I-290

Phase I Study

West of US 45 (Mannheim Road) to Racine Avenue

Traffic Noise Analysis
Volume 2

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Technical Memorandum

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Section One: Introduction

This traffic noise analysis has been prepared to evaluate traffic noise for the Eisenhower Expressway (I-290) Reconstruction Project. The recommended improvement includes widening the I-290 mainline to four lanes in each direction; all of the mainline improvements will fit within the existing right-of-way (ROW) with some minor ROW needs occurring at several interchanges. The noise study area, shown in Figure 1, is in within the Villages of Hillside, Westchester, Bellwood, Broadview, Maywood, Forest Park, Oak Park, and the City of Chicago in Cook County, Illinois.

IDOT and FHWA require a noise abatement analysis for the Preferred Alternative. However, given the level of stakeholder interest in traffic noise, the project team also developed a traffic noise sensitivity analysis that compares the year 2040 traffic noise levels of the four build alternatives advanced for further evaluation.

Volume 1 of the traffic noise analysis for this project presented the Federal and state noise regulations, a discussion of noise sensitive receptors, field noise monitoring, a description of the noise analysis methodology, and the analysis of the existing and future No Build noise levels. This document, Volume 2 of the traffic noise analysis, will present a sensitivity noise analysis of the four Build alternatives carried forward for the project (Section 2), the traffic noise impacts of the Preliminary Preferred Alternative (Section 3), an analysis of traffic noise abatement for the impacted receptors identified for the Preliminary Preferred Alternative and a summary of barriers recommended for construction (Section 4), and an analysis of currently undeveloped lands within the Preliminary Preferred Alternative noise study area (Section 5). A discussion of construction noise considerations for the Preliminary Preferred Alternative (Section 6) will be completed in the final version of this report, and Conclusions are noted in Section 7.

Section 2: Build Alternatives Carried Forward Sensitivity Analysis

Build Alternatives Carried Forward Identification

The four I-290 Build alternatives carried forward share the same design; each alternative would add a mainline travel lane in each direction between 25th Avenue and Austin Boulevard resulting in four travel lanes in each direction, and would modify interchange designs between 25th Avenue and IL 50/Cicero Avenue. No additional through lanes are proposed from Central Avenue to Racine Avenue. The variation in alternatives is related to how each alternative manages roadway lanes; the alternatives each propose a different use for the inside lane in each travel direction, as described below:

- General Purpose Add-Lane (GP Add Lane) (The additional lane in each direction would be a typical highway lane with no use restrictions)
- High Occupancy Vehicle Lane (HOV 2+)

- High Occupancy Toll Lane (HOT 3+)
- High Occupancy Toll Lane, plus Toll all remaining lanes (HOT 3+ Toll)

For the 2040 conditions, mainline traffic composition data were obtained from the lead Phase 1 consultant. In the 2040 conditions, the average percentage of automobiles on the I-290 mainline is estimated to be between 93 percent and 96 percent, with medium and heavy trucks combined accounting for between 4 and 7 percent.

Posted speed limits were used for speed data inputs for the noise analysis to assume that traffic will travel at free flow speeds. Using posted speed limits for the analysis is a conservative approach, as current I-290 traffic has been observed to travel at lower speeds than posted speed limits due to traffic delay. Using the posted speed would yield higher noise level results than using travel speeds of delayed traffic. The existing speed and proposed speed limit for I-290 is 55 mph. All existing speed limits on other roads were projected to remain the same in the future condition.

Noise Shielding from Potential Design Elements

The Eisenhower Expressway Preliminary Preferred Alternative may include design elements that may provide a degree of noise shielding. Public and agency project comments requested the inclusion of expanded width bridge decks for community connectivity across the expressway. These design elements may shield a portion of expressway noise from adjacent areas.

FHWA Traffic Noise Model 2.5 (TNM), the model used for the traffic noise analysis, does not have the capability to analyze noise shielding that may be provided by horizontal structures (such as expanded width bridge decks). The future build condition noise levels discussed are considered worst-case, and do not include any benefits from horizontal shielding from potential design elements.

Build Alternatives Carried Forward Sensitivity Analysis Findings

A traffic noise receptor is a discrete or representative location of a Common Noise Environment (CNE), which is an area of similar land use and noise characteristics. A representative receptor is location within a CNE that represents the worst-case noise level for all other individual represented receptors within that CNE. Traffic noise impacts are defined only for the Build condition, per IDOT policy, and include all representative receptors that would have noise levels that approach (- 1 dB(A)), meet, or exceed the NAC presented in Table 1.

