ave, windows and doors closed. Located in living room.
Balcony adjacent to living room.	28/08/2009 11.31- 11.46am	53.92	45	53.11	55	Monitoring Type Attended External Noise Source High readings result from traffic noise which was the dominant noise source throughout monitoring period
Unit 5 133 Chalk Street, Lutwyche						
			1.1.16	1.1.17	1.1.18	1.1.19
Second storey unit adjacent to site boundary in bedroom.	28/08/2009 11.27- 11.42am	44.19	45	43.37	55	Monitoring Type Attended, Internal. Windows and doors closed. Noise Source Traffic noise was dominant. Discussion Readings close to baseline due to traffic noise which was the dominant noise source throughout monitoring period.
Balcony, adjacent to bedroom.	28/08/2009 11.27- 11.42am	61.21	45	62.14	55	Monitoring Type Attended, external. Noise Source Traffic noise Discussion High readings result from traffic noise which was the dominant noise source throughout monitoring period
Unit 4 49 Lamington Ave, Lutwyche						
			1.1.20	1.1.21	1.1.22	1.1.23
Second storey unit on site boundary.	01/09/2009	62.96	45	80.60	55	Monitoring Type Unattended, Internal
	02/09/2009	65.22	45	78.88	55	

	03/09/2009	63.56	45	72.41	55	<p>Noise Source Piling Rig working along fence line during monitoring period.</p> <p>Discussion An NCR was raised in regard to this exceedance. (refer to sec 3.3)</p> <p>Mitigation Measures This is currently a timber panel noise wall in place between the property and the works.</p>
Unit 1 37 Lamington Ave, Lutwyche			1.1.24	1.1.25	1.1.26	1.1.27
Ground floor unit complex adjacent to site boundary.	04/09/2009 2.05-2.20pm	44.19	45	43.37	55	<p>Monitoring Type Attended, internal. Windows and doors closed throughout period.</p> <p>Noise Source Traffic noise was dominant noise source throughout monitoring period.</p> <p>Mitigation Measures This is currently a timber panel noise wall in place between the property and the works.</p>
Unit 1 63 Lamington Ave, Lutwyche			1.1.28	1.1.29	1.1.30	1.1.31
Located on ground floor of complex. Unit complex adjacent to site boundary	8/09/2009 9.54-10.10am	43.43	45	45.66	55	<p>Monitoring Type Attended, internal.</p> <p>Noise Source Windows and doors closed throughout monitoring period. Traffic was dominant noise source throughout monitoring period.</p>
Unit 3 74 Lamington Ave, Lutwyche			1.1.32	1.1.33	1.1.34	1.1.35
Unit located on the opposite side of Lamington Ave to the site boundary. Windows and doors closed.	9/09/2009 3.08-3.23pm	33.48	45	34.39	55	<p>Monitoring Type Attended, internal.</p> <p>Discussion No construction noise was evident throughout monitoring period.</p>

Table 1c: Noise Monitoring Results – Kedron

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
19 Colton Avenue						
Dining room/Study	25/08/2009 (10:42-10:56)	56.3	45	56.3	55	Monitoring Type Attended – windows and doors open. Key noise sources: Noise Source Trucks, piling, machinery, general construction, resident and Lutwyche rd traffic (traffic lights). Discussion The monitoring session was undertaken with the windows open with large influence from Lutwyche rd traffic, resident and piling. Mitigation Measures Noise mitigation presently installed includes a 3.5m noise wall along the length of Perry St and double-storey sea containers (Perpendicular to Perry St). The noise wall installed provides mitigation from traffic and works north of the premises; however noise to the south is only partially mitigated due to the alignment of the noise wall and proximity of the house. The noise wall cannot be extended further to the south due to the final design of the busway along Perry St and phasing of works to complete the roundabout.
Dining room/Study	25/08/2009 (10:56-11:12)	55.1	45	55.2	55	
18 Colton Avenue						
Bedroom	27/08/2009 (11:17-11:31)	35.5	45	36.8	55	Monitoring Type Attended – windows and doors closed. Noise Source Piling rigs and temporary excavation works on the corner of Perry St and Colton Avenue. Discussion Noise recorded in the living area was 14dBA higher than that recorded in the bedroom. This difference recorded in the living area is largely due to
Front living area	27/08/2009 (11:36-11:50)	49.6	45	42.6	55	

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
						the temporary excavation works on the corner of Perry St and Colton Avenue. Mitigation Measures Noise mitigation presently installed includes double-storey sea containers perpendicular to Perry St, 3.5m noise wall along the length of Perry St and double glazing of resident's house, with air conditioning provided. The external noise mitigation in this instance provided minimal mitigation due to the proximity of the temporary works to the property.
29 Colton Avenue						
Bedroom	27/08/2009 (12:13-12:27)	36.7	45	36.6	55	Monitoring Type Attended – windows and doors closed. Noise sources General construction, piling and resident. Discussion The LAeq exceedance in the first monitoring session is not indicative of the audible noise recorded within the bedroom. High noise recordings for two ten second periods by coughing in close proximity to the monitor have resulted in an exceedance in noise goals. Given noise sources do not vary for both 15 minute monitoring periods, the second monitoring period is a greater representation of the audible noise within the bedroom of 29 Colton Avenue. Mitigation Measures Double glazing of residents house and air-conditioning, double-storey sea containers perpendicular to Perry St, 3.5m noise wall along the length of Perry St.
Unit 5, 11 Lasseter st						
Office	3/09/2009 (11:18-11:32)	59	45	60	55	Monitoring Type Attended – windows and doors closed. Noise sources Load and haul and piling CC210 North (Lasseter St). Mitigation Measures Previously installed noise mitigation includes double-storey sea container wall parallel with Erskine St and noise modelling. The sea container noise wall does not extend across Lasseter st due to site access, therefore providing minimal noise mitigation for piling activities. Works undertaken
Living room	3/09/2009 (11:37-11:51)	55	45	54.8	55	

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
						within the void of the noise wall are expected to finish within 7 days and mitigation for the property is currently being discussed with the stakeholder.
12 Park Tce						
Front living area	7/09/2009 (9:12-9:27)	51.4	45	53	55	Monitoring Type Attended - Windows closed. Noise Sources Sewer works Park Tce and CC210 area 2. Load and haul activities were the sole auditable noise source during the 30 minute monitoring session Discussion Due to excavations and phasing of works, load and haul activities are undertaken 20 metres from monitoring locations within an area not covered by the sheet pile wall, providing minimal mitigation for this specific activity. It should be noted that this house is not occupied. Mitigation Measures Previously installed noise mitigation includes sheet pile wall
Front living area	7/09/2009 (9:36-9:51)	53.9	45	54.2	55	

