

December 20<sup>th</sup>, 2013

Gord Elenko, P. Eng  
Manager, Traffic  
Roads  
City of Calgary  
P.O. Box 2100, Station M, #4009  
Calgary, AB T2P 2M5

Dear Mr. Elenko:

**Re: Notice of Motion 2013-27  
MITIGATION OF NOISE IMPACTS TO RESIDENTS ALONG BEDDINTON TRAIL. –  
Transportation Planning Noise Summary Report**

## **1 Introduction**

On September 16, 2013, in NM2013-27, Council directed Administration to investigate and report back to SPC on Transportation and Transit no later than February 2014, on options to reduce noise along Beddington Trail, including but not limited to:

1. Increasing the height of the noise barrier to be built,
2. Advancing the date of the warranted noise barrier for Beddington Trail no later than early 2015,
3. Limit the hours of operation for truck traffic on Beddington Trail from 6AM to 5PM Monday to Saturday; and no truck traffic on Sundays,
4. Allowing trucks to use only the curb lanes (slower lane) on Beddington Trail between Stoney Trail and Berkshire Blvd,
5. Removing Beddington Trail from the Truck Route bylaw.

This report summarizes the analysis and recommendations made by Transportation Planning (TP) in regards to the noise components in options 1, 4, and 5 as well as address Transportation Infrastructure's response in regards to option 2.

## **2 Background**

### ***2.1 Noise Barrier Retrofit Program (NBRP) Summary***

The Noise Barrier Retrofit Program (NBRP) is an ongoing annual program with limited funding that provides a reduction in the traffic noise levels that residents experience in the outdoor leisure area of their property. The program is for eligible residential locations that are

experiencing levels of traffic noise that exceeds those specified in the Surface Transportation Noise Policy.

The Design Noise Level (DNL) criteria for truck routes is L10 65 decibels (peak hour) measured at a height of 1.5m above the ground and 3m away from the house for standard lots or 1.0m above the center of the main floor deck for walk-out style lots. The L10 value is a measure of the noise level that is exceeded for 10% of the time.

The field noise measurements are used to determine locations where the noise levels are exceeding the DNL criteria. A computerized traffic noise model is then used for the actual design of the noise barrier and its height determination.

Potential locations for the retrofit program are identified on a complaint basis. After the City of Calgary (City) receives a complaint, an investigation is initiated. The process undertaken is typically as follows:

- Sound measurement is conducted and an evaluation is undertaken;
- A location becomes a candidate project if it is deemed eligible under Council's policy; and
- Candidate locations are ranked according to the expected benefit cost ratio of the project based on factors such as the severity of the noise levels, the amount of noise reduction, the cost of the project and the number of residential units that will benefit.

The relative priority of candidate projects is updated every three years, and the top rank is assigned to the project with the highest benefit cost ratio. The project list is updated every 3 years based on the existing traffic volumes available and forecasted 2032 volumes obtained from the Forecasting Division. The list was last updated in 2012 using 2012 traffic counts and 2032 forecasted volumes.

Council currently allocates \$900,000 per year for construction under the program which is typically enough to construct concrete noise barrier at one location per year, depending on the height and length of barrier needed at each location. The current project on the priority list that is moving forward this year is Anderson Road which was estimated at over \$2.0 million and is using the 2012, 2013, and 2014 budgets from the program in order to be completed.

## **2.2 Beddington Trail Project**

Transportation Planning started to receive noise complaints along this section of Beddington Trail in 2010, soon after the completion of the Beddington Trail widening project when residents discovered that the limit of the widening project, and subsequently the noise barrier constructed, is south of Hidden Valley Manor NW.

In 2010, Transportation Planning received a noise complaint from property owners directly adjacent to Beddington Trail (north of Hidden Valley Manor to Hidden Valley Link NW). Noise levels were measured in a field study conducted at 196 Hidden Valley Manor NW on August 19, 2010. The noise level recorded exceeded the City's Design Noise Level (DNL) criteria of L10 65

decibels used for designated truck routes. This location was added as a candidate project to the NBRP.

In 2012, as part of updating the noise project list, noise predictions for road traffic were developed using the Federal Highway Administration's Traffic Noise Model (version 2.5) computer program and April 11<sup>th</sup>, 2012 traffic count at the intersection of Beddington Trail NW and Hidden Valley Link NW (included in Appendix B).

