Integral dx
ENGINEERING LTD.

NOISE IMPACT ASSESSMENT STUDY

Development Address:
250 Parkdale Avenue
Ottawa, Ontario

City of Ottawa Building Permit: [0000000]

Client:

Richcraft Group of Companies

c/o:
Richcraft Group of Companies
2280 St. Laurent Boulevard
Ottawa, Ontario, K1G 4K1

Attention: Phil Castro MCIP, RPP

Prepared by:
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23 January 2012

NOISE IMPACT ASSESSMENT STUDY

250 Parkdale and Scott Mixed-Use Tower
250 Parkdale Avenue
Ottawa, Ontario

City of Ottawa Building Permit: [0000000]

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EXECUTIVE SUMMARY

In accordance with the Ontario Ministry of the Environment Noise and Land-Use Planning Guidelines, this report and associated study present an assessment of the environmental noise impacting on the property identified as 250 Parkdale and Scott Mixed-Use Tower, located at 250 Parkdale Avenue in Ottawa, Ontario. This development proposal is made by Richcraft Group of Companies.

Outdoor and indoor noise levels are predicted and compared with requirements of the Environmental Noise Control Guidelines (ENCG) published by the City of Ottawa.

With respect to the residential intention of the development, the predictions indicate that in order to meet indoor noise level requirements, building construction must be designed and executed to meet indoor noise level requirements, windows need to remain closed and therefore air conditioning should be provided for each unit. This also requires that Notices-on-Title be incorporated into all Agreements of Lease or Purchase and Sale, and incorporated into the Development Agreements which are registered on the property title.

The predictions also indicate that the outdoor amenity area (rooftop terrace) will be exposed to noise in excess of the requirements, however no practical measures exist to mitigate this noise. Deletion of the rooftop terrace is not recommended, nor required.

The results indicate that the noise emissions for the site will, with respect to background levels of noise, comply with City of Ottawa Environmental Noise Control Guidelines and therefore, do not constrain the proposed property development.

1.0 INTRODUCTION / BACKGROUND INFORMATION

In accordance with the Ontario Ministry of the Environment Noise and Land-Use Planning Guidelines, this report provides a detailed study of the environmental noise impact upon the development proposed by Richcraft Group of Companies and located at 250 Parkdale Avenue in Ottawa, Ontario.

The proposed development is a mixed-use tower, with residential units on part of the second floor and all floors above. Two options are being considered: in one option, the tower would total 187 units and 28 storeys, with six levels of underground parking and a rooftop terrace above floor 24. The second option includes a total of 155 units and 24 storeys, with five levels of underground parking, and a rooftop terrace located above floor 20.

In accordance with City and Provincial guidelines, the predicted impact of ambient noise emanating from significant sources of road and rail traffic forms part of this study.

Noise levels are predicted at several locations on the building facades, as well as at the proposed rooftop terrace.

Site plans are provided in Appendix C, with the assessment locations marked.

1.1 REFERENCES

This study is based on information presented in the following drawings:

- Richcraft – 250 Parkdale and Scott.pdf

Reference is made to the following documents:

1) Ontario Ministry of the Environment (MoE) publication LU-131: Noise Assessment Criteria in Land Use Planning including its accompanying Annex and supporting documents, dated October, 1997;

2) Ontario Ministry of the Environment (MoE) publication NPC-205 dated October 1995;

3) City of Ottawa Environmental Noise Control Guidelines adopted 10 May 2006 (ENCG)

4) Ontario Ministry of the Environment (MoE) modelling tool

STAMSON, version 5.02

5) A report prepared by Gradient Microclimate Engineering Inc., entitled “Air Quality, Noise , and Vibration Impact Study – City of Ottawa: Environmental Assessment Downtown Ottawa Transit Tunnel”, and dated 28 May, 2011. The report can be viewed from the following web address:

   www.ottawalightrail.ca/media/pdf/Appendix%20E_8MB.pdf

1.2 PURPOSE

The purpose of this report is to demonstrate that this project can be developed in a manner that meets all applicable requirements regarding environmental noise.

1.3 SCOPE

This Noise Impact Assessment presents a detailed study of the issues, as defined by the ENCG and Provincial Guidelines. It is concluded that an assessment of noise transmission via the windows is required to confirm that the requirements for indoor noise will be met.

The scope of this report is limited to the issues described above, and makes no claim as to the validity of the noise level criteria or their ability to satisfy the expectations of all persons.

2.0 SOUND LEVEL CRITERIA

This property is categorized as Class 1, with an acoustical environment typical of an urban area, and the land use is classified as “noise sensitive” (ref. LU-131).

Sound level criteria from the ENCG, which also replicate those found in the MoE guideline, are reproduced following.

Table 1: Sound Level Criteria for Outdoor Living Areas

Time Period	L_{eq}(16) dBA
16 hour, 07:00-23:00	55

Table 2: Indoor Sound Level Criteria: Road

Type of Space	Road L_{eq} dBA
Living/Dining areas of Residences (Time Period: 16 hour, 07:00-23:00)	45
Sleeping Quarters (Time Period: 8 hours, 23:00-07:00)	40

The outdoor criteria apply only to outdoor spaces that are more than 4 metres deep and therefore do not apply to the balconies proposed for this development.

Noise levels are therefore only assessed from the perspective of the bedroom windows (the façade of the building or plane of a window) and the rooftop terrace described on the Site Plan (see Appendix C).

Indoor noise level criteria are provided by the guidelines for living and sleeping areas, with the requirement that building components must be designed and selected to ensure that the indoor criteria are met. Extracts from the ENCG follow.

Table 3: Road and Rail Noise: Building Component Requirements (Daytime) (07:00-23:00)

Noise Source	L_{eq} (16 hours) dBA
Road	Less than or equal to 65 dBA: OBC Greater than 65 dBA: Building components must be designed to ensure indoor criteria are met
Rail	Less than or equal to 60 dBA: OBC Greater than 60 dBA: Building components must be designed to ensure indoor criteria are met

Table 4: Road Noise: Building Component Requirements (Night-time) (23:00-07:00)

Noise Source	L_{eq} (8 hours) dBA
Road	Less than or equal to 60 dBA: OBC Greater than 60 dBA: Building components must be designed to ensure indoor criteria are met
Rail	Less than or equal to 55 dBA: OBC Greater than 55 dBA: Building components must be designed to ensure indoor criteria are met

3.0 PREDICTION OF NOISE LEVELS – TRAFFIC NOISE

3.1 ROAD TRAFFIC INFORMATION

The ENCG referenced above (Table 1.7, page 15) has been used to divide the reported daily traffic volume data (AADT) into vehicle categories and by time-of-day. All input data is repeated in the results, discussed below, and attached as Appendix A. For ease of reference, the traffic data are summarized in the following table.