Table 1 presents noise levels for the Existing, No Build, and four Build alternatives carried forward. Representative receptors indicating a noise impact in the Build condition are identified in Table 1 with boldface text. Figure 2 shows the analyzed representative receptors in the study area.

The Existing noise levels range from 57 dB(A) at R256 to 78 dB(A) at R100, R119, R172, R198, and R206. The projected No Build 2040 traffic noise levels range from 57 dB(A) at R256 to 79 dB(A) at R119 and R172. Noise levels either remain the same or increase up to 3 dB(A) from the

Existing condition to the 2040 No Build condition; the majority of representative receptors have no change or a 1 dB(A) increase in noise from Existing to 2040 No Build.

The projected Build 2040 traffic noise levels for the four Build alternatives are typically within the same range at each representative receptor. The four Build alternatives share the same design, but have different traffic volumes due to of the effects of managed lanes and tolling. The traffic volume differences influenced the slight differences in noise levels among the Build alternatives. The collective Build 2040 traffic noise levels range from 57 dB(A) at R256 to 79 dB(A) at R44, R100, R101, and R119. Typically, the four Build alternatives carried forward have similar noise levels to the 2040 No Build condition, with several representative receptors experiencing noise increases as much as 2 dB(A) from the 2040 No Build condition.

TABLE 1
EXISTING, NO BUILD, AND BUILD ALTERNATIVES CARRIED FORWARD TRAFFIC NOISE SUMMARY

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R1	E / 72	68	68	69	69	69	69	Hillside
R2	C / 67	66	66	**66**	**66**	**66**	**66**	
R3	B / 67	64	64	64	64	64	64	
R4	B / 67	72	72	**72**	**72**	**72**	**72**	
R5	B / 67	65	65	65	65	65	65	
R6	B / 67	65	65	**66**	**66**	**66**	**66**	
R7	B / 67	66	66	**67**	**67**	**67**	**66**	
R8	B / 67	69	70	**70**	**70**	**70**	**70**	
R9	C / 67	65	65	65	65	65	65	
R10	E / 72	74	74	**76**	**75**	**75**	**75**	
R11	C / 67	73	73	**74**	**73**	**73**	**73**	
R12	E / 72	64	64	65	65	65	65	
R13	B / 67	65	66	**67**	**66**	**66**	**66**	
R14	E / 72	66	66	67	67	67	67	
R15	B / 67	70	70	**72**	**71**	**71**	**71**	Bellwood
R16	B / 67	64	64	64	65	65	65	Westchester
R17	B / 67	62	63	64	63	64	63	
R18	C / 67	59	60	61	61	61	60	
R19	B / 67	68	68	**68**	**68**	**68**	**68**	Bellwood
R20	B / 67	69	69	**70**	**69**	**70**	**69**	
R21	B / 67	60	60	60	60	60	60	
R22	C / 67	67	67	**67**	**67**	**67**	**67**	
R23	E / 72	66	66	67	67	67	67	
R24	B / 67	66	66	**67**	**67**	**67**	**66**	
R25	B / 67	64	65	**67**	**66**	**66**	**66**	Westchester
R26	B / 67	63	64	65	64	64	64	Bellwood
R27	B / 67	63	64	65	64	64	64	Westchester
R28	B / 67	62	63	64	63	64	63	Bellwood
R29	B / 67	64	65	**66**	**66**	**66**	65	Westchester
R30	B / 67	73	75	**74**	**74**	**74**	**73**	Bellwood
R31	C / 67	61	62	64	63	63	63	Broadview