Table 1d: 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
44 Lewis Street, Toombul			1.1.36	1.1.37	1.1.38	1.1.39
Living area.	21/08/2009 8:38 – 8:57am	36.7	40	37.5	50	Monitoring Type Internal attended. Noise Sources General construction (Excavator, steel dropping, piling, carnage, D-walls, trucks being loaded) plus non-TJH sources (Trains, planes, crows, cars) Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.
	21/08/2009 10:54-11:11am	39.7	40	39.7	50	
Parkside Apartments, Bage Street, Toombul					1.1.40	1.1.41
Living Area of Unit on Lev 6	20/08/2009 9:33 – 9:48am	42.6	45	43.1	55	Monitoring Type Internal attended Noise Sources A mixture of non-TJH (road traffic - Sandgate Rd, noise from other units, train) and general construction noise (Steel banging)
	20/08/2009 2:11 – 2:26pm	41.6	45	41.9	55	
	20/08/2009 2:28 – 2:43pm	41.7	45	42.1	55	
70 Kalinga Street, Toombul					1.1.42	1.1.43
Living area	25/08/2009 8:52 – 9:06am	43.6	40	42.3	50	Monitoring Type Internal attended Noise Source A mixture of non-TJH (train, birds) and general construction (piling, loading trucks, reverse beepers). Discussion Exceedance as a result of an edge trimmer being used by a neighbour. Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is

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
						unoccupied.
Living area	25/08/2009 3:59 – 4:14pm	43.1	40	44.3	50	Monitoring Type Internal attended Noise Sources General construction (Diesel motor, piling rig, banging). Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.
Living area	8/09/2009 7:44 – 7:58am	39.4	40	40.3	50	Monitoring Type Internal attended Noise Sources A mixture of non-TJH (train, birds) and general construction (welding, banging, humming & PUP work in street outside house). Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.
Living area	8/09/2009 10:00-10:14am	36.2	40	37.4	50	Monitoring Type Internal attended Noise Sources A mixture of non-TJH (plane, train) and PUP work in street (franna, unloading a flatbed truck, reversing beepers) Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.
Living area	8/09/2009 12:10-12:24pm	47.5	40	46.3	50	Monitoring Type Internal attended Noise Sources Installation of scaffolding inside noise wall (drilling, banging, hammering) Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.

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
Living area	8/09/2009 4:00-4:14pm	42.3	40	43.4	50	Monitoring Type Internal attended Noise Sources General construction (jack hammering, humming). Mitigation Measures Include a 6m noise wall and double stack containers. The property was purchased by DMR prior to commencement of the project and is unoccupied.
79 Alma Road, Toombul						
Living area	18/08/2009 9:58 – 10:12am	53.2	45	41.2	55	Monitoring Type Internal attended Noise Sources Non-TJH sources (Resident in kitchen – unpacking dishwasher, cleaning, etc) Mitigation Measures Existing mitigation includes 6m noise wall.
Living area	18/08/2009 10:13–10:27am	49.9	45	45.2	55	Monitoring Type Internal attended Noise Sources A mixture of non-TJH (Resident cleaning, dogs barking) and general construction noise (piling) Mitigation Measures Existing mitigation includes 6m noise wall.
5 Mabel Street, Toombul						
2nd floor bedroom	2/09/2009 12:27 - 12:41am	42.0	35	58.7	45	Monitoring Type Internal attended. Window and balcony doors open. Noise Sources Banging, resident talking, resident walking around, buzzer on crane, crane, idling, fridge, drill, train Discussion Nonconforming with COG internal goals. NCR raised. Mitigation Measures Include a 6m noise wall & double stack shipping containers. Independent monitoring being scheduled. Mitigation options being discussed by resident and TJH community team.



6.0 Compliance with Noise Goals

Exceedances of the Coordinator General's Noise Goals have been found during this monitoring period at a number of locations, these include:

- Northern Busway
 - 3/49 Lamington Avenue and 2/49 Lamington Avenue
 - 5/133 Chalk St
- Bowen Hills
 - 14 Gallway St
 - 20 Gallway St
 - 24 Gallway St
 - 35 Northey St
- Kedron
 - 18 Colton Ave
 - 19 Colton Ave
 - 5/11 Lasseter St
 - 12 Park Tce
- Toombul
 - 68 Kalinga St
 - 70 Kalinga St
 - 79 Alma Rd
 - 5 Mabel St

Construction activities are attributable to some of these exceedances though noise generated by existing traffic and some other localised noise sources have also contributed. An investigation into each of these environmental non-conformances has been, or is being undertaken, the results and/or recommendations of which will be forwarded to CNI, and affected property occupier/owner where relevant. An end of month NCR will be raised to cover the above mentioned exceedances of the noise goals where they have been attributed to Airport Link Project works.

7.0 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 is also occurring at selected locations to alert TJH teams of any emerging dust exceedances and implement appropriate mitigations to prevent an exceedance of the CoG Air Quality Goals.

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

8.0 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 during the following activities:
 - i. Bulk earthworks
 - ii. Haul roads
 - iii. Car parks and hardstands
 - iv. Clearing and grubbing (Airport Roundabout)
2. Investigation of appropriate soil binders (Water and Aeolian erosion prevention techniques).
3. Covering of haul vehicles.
4. Stabilisation of cleared areas with hardstand materials such as concrete and crushed rock.
5. Hydro-mulching and laying geofab to batters.
6. Reduction of cleared / exposed soils with concrete paving and geo-fabric installation.
7. Road sweepers.
8. Design and future construction enclosed spoil handling facilities at portals.

9.0 Air Quality Monitoring Results – Respirable Dust (PM10)

The results of PM10 monitoring is shown in Tables 2a-h and their associated figures.

Table 2a: PM₁₀ Results – Bowen Hills

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
5 Morris St	15/08/09	40.5	
5 Morris St	16/08/09	35.9	
5 Morris St	17/08/09	26.7	
5 Morris St	18/08/09	26.6	
5 Morris St	19/08/09	26.6	
5 Morris St	20/08/09	28.8	
5 Morris St	21/08/09	24.3	
5 Morris St	22/08/09	25.6	
5 Morris St	23/08/09	43	
5 Morris St	24/08/09	45.4	
5 Morris St	25/08/09	40.4	
5 Morris St	26/08/09	40	
5 Morris St	27/08/09	22.6	
5 Morris St	28/08/09	60.3	Exceeds CoG Goal – Reported as NCR This exceedance was likely due to Brisbane experiencing high city-wide PM10 levels – as shown by the EPA air quality monitoring stations.
5 Morris St	29/08/09	38.3	
5 Morris St	30/08/09	24.4	
5 Morris St	31/08/09	15.6	
5 Morris St	1/08/09	22.8	
5 Morris St	2/08/09	32	
5 Morris St	3/08/09	26.7	
5 Morris St	4/08/09	21.1	
5 Morris St	5/08/09	17.8	
5 Morris St	6/09/09	19.7	
5 Morris St	7/09/09	17.2	
5 Morris St	8/09/09	19.9	
5 Morris St	9/09/09	25.7	
5 Morris St	10/09/09	19.3	
5 Morris St	11/09/09	22.9	
5 Morris St	12/09/09	21.5	

Note: AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The dust gauge is located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