Table 5: Table of Traffic Flow Data

Source	AADT	Daytime/ Night-time	Cars	Medium Trucks	Heavy Trucks
Parkdale Avenue	15000	13800/1200	12144/1056	966/84	690/60
Scott Street	35000	32200/2800	28336/2464	2254/196	1610/140

Traffic flow was presumed to be at the centre of the roadways, as is normal practice.

The speed limit on each roadway is 50 km/h.

3.2 BUS TRAFFIC INFORMATION

As part of the City of Ottawa's Bus Rapid Transit (BRT) network, the Transitway runs in a deep trench parallel to and just North of Scott Street near the site. The impact of the Transitway is considered as part of this study.

Data from the OC Transpo website was used to determine the number of buses that use the Transitway on a typical weekday. The total number of buses travelling in both directions of routes 93, 94, 95, 96, 97 and 98 was 1252 during daytime hours (07h00-23h00) and 173 during night-time hours (23h00-07h00). The volumes used for the predictions were 2000 buses during the day and 320 buses per night, to ensure a worst-case with an allowance for increased volumes in the future.

3.3 RAIL TRAFFIC INFORMATION

The City of Ottawa is currently planning to convert the existing Transitway (currently part of the Bus Rapid Transit or BRT network) into an electric Light Rail Transit (LRT) line near the site. Because the proposed LRT line will be located within 250 metres of the site, an analysis of its noise impact is included here.

In order to assess noise levels due to the new LRT line, reference is made to an environmental impact study prepared by Gradient Microclimate Engineering (GME). The study involved assessing noise, vibration, and air quality impacts of the proposed LRT line at multiple points of reception along the Transitway.

To determine the noise impact, the GME study used the following inputs. This input data was replicated and used to assess the impact at the proposed development on Parkdale Avenue.

Table 6: Table of Rail Traffic Data

Source	LRT
Number of Trains **Daytime / Night-time**	540/60
Speed (km/h)	80
Locomotives per train	1
Cars per train	4
Engine type	Electric
Continuously welded track?	Yes
Whistle?	No

Rail traffic was presumed to be located at approximately the centre of the existing BRT line.

3.4 NOISE LEVEL PREDICTIONS: METHODOLOGY

Road, bus, and rail noise impact predictions were made using the MoE tool STAMSON, version 5.02. The STAMSON predictions provide the impacts of each roadway, the Transitway (BRT), and the proposed LRT line as separate sources, and also includes the level due to all three sources combined.

Because the BRT and LRT will not be running at the same time, the results were manipulated to consider the existing scenario and future scenario separately. The existing scenario combines the road and bus noise as a single level, while the

future scenario includes the road and rail noise. Per the ENCG, the road and rail noise are also assessed separately to determine building component requirements in the future scenario.

3.4.1 STAMSON Source-Receiver Distances

As noted in the ORNAMENT and STEAM technical documents used to develop the STAMSON application, these prediction methods are only accurate when the source-receiver height is small compared to the source-receiver horizontal distance. Considering the height of the tower and the short distance to all road, bus and rail sources, the STAMSON results are not valid when evaluating noise levels at the upper floors if the horizontal distance is used, because the source-receiver distance is taken as the horizontal distance only. In reality, receivers located at the upper levels will benefit from increased source-receiver distances, leading to lower noise levels.

As such, the actual source-receiver distance was used to determine the impact of Parkdale Avenue, rather than only the horizontal distance. More information and calculations are included as Appendix B.

3.4.2 Rooftop Terrace Predictions

The methodology described in section 3.4.1 above leads to a problem when considering the anticipated noise levels at the rooftop terrace. Receivers located on the rooftop terrace will benefit from acoustical shading from the noise sources below due to the building's geometry. However, the shielding calculations are skewed if the actual source-receiver distances are used in place of the horizontal distance, leading to errors in the attenuation due to the barrier effect.

For this reason, two STAMSON predictions were made for the rooftop terrace. The first used the actual source-receiver distance instead of the horizontal distance. A detailed report was generated in STAMSON, which shows the attenuation due to the distance effect. A second prediction was then made, where the horizontal source-receiver distances were used. This lead to inaccurate distance attenuation, however, the barrier attenuation results are correct.

Finally, the resulting noise level was computed by taking the reference noise level, and subtracting the distance attenuation from the first prediction, as well as the barrier attenuation from the second prediction. Calculation details are included as Appendix B.

3.5 NOISE LEVEL PREDICTIONS: CONDOMINIUMS

Predictions of daytime and night-time noise levels were made on all facades and at various heights. The results are summarized in the tables below. The Points of Assessment (PoA) are marked on the attached Site Plans (Appendix C).

Table 7: Condominium Noise Level Predictions (Daytime)

		Predicted Levels – (07h00 – 23h00) dBA L_{eq}			
PoA		Current Scenario	Future Scenario		
ID	Floor	Roads and BRT	Roads Only	LRT Only	Roads and LRT
A	2	65	65	-	65
B	2	71	70	62	71
C	3	73	72	66	73
D	3	72	71	63	72
E	3	69	68	63	69
F	24	67	66	63	68
G	24	66	65	60	66
H	24	64	63	60	65
I	28	66	65	60	67
J	25	65	65	57	66

Table 8: Condominium Noise Level Predictions (Night-time)

		Predicted Levels – (23h00 – 07h00) dBA L_{eq}			
PoA		Current Scenario	Future Scenario		
ID	Floor	Roads and BRT	Roads Only	LRT Only	Roads and LRT
A	2	58	58	-	58
B	2	63	63	55	64
C	3	66	65	59	66
D	3	64	64	56	65
E	3	62	61	56	62
F	24	61	59	57	61
G	24	59	58	54	59
H	24	57	55	54	57
I	28	59	58	53	59
J	25	58	57	51	58

The predictions were made using the MoE tool STAMSON, version 5.02, and the results are attached as Appendix A. Receptor heights are based on a nominal distance of 3 metres between levels, with points of reception located at 1.5 metres above the floor. For the predictions, it was assumed that the building totalled 28 storeys in height.

The plane-of-window noise criteria are exceeded, and so all units will require Notices-on-Title and central air conditioning so that windows can remain closed to satisfy interior noise criteria levels. Recommended wording is included in Appendix D.

