Appendix J
Noise Calculations and Measurements

ESA

Appendix J.1
Noise Calculations

ESA

Project: Morningside

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				R1					R2					R3					R4				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***92***	***85***		**0**		***88***	***81***		**0**		***88***	***81***		**0**		***92***	***85***		**0**
Concrete Saw	1	90	20%	40	92	85	88	0	60	88	81	84	0	60	88	81	84	0	40	92	85	88	0
Excavator	2	81	40%	560	63	59	62	0	600	62	58	61	0	550	63	59	62	0	550	63	59	62	0
Excavator	1	81	40%	1230	53	49	52	0	1250	53	49	52	0	1200	53	49	52	0	1200	53	49	52	0
Dozer	2	82	40%	560	64	60	63	0	600	63	59	62	0	550	64	60	63	0	550	64	60	63	0
Dump Truck	1	76	40%	1230	48	44	47	0	1250	48	44	47	0	1200	48	44	47	0	1200	48	44	47	0
Grading/Excavation					***87***	***83***		**0**		***83***	***80***		**0**		***84***	***80***		**0**		***87***	***83***		**0**
Excavator	2	81	40%	560	63	59	62	0	600	62	58	61	0	550	63	59	62	0	550	63	59	62	0
Grader	1	85	40%	40	87	83	86	0	60	83	79	82	0	60	83	79	82	0	40	87	83	86	0
Dozer	1	82	40%	560	61	57	60	0	600	60	56	59	0	550	61	57	60	0	550	61	57	60	0
Scraper	2	84	40%	1230	59	55	58	0	1250	59	55	58	0	1200	59	55	58	0	1200	59	55	58	0
Tractor/Loader/Backhoe	2	78	40%	1230	53	49	52	0	1250	53	49	52	0	1200	53	49	52	0	1200	53	49	52	0
Dump Truck	1	76	40%	560	55	51	54	0	600	54	50	53	0	550	55	51	54	0	550	55	51	54	0
Site Preparation					***85***	***81***		**0**		***82***	***78***		**0**		***82***	***78***		**0**		***85***	***81***		**0**
Dozer	1	82	40%	40	84	80	83	0	60	80	76	79	0	60	80	76	79	0	40	84	80	83	0
Dozer	2	82	40%	560	64	60	63	0	600	63	59	62	0	550	64	60	63	0	550	64	60	63	0
Tractor/Loader/Backhoe	1	78	40%	1230	50	46	49	0	1250	50	46	49	0	1200	50	46	49	0	1200	50	46	49	0
Tractor/Loader/Backhoe	1	78	40%	40	80	76	79	0	60	76	72	75	0	60	76	72	75	0	40	80	76	79	0
Tractor/Loader/Backhoe	2	78	40%	560	60	56	59	0	600	59	55	58	0	550	60	56	59	0	550	60	56	59	0
Dump Truck	1	76	40%	1230	48	44	47	0	1250	48	44	47	0	1200	48	44	47	0	1200	48	44	47	0
Building Modernization + Campus Improvements					***83***	***75***		**0**		***79***	***72***		**0**		***80***	***72***		**0**		***83***	***75***		**0**
Crane	1	81	16%	40	83	75	78	0	60	79	71	74	0	60	79	71	74	0	40	83	75	78	0
Forklift	3	75	10%	560	59	49	52	0	600	58	48	51	0	550	59	49	52	0	550	59	49	52	0
Generator	1	81	50%	1230	53	50	53	0	1250	53	50	53	0	1200	53	50	53	0	1200	53	50	53	0
Tractor/Loader/Backhoe	1	78	40%	560	57	53	56	0	600	56	52	55	0	550	57	53	56	0	550	57	53	56	0
Tractor/Loader/Backhoe	2	78	40%	1230	53	49	52	0	1250	53	49	52	0	1200	53	49	52	0	1200	53	49	52	0
Welder	1	74	40%	1230	46	42	45	0	1250	46	42	45	0	1200	46	42	45	0	1200	46	42	45	0
Pavings					***87***	***84***		**0**		***83***	***80***		**0**		***83***	***80***		**0**		***87***	***84***		**0**
Paver	1	77	50%	1230	49	46	49	0	1250	49	46	49	0	1200	49	46	49	0	1200	49	46	49	0
Paver	1	77	50%	560	56	53	56	0	600	55	52	55	0	550	56	53	56	0	550	56	53	56	0
Other Equipment	1	85	50%	560	64	61	64	0	1250	57	54	57	0	1200	57	54	57	0	1200	57	54	57	0
Other Equipment	1	85	50%	40	87	84	87	0	60	83	80	83	0	60	83	80	83	0	40	87	84	87	0
Roller	2	80	20%	560	62	55	58	0	600	61	54	57	0	550	62	55	58	0	550	62	55	58	0
Architectural Coating					***80***	***76***				***76***	***72***				***76***	***72***				***80***	***76***		
Compressor (Air)	1	78	40%	40	80	76	79	0	60	76	72	75	0	60	76	72	75	0	40	80	76	79	0
Overlapping Phases																							
Site Preparation and Grading/Excavation						85.3					82					82					85		
Building Modernization + Campus Improvements and Pavings and Architectural Coating						85.1					82					82					85		
Maximum Combined Noise Levels						**85.3**					**81.8**					**81.8**					**85.3**		