PM₁₀ Daily Results - 5 Morris St, Bowen Hills

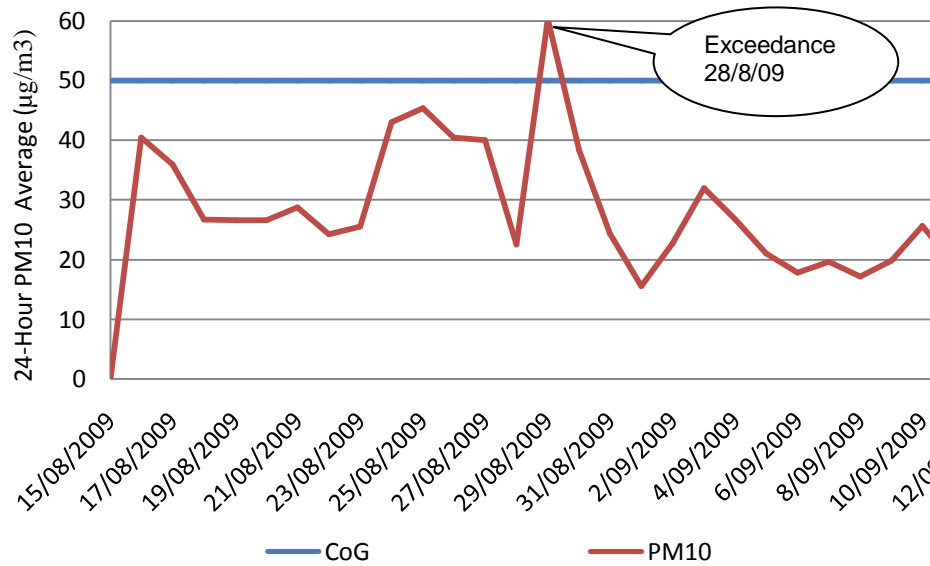


Table 2b: PM₁₀ Results – Truro Street

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
16/08/2009	29.3	50	
17/08/2009	16.6	50	
18/08/2009	19.5	50	
19/08/2009	20.9	50	
20/08/2009	24.3	50	
21/08/2009	20.9	50	
22/08/2009	21.6	50	
23/08/2009	30.1	50	
24/08/2009	32.0	50	
25/08/2009	44.0	50	
26/08/2009	29.2	50	
27/08/2009	33.1	50	
28/08/2009	49.4	50	Meets CoG Goal. High levels (including exceedances) measured at the EPA Brisbane CBD Air Quality Monitoring Station over this 24hr period.
29/08/2009	44.0	50	
30/08/2009	28.0	50	
31/08/2009	4.0	50	
01/09/2009	14.2	50	
02/09/2009	32.1	50	
03/09/2009	24.7	50	
04/09/2009	17.8	50	
05/09/2009	15.1	50	
06/09/2009	7.6	50	
07/09/2009	8.0	50	
08/09/2009	9.7	50	
09/09/2009	11.1	50	
10/09/2009	9.2	50	
11/09/2009	14.3	50	
12/09/2009	14.0	50	
13/09/2009	19.2	50	

14/09/2009	12.8	50	
15/09/2009	21.0	50	

PM₁₀ Daily Results - Truro Street

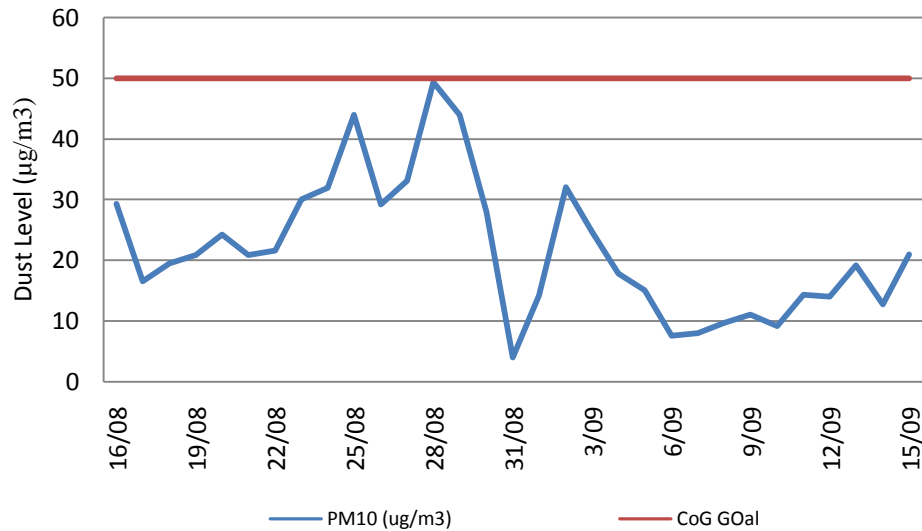
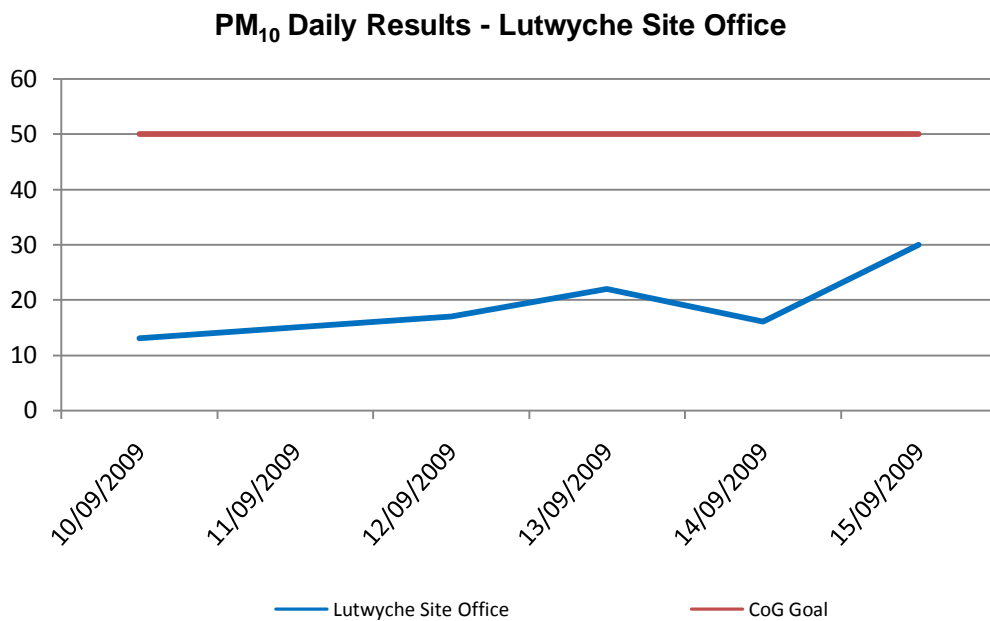
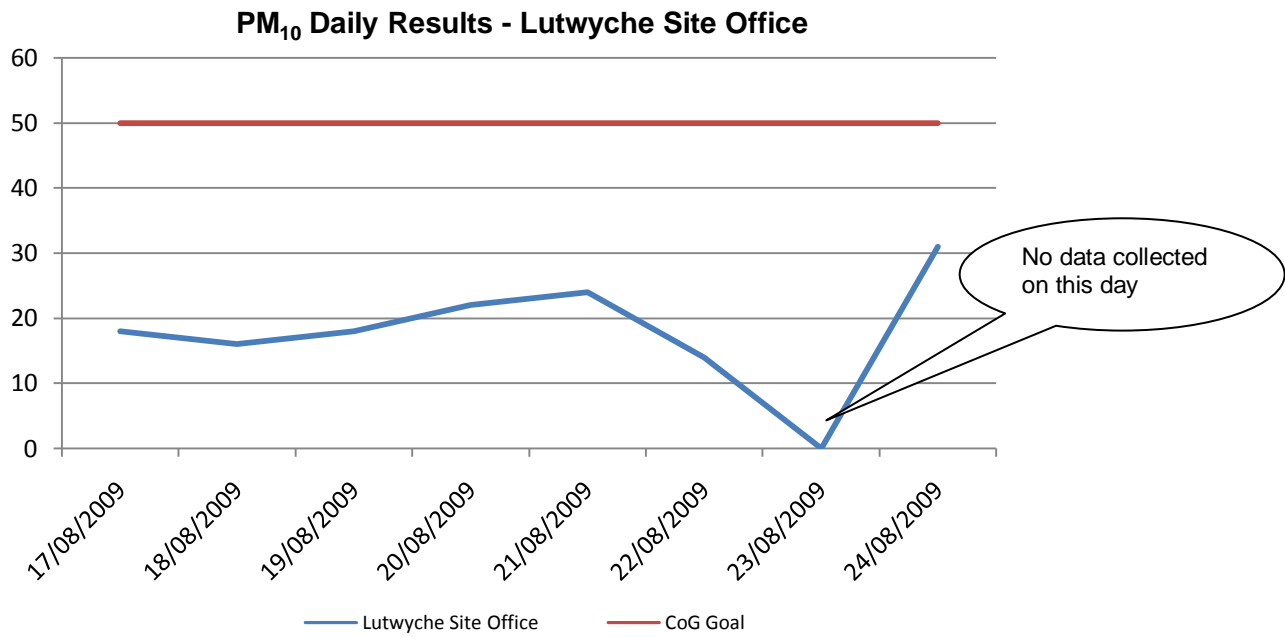