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R32	C / 67	68	69	**69**	**69**	**69**	**68**	Bellwood
R33	C / 67	70	70	**70**	**69**	**70**	**69**	Broadview
R34	E / 72	71	74	66	66	67	66	Bellwood
R35	B / 67	69	69	**68**	**66**	**68**	**67**	Maywood
R36	B / 67	64	65	64	64	65	64	Bellwood
R37	B / 67	75	76	**78**	**77**	**78**	**77**	
R38	B / 67	73	74	**75**	**75**	**75**	**74**	Maywood
R38A	C / 67	61	61	63	62	62	62	
R39	B / 67	73	74	**76**	**75**	**75**	**74**	
R40	B / 67	71	72	**74**	**74**	**74**	**74**	
R41	B / 67	74	75	**76**	**75**	**75**	**75**	
R42	C / 67	72	73	**75**	**74**	**74**	**74**	
R43	B / 67	77	77	**78**	**78**	**78**	**77**	Broadview
R44	B / 67	77	77	**79**	**78**	**78**	**78**	Maywood
R45	C / 67	73	73	**74**	**74**	**74**	**74**	
R46	E / 72	75	75	**76**	**76**	**76**	**75**	
R47	B / 67	74	75	**76**	**75**	**75**	**75**	
R48	C / 67	65	66	**66**	**66**	**66**	65	
R49	B / 67	75	75	**76**	**76**	**76**	**76**	
R50	C / 67	63	63	64	64	64	63	
R51	B / 67	69	69	**70**	**69**	**70**	**69**	
R52	C / 67	67	67	**67**	**67**	**67**	**67**	
R52A	C / 67	64	65	65	65	65	64	
R53	C / 67	67	68	**68**	**68**	**68**	**67**	
R54	B / 67	76	76	**78**	**77**	**78**	**77**	
R55	B / 67	76	76	**76**	**76**	**76**	**76**	
R56	C / 67	73	74	**75**	**74**	**74**	**74**	
R57	C / 67	64	64	65	64	65	64	
R58	B / 67	75	77	**77**	**77**	**77**	**76**	
R59	B / 67	75	76	**77**	**76**	**76**	**76**	
R60	E / 72	74	74	**75**	**74**	**74**	**74**	Maywood
R61	E / 72	74	75	**72**	**72**	**72**	**72**	
R62	C / 67	73	73	**74**	**73**	**73**	**73**	Forest Park