Project: Morningside - Mitgated

Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				R1					R2					R3					R4				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***72***	***65***				***68***	***61***				***68***	***61***				***71***	***64***		
Concrete Saw	1	90	20%	40	72	65	68	20	60	68	61	64	20	60	68	61	64	20	45	71	64	67	20
Excavator	2	81	40%	560	43	39	42	20	600	42	38	41	20	550	43	39	42	20	550	43	39	42	20
Excavator	1	81	40%	1230	33	29	32	20	1250	33	29	32	20	1200	33	29	32	20	1200	33	29	32	20
Dozer	2	82	40%	560	44	40	43	20	600	43	39	42	20	550	44	40	43	20	550	44	40	43	20
Dump Truck	1	76	40%	1230	28	24	27	20	1250	28	24	27	20	1200	28	24	27	20	1200	28	24	27	20
Grading/Excavation					***67***	***63***				***63***	***60***				***64***	***60***				***66***	***62***		
Excavator	2	81	40%	560	43	39	42	20	600	42	38	41	20	550	43	39	42	20	550	43	39	42	20
Grader	1	85	40%	40	67	63	66	20	60	63	59	62	20	60	63	59	62	20	45	66	62	65	20
Dozer	1	82	40%	560	41	37	40	20	600	40	36	39	20	550	41	37	40	20	550	41	37	40	20
Scraper	2	84	40%	1230	39	35	38	20	1250	39	35	38	20	1200	39	35	38	20	1200	39	35	38	20
Tractor/Loader/Backhoe	2	78	40%	1230	33	29	32	20	1250	33	29	32	20	1200	33	29	32	20	1200	33	29	32	20
Dump Truck	1	76	40%	560	35	31	34	20	600	34	30	33	20	550	35	31	34	20	550	35	31	34	20
Site Preparation					***65***	***61***				***62***	***58***				***62***	***58***				***64***	***60***		
Dozer	1	82	40%	40	64	60	63	20	60	60	56	59	20	60	60	56	59	20	45	63	59	62	20
Dozer	2	82	40%	560	44	40	43	20	600	43	39	42	20	550	44	40	43	20	550	44	40	43	20
Tractor/Loader/Backhoe	1	78	40%	1230	30	26	29	20	1250	30	26	29	20	1200	30	26	29	20	1200	30	26	29	20
Tractor/Loader/Backhoe	1	78	40%	40	60	56	59	20	60	56	52	55	20	60	56	52	55	20	45	59	55	58	20
Tractor/Loader/Backhoe	2	78	40%	560	40	36	39	20	600	39	35	38	20	550	40	36	39	20	550	40	36	39	20
Dump Truck	1	76	40%	1230	28	24	27	20	1250	28	24	27	20	1200	28	24	27	20	1200	28	24	27	20
Building Modernization + Campus Improvements					***63***	***55***				***59***	***52***				***60***	***52***				***62***	***54***		
Crane	1	81	16%	40	63	55	58	20	60	59	51	54	20	60	59	51	54	20	45	62	54	57	20
Forklift	3	75	10%	560	39	29	32	20	600	38	28	31	20	550	39	29	32	20	550	39	29	32	20
Generator	1	81	50%	1230	33	30	33	20	1250	33	30	33	20	1200	33	30	33	20	1200	33	30	33	20
Tractor/Loader/Backhoe	1	78	40%	560	37	33	36	20	600	36	32	35	20	550	37	33	36	20	550	37	33	36	20
Tractor/Loader/Backhoe	2	78	40%	1230	33	29	32	20	1250	33	29	32	20	1200	33	29	32	20	1200	33	29	32	20
Welder	1	74	40%	1230	26	22	25	20	1250	26	22	25	20	1200	26	22	25	20	1200	26	22	25	20
Pavings					***67***	***64***				***63***	***60***				***63***	***60***				***66***	***63***		
Paver	1	77	50%	1230	29	26	29	20	1250	29	26	29	20	1200	29	26	29	20	1200	29	26	29	20
Paver	1	77	50%	560	36	33	36	20	600	35	32	35	20	550	36	33	36	20	550	36	33	36	20
Other Equipment	1	85	50%	560	44	41	44	20	1250	37	34	37	20	1200	37	34	37	20	1200	37	34	37	20
Other Equipment	1	85	50%	40	67	64	67	20	60	63	60	63	20	60	63	60	63	20	45	66	63	66	20
Roller	2	80	20%	560	42	35	38	20	600	41	34	37	20	550	42	35	38	20	550	42	35	38	20
Architectural Coating					***60***	***56***				***56***	***52***				***56***	***52***				***59***	***55***		
Compressor (Air)	1	78	40%	40	60	56	59	20	60	56	52	55	20	60	56	52	55	20	45	59	55	58	20
Overlapping Phases																							
Site Preparation and Grading/Excavation						65					62					62					64		
Building Modernization + Campus Improvements and Pavings and Architectural Coating						65					62					62					64		
Maximum Combined Noise Levels						**65.3**					**61.8**					**61.8**					**64.3**		