3.6 INDOOR NOISE CONTROL MEASURES: CONDOMINIUMS

The indoor noise criteria in the units will *only* be met with the windows closed, which necessitates the use of central air conditioning. Sound pressure levels within the units due to the central air conditioning must not exceed 40 dBA in order to comply with the requirements of the ENCG. This applies to all units.

All construction is required to meet the requirements of the Ontario Building Code (OBC). An evaluation of noise transmission via the building envelope and in particular the windows is required to confirm that the indoor criteria will be met in particular units (Acoustic Insulation Factor or AIF Analysis). No other special measures are required.

The following table summarizes the locations where an AIF analysis is required:

Table 9: Building Component Requirements

Location		Building Component Requirement
Facade	Floors	
South	All	Per OBC
West	0-23	AIF
	24-28	Per OBC
North	All	AIF
East	0-24	AIF
	25-28	Per OBC

3.7 NOISE LEVEL PREDICTIONS: OUTDOOR AMENITY AREA

Predictions of daytime noise levels were also made at the rooftop terrace. The predictions indicate average daytime noise levels of 55 dBA L_{eq} in the existing

scenario (combined road and bus noise), and 56 $_{dBA\ Leq}$ in the future scenario (combined road and rail noise).

The outdoor criterion of 55 dBA daytime is not satisfied for the future scenario, and so Notice-on-Title is required to alert purchasers of the potential for disturbance. Recommended wording is included in Appendix D.

3.8 NOISE CONTROL MEASURES: OUTDOOR AMENITY AREA

No practical outdoor noise mitigation measures exist. The nature of the building and site mean that the resulting noise levels are inevitable. Deletion of the outdoor area is not recommended. On a practical level, the predicted 1 dBA excess is minimal.

4.0 RECOMMENDATIONS

The following noise control measures are recommended for all units:

- Central air conditioning
- Notices-on-Title respecting noise (attached as Appendix D)

Additionally, an evaluation of the noise isolation performance of the building envelope and in particular the windows will be required to confirm that the requirements for indoor noise will be met.

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Approved by:
Gregory E. Clunis, P.Eng.

23 January 2012

Attachments:

- Appendix A: Stamson 5.02 outputs dated 13 and 14 December 2011
- Appendix B: Notes on STAMSON Predictions
- Appendix C: Site Plans
- Appendix D: Recommended wording for notices

APPENDIX A: STAMSON 5.02 OUTPUTS DATED 13 AND 14 DECEMBER 2011

(attachment to Integral DX Engineering Ltd. report dated 23 January 2012)

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:16:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pa.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'A'

Road data, segment # 1: Parkdale (day/night)
----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Parkdale (day/night)
----------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    65.47 !    65.47
--------------------+----------+----------+----------
                      Total                   65.47 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    57.87 !    57.87
--------------------+----------+----------+----------
                      Total                   57.87 dBA
TOTAL Leq FROM ALL SOURCES (DAY): 65.47
                           (NIGHT): 57.87
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:55:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pb.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'B'

Rail data, segment # 1: LRT (day/night)
--------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
--------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  58.70 / 58.70  m
Receiver height           :   4.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    56.13 !    60.12 !       -- !       -- !    61.58 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        61.58 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    49.60 !    53.59 !       -- !       -- !    55.05 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        55.05 dBA
  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  36.00 / 36.00  m
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  26.30 / 26.30  m
```

```
Receiver height           :   4.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale          !     1.50 !    68.48 !    68.48
 2.ScottW            !     1.50 !    62.34 !    62.34
 3.ScottE            !     1.50 !    63.70 !    63.70
--------------------+----------+----------+----------
                       Total                  70.46 dBA

Result summary (night)
----------------------
                     !  source  !   Road   !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale          !     1.50 !    60.88 !    60.88
 2.ScottW            !     1.50 !    54.74 !    54.74
 3.ScottE            !     1.50 !    56.10 !    56.10
--------------------+----------+----------+----------
                       Total                  62.86 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  58.70 / 58.70  m
Receiver height           :   4.50 / 4.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    59.29 !    59.29
--------------------+----------+----------+----------
                       Total                  59.29 dBA
Result summary (night)
----------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    54.34 !    54.34
--------------------+----------+----------+----------
                       Total                  54.34 dBA
TOTAL Leq FROM ALL SOURCES (DAY): 71.27
                           (NIGHT): 64.02
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:56:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pc.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'C'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    60.33 !    64.32 !       -- !       -- !    65.78 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        65.78 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    53.80 !    57.79 !       -- !       -- !    59.25 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        59.25 dBA
  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.90 / 21.90  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
```

```
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    65.47 !    65.47
 2.ScottW           !     1.50 !    67.51 !    67.51
 3.ScottE           !     1.50 !    69.15 !    69.15
--------------------+----------+----------+----------
                      Total                   72.40 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    57.87 !    57.87
 2.ScottW           !     1.50 !    59.91 !    59.91
 3.ScottE           !     1.50 !    61.55 !    61.55
--------------------+----------+----------+----------
                      Total                   64.80 dBA

RT/Custom data, segment # 1: Transitway (day/night)
-----------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    63.50 !    63.50
--------------------+----------+----------+----------
                      Total                   63.50 dBA

Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    58.55 !    58.55
--------------------+----------+----------+----------
                      Total                   58.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.69
                           (NIGHT): 66.61
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:57:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pd.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'D'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    57.32 !    61.31 !       -- !       -- !    62.77 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        62.77 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    50.79 !    54.78 !       -- !       -- !    56.24 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        56.24 dBA

  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.90 / 21.90  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    68.48 !    68.48
 2.ScottW           !     1.50 !    64.50 !    64.50
 3.ScottE           !     1.50 !    66.14 !    66.14
--------------------+----------+----------+----------
                      Total                  71.45 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    60.88 !    60.88
 2.ScottW           !     1.50 !    56.90 !    56.90
 3.ScottE           !     1.50 !    58.54 !    58.54
--------------------+----------+----------+----------
                      Total                  63.85 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    60.49 !    60.49
--------------------+----------+----------+----------
                      Total                  60.49 dBA

Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    55.54 !    55.54
--------------------+----------+----------+----------
                      Total                  55.54 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 72.30
                           (NIGHT): 65.06
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:57:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pe.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'E'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    57.32 !    61.31 !       -- !       -- !    62.77 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        62.77 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    50.79 !    54.78 !       -- !       -- !    56.24 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        56.24 dBA
  * Bright Zone  !