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R63	C / 67	75	75	**76**	**76**	**76**	**76**	
R64	C / 67	75	75	**77**	**77**	**77**	**76**	
R65	C / 67	73	73	**74**	**73**	**73**	**73**	
R66	C / 67	70	71	**71**	**71**	**71**	**70**	
R67	C / 67	73	74	**75**	**73**	**74**	**73**	
R68	B / 67	69	69	**70**	**69**	**70**	**69**	
R69	C / 67	76	76	**77**	**76**	**76**	**76**	
R70	B / 67	75	75	**76**	**76**	**76**	**75**	Forest Park
R71	E / 72	69	69	69	69	69	69	
R72	C / 67	71	71	**71**	**71**	**71**	**71**	
R73	C / 67	76	77	**77**	**77**	**77**	**76**	
R74	B / 67	69	70	**70**	**70**	**70**	**70**	
R75	C / 67	69	70	**71**	**70**	**70**	**70**	
R76	B / 67	73	75	**72**	**72**	**72**	**71**	
R76A	C / 67	72	74	**74**	**73**	**73**	**73**	
R77	C / 67	69	70	**72**	**72**	**72**	**71**	
R78	C / 67	72	73	**74**	**73**	**73**	**73**	
R79	C / 67	75	76	**76**	**75**	**75**	**74**	
R79A	B / 67	75	76	**77**	**77**	**77**	**76**	
R80	C / 67	72	73	**74**	**73**	**73**	**73**	
R81	C / 67	72	73	**74**	**73**	**73**	**73**	
R82	B / 67	75	75	**77**	**76**	**76**	**76**	
R83	B / 67	76	76	**77**	**76**	**77**	**76**	
R84	B / 67	76	76	**77**	**77**	**77**	**76**	
R85	B / 67	76	76	**77**	**77**	**77**	**76**	Oak Park
R86	B / 67	77	77	**78**	**78**	**78**	**77**	
R87	E / 72	70	71	**71**	70	**71**	70	
R88	B / 67	67	68	**67**	**67**	**67**	**67**	
R89	E / 72	77	78	**78**	**77**	**78**	**77**	
R90	E / 72	69	70	69	69	69	70	
R91	B / 67	67	68	**67**	**67**	**67**	**68**	
R92	B / 67	75	75	**76**	**76**	**76**	**75**	
R93	C / 67	75	76	**77**	**76**	**76**	**76**	
R94	B / 67	77	77	**78**	**77**	**77**	**77**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R95	C / 67	63	63	65	65	64	64	
R96	C / 67	69	69	**70**	**69**	**70**	**69**	
R96A	C / 67	74	74	**75**	**74**	**75**	**74**	
R97	B / 67	63	64	65	64	64	63	
R98	C / 67	75	75	**76**	**76**	**76**	**75**	
R99	B / 67	75	75	**76**	**76**	**76**	**75**	
R100	B / 67	78	78	**79**	**78**	**78**	**78**	
R101	C / 67	77	78	**79**	**78**	**78**	**78**	
R102	B / 67	72	73	**73**	**73**	**73**	**73**	
R103	C / 67	69	69	**70**	**69**	**70**	**70**	
R104	B / 67	73	73	**77**	**76**	**76**	**76**	
R105	B / 67	67	67	**68**	**67**	**67**	**68**	
R107	C / 67	66	66	**67**	**67**	**67**	**67**	
R108	C / 67	62	62	64	63	63	63	
R109	E / 72	60	61	62	61	61	61	Oak Park
R110	E / 72	59	60	61	60	60	60	
R111	B / 67	75	75	**76**	**75**	**76**	**75**	
R112	E / 72	62	62	63	63	63	62	
R113	B / 67	66	66	**66**	**66**	**66**	**66**	
R114	C / 67	61	62	62	62	62	62	
R115	B / 67	66	67	**67**	**67**	**67**	**67**	
R116	E / 72	65	65	65	65	65	65	
R117	C / 67	75	75	**76**	**76**	**76**	**76**	
R118	C / 67	62	62	63	63	63	62	
R119	B / 67	78	79	**79**	**78**	**79**	**78**	
R120	C / 67	68	68	**69**	**69**	**69**	**68**	
R121	C / 67	61	62	62	62	62	61	
R122	B / 67	73	73	**73**	**72**	**73**	**72**	
R123	C / 67	59	60	59	58	58	58	
R124	C / 67	71	72	**72**	**72**	**72**	**72**	
R125	B / 67	74	74	**75**	**74**	**74**	**74**	
R126	C / 67	72	73	**72**	**71**	**71**	**71**	Chicago
R127	C / 67	73	74	**75**	**74**	**75**	**74**	
R127A	C / 67	70	71	**71**	**71**	**71**	**71**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R127B	C / 67	63	64	64	64	64	64	Chicago
R128	B / 67	65	66	**66**	**66**	**66**	**66**	
R129	B / 67	77	78	**78**	**77**	**78**	**78**	
R129A	C / 67	66	67	**68**	**67**	**67**	**67**	
R130	C / 67	66	67	**68**	**67**	**67**	**67**	
R131	B / 67	67	67	**68**	**68**	**68**	**67**	
R132	C / 67	68	68	**69**	**69**	**69**	**68**	
R133	B / 67	68	69	**70**	**69**	**69**	**69**	