Based on the 2032 traffic volume forecasts, it was determined that a 4.0m noise barrier will provide adequate noise attenuation for directly adjacent properties. This includes protection for main floor amenity area for full walk-out style lots. The noise barrier will achieve a minimum 5 decibel noise reduction. Table 1 illustrates the reduction in noise level with the 4m noise barrier.

**Table 1 – Proposed 4m Noise Barrier**

Receiver	Address	L10 2012 (Existing) AM Peak	L10 2032 (Forecasted) AM Peak	L10 2032 Peak with Proposed Barrier
R1	196 Hidden Valley Manor	66.6	68.7	64.2
R2	199 Hidden Valley Manor	67.2	70.2	61.1
R3	336 Hidden Valley Manor	62.4	65.7	60.9
R4	340 Hidden Valley Manor	63.1	66.4	61.4
R5	344 Hidden Valley Manor	68.5	71.5	64.8
R6	348 Hidden Valley Manor	63.9	67.1	62.1
R7	352 Hidden Valley Manor	64.9	68.0	62.6
R8	356 Hidden Valley Manor	63.6	66.7	61.8
R9	360 Hidden Valley Manor	63.8	66.9	62.1
R10	364 Hidden Valley Manor	65.0	68.2	62.9
R11	368 Hidden Valley Manor	64.7	67.9	62.7
R12	372 Hidden Valley Manor	63.6	66.7	61.7
R13	97 Hidden Valley View	66.0	69.1	63.8
R14	117 Hidden Valley View	66.7	69.8	64.1
R15	121 Hidden Valley View	65.7	68.9	63.6
R16	141 Hidden Valley View	64.8	68.0	63.0
R17	145 Hidden Valley View	64.8	68.1	62.9
R18	165 Hidden Valley View	65.6	68.7	63.3
R19	169 Hidden Valley View	62.2	65.3	59.1
R20	173 Hidden Valley View	60.9	63.9	57.9

Note: Numbers in red exceed the L10 65 dBA criteria

Based on the model and the analysis conducted, the recommended wall height is 4.0m for the majority of the project with a height reduction to 3.0m on the south end and 2.0m on the north

end of the project. The estimated cost for this project is \$1.8 million. A copy of the project map is included in Appendix A.

This project has been included on the City's 2013-2015 NBRP list and is ranked as the number one project (following the completion of the Anderson Road project).

### 3 Notice of Motion Item 1

Increasing the height of the noise barrier to be built

#### 3.1 Analysis

On average, the 5.0m noise barrier will provide an additional noise reduction of 2.3 decibels for directly adjacent properties. The estimated cost for the 5.0m barrier is \$2.3 million as opposed to the \$1.8 million associated with the 4m noise barrier. Table 2 illustrates a comparison of noise levels for the proposed 4m and 5m walls as well as the noise reduction caused by the 1m noise barrier height increase.

**Table 2 - Noise Barrier Height Increase Comparison**

Receiver	Address	2032 Noise levels with 4m proposed barrier	2032 Noise levels with 5m proposed barrier	Reduction
R1	196 Hidden Valley Manor	64.2	63.4	0.8
R2	199 Hidden Valley Manor	61.1	59.2	1.8
R3	336 Hidden Valley Manor	60.9	58.9	2.0
R4	340 Hidden Valley Manor	61.4	59.5	2.0
R5	344 Hidden Valley Manor	64.8	61.9	2.9
R6	348 Hidden Valley Manor	62.1	60.0	2.2
R7	352 Hidden Valley Manor	62.6	60.0	2.7
R8	356 Hidden Valley Manor	61.8	59.9	2.0
R9	360 Hidden Valley Manor	62.1	59.9	2.3
R10	364 Hidden Valley Manor	62.9	60.8	2.2
R11	368 Hidden Valley Manor	62.7	60.6	2.2
R12	372 Hidden Valley Manor	61.7	59.3	2.4
R13	97 Hidden Valley View	63.8	60.9	2.9
R14	117 Hidden Valley View	64.1	61.1	3.0
R15	121 Hidden Valley View	63.6	60.8	2.8
R16	141 Hidden Valley View	63.0	60.5	2.6
R17	145 Hidden Valley View	62.9	60.4	2.6
R18	165 Hidden Valley View	63.3	60.3	3.0
R19	169 Hidden Valley View	59.1	57.5	1.6
R20	173 Hidden Valley View	57.9	56.3	1.6

### **3.2 Recommendations**

Given the associated costs, it is not recommended to increase the height of the noise barrier. The currently recommended 4m height is sufficient to decrease the noise levels to within acceptable levels.