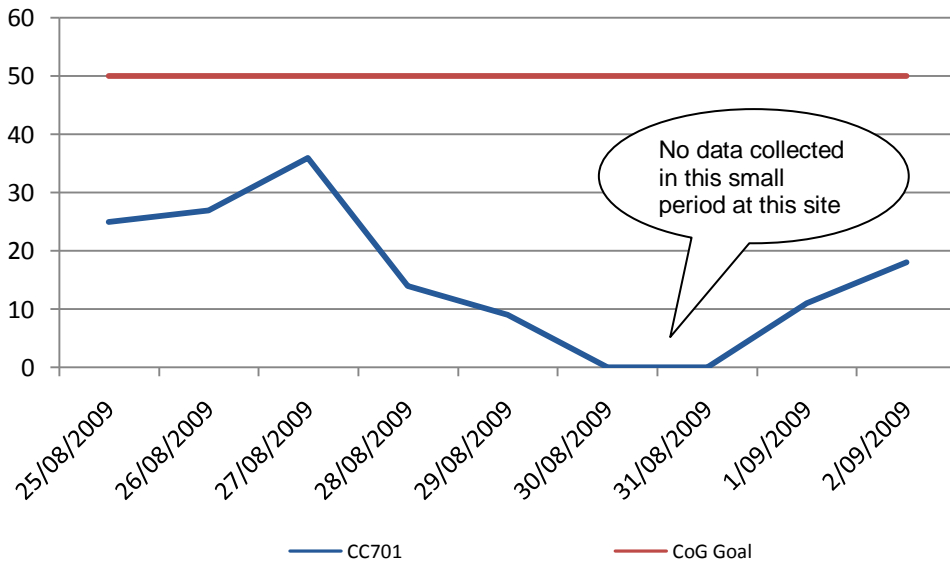
Table 2c: PM₁₀ Results – Lutwyche Site Office, CC701, Chalk St Site

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Lutwyche Site Office			
17/08/2009	18	50	DustTrak moved around Northern Busway site. Located at Lutwyche Site office 17/08/09-24/08/09 and 09/09/09- 15/09/09. No exceedances were recorded.
18/08/2009	16	50	
19/08/2009	18	50	
20/08/2009	22	50	
21/08/2009	24	50	
22/08/2009	14	50	
23/08/2009	-	50	
24/08/2009	31	50	
09/09/2009	10	50	
10/09/2009	13	50	
11/09/2009	15	50	
12/09/2009	17	50	
13/09/2009	22	50	
14/09/2009	16	50	
15/09/2009	30	50	
CC701			
25/08/2009	25	50	DustTrak moved around Northern Busway site. Located at CC701 for period 25/08/09- 2/09/09. No exceedances were recorded.
26/08/2009	27	50	
27/08/2009	36	50	
28/08/2009	14	50	
29/08/2009	9	50	
30/08/2009	-	50	
31/08/2009	-	50	
01/09/2009	11	50	
02/09/2009	18	50	
Chalk Street Site			
03/09/2009	23	50	DustTrak moved around Northern Busway site. Located at Chalk Street site for period 03/09/09- 09/09/09. No exceedances were recorded.
04/09/2009	17	50	
05/09/2009	11	50	
06/09/2009	16	50	
07/09/2009	-	50	