Road data, segment # 1: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: ScottW (day/night)
```

```
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.90 / 21.90  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottE (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.ScottW           !     1.50 !    64.50 !    64.50
 2.ScottE           !     1.50 !    66.14 !    66.14
--------------------+----------+----------+----------
                     Total                   68.41 dBA
Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.ScottW           !     1.50 !    56.90 !    56.90
 2.ScottE           !     1.50 !    58.54 !    58.54
--------------------+----------+----------+----------
                     Total                   60.81 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h
```

```
Data for Segment # 1: Transitway (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  44.60 / 44.60  m
Receiver height           :   7.50 / 7.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    60.49 !    60.49
--------------------+----------+----------+----------
                       Total                  60.49 dBA

Result summary (night)
----------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    55.54 !    55.54
--------------------+----------+----------+----------
                       Total                  55.54 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 69.97
                           (NIGHT): 62.97
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 17:58:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pf.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'F'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  80.07 / 80.07  m
Receiver height           :  70.05 / 70.05  m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    57.79 !    61.78 !       -- !       -- !    63.24 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        63.24 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    51.26 !    55.25 !       -- !       -- !    56.71 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        56.71 dBA
  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Parkdale (day/night)
```

```
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  69.69 / 69.69  m
Receiver height           :  70.50 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
----------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  72.39 / 72.39  m
Receiver height           :  70.05 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
----------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  70.07 / 70.07  m
Receiver height           :  70.50 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    58.80 !    58.80
 2.ScottW           !     1.50 !    62.31 !    62.31
 3.ScottE           !     1.50 !    62.46 !    62.46
--------------------+----------+----------+----------
                      Total                  66.26 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    51.20 !    51.20
 2.ScottW           !     1.50 !    54.72 !    54.72
 3.ScottE           !     1.50 !    54.86 !    54.86
--------------------+----------+----------+----------
                      Total                  58.66 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  80.07 / 80.07  m
Receiver height           :  70.50 / 70.05  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    60.95 !    60.95
--------------------+----------+----------+----------
                      Total                  60.95 dBA

Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    56.01 !    56.01
--------------------+----------+----------+----------
                      Total                  56.01 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 68.79
                           (NIGHT): 62.05
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 18:00:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pg.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'G'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  80.07 / 80.07  m
Receiver height           :  70.50 / 70.50  m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    54.78 !    58.77 !       -- !       -- !    60.23 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        60.23 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    48.25 !    52.24 !       -- !       -- !    53.70 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        53.70 dBA
  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Parkdale (day/night)
```

```
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  69.69 / 69.69  m
Receiver height           :  70.50 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
----------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 2: ScottW (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  72.39 / 72.39  m
Receiver height           :  70.50 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
----------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 3: ScottE (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  70.07 / 70.07  m
Receiver height           :  70.50 / 70.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    61.81 !    61.81
 2.ScottW           !     1.50 !    59.30 !    59.30
 3.ScottE           !     1.50 !    59.44 !    59.44
--------------------+----------+----------+----------
                      Total                  65.12 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    54.21 !    54.21
 2.ScottW           !     1.50 !    51.71 !    51.71
 3.ScottE           !     1.50 !    51.85 !    51.85
--------------------+----------+----------+----------
                      Total                  57.52 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  80.07 / 80.07  m
Receiver height           :  70.50 / 70.50  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    57.94 !    57.94
--------------------+----------+----------+----------
                      Total                  57.94 dBA
Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    53.00 !    53.00
--------------------+----------+----------+----------
                      Total                  53.00 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 66.92
                           (NIGHT): 60.00
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 18:11:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250ph.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'H'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  77.60 / 77.60  m
Receiver height           :  67.50 / 67.50  m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    54.92 !    58.91 !       -- !       -- !    60.37 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        60.37 dBA

  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    48.38 !    52.37 !       -- !       -- !    53.83 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        53.83 dBA

  * Bright Zone  !

Road data, segment # 1: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: ScottW (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  69.54 / 69.54  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottE (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  67.12 / 67.12  m
Receiver height           :  67.50 / 67.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.ScottW           !     1.50 !    59.48 !    59.48
 2.ScottE           !     1.50 !    59.63 !    59.63
--------------------+----------+----------+----------
                      Total                  62.57 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.ScottW           !     1.50 !    51.88 !    51.88
 2.ScottE           !     1.50 !    52.03 !    52.03
--------------------+----------+----------+----------
                      Total                  54.97 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
```

```
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  77.60 / 77.60  m
Receiver height           :  67.50 / 67.50  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    58.08 !    58.08
--------------------+----------+----------+----------
                       Total                  58.08 dBA

Result summary (night)
----------------------
                     !  source  !   Gen    !  Total
                     !  height  !   Leq    !   Leq
                     !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway        !     0.50 !    53.13 !    53.13
--------------------+----------+----------+----------
                       Total                  53.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.49
                           (NIGHT): 58.81
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 18:01:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pi.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'I'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  96.31 / 96.31  m
Receiver height           :  82.50 / 82.50  m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    56.99 !    60.98 !       -- !       -- !    62.44 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        62.44 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    50.46 !    54.45 !       -- !       -- !    55.91 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        55.91 dBA
  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  81.59 / 81.59  m
Receiver height           :  82.50 / 82.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  87.50 / 87.50  m
Receiver height           :  82.50 / 82.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  84.31 / 84.31  m
Receiver height           :  82.50 / 82.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    58.11 !    58.11
 2.ScottW           !     1.50 !    61.49 !    61.49
 3.ScottE           !     1.50 !    61.65 !    61.65
--------------------+----------+----------+----------
                      Total                  65.46 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    50.52 !    50.52
 2.ScottW           !     1.50 !    53.89 !    53.89
 3.ScottE           !     1.50 !    54.05 !    54.05
--------------------+----------+----------+----------
                      Total                  57.87 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  96.31 / 96.31  m
Receiver height           :  82.50 / 82.50  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    60.15 !    60.15
--------------------+----------+----------+----------
                      Total                  60.15 dBA

Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    55.20 !    55.20
--------------------+----------+----------+----------
                      Total                  55.20 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.00
                           (NIGHT): 61.25
```

```
STAMSON 5.0        SUMMARY REPORT        Date: 13-12-2011 18:02:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pj.te             Time Period: Day/Night 16/8 hours
Description: 250 Parkdale, PoA 'J'

Rail data, segment # 1: LRT (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  89.13 / 89.13  m
Receiver height           :  73.50 / 73.50  m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    54.31 !    58.30 !       -- !       -- !    59.76 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        59.76 dBA
  * Bright Zone  !