Morningside Traffic Summary Tables
Existing plus Project

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			
		Existing	Existing with Project	Increase over Existing	Significant Impact?
104th St between Dixon Ave and Woodworth Ave	Residential/Educational	64.2	65.0	0.8	No
104th St between Woodworth Ave and Crenshaw Blvd	Residential/Educational	65.4	65.7	0.3	No
104th St between Yukon Ave and Dixon Ave	Commercial/Educational	65.9	66.2	0.3	No
104th St e/o Crenshaw Blvd	Residential	63.2	63.6	0.4	No
104th St w/o Yukon Ave	Residential	66.8	67.5	0.7	No
108th St between Lemoli Ave and Crenshaw Blvd	Residential/Commercial	58.3	59.7	1.3	No
108th St between Yukon Ave and Lemoli Ave	Residential	60.4	61.7	1.3	No
108th St e/o Crenshaw Blvd	Residential	69.1	69.4	0.3	No
108th St w/o Crenshaw Blvd	Residential	54.4	54.4	0.0	No
108th St w/o Yukon Ave	Residential	61.6	62.5	0.9	No
Century Blvd e/o Yukon Ave	Commercial	73.1	73.1	0.0	No
Century Blvd w/o Yukon Ave	Commercial	73.3	73.3	0.1	No
Crenshaw Blvd between 104th St and 108th St	Residential	69.5	69.5	0.0	No
Crenshaw Blvd n/o 104th St	Residential/Commercial	72.5	72.7	0.2	No
Crenshaw Blvd s/o 108th St	Residential/Commercial	72.9	73.0	0.1	No
Dixon Ave n/o 104th St	Residential	57.0	57.0	0.0	No
Lemoli Ave n/o 108th St	Residential/Educational	48.1	48.1	0.0	No
Lemoli Ave s/o 108th St	Residential	57.8	57.8	0.0	No
Woodworth Ave n/o 104th St	Residential	57.9	57.9	0.0	No
Yukon Ave between 104th St and 108th St	Residential/Educational	67.8	67.8	0.0	No
Yukon Ave between Century Blvd and 104th St	Residential/Commercial	68.7	68.9	0.2	No
Yukon Ave n/o Century Blvd	Stadium Parking	56.8	56.8	0.0	No
Yukon Ave s/o 108th St	Residential	65.6	65.6	0.0	No

Morningside Traffic Summary Tables
Cumulative plus Project

		Traffic Noise Levels (dBA CNEL)			
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Cumulative Year**	**Cumulative Year with Project**	**Increase over Existing**	**Significant Impact?**
104th St between Dixon Ave and Woodworth Ave	Residential/Educational	64.5	65.3	0.8	No
104th St between Woodworth Ave and Crenshaw Blvd	Residential/Educational	65.1	65.9	0.8	No
104th St between Yukon Ave and Dixon Ave	Commercial/Educational	65.8	66.5	0.7	No
104th St e/o Crenshaw Blvd	Residential	63.3	63.7	0.4	No
104th St w/o Yukon Ave	Residential	67.2	67.8	0.6	No
108th St between Lemoli Ave and Crenshaw Blvd	Residential/Commercial	58.4	59.7	1.3	No
108th St between Yukon Ave and Lemoli Ave	Residential	60.5	61.8	1.3	No
108th St e/o Crenshaw Blvd	Residential	69.2	69.5	0.2	No
108th St w/o Crenshaw Blvd	Residential	53.4	53.4	0.0	No
108th St w/o Yukon Ave	Residential	61.7	62.6	0.9	No
Century Blvd e/o Yukon Ave	Commercial	74.2	74.2	0.0	No
Century Blvd w/o Yukon Ave	Commercial	74.3	74.4	0.0	No
Crenshaw Blvd between 104th St and 108th St	Residential	70.0	70.0	0.0	No
Crenshaw Blvd n/o 104th St	Residential/Commercial	73.1	73.2	0.2	No
Crenshaw Blvd s/o 108th St	Residential/Commercial	73.4	73.5	0.1	No
Dixon Ave n/o 104th St	Residential	57.0	57.0	0.0	No
Lemoli Ave n/o 108th St	Residential/Educational	48.1	48.1	0.0	No
Lemoli Ave s/o 108th St	Residential	56.9	56.9	0.0	No
Woodworth Ave n/o 104th St	Residential	58.0	58.0	0.0	No
Yukon Ave between 104th St and 108th St	Residential/Educational	67.0	67.8	0.8	No
Yukon Ave between Century Blvd and 104th St	Residential/Commercial	68.9	69.0	0.2	No
Yukon Ave n/o Century Blvd	Stadium Parking	56.8	56.8	0.0	No
Yukon Ave s/o 108th St	Residential	65.0	65.3	0.3	No