## **4 Notice of Motion Item 2**

Advancing the date of the warranted noise barrier for Beddington Trail no later than early 2015

### **4.1 Analysis**

Transportation Infrastructure is already committed to undertaking the Anderson Road project which was estimated at over \$2.0 million and is using funding from the 2012, 2013, and 2014 budgets from the noise barrier program.

Transportation Infrastructure can commit to constructing the Beddington Trail N.W. noise barrier (south side between Hidden Valley Manor and Hidden Valley Link) during the 2015 construction season based on the current and projected budget of the Noise Barrier Retrofit Program

### **4.2 Recommendations**

No further action is required as the warranted noise barrier for Beddington Trail between Hidden Valley Manor and Hidden Valley Link will be proposed to begin in the 2015 construction season. Construction will be contingent upon a survey of directly adjacent property owners.

## **5 Notice of Motion Item 3**

Limit the hours of operation for truck traffic on Beddington Trail from 6AM to 5PM Monday to Saturday; and no truck traffic on Sundays

### **5.1 Analysis**

In order to determine the hours of operations for truck traffic, northbound and southbound 24 hour traffic counts with vehicle classification were obtained from Transportation Data. The counts were conducted north of the intersection of Beddington Trail NW and Hidden Valley Link NW on May 1<sup>st</sup>, 2012. Table 3 illustrates the northbound and southbound hourly truck volumes as well as hourly percentages breakdown of the daily truck volume.

Based on this data, 53% and 72% of the northbound and southbound truck traffic respectively occurs between 6:00 – 17:00 (6:00 am – 5:00pm). Limiting the hours of operations after 5pm would discount approximately 50% of the northbound truck traffic and would significantly impact truck operations. Extending the operation hours from 6:00 – 19:00 (6:00 am – 7:00pm) would account for 75% and 84.4% of the northbound and southbound truck traffic respectively and would have a lesser impact on truck operations.

**Table 3 - Northbound & Southbound Hourly Truck Traffic**

Time	Northbound		Southbound	
	# Trucks	% of Daily Trucks	# Trucks	% of Daily Trucks
0:00	8	0.7%	3	0.2%
1:00	3	0.3%	2	0.1%
2:00	0	0.0%	0	0.0%
3:00	5	0.4%	5	0.4%
4:00	5	0.4%	11	0.8%
5:00	10	0.9%	29	2.1%
6:00	22	1.9%	97	7.1%
7:00	56	4.8%	138	10.2%
8:00	60	5.2%	112	8.2%
9:00	46	4.0%	89	6.6%
10:00	52	4.5%	99	7.3%
11:00	53	4.6%	89	6.6%
12:00	43	3.7%	89	6.6%
13:00	46	4.0%	63	4.6%
14:00	51	4.4%	56	4.1%
15:00	82	7.1%	71	5.2%
16:00	101	8.7%	75	5.5%
17:00	140	12.1%	78	5.7%
18:00	114	9.9%	95	7.0%
19:00	92	8.0%	61	4.5%
20:00	70	6.1%	39	2.9%
21:00	54	4.7%	35	2.6%
22:00	30	2.6%	12	0.9%
23:00	12	1.0%	10	0.7%

## 5.2 Recommendations

It is recommended that if the hours of operation for truck traffic are to be limited, that the limited hours of operation be from 6:00 am to 7:00 pm Monday to Saturday; and no truck traffic on Sundays.

## 6 Notice of Motion Item 4

Allowing trucks to use only the curb lane (slower lane) on Beddington Trail from Stoney Trail to Berkshire Blvd

## 6.1 Analysis

A traffic noise model was used to predict noise levels if trucks were only allowed to use curb lane based on traffic volumes from April 11, 2012 at the intersection of Beddington Trail and Hidden Valley Link. The truck movements and traffic volumes used in the analysis are included in Appendix B.