Result summary (night)
----------------------
                    !   Loc    !  Wheel   ! Whistle  ! Whistle  !  Total
                    !   Leq    !   Leq    ! Left Leq ! Right Leq!   Leq
                    !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)   !  (dBA)
--------------------+----------+----------+----------+----------+----------
 1.LRT              !    47.78 !    51.77 !       -- !       -- !    53.23 *
--------------------+----------+----------+----------+----------+----------
                      Total                                        53.23 dBA

  * Bright Zone  !

Road data, segment # 1: Parkdale (day/night)
--------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 1: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  72.66 / 72.66  m
Receiver height           :  73.50 / 73.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: ScottW (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  79.24 / 79.24  m
Receiver height           :  73.50 / 73.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE (day/night)
------------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: ScottE (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  75.71 / 75.71  m
Receiver height           :  73.50 / 73.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Result summary (day)
--------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    61.63 !    61.63
 2.ScottW           !     1.50 !    58.91 !    58.91
 3.ScottE           !     1.50 !    59.11 !    59.11
--------------------+----------+----------+----------
                      Total                  64.84 dBA

Result summary (night)
----------------------
                    !  source  !   Road   !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Parkdale         !     1.50 !    54.03 !    54.03
 2.ScottW           !     1.50 !    51.31 !    51.31
 3.ScottE           !     1.50 !    51.51 !    51.51
--------------------+----------+----------+----------
                      Total                  57.24 dBA

RT/Custom data, segment # 1: Transitway (day/night)
---------------------------------------------------
1 - Bus:
Traffic volume    :  2000/320   veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  89.13 / 89.13  m
Receiver height           :  73.50 / 73.50  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Result summary (day)
--------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    57.48 !    57.48
--------------------+----------+----------+----------
                      Total                  57.48 dBA

Result summary (night)
----------------------
                    !  source  !   Gen    !  Total
                    !  height  !   Leq    !   Leq
                    !   (m)    !  (dBA)   !  (dBA)
--------------------+----------+----------+----------
 1.Transitway       !     0.50 !    52.53 !    52.53
--------------------+----------+----------+----------
                      Total                  52.53 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.58
                           (NIGHT): 59.63
```

```
STAMSON 5.0        NORMAL REPORT        Date: 14-12-2011 14:31:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pkD.te            Time Period: 16 hours
Description: 250 Parkdale, PoA 'K' (terrace) distance effect

Rail data, segment # 1: LRT
---------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT
-------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  76.98 m
Receiver height           :  64.50 m
Topography                :      3       (Elevated; no barrier)
No Whistle
Elevation                 :   7.70 m
Reference angle           :   0.00

Results segment # 1: LRT
------------------------

LOCOMOTIVE (0.00 + 57.96 + 0.00) = 57.96 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  65.06  -7.10   0.00   0.00   0.00   0.00  57.96
-------------------------------------------------------------------------

WHEEL (0.00 + 61.95 + 0.00) = 61.95 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.05  -7.10   0.00   0.00   0.00   0.00  61.95
-------------------------------------------------------------------------

Segment Leq : 63.41 dBA

Total Leq All Segments: 63.41 dBA

Road data, segment # 1: Parkdale
--------------------------------
Car traffic volume  : 12144 veh/TimePeriod  *
Medium truck volume :   966 veh/TimePeriod  *
Heavy truck volume  :   690 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Parkdale
------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  66.10 m
Receiver height           :  64.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ScottW
```

```
------------------------------
Car traffic volume  : 14168 veh/TimePeriod  *
Medium truck volume :  1127 veh/TimePeriod  *
Heavy truck volume  :   805 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: ScottW
----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  67.74 m
Receiver height           :  64.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: ScottE
------------------------------
Car traffic volume  : 14168 veh/TimePeriod  *
Medium truck volume :  1127 veh/TimePeriod  *
Heavy truck volume  :   805 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: ScottE
----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  64.81 m
Receiver height           :  64.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Parkdale
------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.03 + 0.00) = 59.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  68.48   0.00  -6.44  -3.01   0.00   0.00   0.00  59.03
-------------------------------------------------------------------------------

Segment Leq : 59.03 dBA

Results segment # 2: ScottW
---------------------------

Source height = 1.50 m

ROAD (0.00 + 62.60 + 0.00) = 62.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.15   0.00  -6.55   0.00   0.00   0.00   0.00  62.60
-------------------------------------------------------------------------------

Segment Leq : 62.60 dBA

Results segment # 3: ScottE
```

```
---------------------------

Source height = 1.50 m

ROAD (0.00 + 62.79 + 0.00) = 62.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.15   0.00  -6.36   0.00   0.00   0.00   0.00  62.79
-------------------------------------------------------------------------------

Segment Leq : 62.79 dBA

Total Leq All Segments: 66.55 dBA

RT/Custom data, segment # 1: Transitway
----------------------------------------
1 - Bus:
Traffic volume    :  2000 veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  76.98 m
Receiver height           :  64.50 m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.70 m
Reference angle           :   0.00

Results segment # 1: Transitway
-------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 61.12 + 0.00) = 61.12 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  68.23  -7.10   0.00   0.00   0.00   0.00  61.12
-------------------------------------------------------------------------

Segment Leq : 61.12 dBA

Total Leq All Segments: 61.12 dBA



TOTAL Leq FROM ALL SOURCES:       69.04
```

```
STAMSON 5.0        NORMAL REPORT        Date: 14-12-2011 14:33:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 250pkb.te            Time Period: 16 hours
Description: 250 Parkdale, PoA 'K' (terrace) barrier effect


Rail data, segment # 1: LRT
---------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. Electric    ! 540.0/60.0  !  80.0 !  1.0 !  4.0 !  Elec! Yes

Data for Segment # 1: LRT
-------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.60 m
Receiver height           :  64.50 m
Topography                :      4       (Elevated; with barrier)
No Whistle
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  63.00 m
Elevation                 :   7.70 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: LRT
------------------------

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       4.00 !       64.50 !       60.69 !        60.69
       0.50 !       64.50 !       60.47 !        60.47

LOCOMOTIVE (0.00 + 49.83 + 0.00) = 49.83 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  65.06  -5.02   0.00   0.00   0.00 -10.22  49.83
-------------------------------------------------------------------------

WHEEL (0.00 + 53.50 + 0.00) = 53.50 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  69.05  -5.02   0.00   0.00   0.00 -10.54  53.50
-------------------------------------------------------------------------

Segment Leq : 55.05 dBA

Total Leq All Segments: 55.05 dBA

Road data, segment # 1: Parkdale
--------------------------------
Car traffic volume  : 12144 veh/TimePeriod  *
Medium truck volume :   966 veh/TimePeriod  *
Heavy truck volume  :   690 veh/TimePeriod  *
Posted speed limit  :    50 km/h
```