Morningside Traffic Summary Tables
Existing + Cumulative Year Project

		Traffic Noise Levels (dBA CNEL)				
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Existing**	**Cumulative Year with Project**	**Increase over Existing**	**Significant Impact?**	**Project Increment**
104th St between Dixon Ave and Woodworth Ave	Residential/Educational	64.2	65.3	1.1	No	0.8
104th St between Woodworth Ave and Crenshaw Blvd	Residential/Educational	65.4	65.9	0.6	No	0.3
104th St between Yukon Ave and Dixon Ave	Commercial/Educational	65.9	66.5	0.6	No	0.3
104th St e/o Crenshaw Blvd	Residential	63.2	63.7	0.5	No	0.4
104th St w/o Yukon Ave	Residential	66.8	67.8	1.0	No	0.7
108th St between Lemoli Ave and Crenshaw Blvd	Residential/Commercial	58.3	59.7	1.4	No	1.3
108th St between Yukon Ave and Lemoli Ave	Residential	60.4	61.8	1.4	No	1.3
108th St e/o Crenshaw Blvd	Residential	69.1	69.5	0.4	No	0.3
108th St w/o Crenshaw Blvd	Residential	54.4	53.4	-0.9	No	0.0
108th St w/o Yukon Ave	Residential	61.6	62.6	1.0	No	0.9
Century Blvd e/o Yukon Ave	Commercial	73.1	74.2	1.1	No	0.0
Century Blvd w/o Yukon Ave	Commercial	73.3	74.4	1.1	No	0.1
Crenshaw Blvd between 104th St and 108th St	Residential	69.5	70.0	0.5	No	0.0
Crenshaw Blvd n/o 104th St	Residential/Commercial	72.5	73.2	0.7	No	0.2
Crenshaw Blvd s/o 108th St	Residential/Commercial	72.9	73.5	0.5	No	0.1
Dixon Ave n/o 104th St	Residential	57.0	57.0	0.0	No	0.0
Lemoli Ave n/o 108th St	Residential/Educational	48.1	48.1	0.0	No	0.0
Lemoli Ave s/o 108th St	Residential	57.8	56.9	-0.9	No	0.0
Woodworth Ave n/o 104th St	Residential	57.9	58.0	0.1	No	0.0
Yukon Ave between 104th St and 108th St	Residential/Educational	67.8	67.8	0.0	No	0.0
Yukon Ave between Century Blvd and 104th St	Residential/Commercial	68.7	69.0	0.3	No	0.2
Yukon Ave n/o Century Blvd	Stadium Parking	56.8	56.8	0.0	No	0.0
Yukon Ave s/o 108th St	Residential	65.6	65.3	-0.2	No	0.0

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Morningside
Analysis Scenario: Existing
Source of Traffic Volumes: LLG

Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
104th St between Dixon Ave and Woodworth Ave	Hard	50	40	40	35	552	11	6	63.9	64.2
104th St between Woodworth Ave and Crenshaw Blvd	Hard	45	40	40	35	650	13	7	65.1	65.4
104th St between Yukon Ave and Dixon Ave	Hard	50	45	45	40	581	12	6	65.6	65.9
104th St e/o Crenshaw Blvd	Hard	25	30	30	25	447	9	5	62.9	63.2
104th St w/o Yukon Ave	Hard	25	45	45	40	354	7	4	66.5	66.8
108th St between Lemoli Ave and Crenshaw Blvd	Hard	45	45	45	40	91	2	1	58.0	58.3
108th St between Yukon Ave and Lemoli Ave	Hard	45	40	40	35	208	4	2	60.1	60.4
108th St e/o Crenshaw Blvd	Hard	25	45	45	40	607	13	6	68.8	69.1
108th St w/o Crenshaw Blvd	Hard	25	45	45	40	20	0	0	54.1	54.4
108th St w/o Yukon Ave	Hard	25	40	40	35	151	3	2	61.3	61.6
Century Blvd e/o Yukon Ave	Hard	25	40	40	35	2165	45	22	72.8	73.1
Century Blvd w/o Yukon Ave	Hard	25	40	40	35	2220	46	23	73.0	73.3
Crenshaw Blvd between 104th St and 108th St	Hard	25	30	30	25	1928	40	20	69.2	69.5
Crenshaw Blvd n/o 104th St	Hard	25	40	40	35	1879	39	19	72.2	72.5
Crenshaw Blvd s/o 108th St	Hard	25	40	40	35	2061	43	21	72.6	72.9
Dixon Ave n/o 104th St	Hard	25	40	40	35	52	1	1	56.7	57.0
Lemoli Ave n/o 108th St	Hard	25	40	40	35	7	0	0	47.8	48.1
Lemoli Ave s/o 108th St	Hard	25	40	40	35	63	1	1	57.5	57.8
Woodworth Ave n/o 104th St	Hard	25	40	40	35	64	1	1	57.6	57.9
Yukon Ave between 104th St and 108th St	Hard	25	40	40	35	632	13	7	67.5	67.8
Yukon Ave between Century Blvd and 104th St	Hard	25	40	40	35	782	16	8	68.4	68.7
Yukon Ave n/o Century Blvd	Hard	25	40	40	35	50	1	1	56.5	56.8
Yukon Ave s/o 108th St	Hard	25	35	35	30	539	11	6	65.3	65.6

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Morningside
Analysis Scenario: Existing + Project
Source of Traffic Volumes: LLG

Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
104th St between Dixon Ave and Woodworth Ave	Hard	50	40	40	35	668	14	7	64.7	65.0
104th St between Woodworth Ave and Crenshaw Blvd	Hard	45	40	40	35	697	14	7	65.4	65.7
104th St between Yukon Ave and Dixon Ave	Hard	50	45	45	40	625	13	6	65.9	66.2
104th St e/o Crenshaw Blvd	Hard	25	30	30	25	490	10	5	63.3	63.6
104th St w/o Yukon Ave	Hard	25	45	45	40	415	9	4	67.2	67.5
108th St between Lemoli Ave and Crenshaw Blvd	Hard	45	45	45	40	124	3	1	59.4	59.7
108th St between Yukon Ave and Lemoli Ave	Hard	45	40	40	35	279	6	3	61.4	61.7
108th St e/o Crenshaw Blvd	Hard	25	45	45	40	643	13	7	69.1	69.4
108th St w/o Crenshaw Blvd	Hard	25	45	45	40	20	0	0	54.1	54.4
108th St w/o Yukon Ave	Hard	25	40	40	35	187	4	2	62.2	62.5
Century Blvd e/o Yukon Ave	Hard	25	40	40	35	2165	45	22	72.8	73.1
Century Blvd w/o Yukon Ave	Hard	25	40	40	35	2249	46	23	73.0	73.3
Crenshaw Blvd between 104th St and 108th St	Hard	25	30	30	25	1928	40	20	69.2	69.5
Crenshaw Blvd n/o 104th St	Hard	25	40	40	35	1961	40	20	72.4	72.7
Crenshaw Blvd s/o 108th St	Hard	25	40	40	35	2097	43	22	72.7	73.0
Dixon Ave n/o 104th St	Hard	25	40	40	35	52	1	1	56.7	57.0
Lemoli Ave n/o 108th St	Hard	25	40	40	35	7	0	0	47.8	48.1
Lemoli Ave s/o 108th St	Hard	25	40	40	35	63	1	1	57.5	57.8
Woodworth Ave n/o 104th St	Hard	25	40	40	35	64	1	1	57.6	57.9
Yukon Ave between 104th St and 108th St	Hard	25	40	40	35	632	13	7	67.5	67.8
Yukon Ave between Century Blvd and 104th St	Hard	25	40	40	35	810	17	8	68.6	68.9
Yukon Ave n/o Century Blvd	Hard	25	40	40	35	50	1	1	56.5	56.8
Yukon Ave s/o 108th St	Hard	25	35	35	30	539	11	6	65.3	65.6

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Morningside
Analysis Scenario: Future Baseline (2025)
Source of Traffic Volumes: LLG

Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
104th St between Dixon Ave and Woodworth Ave	Hard	50	40	40	35	585	12	6	64.2	64.5
104th St between Woodworth Ave and Crenshaw Blvd	Hard	45	40	40	35	614	13	6	64.8	65.1
104th St between Yukon Ave and Dixon Ave	Hard	50	45	45	40	573	12	6	65.5	65.8
104th St e/o Crenshaw Blvd	Hard	25	30	30	25	461	10	5	63.0	63.3
104th St w/o Yukon Ave	Hard	25	45	45	40	388	8	4	66.9	67.2
108th St between Lemoli Ave and Crenshaw Blvd	Hard	45	45	45	40	93	2	1	58.1	58.4
108th St between Yukon Ave and Lemoli Ave	Hard	45	40	40	35	213	4	2	60.2	60.5
108th St e/o Crenshaw Blvd	Hard	25	45	45	40	626	13	6	68.9	69.2
108th St w/o Crenshaw Blvd	Hard	25	45	45	40	16	0	0	53.1	53.4
108th St w/o Yukon Ave	Hard	25	40	40	35	155	3	2	61.4	61.7
Century Blvd e/o Yukon Ave	Hard	25	40	40	35	2777	57	29	73.9	74.2
Century Blvd w/o Yukon Ave	Hard	25	40	40	35	2834	58	29	74.0	74.3
Crenshaw Blvd between 104th St and 108th St	Hard	25	30	30	25	2162	45	22	69.7	70.0
Crenshaw Blvd n/o 104th St	Hard	25	40	40	35	2120	44	22	72.8	73.1
Crenshaw Blvd s/o 108th St	Hard	25	40	40	35	2300	47	24	73.1	73.4
Dixon Ave n/o 104th St	Hard	25	40	40	35	52	1	1	56.7	57.0
Lemoli Ave n/o 108th St	Hard	25	40	40	35	7	0	0	47.8	48.1
Lemoli Ave s/o 108th St	Hard	25	40	40	35	51	1	1	56.6	56.9
Woodworth Ave n/o 104th St	Hard	25	40	40	35	66	1	1	57.7	58.0
Yukon Ave between 104th St and 108th St	Hard	25	40	40	35	527	11	5	66.7	67.0
Yukon Ave between Century Blvd and 104th St	Hard	25	40	40	35	806	17	8	68.6	68.9
Yukon Ave n/o Century Blvd	Hard	25	40	40	35	50	1	1	56.5	56.8
Yukon Ave s/o 108th St	Hard	25	35	35	30	473	10	5	64.7	65.0

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Morningside
Analysis Scenario: Future + Project (2025)
Source of Traffic Volumes: LLG

Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
104th St between Dixon Ave and Woodworth Ave	Hard	50	40	40	35	709	15	7	65.0	65.3
104th St between Woodworth Ave and Crenshaw Blvd	Hard	45	40	40	35	739	15	8	65.6	65.9
104th St between Yukon Ave and Dixon Ave	Hard	50	45	45	40	665	14	7	66.2	66.5
104th St e/o Crenshaw Blvd	Hard	25	30	30	25	503	10	5	63.4	63.7
104th St w/o Yukon Ave	Hard	25	45	45	40	449	9	5	67.5	67.8
108th St between Lemoli Ave and Crenshaw Blvd	Hard	45	45	45	40	126	3	1	59.4	59.7
108th St between Yukon Ave and Lemoli Ave	Hard	45	40	40	35	285	6	3	61.5	61.8
108th St e/o Crenshaw Blvd	Hard	25	45	45	40	662	14	7	69.2	69.5
108th St w/o Crenshaw Blvd	Hard	25	45	45	40	16	0	0	53.1	53.4
108th St w/o Yukon Ave	Hard	25	40	40	35	191	4	2	62.3	62.6
Century Blvd e/o Yukon Ave	Hard	25	40	40	35	2777	57	29	73.9	74.2
Century Blvd w/o Yukon Ave	Hard	25	40	40	35	2863	59	30	74.1	74.4
Crenshaw Blvd between 104th St and 108th St	Hard	25	30	30	25	2162	45	22	69.7	70.0
Crenshaw Blvd n/o 104th St	Hard	25	40	40	35	2203	45	23	72.9	73.2
Crenshaw Blvd s/o 108th St	Hard	25	40	40	35	2336	48	24	73.2	73.5
Dixon Ave n/o 104th St	Hard	25	40	40	35	52	1	1	56.7	57.0
Lemoli Ave n/o 108th St	Hard	25	40	40	35	7	0	0	47.8	48.1
Lemoli Ave s/o 108th St	Hard	25	40	40	35	51	1	1	56.6	56.9
Woodworth Ave n/o 104th St	Hard	25	40	40	35	66	1	1	57.7	58.0
Yukon Ave between 104th St and 108th St	Hard	25	40	40	35	628	13	6	67.5	67.8
Yukon Ave between Century Blvd and 104th St	Hard	25	40	40	35	834	17	9	68.7	69.0
Yukon Ave n/o Century Blvd	Hard	25	40	40	35	50	1	1	56.5	56.8
Yukon Ave s/o 108th St	Hard	25	35	35	30	509	11	5	65.0	65.3