The noise model was only conducted for the section on Beddington Trail east of Hidden Valley Link to Hidden Valley Manor to estimate the difference in noise level. The results from the noise model for the trucks using only the curb lane scenario are very similar to existing noise levels as shown in Table 4. There were some small changes, but given the model accuracy, these changes can be considered negligible.

**Table 4 - Trucks Using the Curb Lane Scenario**

Receiver	Address	Existing noise levels	Existing noise levels - trucks in curb lane	Difference
R1	196 Hidden Valley Manor	65.6	65.5	0.1
R2	199 Hidden Valley Manor	67.2	67.4	-0.2
R3	336 Hidden Valley Manor	62.4	62.5	-0.1
R4	340 Hidden Valley Manor	63.1	63.3	-0.1
R5	344 Hidden Valley Manor	68.5	68.5	0.0
R6	348 Hidden Valley Manor	63.9	64.1	-0.2
R7	352 Hidden Valley Manor	64.9	65.0	-0.1
R8	356 Hidden Valley Manor	63.6	63.8	-0.2
R9	360 Hidden Valley Manor	63.8	64.3	-0.5
R10	364 Hidden Valley Manor	65.0	65.3	-0.3
R11	368 Hidden Valley Manor	64.7	65.0	-0.3
R12	372 Hidden Valley Manor	63.6	64.1	-0.5
R13	97 Hidden Valley View	66.0	66.4	-0.4
R14	117 Hidden Valley View	66.7	66.9	-0.2
R15	121 Hidden Valley View	65.7	66.1	-0.4
R16	141 Hidden Valley View	64.8	65.3	-0.5
R17	145 Hidden Valley View	64.8	65.1	-0.3
R18	165 Hidden Valley View	65.6	66.1	-0.5
R19	169 Hidden Valley View	62.2	63.3	-1.0
R20	173 Hidden Valley View	60.9	62.1	-1.2

## 6.2 Recommendations

This option is not recommended as it has no benefits for directly adjacent properties.

## 7 Notice of Motion Item 5

Removing Beddington Trail from the Truck Route bylaw

### 7.1 Analysis

A traffic noise model was used to predict noise levels if trucks were not allowed on Beddington Trail based on traffic volumes from April 11, 2012 at the intersection of Beddington Trail and Hidden Valley Link. The truck movements and traffic volumes used in the analysis are included in Appendix B.

The noise model was only conducted for the section on Beddington Trail east of Hidden Valley Link to Hidden Valley Manor to estimate the drop in noise level. The traffic noise model shows an average noise level reduction of 2.4 decibels when compared to existing noise levels. With this option, the existing noise levels would go below City's DNL L10 of 65 decibels (except one house – R5) but would be exceeding the Leq24 of 60 decibels for non truck routes.

**Table 5 – No Trucks on Beddington Trail Scenario**

Receiver	Address	Existing noise levels	Existing noise levels - no trucks	Reduction
<b>R1</b>	196 Hidden Valley Manor	65.6	63.3	2.4
<b>R2</b>	199 Hidden Valley Manor	67.2	64.8	2.4
<b>R3</b>	336 Hidden Valley Manor	62.4	59.9	2.6
<b>R4</b>	340 Hidden Valley Manor	63.1	60.7	2.5
<b>R5</b>	344 Hidden Valley Manor	68.5	66.7	1.7
<b>R6</b>	348 Hidden Valley Manor	63.9	61.5	2.4
<b>R7</b>	352 Hidden Valley Manor	64.9	62.8	2.1
<b>R8</b>	356 Hidden Valley Manor	63.6	61.1	2.5
<b>R9</b>	360 Hidden Valley Manor	63.8	61.4	2.4
<b>R10</b>	364 Hidden Valley Manor	65.0	62.6	2.4
<b>R11</b>	368 Hidden Valley Manor	64.7	62.3	2.4
<b>R12</b>	372 Hidden Valley Manor	63.6	61.2	2.4
<b>R13</b>	97 Hidden Valley View	66.0	63.7	2.4
<b>R14</b>	117 Hidden Valley View	66.7	64.5	2.3
<b>R15</b>	121 Hidden Valley View	65.7	63.1	2.6
<b>R16</b>	141 Hidden Valley View	64.8	62.2	2.6
<b>R17</b>	145 Hidden Valley View	64.8	62.0	2.8
<b>R18</b>	165 Hidden Valley View	65.6	63.1	2.5