08/09/2009	-	50
09/09/2009	10	50



PM₁₀ Daily Results - CC701



PM₁₀ Daily Results - Chalk Street Site

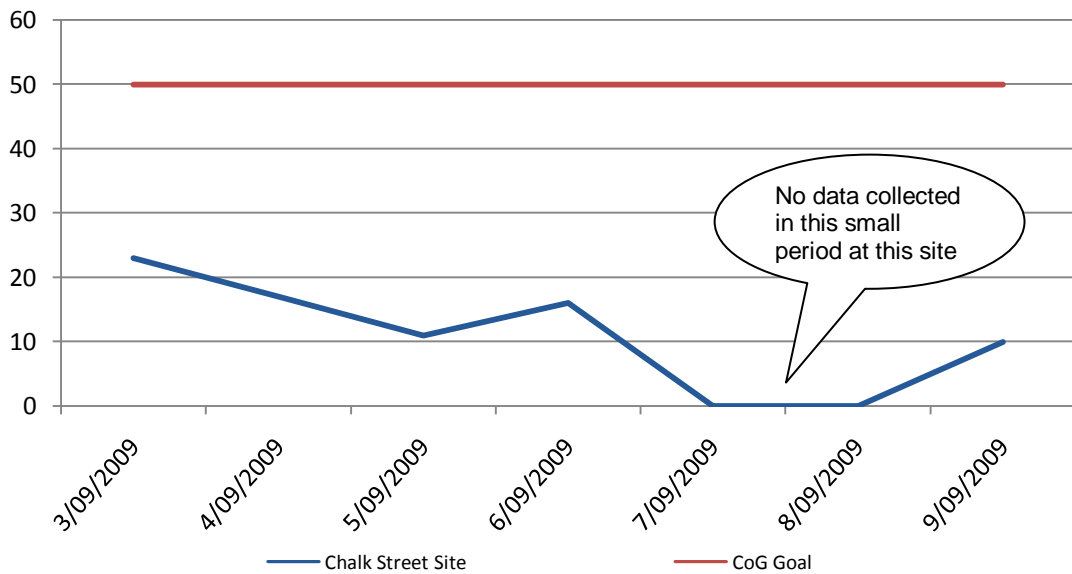


Table 2d: PM₁₀ Results – 20 Erskine Street, Kedron

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Sun 16/08/2009	37.9	50	
Mon 17/08/2009	29.2	50	
Tue 18/08/2009	21.5	50	
Wed 19/08/2009	20.5	50	
Thu 20/08/2009	22.6	50	
Fri 21/08/2009	23.9	50	
Sat 22/08/2009	22.7	50	
Sun 23/08/2009	48.5	50	
Mon 24/08/2009	52.1	50	Exceedance – NCR Raised
Tue 25/08/2009	32.4	50	
Wed 26/08/2009	35.2	50	
Thu 27/08/2009	47.4	50	
Fri 28/08/2009	51.2	50	Exceedance – NCR Raised. This exceedance was likely due to Brisbane experiencing high city-wide PM10 levels – as shown by the EPA air quality monitoring stations.
Sat 29/08/2009	36.2	50	
Sun 30/08/2009	15.4	50	
Mon 31/08/2009	8.2	50	
Tue 1/09/2009	16.9	50	
Wed 2/09/2009	33.9	50	
Thu 3/09/2009	24.5	50	
Fri 4/09/2009	15.4	50	
Sat 5/09/2009	10.2	50	
Sun 6/09/2009	17.2	50	
Mon 7/09/2009	15.1	50	
Tue 8/09/2009	16.7	50	
Wed 9/09/2009	12.5	50	
Thu 10/09/2009	13	50	
Fri 11/09/2009	19.1	50	
Sat 12/09/2009	17.7	50	
Sun 13/09/2009	25.6	50	
Mon 14/09/2009	20.6	50	
Tue 15/09/2009	30.3	50	

PM₁₀ Daily Results - Erskine Ave

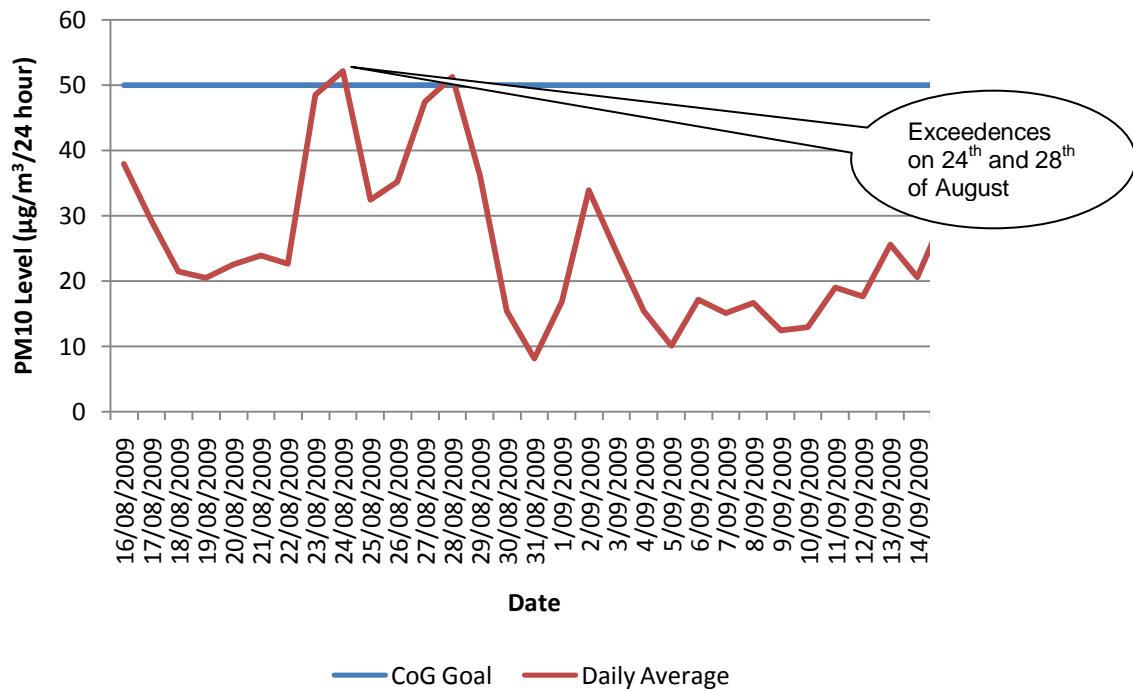


Table 2e: PM₁₀ Results – Kedron State High School Oval

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Sun 16/08/2009	40	50	
Mon 17/08/2009	27.7	50	
Tue 18/08/2009	13.3	50	
Wed 19/08/2009	9.6	50	
Thu 20/08/2009	13.7	50	
Fri 21/08/2009	17.9	50	
Sat 22/08/2009	9.3	50	
Sun 23/08/2009	36.2	50	
Mon 24/08/2009	46.2	50	High readings across Brisbane /SEQ recorded on this day.
Tue 25/08/2009	19.9	50	
Wed 26/08/2009	18.2	50	
Thu 27/08/2009	22.9	50	
Fri 28/08/2009	34.9	50	
Sat 29/08/2009	23.3	50	
Sun 30/08/2009	7.9	50	
Mon 31/08/2009	7.9	50	
Tue 1/09/2009	9.3	50	
Wed 2/09/2009	23.6	50	
Thu 3/09/2009	14.3	50	
Fri 4/09/2009	-	50	Equipment maintenance – data incomplete
Sat 5/09/2009	6.3	50	
Sun 6/09/2009	7.9	50	
Mon 7/09/2009	7.1	50	
Tue 8/09/2009	7.4	50	

Wed 9/09/2009	8.7	50	
Thu 10/09/2009	18.5	50	
Fri 11/09/2009	8.5	50	
Sat 12/09/2009	8.2	50	
Sun 13/09/2009	14.6	50	
Mon 14/09/2009	19.6	50	
Tue 15/09/2009	26.4	50	

Note: AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The dust gauge is located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