```
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Parkdale
------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  20.00 m
Receiver height           :  64.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :  63.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: ScottW
------------------------------
Car traffic volume  : 14168 veh/TimePeriod  *
Medium truck volume :  1127 veh/TimePeriod  *
Heavy truck volume  :   805 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: ScottW
------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  24.90 m
Receiver height           :  64.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  63.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 3: ScottE
------------------------------
Car traffic volume  : 14168 veh/TimePeriod  *
Medium truck volume :  1127 veh/TimePeriod  *
Heavy truck volume  :   805 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: ScottE
------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.20 m
Receiver height           :  64.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  63.00 m
```

```
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: Parkdale
------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       64.50 !       55.05 !        55.05

ROAD (0.00 + 50.47 + 0.00) = 50.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  68.48   0.00  -1.25  -3.01   0.00   0.00 -13.75  50.47
-------------------------------------------------------------------------------

Segment Leq : 50.47 dBA

Results segment # 2: ScottW
---------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       64.50 !       56.91 !        56.91

ROAD (0.00 + 53.73 + 0.00) = 53.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.15   0.00  -2.20   0.00   0.00   0.00 -13.22  53.73
-------------------------------------------------------------------------------

Segment Leq : 53.73 dBA

Results segment # 3: ScottE
---------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       64.50 !       52.06 !        52.06

ROAD (0.00 + 54.76 + 0.00) = 54.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.15   0.00  -0.06   0.00   0.00   0.00 -14.34  54.76
-------------------------------------------------------------------------------

Segment Leq : 54.76 dBA
```

```
Total Leq All Segments: 58.11 dBA

RT/Custom data, segment # 1: Transitway
--------------------------------------
1 - Bus:
Traffic volume    :  2000 veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: Transitway
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.60 m
Receiver height           :  64.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  63.00 m
Elevation                 :   7.70 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: Transitway
-------------------------------

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       64.50 !       60.47 !        60.47

RT/Custom (0.00 + 52.67 + 0.00) = 52.67 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
   -90     90   0.00  68.23  -5.02   0.00   0.00   0.00 -10.54  52.67
-----------------------------------------------------------------------