Receiver	Address	Existing noise levels	Existing noise levels - no trucks	Reduction
<b>R19</b>	169 Hidden Valley View	62.2	59.7	2.6
<b>R20</b>	173 Hidden Valley View	60.9	58.3	2.6

If Beddington Trail is to be removed from the Truck Route bylaw and become 'residential', then a different noise level criterion of 60 dBA Leq24 would be used. In order to achieve acceptable noise levels in residential areas in a consistent and objective manner, it is necessary to utilize a guideline or target noise level. The descriptor dBA Leq24 is defined as the daily unit of noise which condenses a full 24 hours worth of sound energy into a single number "A-Weighted" to correlate closely with human hearing. Generally, it has been found that a single number representing a 24 hour time period is a good measure of annoyance. The descriptor Leq (24) has been used for a number of years and based on empirical research, has proven to be acceptable. The decibel level of 60 dBA for 24 hours has also proven to be acceptable from a benefit/cost point of view.

## 7.2 Recommendations

While this option does decrease the noise levels to acceptable levels without the construction of a sound barrier, the overall network impacts of prohibiting trucks from using Beddington Trail as a truck route are significant and would need to be further examined. From a transportation planning and network perspective, this option is not recommended.

## 8 Summary

Based on the analysis conducted, Transportation Planning recommends that the sound barrier proceeds as previously planned in the construction season of 2015 with its 4m height.