PM₁₀ Daily Results - Kedron State High School Oval

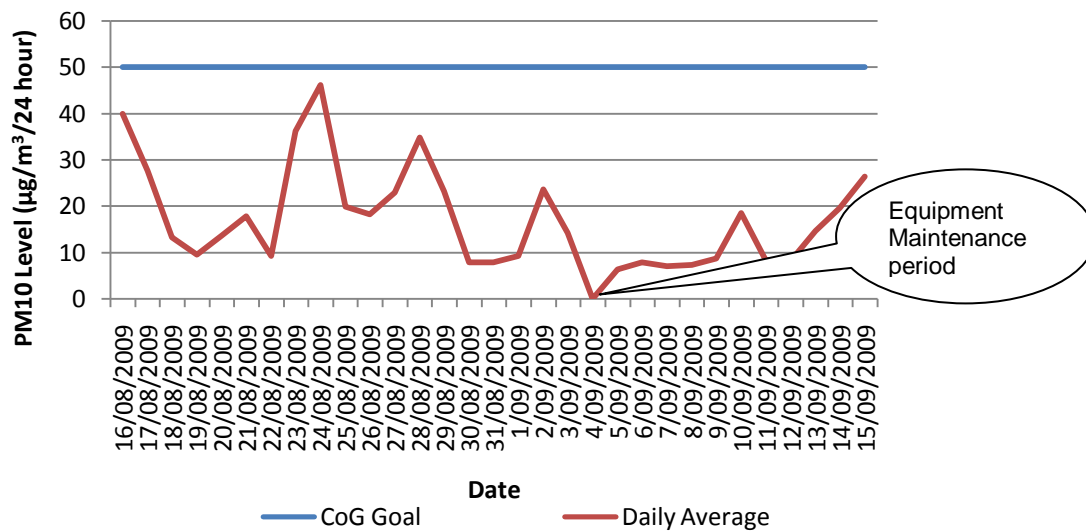


Table 2f: PM₁₀ Results – Woolloowin State School, Front Office

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Sun 16/08/2009	16	50	
Mon 17/08/2009	16.7	50	
Tue 18/08/2009	17.1	50	
Wed 19/08/2009	16.7	50	
Thu 20/08/2009	17.1	50	
Fri 21/08/2009	17.3	50	
Sat 22/08/2009	17	50	
Sun 23/08/2009	19.3	50	
Mon 24/08/2009	20.5	50	
Tue 25/08/2009	20.7	50	
Wed 26/08/2009	19.4	50	
Thu 27/08/2009	20.1	50	
Fri 28/08/2009	20.9	50	
Sat 29/08/2009	19	50	
Sun 30/08/2009	17.7	50	

Mon 31/08/2009	16.5	50	
Tue 1/09/2009	17.6	50	
Wed 2/09/2009	18.4	50	
Thu 3/09/2009	17.7	50	
Fri 4/09/2009	17.4	50	
Sat 5/09/2009	16.3	50	
Sun 6/09/2009	17.3	50	
Mon 7/09/2009	17.5	50	
Tue 8/09/2009	17.4	50	
Wed 9/09/2009	17.7	50	
Thu 10/09/2009	18.9	50	
Fri 11/09/2009	18.5	50	
Sat 12/09/2009	18.2	50	
Sun 13/09/2009	17.6	50	
Mon 14/09/2009	17.9	50	
Tue 15/09/2009	18.5	50	

Note: AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The dust gauge is located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

PM₁₀ Daily Results - Wooloowin School

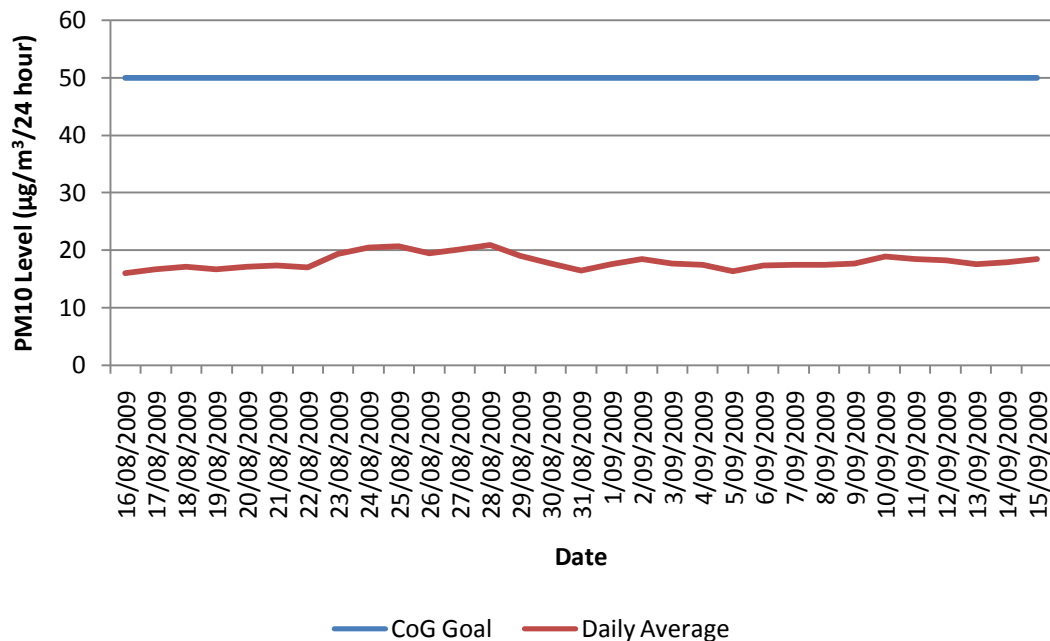


Table 2g: PM₁₀ Results – 8 Perry St

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Sun 16/08/2009	28.7	50	
Mon 17/08/2009	-	50	Equipment maintenance – data incomplete
Tue 18/08/2009	-	50	Equipment maintenance – data incomplete
Wed 19/08/2009	-	50	Equipment maintenance – data incomplete
Thu 20/08/2009	24.3	50	
Fri 21/08/2009	29.1	50	
Sat 22/08/2009	25.3	50	
Sun 23/08/2009	38.5	50	
Mon 24/08/2009	45.9	50	
Tue 25/08/2009	29.8	50	
Wed 26/08/2009	30.0	50	
Thu 27/08/2009	54.8	50	Exceedance – NCR Raised
Fri 28/08/2009	50.0	50	Exceedance – NCR Raised
Sat 29/08/2009	35.4	50	
Sun 30/08/2009	10.5	50	
Mon 31/08/2009	10.0	50	
Tue 1/09/2009	19.9	50	
Wed 2/09/2009	37.7	50	
Thu 3/09/2009	28.7	50	