Segment Leq : 52.67 dBA

Total Leq All Segments: 52.67 dBA



TOTAL Leq FROM ALL SOURCES:       60.61
```

APPENDIX B: NOTES ON STAMSON PREDICTIONS

Heights and Source-Receiver Distances

STAMSON predictions are valid only at receiver heights that are small compared the the source-receiver horizontal distance. This is indicated in the ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) Technical Document, dated October 1989 and prepared by V. Schroter and C. Chiu.

Figure 4 in the above-mentioned document shows the possible combinations of ground elevation, uses of barriers, source and receiver heights, distances and configurations that can be used in the method. An excerpt from page 16 of the document reads as follows:

> *"Application of Figure 4 is restricted to topographies for which the horizontal distances are much greater than the vertical distances. In cases where the vertical distance, such as the elevation, is of the same order of magnitude as any of the horizontal distances, other means of assessment are necessary."*

The same paragraph is found on page 15 of the STEAM (Sound from Trains Environmental Analysis Method) Technical Document, dated July 1990 and prepared by V. Schroter.

With the above limitation clearly defined, the predictions at upper levels of the proposed tower require further analysis, since the receiver heights are often greater than the horizontal distance to noise sources. For these predictions, the actual line-of-sight distance was used in the STAMSON predictions, rather than the horizontal distance.

For instance, at a receptor height of 70.5 metres, a horizontal source-receiver distance of 21.9 metres, and knowing that the source height is 1.5 metres, the net source-receiver distance *D* is determined as:

$$D = \sqrt{(70.5 - 1.5)^2 + 21.9^2}$$
$$D = 72.39 \; metres$$

A 4 metre source height was used for the Transitway (BRT) and the LRT.

Rooftop Terrace Predictions

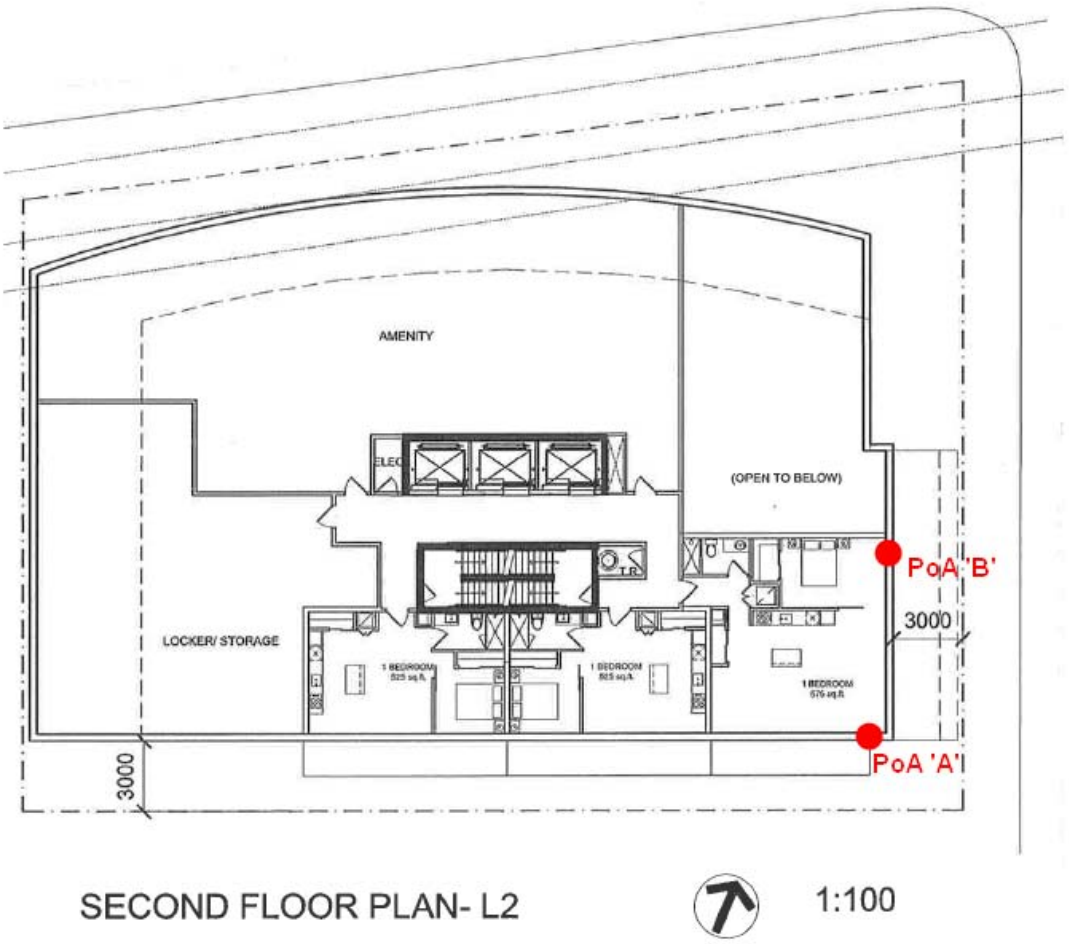