Closing,



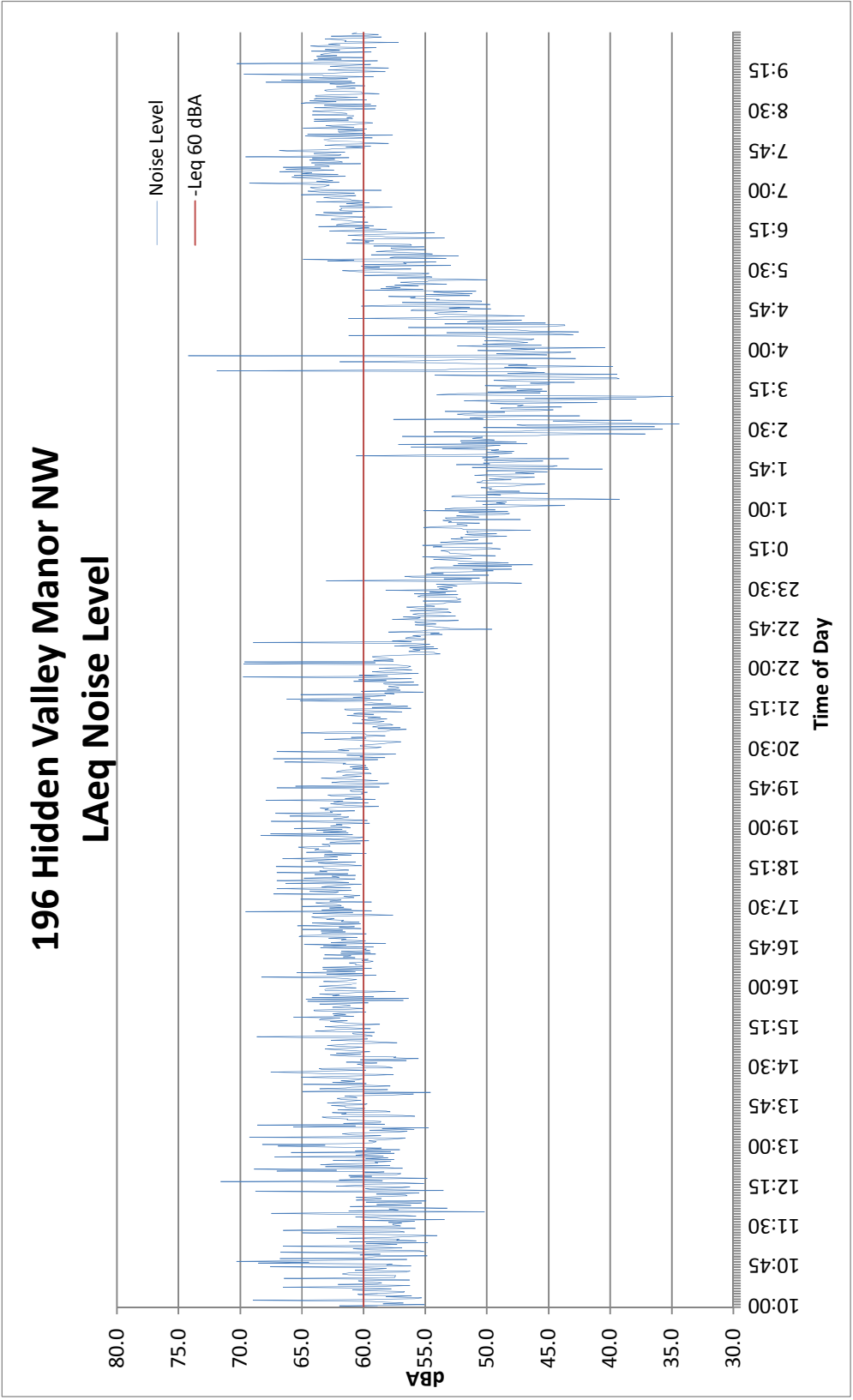
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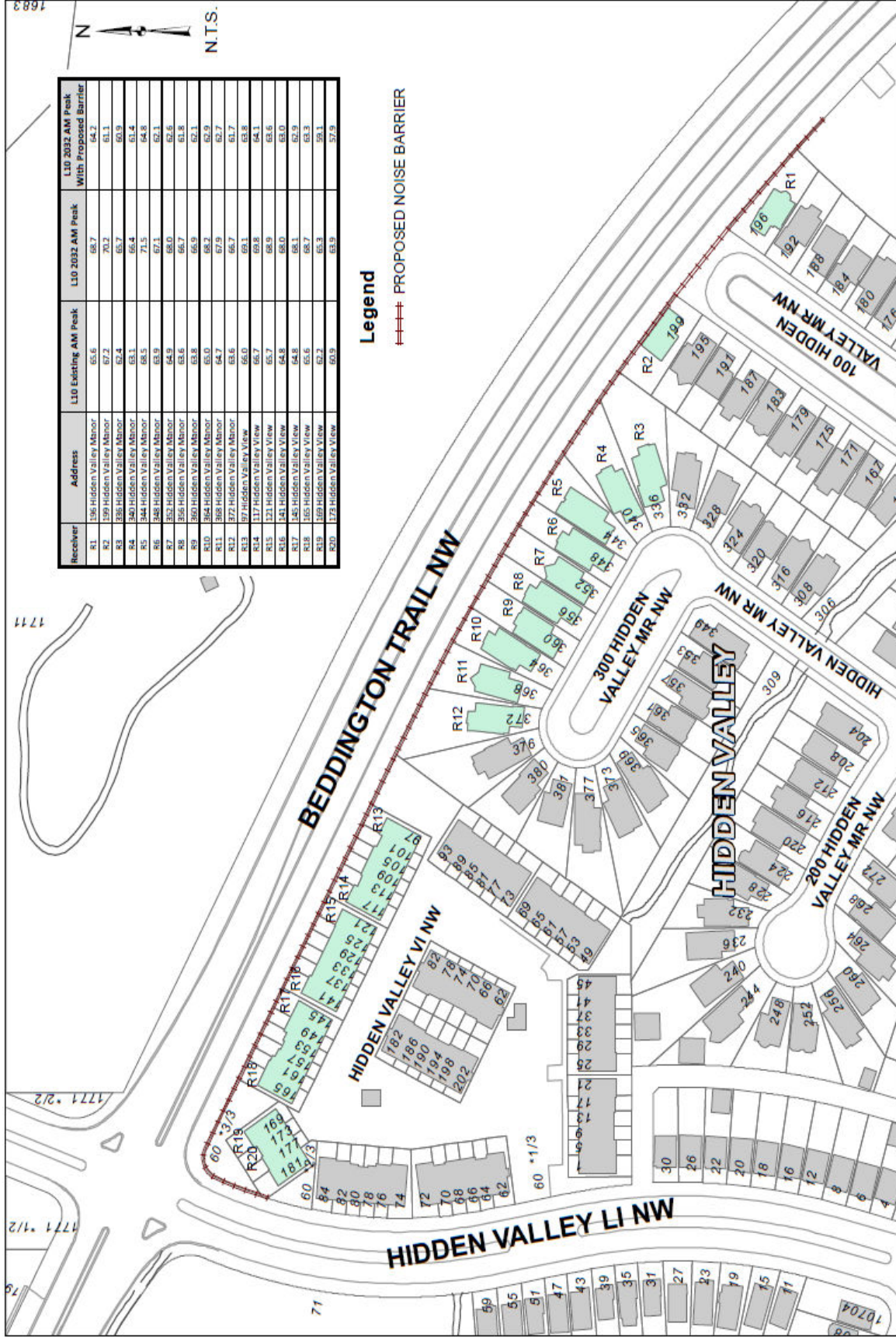
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Attachments (1)  
cc:

# Appendix A

Beddington Trail & Hidden Valley Manor Noise Study Result

Study Project Map





## EXISTING AND PROJECTED NOISE LEVELS

## Appendix B

Beddington Trail & Hidden Valley Link Traffic Volume  
Beddington Trail & Hidden Valley Link Truck Volume

# Beddington Tr & Hidden Valley Link NW Traffic Volume – April 11, 2012

Intersection Id:		10124		Study Name:		6 Hour Intersection Count		Study Date:		Wednesday, Apr 11, 2012	
Verified:		Yes		Location:		BEDDINGTON TR NW & HIDDEN VALLEY LI NW					

North							South							East							West						
Period Beginning	North Left	North Straight	North Right	North Truck	North Pedestrian	North Bike	South Left	South Straight	South Right	South Truck	South Pedestrian	South Bike	East Left	East Straight	East Right	East Truck	East Pedestrian	East Bike	West Left	West Straight	West Right	West Truck	West Pedestrian	West Bike	Vehicle Totals		
07:00:00	138	17	36	3	0	1	18	10	50	1	0	0	3	90	8	15	1	0	7	352	21	9	1	1	750		
07:15:00	155	25	40	6	0	0	34	9	45	4	0	0	10	112	5	11	1	0	5	391	13	10	1	0	844		
07:30:00	124	25	38	7	0	0	27	8	47	3	0	0	7	167	13	16	1	0	9	353	15	23	1	0	833		
07:45:00	125	34	36	8	0	0	29	15	56	4	0	0	10	135	24	21	0	0	15	395	32	21	1	0	906		
08:00:00	103	25	43	7	0	0	36	17	47	6	0	0	12	137	22	22	0	0	15	316	13	12	2	0	786		
08:15:00	105	13	40	4	0	0	26	14	35	6	1	0	4	152	20	16	1	0	21	293	9	12	1	0	732		
08:30:00	87	8	37	4	0	0	28	10	30	3	1	0	4	129	18	20	0	0	15	352	13	14	1	0	731		
08:45:00	80	2	46	1	0	0	16	8	22	0	0	0	3	125	28	21	0	0	13	244	18	18	0	0	605		
TOTAL							214							53							100						
PEAK							126							38							44						
PHF							0.92							0.87							0.89						
Total Flow							3.6%							7.1%							16.7%						
Truck Flow							4.24%							11.47%							4.06%						
Total Volume							637							1238							2930						
11:00:00							17							10							23						
11:15:00							16							5							13						
11:30:00							19							3							10						
11:45:00							19							9							30						
12:00:00							16							14							24						
12:15:00							31							17							16						
12:30:00							19							120							18						
12:45:00							16							9							34						
TOTAL							153							86							184						
PEAK							82							58							82						
PHF							0.83							0.92							0.88						
Total Flow							2%							8%							8.7%						
Truck Flow							5.4%							7.88%							8.54%						
Total Volume							352							1396							1522						
16:00:00							47							25							36						
16:15:00							26							41							44						
16:30:00							46							31							52						
16:45:00							44							30							44						
17:00:00							31							26							26						
17:15:00							37							33							33						
17:30:00							37							34							49						
17:45:00							32							36							35						
TOTAL							302							258							318						
PEAK							149							123							152						
PHF							0.87							0.96							0.91						
Total Flow							3.6%							21.5%							12.7%						
Truck Flow							5.55%							1.04%							4.03%						
Total Volume							631							3761							2233						
GRAND							669							395							603						
4 Hour Total							516							309							419						
Total Hour Summary							669							395							603						
North Bound:							South Bound:							East Bound:							West Bound:						
2175 - 44%							1366 - 46%							7591 - 54%							6386 - 49%						
South Bound:							North Bound:							West Bound:							East Bound:						
2818 - 56%							1620 - 54%							6395 - 46%							6665 - 51%						
Total: 4993							Total: 2986							Total: 13986							Total: 13071						