R134	C / 67	76	76	**77**	**76**	**76**	**76**	
R136	B / 67	68	68	**70**	**69**	**69**	**69**	
R137	C / 67	68	68	**70**	**69**	**70**	**69**	
R138	B / 67	71	71	**73**	**72**	**72**	**72**	
R139	C / 67	62	63	63	63	63	62	
R140	B / 67	72	73	**74**	**73**	**73**	**73**	
R141	B / 67	66	66	**66**	**66**	**66**	**66**	
R142	E / 72	64	64	65	64	64	64	
R143	C / 67	74	75	**76**	**75**	**75**	**75**	
R143A	C / 67	62	63	64	63	64	63	
R144	C / 67	62	62	63	62	62	62	
R145	C / 67	60	61	62	61	61	60	
R146	B / 67	72	73	**74**	**74**	**74**	**73**	
R147	B / 67	64	64	65	64	64	64	
R148	C / 67	71	71	**71**	**71**	**71**	**70**	
R149	B / 67	76	76	**77**	**77**	**77**	**76**	
R150	B / 67	70	70	**71**	**71**	**71**	**70**	
R151	B / 67	74	75	**77**	**76**	**76**	**76**	
R152	B / 67	68	69	**68**	**68**	**68**	**67**	
R153	C / 67	66	67	**67**	**66**	**66**	65	
R154	B / 67	71	71	**73**	**72**	**72**	**72**	
R155	B / 67	69	70	**70**	**70**	**70**	**69**	
R156	B / 67	77	77	**77**	**77**	**77**	**76**	
R157	C / 67	65	66	**66**	**66**	**66**	65	
R158	B / 67	66	66	**66**	**66**	**66**	65	
R159	B / 67	73	74	**74**	**74**	**74**	**74**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R160	C / 67	71	72	**72**	**71**	**72**	**71**	Chicago
R161	C / 67	75	75	**76**	**75**	**75**	**75**	
R162	B / 67	72	73	**73**	**73**	**73**	**72**	
R163	B / 67	77	77	**77**	**77**	**77**	**76**	
R164	B / 67	75	76	**76**	**75**	**76**	**75**	
R165	B / 67	77	77	**78**	**77**	**77**	**77**	
R166	B / 67	77	78	**79**	**78**	**78**	**78**	
R167	C / 67	68	68	**68**	**68**	**68**	**67**	
R168	C / 67	73	74	**74**	**74**	**74**	**73**	
R169	C / 67	72	72	**73**	**72**	**73**	**72**	
R170	B / 67	76	76	**76**	**76**	**76**	**75**	
R171	C / 67	77	77	**77**	**77**	**77**	**77**	
R172	B / 67	78	79	**79**	**79**	**79**	**79**	
R173	B / 67	76	76	**76**	**76**	**76**	**75**	
R174	C / 67	73	73	**74**	**73**	**74**	**73**	
R175	C / 67	77	77	**78**	**77**	**77**	**77**	
R176	B / 67	76	77	**77**	**77**	**77**	**77**	
R177	B / 67	75	76	**76**	**76**	**76**	**75**	
R178	E / 72	73	73	**74**	**73**	**74**	**72**	
R179	C / 67	69	71	**71**	**71**	**71**	**70**	
R180	B / 67	76	77	**77**	**77**	**77**	**76**	
R181	B / 67	75	76	**76**	**76**	**76**	**75**	
R182	B / 67	76	77	**77**	**77**	**77**	**76**	
R183	C / 67	76	77	**78**	**77**	**77**	**77**	
R184	B / 67	75	76	**76**	**76**	**76**	**75**	
R185	B / 67	76	77	**77**	**77**	**77**	**77**	
R186	E / 72	75	76	**76**	**75**	**76**	**75**	
R187	B / 67	71	72	**72**	**72**	**72**	**71**	
R188	C / 67	66	66	**66**	**66**	**66**	65	
R189	B / 67	76	76	**76**	**76**	**76**	**75**	
R190	E / 72	66	66	67	66	66	66	
R191	B / 67	67	68	**69**	**68**	**68**	**68**	
R192	B / 67	69	69	**70**	**69**	**69**	**69**	
R193	B / 67	76	77	**78**	**77**	**77**	**77**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R194	C / 67	65	65	**66**	65	65	64	Chicago
R195	B / 67	73	73	**74**	**73**	**73**	**73**	
R196	E / 72	73	74	**74**	**74**	**74**	**74**	
R197	B / 67	75	75	**76**	**75**	**75**	**75**	
R198	C / 67	78	78	**79**	**78**	**78**	**78**	
R199	B / 67	74	75	**75**	**74**	**75**	**74**	
R200	B / 67	76	77	**77**	**77**	**77**	**76**	
R201	C / 67	61	61	62	61	62	61	
R202	C / 67	75	76	**76**	**75**	**76**	**75**	
R203	C / 67	58	58	59	58	58	58	
R204	B / 67	77	77	**77**	**77**	**77**	**76**	
R205	C / 67	67	67	**67**	**67**	**67**	**67**	
R206	B / 67	78	78	**79**	**78**	**78**	**78**	
R207	C / 67	59	59	60	59	59	59	
R208	E / 72	74	75	**75**	**75**	**75**	**74**	