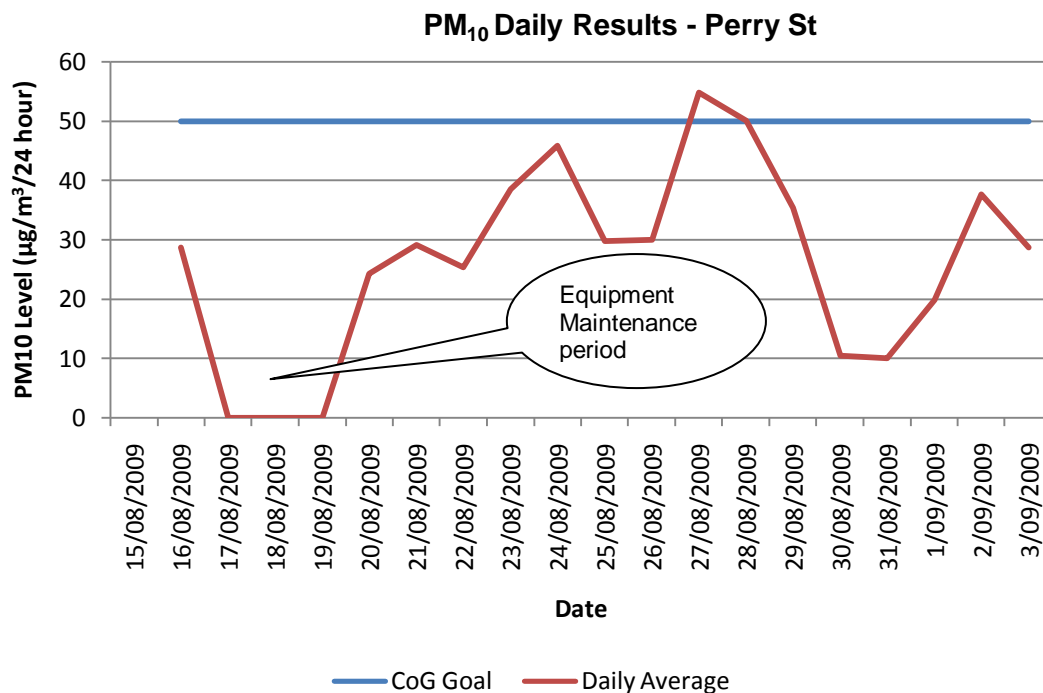


Table 2h: PM₁₀ Results 5th Avenue, Goulburn St

Location	Monitoring Period	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
68 5 th Avenue	2/09/2009-3/09/2009 (12:31-12:31)	19.8	50	
68 5 th Avenue	3/09/2009 - 4/09/2009 (12:31-12:31)	11.1	50	
36 Goulburn st	14/09/2009-15/09/2009 (15:46-15:36)	17.4	50	

36 Goulburn st	15/09/2009-16/09/2009 (15:46-15:36)	13.1	50	
36 Goulburn st	16/09/2009-17/09/2009 (15:46-15:16)	8.2	50	

Note: AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The dust gauge is located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

Table 2i: PM₁₀ Results – Kalinga St, Toombul

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Sunday 16/08/2009	27.4	50	
Monday 17/08/2009	19.2	50	
Tuesday 18/08/2009	15.7	50	
Wednesday 19/08/2009	11.7	50	
Thursday 20/08/2009	12.9	50	
Friday 21/08/2009	13.6	50	
Saturday 22/08/2009	14.2	50	
Sunday 23/08/2009	39.5	50	
Monday 24/08/2009	64.3	50	Exceedance. Hourly values recorded exceedances between 7:43 and 10:43am. Cause identified as service relocations directly adjacent to air quality monitor. NCR Raised.
Tuesday 25/08/2009	21.7	50	
Wednesday 26/08/2009	24.4	50	
Thursday 27/08/2009	40.6	50	Meets Goal. High levels (including exceedances) measured at the EPA Brisbane CBD Air Quality Monitoring Station over this 24hr period.
Friday 28/08/2009	33.5	50	Meets Goal. EPA Brisbane CBD Air Quality Monitoring Station recorded an exceedance for this 24hr period.
Saturday 29/08/2009	23.5	50	
Sunday 30/08/2009	7.1	50	
Monday 31/08/2009	3.1	50	
Tuesday 1/09/2009	16.0	50	
Wednesday 2/09/2009	26.9	50	
Thursday 3/09/2009	11.2	50	
Friday 4/09/2009		50	Unit not operational – unit required shifting due to change in noise wall location.
Saturday 5/09/2009		50	
Sunday 6/09/2009		50	
Monday 7/09/2009		50	
Tuesday 8/09/2009		50	
Wednesday 9/09/2009		50	
Thursday 10/09/2009		50	
Friday 11/09/2009		50	
Saturday 12/09/2009		50	
Sunday 13/09/2009		50	
Monday 14/09/2009		50	
Tuesday 15/09/2009		50	

Note: AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The dust gauge is located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

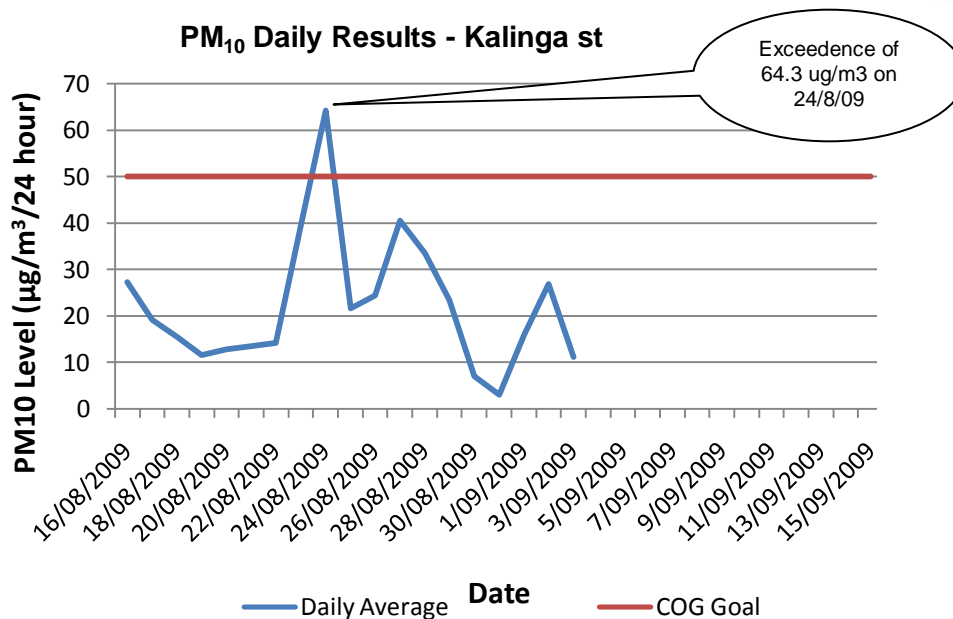


Table 2j: PM₁₀ Results for Alma Rd (Kalinga Park), 5 Mabel St, 1/77 Stuckey Road, Toombul

Monitoring Period (midnight-midnight)	Daily PM ₁₀ (µg/m ³ /day)	CoG PM ₁₀ Goal (µg/m ³ /day)	Comments
Alma Road (Kalinga Park), Toombul			
Sunday 16/08/2009	17.9	50	
Friday 21/08/2009	12.7	50	
Saturday 5/09/2009	2.6	50	
5 Mabel St, Toombul			
Wednesday 26/08/2009	25.6	50	
Tuesday 1/09/2009	11.6	50	
Wednesday 2/09/2009	18.5	50	
1/77 Stuckey Road, Toombul			
Tuesday 8/09/2009	6.9	50	
Wednesday 9/09/2009	5.9	50	
Thursday 10/09/2009	7.7	50	
Friday 11/09/2009	10.1	50	
Saturday 12/09/2009	10.4	50	
Sunday 13/09/2009	11.8	50	

10.0 Air Quality Monitoring Results – Dust Deposition

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 and at locations nominated by the Coordinator General.

Table 3a: Dust Deposition Results – Bowen Hills

Location and Monitoring Period (midnight-midnight)	Dust Fallout (g/m ² /mth)	CoG Dust Fallout Goal (g/m ² /mth)	Comments
5 Morris St 07-08-09 – 07-09-09	3.6	4	Complies with CoG goal.
Bowen Hills Site Office 07-08-09 – 07-09-09	2.6	4	Complies with CoG goal
100 Campbell St 22-08-09 – 07-09-09	5.3*	4	Exceedance (NCR Raised)

Note: - All samples assessed at a NATA accredited laboratory.

- AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The 5 Morris St and 100 Campbell St dust gauges are located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

Table 3b: Dust Deposition Results – Kedron

Location and Monitoring Period (midnight-midnight)	Dust Fallout (g/m ² /mth)	CoG Dust Fallout Goal (g/m ² /mth)	Comments
Wooloowin State School 10/08/09 - 10/09/09	1.6	4	Complies with Goals
Kedron DES Site 10/08/09 - 10/09/09	2	4	Complies with Goals
Erskine St, Kedron 10/08/09 - 10/09/09	2.2	4	Complies with Goals
Perry st, Kedron 9/08/2009-10/08/2009	5	4	Exceedance (NCR Raised)

Note: - All samples assessed at a NATA accredited laboratory.

- AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. The Wooloowin, Perry and DES dust gauges are located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

Table 3c: Dust Deposition Results – Toombul

Location and Monitoring Period (midnight-midnight)	Dust Fallout (g/m ² /mth)	CoG Dust Fallout Goal (g/m ² /mth)	Comments
68 Kalinga St 22/07/09 – 21/08/09	2	4	Complies with Goals.
Alma Rd 22/07/09 – 21/08/09	2.3	4	Complies with Goals.
Toombul Indoor Sports Complex – Bage Street 22/07/09 – 21/08/09	0.8	4	Complies with Goals.

Note: - All samples assessed at a NATA accredited laboratory.

- AS 3580.10.1: 2003 requires a statement to be included with results when all of the siting recommendations are not able to be satisfied. All dust gauges are located such that a 120 degree skyward field is partially obscured by a building or treeline. Full satisfaction of AS recommendations is not possible to satisfy gauge security and access provisions.

11.0 Compliance with Air Quality Goals

The following exceedances of CoG air quality goals were recorded this month:

Bowen Hills:

Dustfall Limits: Campbell St – The dust fallout gauge recorded a level of 5.3g/m²/m against the goal of 4g/m²/m. This Dust Deposition Gauge is adjacent to the NSBT worksite and main gate. While TJH haulage trucks use Campbell St, it is expected that the NSBT worksite was the main source of dust in this instance. Investigation into this exceedance is ongoing.

PM10 Levels: 5 Morris St - On the 28/08/09 the air quality monitor recorded a 24hr average PM10 level of 60.3ug/m³, this is above the CoG goal of 50ug/m³. This exceedance was likely due to Brisbane experiencing high city-wide PM10 levels – as shown by the EPA air quality monitoring stations (CBD level: 60.4ug/m³, South Brisbane 66ug/m³ during the same 24-hour monitoring period).

Kedron:

Dustfall Limits: Perry St - The dust fallout gauge recorded a level of 5g/m²/m against the goal of 4g/m²/m. Initial investigations have found that the gauge is placed within a residents premises which has an unsealed driveway frequently used to store a number of vehicles throughout the day. TJH is further investigating the exceedance and implementing dust mitigation measures.

PM10 Levels:

Erskine Ave – On the 24/8/09 and 28/8/09 the air quality monitor recorded a 24hr average PM10 levels of 52.1ug/m³ and 51.2ug/m³ respectively.

Perry St – On the 27/8/09 and 28/8/09 the air quality monitor recorded 24hr average PM10 levels of 52.1ug/m³ and 51.2ug/m³ respectively.

Initial investigations indicate that dust levels in the wider Brisbane area were elevated, hence having influence on the hourly averages recorded at the Erskine St and Perry St monitors on the 24/08/2009, 27/08/2009 and 28/08/2009.

Toombul:

PM10 Levels:

Kalinga St – On the 24/8/09 the air quality monitor recorded a 24hr average PM10 level of 64.3ug/m³. This exceedance is attributed to utility service works directly adjacent to the monitor where a 1 hour average at 8:43am in the morning registered 731.6ug/m³ which has skewed the data.

NCRs have been raised against the exceedances identified above and forwarded to CNI and CoG.

12.0 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 nominated by the Coordinator General (Change Report October 2008) for the Airport Link and Northern Busway projects.

13.0 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 and checking the robustness of the predictive modelling.
5. Consideration when purchasing or hiring equipment that will meet the GoG goals.

14.0 Vibration Monitoring Results

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

Table 5a: Vibration Monitoring Results Summary – Toombul

Location	Monitoring Period	Event Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
At base of first Airtrain Pillar West of Sandgate Road.	15/08/2009 8:12 – 8:36am	0.286	5	Monitoring vibration impacts from driven piling operations.
At base of first Airtrain Pillar West of Sandgate Road.	20/08/2009 10:34 – 10:52am	1.700	5	Monitoring vibration impacts from driven piling operations.
At base of first Airtrain Pillar West of Sandgate Road.	22/08/2009 10:58- 11:15am	0.905	5	Monitoring vibration impacts from driven piling operations.
At base of first Airtrain Pillar West of Sandgate Road.	24/08/2009 11:09 – 11:27am	0.587	5	Monitoring vibration impacts from driven piling operations.

Table 5b: Vibration Monitoring Results Summary – Bowen Hills

Location	Monitoring Period	Peak Particle Velocity (mm/s)	CoG Vibration Goal (mm/s)	Comments
Skilmorlie (16 Bryden St)	15/08/09 – 15/09/09	0.1	5	Monitoring for vibration from rock hammering.
Fernfield (11 Bryden St)	15/08/09 – 15/09/09	0.35	5	Monitoring for vibration from rock hammering.
14 Gallway St	15/08/09 – 15/09/09	1.37	5	Monitoring for vibration from rock hammering.
28 Federation St	15/08/09 – 15/09/09	2.08	5	Monitoring for vibration from rock hammering.

15.0 Compliance with Vibration Goals

The monthly averages shown in Table 4 do not identify any exceedances with Vibration Goals.

16.0 Community Enquiries and Complaints

Below is a summary of community complaints reported to the project between 15 August and 15 September 2009. For further details on the reporting and management of community enquiries and complaints, please refer to the '**Community Enquiries and Complaints**' page of the project website.

In the past month issues raised included:

Complaints Raised: 15 Aug 2009 - 15 Sep 2009		
Category	No.	No. of stakeholders
Site noise	68	35
Site dust	47	36
Site out-of-hours	39	28
PUPs noise	33	28
PUPs out-of-hours	33	29
Traffic Management	24	17
Parking	17	15
Haulage	13	11
Site vibration	11	9
General Construction	10	9
PUPs reinstatement	9	9
Driver Behaviour	6	5
Piling noise	6	6
Worker Behaviour	5	5
Site lighting	5	4
Property Impacts	5	5
PUPs dust	5	5
PUPs worker behaviour	5	5
Roadheader noise	4	3
Building Damage	3	3
Water/Flooding	3	2
Piling vibration	3	3

Complaints Raised: 15 Aug 2009 - 15 Sep 2009		
Category	No.	No. of stakeholders
Roadheader out-of-hours	3	2
Pedestrian/Cyclists	3	2
Vehicle Damage	2	2
Events Matching Search	289	174