Morningside

Stadium Noise Summary

Outdoor Space	Capacity	Nearest Distance to Receptor (ft)	Estimated Noise Level (Leq)
Project Stadium	1515	40	77.7
Existing Stadium	600	40	73.5
Threshold (Baseline + 5 dBA)	-	-	78.5
Difference	-	-	0.8
Exceeds Threshold?	-	-	No

Morningside
Open Space Noise Calculation

Amenity Deck (North)							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	988						
Females (Adult)	247	185	3	71	93.7	330	52.8
Males (Adult)	247	185	3	76	98.7	330	57.8
Children	494	371	3	74	99.7	330	58.9
Total	**988**	**741**	-	-	**102.8**	-	**62.0**

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Amenity Deck (South)							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	527						
Females (Adult)	131	98	3	71	90.9	40	68.4
Males (Adult)	132	99	3	76	96.0	40	73.5
Children	264	198	3	74	97.0	40	74.5
Total	**527**	**395**	-	-	**100.1**	-	**77.6**

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Amenity Deck Total			
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Noise Level at Receptor (dBA)**
Total Capacity	1515		
@ 330 feet	988	741	**62.0**
@ 40 feet	527	395	**77.6**
Total		**1136**	**77.7**

Morningside
Open Space Noise Calculation

Courtyard (North)							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	400						
Females (Adult)	100	75	3	71	89.8	330	48.9
Males (Adult)	100	75	3	76	94.8	330	53.9
Children	200	150	3	74	95.8	330	54.9
Total	**400**	**300**	-	-	**98.9**	-	**58.0**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	80	80.0	330	57.6

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Courtyard (South)							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	200						
Females (Adult)	50	38	3	71	86.7	40	64.2
Males (Adult)	50	38	3	76	91.7	40	69.2
Children	100	75	3	74	92.8	40	70.3
Total	**200**	**150**	-	-	**95.9**	-	**73.4**

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Courtyard Total			
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Noise Level at Receptor (dBA)**
Total Capacity	600		
@ 330 feet	400	300	58.0
@ 40 feet	200	150	73.4
Estimated Noise Shielding			
Total	**600**	**450**	**73.5**

Morningside
Open Space Noise Calculation

Courtyard (North)							
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Reference Distance (ft)[1]**	**Reference Noise Level (dBA)[1]**	**Combined Noise Level (dBA)**	**Distance to Receptor (ft)**	**Noise Level at Receptor (dBA)**
Total Capacity	186						
Females (Adult)	46	34.5	3	71	86.4	360	44.8
Males (Adult)	47	35.25	3	76	91.5	360	49.9
Children	93	69.75	3	74	92.4	360	50.9
Total	**186**	**139.5**	-	-	**95.6**	-	**54.0**
Amplified Music (85 dBA Leq at 25 feet per NOISE-PDF-5)			25	80	80.0	360	56.8

Source:

[1] American Journal of Audiology Vol. 7, p. 3 (1998)

Courtyard Total			
Category	**# of Individuals (estimated capacity)**	**# of Individuals Speaking (half of estimated capacity)**	**Noise Level at Receptor (dBA)**
Total Capacity	600		
@ 360 feet	186	139.5	54.0
Estimated Noise Shielding			
Total	**186**	**139.5**	**54.0**

Appendix J.2
Noise Measurements

ESA

Summary

File Name on Meter	R1
File Name on PC	SLM_0004161_LxT_Data_177.00.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.402
User	
Location	Morningside HS
Job Description	
Note	

Measurement

Description	
Start	2021-08-19 09:07:11
Stop	2021-08-19 09:22:11
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-08-19 09:03:33
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	144.9 dB

	A	C	Z
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**38.0**	37.7	44.7 dB
Noise Floor	28.9	28.6	35.6 dB

Results

LA_{Seq}	63.8 dB	
LASE	93.3 dB	
EAS	237.971 µPa²h	
EAS8	7.615 mPa²h	
EAS40	38.075 mPa²h	
$LA_{peak\ (max)}$	2021-08-19 09:21:31	89.4 dB
LAS_{max}	2021-08-19 09:09:51	75.2 dB
LAS_{min}	2021-08-19 09:12:57	40.5 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Seq}	68.8 dB	
LA_{Seq}	63.8 dB	
LC_{Seq} - LA_{Seq}	5.0 dB	
LA_{Ieq}	65.2 dB	
LA_{eq}	63.8 dB	
LA_{Ieq} - LA_{eq}	1.5 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	63.8					
$L_{S(max)}$	75.2	2021/08/19 9:09:51				
$L_{S(min)}$	40.5	2021/08/19 9:12:57				
$L_{Peak(max)}$	89.4	2021/08/19 9:21:31				