R209	C / 67	74	74	**75**	**74**	**74**	**74**	
R210	B / 67	75	76	**76**	**75**	**76**	**75**	
R211	C / 67	66	66	**67**	**66**	**67**	**66**	
R212	B / 67	72	72	**73**	**72**	**73**	**72**	
R213	E / 72	72	72	**72**	**72**	**72**	**72**	
R214	B / 67	58	58	58	58	58	58	
R216	B / 67	64	64	65	64	64	64	
R217	B / 67	72	73	**73**	**73**	**73**	**73**	
R218	C / 67	75	76	**76**	**76**	**76**	**75**	
R219	B / 67	73	74	**74**	**74**	**74**	**73**	
R220	C / 67	71	72	**72**	**72**	**72**	**71**	
R221	B / 67	68	69	**69**	**69**	**69**	**68**	
R222	E / 72	67	67	67	67	67	67	
R223	B / 67	71	72	**72**	**72**	**72**	**71**	
R224	E / 72	75	76	**76**	**76**	**76**	**75**	
R225	C / 67	65	66	**66**	**66**	**66**	65	
R226	C / 67	70	71	**71**	**71**	**71**	**70**	
R227	B / 67	73	74	**75**	**74**	**74**	**74**	
R228	B / 67	75	77	**77**	**76**	**77**	**76**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R229	C / 67	63	64	65	64	64	64	Chicago
R230	B / 67	76	76	**76**	**76**	**76**	**75**	
R231	E / 72	64	65	65	65	65	64	
R232	B / 67	65	66	**66**	**66**	**66**	65	
R233	C / 67	66	67	**68**	**68**	**67**	**67**	
R234	E / 72	75	76	**76**	**76**	**76**	**75**	
R235	B / 67	73	74	**74**	**74**	**74**	**74**	
R236	C / 67	74	75	**76**	**76**	**75**	**76**	
R237	C / 67	69	70	**71**	**71**	**70**	**71**	
R238	B / 67	77	77	**77**	**77**	**77**	**76**	
R239	C / 67	76	77	**78**	**77**	**77**	**77**	
R240	B / 67	76	78	**78**	**77**	**78**	**77**	
R241	C / 67	76	76	**76**	**76**	**76**	**76**	
R241A	C / 67	68	69	**69**	**68**	**69**	**68**	
R242	B / 67	76	77	**77**	**77**	**77**	**77**	
R243	B / 67	76	76	**76**	**76**	**76**	**75**	
R244	B / 67	75	75	**76**	**75**	**75**	**75**	
R245	B / 67	71	71	**71**	**71**	**71**	**71**	
R246	C / 67	75	76	**76**	**75**	**76**	**75**	
R247	B / 67	76	77	**77**	**77**	**77**	**76**	
R248	B / 67	76	76	**76**	**76**	**76**	**76**	
R248A	C / 67	66	66	**67**	**66**	**67**	**66**	
R249	B / 67	75	76	**76**	**76**	**76**	**75**	
R250	C / 67	70	71	**71**	**71**	**71**	**70**	
R251	C / 67	66	67	**67**	**66**	**67**	**66**	
R252	E / 72	62	62	63	62	63	62	
R253	C / 67	74	74	**74**	**74**	**74**	**74**	
R254	B / 67	75	77	**77**	**77**	**77**	**76**	
R255	C / 67	76	77	**77**	**77**	**77**	**76**	
R256	E / 72	57	57	58	57	57	57	
R257	C / 67	74	75	**75**	**75**	**75**	**74**	
R258	B / 67	72	73	**73**	**73**	**73**	**72**	
R259	C / 67	70	70	**71**	**70**	**71**	**70**	
R260	C / 67	75	76	**76**	**76**	**76**	**75**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	GP Add Lane 2040 Noise Level, dB(A)	HOV 2+ 2040 Noise Level, dB(A)	HOT 3+ 2040 Noise Level, dB(A)	HOT 3+ Toll 2040 Noise Level, dB(A)	Community
R261	B / 67	73	74	**75**	**74**	**74**	**74**	Chicago
R262	C / 67	73	74	**74**	**74**	**74**	**73**	
R263	C / 67	62	62	62	62	62	62	
R264	C / 67	75	76	**77**	**76**	**76**	**76**	
R265	C / 67	71	71	**72**	**71**	**72**	**71**	
R266	E / 72	75	76	**77**	**76**	**76**	**76**	
R267	E / 72	72	72	**73**	**72**	**73**	**72**	
R268	E / 72	62	62	62	62	62	62	
R269	B / 67	66	67	**67**	**67**	**67**	**67**	
R270	B / 67	74	76	**76**	**76**	**76**	**76**	
R271	C / 67	70	71	**71**	**71**	**71**	**70**	
R272	B / 67	74	76	**76**	**76**	**76**	**76**	
R273	C / 67	72	73	**73**	**73**	**73**	**73**	
R273A	C / 67	62	63	63	63	63	63	
R274	B / 67	63	64	64	64	64	64	
R275	B / 67	75	77	**77**	**76**	**76**	**76**	
R276	E / 72	63	64	64	64	64	64	
R277	C / 67	64	65	65	65	65	65	
R278	B / 67	69	71	**71**	**71**	**71**	**71**	
R279	B / 67	67	68	**68**	**68**	**68**	**68**	