# Beddington Tr & Hidden Valley Link NW Truck Movement – April 11, 2012

Time Beginning	From the North			From the South			From the East			From the West			Truck Totals
	Left Turn	Straight	Right Turn	Left Turn	Straight	Right Turn	Left Turn	Straight	Right Turn	Left Turn	Straight	Right Turn	
7:00	1	0	2	0	1	0	0	14	1	0	5	4	28
7:15	2	3	1	2	0	2	0	11	0	1	8	1	31
7:30	4	3	0	2	0	1	0	16	0	2	19	2	49
7:45	3	4	1	0	4	0	1	18	2	2	17	2	54
8:00	3	4	0	2	2	2	2	16	4	2	9	1	47
8:15	3	1	0	4	1	1	0	16	0	0	11	1	38
8:30	2	1	1	2	1	0	0	18	2	0	12	2	41
8:45	1	0	0	0	0	0	0	21	0	0	17	1	40
Totals	19	16	5	12	9	6	3	130	9	7	98	14	328
7:00-9:00	40			27			142			119			
Peak Hour	13	12	1	8	7	4	3	66	6	6	56	6	188
7:30-8:30	26			19			75			68			
11:00	1	0	3	1	2	1	0	14	0	1	16	0	39
11:15	0	0	0	1	0	0	0	11	0	5	14	0	31
11:30	4	1	2	1	2	0	0	14	0	0	9	0	33
11:45	1	0	1	1	0	1	0	16	3	2	17	0	42
12:00	2	3	1	0	3	0	0	18	4	5	13	1	50
12:15	1	0	1	1	0	1	0	9	0	0	10	0	23
12:30	1	1	0	0	1	0	0	9	2	0	21	0	35
12:45	0	0	1	1	1	1	0	9	1	0	16	0	30
Totals	10	5	9	6	9	4	0	100	10	13	116	1	283
11:00-	24			19			110			130			
Peak Hour	7	4	4	3	5	1	0	59	7	12	53	1	156
11:15-12:15	15			9			66			66			
16:00	4	1	1	8	4	1	1	8	2	3	15	0	48
16:15	4	2	1	0	1	0	0	5	3	1	14	1	32
16:30	2	1	0	3	2	2	0	2	2	0	14	0	28
16:45	3	1	0	0	0	0	0	2	0	0	4	1	11
17:00	2	0	0	2	1	0	0	0	1	0	8	2	16
17:15	3	1	0	2	1	1	0	3	0	0	12	1	24
17:30	1	0	0	1	2	1	0	4	0	0	8	0	17
17:45	0	0	1	1	1	1	0	4	2	0	5	1	16
Totals	19	6	3	17	12	6	1	28	10	4	80	6	192
16:00-	28			35			39			90			
Peak Hour	13	5	2	11	7	3	1	17	7	4	47	2	119
16:00-17:00	20			21			25			53			
6 Hour Totals	48	27	17	35	30	16	4	258	29	24	294	21	803
	92			81			291			339			
Directional	NB	83	47.4%	SB	52	39.1%	EB	358	55.2%	WB	310	47.8%	
	SB	92	52.6%	NB	81	60.9%	WB	291	44.8%	EB	339	52.2%	
	Total	175		Total	133		Total	649		Total	649		