# Overloads	0
Overload Duration	0.0 s

Summary

File Name on Meter	R2
File Name on PC	SLM_0004161_LxT_Data_178.00.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.402
User	
Location	Morningside HS
Job Description	
Note	

Measurement

Description	
Start	2021-08-19 09:26:27
Stop	2021-08-19 09:41:27
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-08-19 09:03:32
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	144.9 dB

	A	C	Z
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**38.0**	37.7	44.7 dB
Noise Floor	28.9	28.6	35.6 dB

Results

LA_{Seq}	68.1 dB	
LASE	97.7 dB	
EAS	649.779 µPa²h	
EAS8	20.793 mPa²h	
EAS40	103.965 mPa²h	
$LA_{peak\ (max)}$	2021-08-19 09:40:29	96.7 dB
LAS_{max}	2021-08-19 09:39:42	83.8 dB
LAS_{min}	2021-08-19 09:36:30	42.6 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Seq}	75.0 dB	
LA_{Seq}	68.1 dB	
LC_{Seq} - LA_{Seq}	6.9 dB	
LA_{Ieq}	69.7 dB	
LA_{eq}	68.1 dB	
LA_{Ieq} - LA_{eq}	1.5 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	68.1					
$L_{S(max)}$	83.8	2021/08/19 9:39:42				
$L_{S(min)}$	42.6	2021/08/19 9:36:30				
$L_{Peak(max)}$	96.7	2021/08/19 9:40:29				

Summary

File Name on Meter	R3
File Name on PC	SLM_0004161_LxT_Data_179.00.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.402
User	
Location	Morningside HS
Job Description	
Note	

Measurement

Description	
Start	2021-08-19 09:43:58
Stop	2021-08-19 09:58:58
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-08-19 09:03:32
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	144.9 dB

	A	C	Z
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**38.0**	37.7	44.7 dB
Noise Floor	28.9	28.6	35.6 dB

Results

LA_{Seq}	67.1 dB	
LASE	96.6 dB	
EAS	513.127 µPa²h	
EAS8	16.420 mPa²h	
EAS40	82.100 mPa²h	
$LA_{peak\ (max)}$	2021-08-19 09:47:42	96.1 dB
LAS_{max}	2021-08-19 09:47:41	82.5 dB
LAS_{min}	2021-08-19 09:55:54	42.7 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Seq}	73.1 dB	
LA_{Seq}	67.1 dB	
LC_{Seq} - LA_{Seq}	6.0 dB	
LA_{Ieq}	68.5 dB	
LA_{eq}	67.1 dB	
LA_{Ieq} - LA_{eq}	1.3 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	67.1					
$L_{S(max)}$	82.5	2021/08/19 9:47:41				
$L_{S(min)}$	42.7	2021/08/19 9:55:54				
$L_{Peak(max)}$	96.1	2021/08/19 9:47:42				

Summary

File Name on Meter	R4
File Name on PC	SLM_0004161_LxT_Data_180.00.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.402
User	
Location	Morningside HS
Job Description	
Note	

Measurement

Description	
Start	2021-08-19 10:11:04
Stop	2021-08-19 10:26:04
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-08-19 09:03:32
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.9 dB			
	A	**C**	**Z**	
Under Range Peak	**100.8**	97.8	102.8	dB
Under Range Limit	**38.0**	37.7	44.7	dB
Noise Floor	28.9	28.6	35.6	dB

Results

L_{ASeq}	59.6 dB		
LASE	89.1 dB		
EAS	91.060 µPa²h		
EAS8	2.914 mPa²h		
EAS40	14.570 mPa²h		
$L_{Apeak\ (max)}$	2021-08-19 10:21:35	88.0	dB
L_{ASmax}	2021-08-19 10:21:37	73.6	dB
L_{ASmin}	2021-08-19 10:20:13	44.7	dB
SEA	-99.9 dB		
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{CSeq}	68.4 dB		
L_{ASeq}	59.6 dB		
L_{CSeq} - L_{ASeq}	8.8 dB		
L_{AIeq}	61.2 dB		
L_{Aeq}	59.6 dB		
L_{AIeq} - L_{Aeq}	1.6 dB		

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	59.6					
$L_{S(max)}$	73.6	2021/08/19 10:21:37				
$L_{S(min)}$	44.7	2021/08/19 10:20:13				
$L_{Peak(max)}$	88.0	2021/08/19 10:21:35				