Detailed STAMSON reports were generated as follow:

- 250PKD.TXT: This file used the actual source-receiver distance as described above, and considered no barrier. The distance attenuation was taken from this file.
- 250PKB.TXT: This file used horizontal source-receiver distances as intended by STAMSON, and included a barrier the height of the building to represent building shading. The Receptor was located 3 metres from the edge of the terrace. The barrier attenuation was taken from this file.

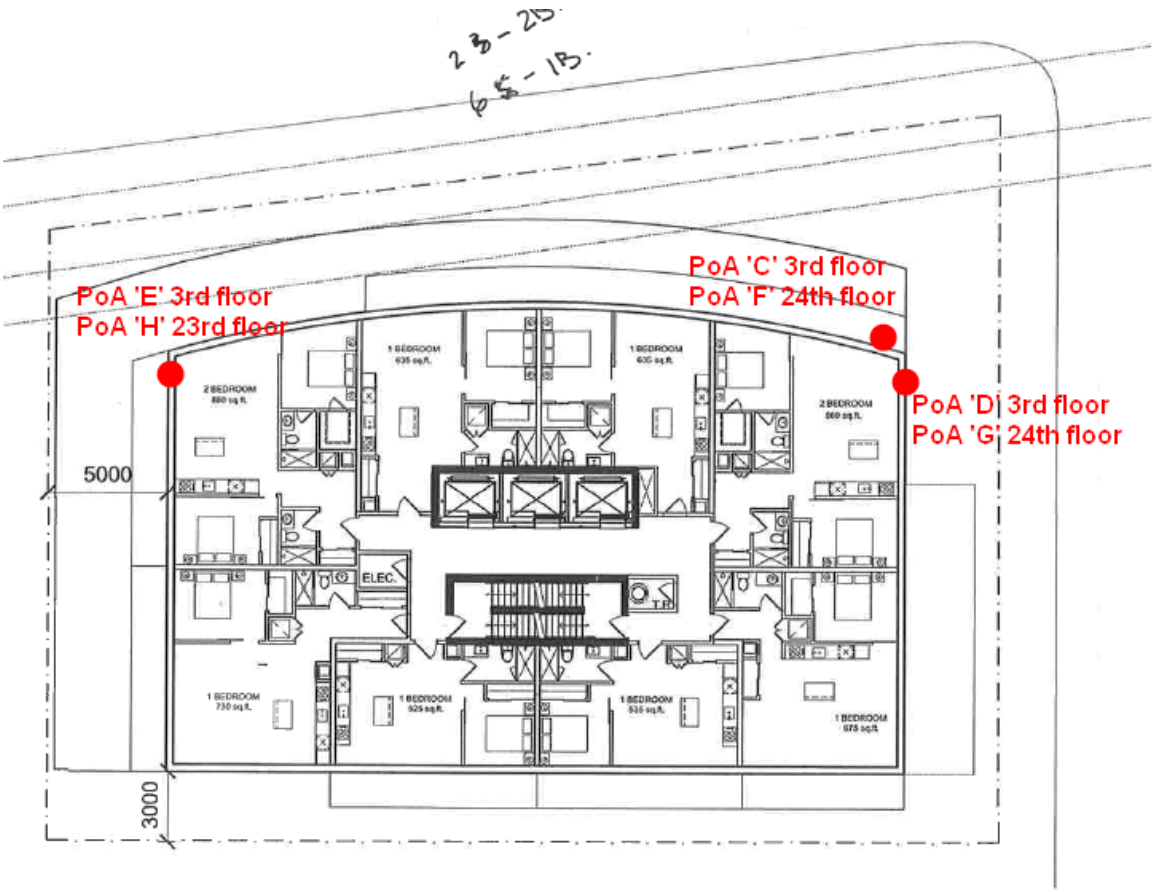
From the detailed results tables, the predictions were determined as follow:

Source	Reference Level dBA	Distance Attenuation dBA	Barrier Attenuation dBA	Net Noise Level dBA L_{eq}
Parkdale	68.48	-6.44	-13.75	48.29
ScottW	69.15	-6.55	-13.22	49.38
ScottE	69.15	-6.36	-14.34	48.45
Bus	68.23	-7.1	-10.54	50.59
Rail (locomotive)	65.06	-7.1	-10.22	47.74
Rail (wheel)	69.05	-7.1	-10.54	51.41
Combined Road+Bus (Existing Scenario)				***55.3***
Combined Road+Rail (Future Scenario)				***56.25***

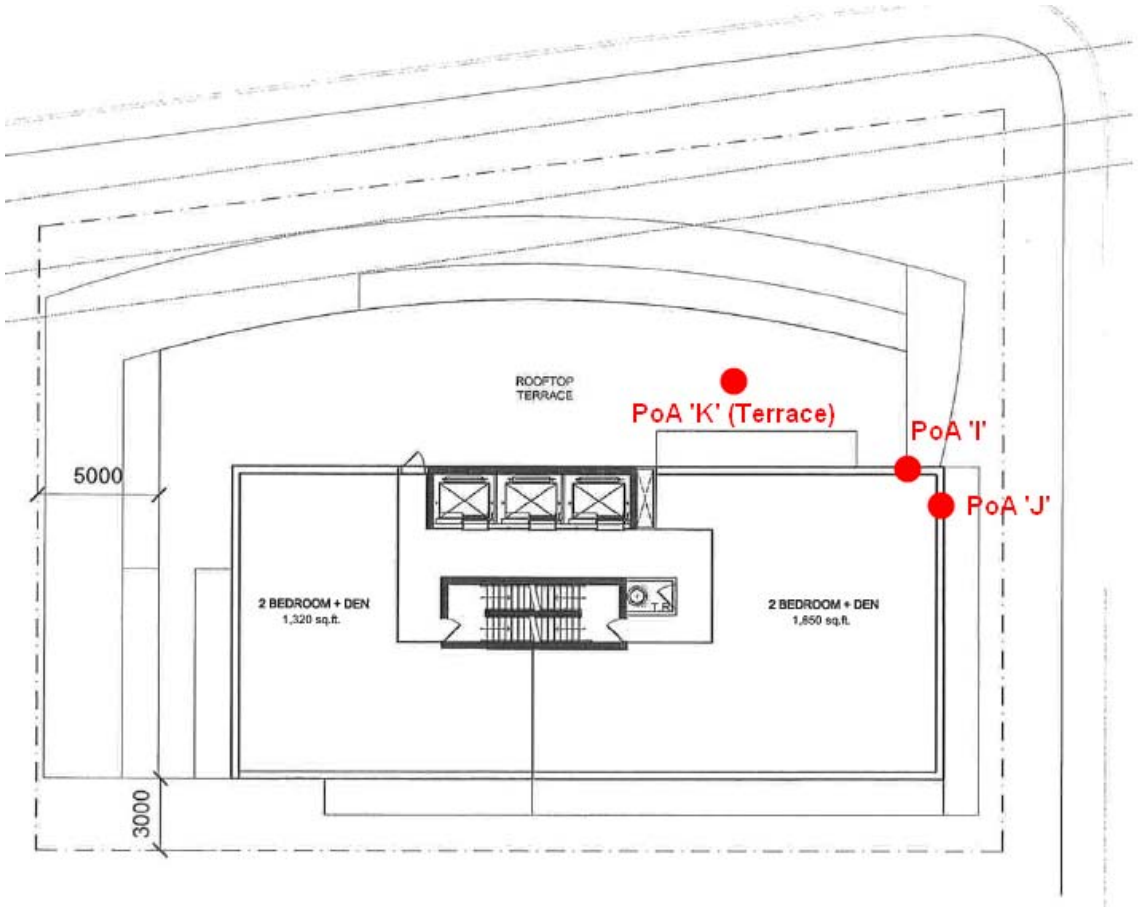
APPENDIX C: SITE PLANS



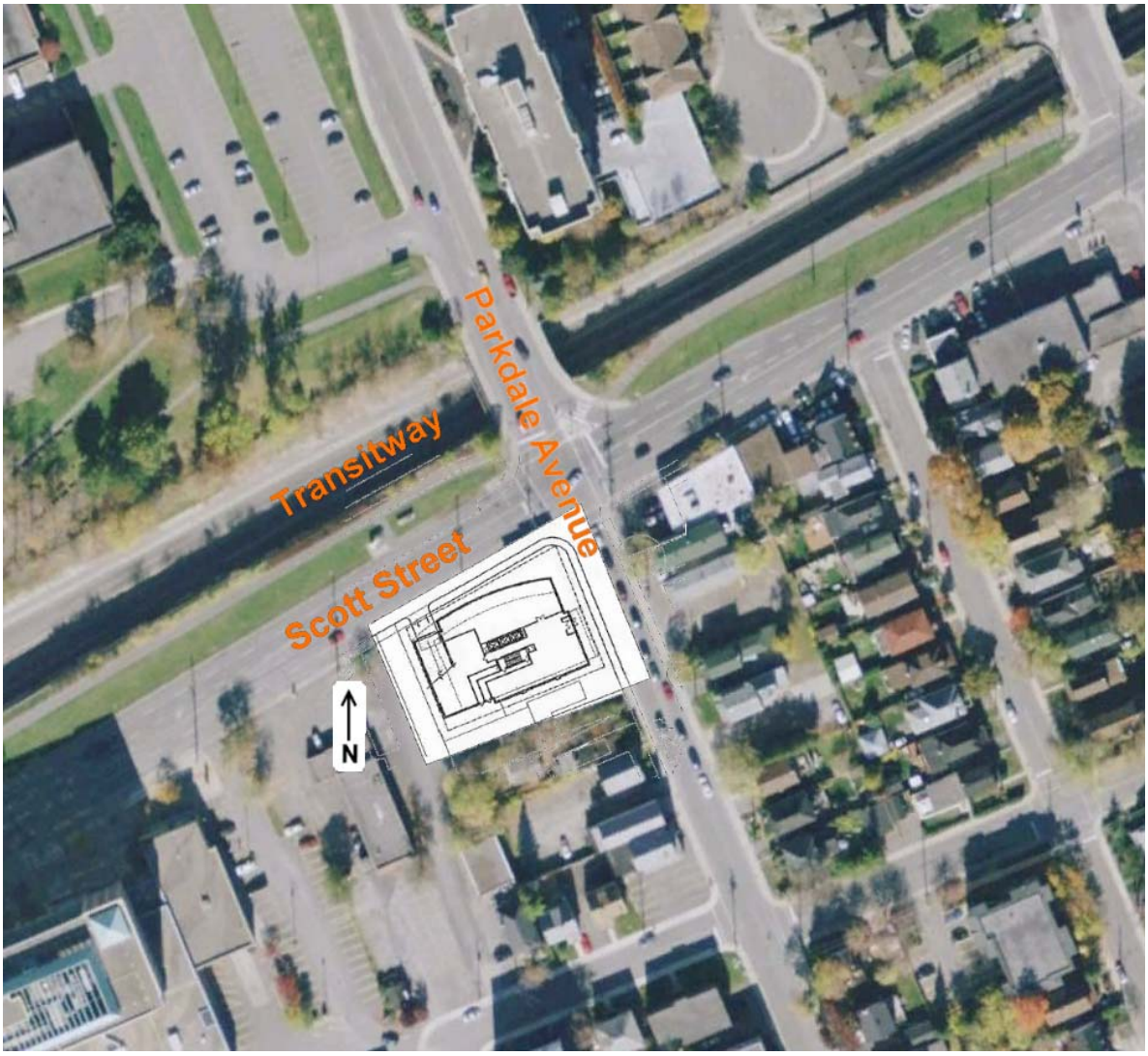
SECOND FLOOR PLAN- L2 1:100



TYPICAL FLOOR PLAN- L3-L20 (24) 1:100



PICAL FLOOR PLAN- L21-L24 (25-28) 1:100


Transitway
Parkdale Avenue
Scott Street
N

APPENDIX D: RECOMMENDED WORDING FOR NOTICES

(attachment to Integral DX Engineering Ltd. report dated 23 January 2012)

> “Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria.”
>
> “This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria.”
>
> "The Transferee covenants with the Transfer or that the above clause, verbatim, shall be included in all subsequent Agreements of Purchase and Sale and Deeds conveying the lands described herein, which covenant shall run with the said lands and is for the benefit of the subsequent owners of the said lands and the owner of the adjacent road."

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