Boldface indicates the noise levels approach (- 1 dB(A)), meet, or exceed the NAC[1] in the ***future build condition***, constituting a ***noise impact.***

Observations and Conclusions

As noted in Table 1, there are no significant differences in noise levels for the four Build alternatives carried forward. Table 2 summarizes the number of representative receptors that would exceed the NAC for each alternative. Although the HOT 3+ Toll alternative has the fewest representative receptors exceeding the NAC, its noise levels are within 1 dB(A) of the other Build alternatives, which is not a perceptible change in noise.

[1] Please reference Volume 1 of the Traffic Noise Analysis for the FHWA NAC table.

TABLE 2
TRAFFIC NOISE IMPACTS SUMMARY BY BUILD ALTERNATIVE

	GP Add Lane (2040) Alternative	HOV 2+ (2040) Alternative	HOT 3+ (2040) Alternative	HOT 3+ Toll (2040) Alternative
Representative Receptors with Traffic Noise Impacts	230	228	229	220

Table 3 further illustrates there are no significant differences among traffic noise levels for the 2040 No Build and the four Build alternatives. The relative noise level changes from the 2040 No Build Condition to the 2040 Build Condition are reported in Table 3 both by the change in decibels and a description of how the human ear would perceive that level of noise change. Commonly accepted principles regarding perception of noise level changes, as cited in the IDOT Highway Traffic Noise Assessment Manual, include:

± 10 dB(A) a doubling or halving of perceived noise level

± 5 dB(A) readily perceptible change

± 3 dB(A) barely perceptible change

± 1 dB(A) less than barely perceptible change

TABLE 3
RECEPTORS WITH PERCEPTABLE NOISE CHANGE
NO BUILD TO BUILD CONDITIONS

Noise Level Perception	dB(A)	GP Add Lane	HOV 2+	HOT 3+	HOT 3+ Toll
Readily Perceptible	**>= +5**	0	0	0	0
Barely Perceptible	**>= +3**	1	1	1	1
Less than Barely Perceptible	**2 to -2**	284	283	284	284
Barely Perceptible	**<= -3**	2	3	2	2
Readily Perceptible	**<= -5**	1	1	1	1
	Total	288	288	288	288

The table indicates that noise levels of the year 2040 Build alternatives would generally be perceived by the human ear similarly to those of the year 2040 No Build alternative. The Build alternatives would minimally influence noise levels compared to the No Build condition, with between 98% and 99% of the representative receptors experiencing either no change or a change that is considered imperceptible (less than barely perceptible) to the human ear. Furthermore, none of the four Build alternatives would result in a readily perceptible increase in noise, and one representative receptor would experience a readily perceptible decrease in noise levels from the No Build condition.

The analysis indicates that a majority of the corridor, regardless of the Build alternative, would experience noise levels greater than the NAC, and would require a noise abatement analysis.

Section 3: Traffic Noise Impacts of the Preliminary Preferred Alternative

Preliminary Preferred Alternative Identification

The Preliminary Preferred Alternative for the I-290 Reconstruction Project is the HOT 3+ alternative, one of the Alternatives Carried Forward. The Preliminary Preferred Alternative has been refined to reflect continuous access to the proposed managed lane, updated traffic forecasts, and corresponding updated traffic volumes.

Preliminary Preferred Alternative Traffic Noise Impacts

Existing, 2040 No Build, and 2040 Build traffic noise levels for the 288 representative receptors associated with the Preliminary Preferred Alternative are shown in Table 4 below.

TABLE 4
PRELIMINARY PREFERRED ALTERNATIVE TRAFFIC NOISE IMPACT SUMMARY

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R1	E / 72	68	68	69	Hillside
R2	C / 67	66	66	**66**	
R3	B / 67	64	64	64	
R4	B / 67	72	72	**73**	
R5	B / 67	65	65	**66**	
R6	B / 67	65	65	**66**	
R7	B / 67	66	66	**67**	
R8	B / 67	69	70	**70**	
R9	C / 67	65	65	65	
R10	E / 72	74	74	**75**	
R11	C / 67	73	73	**74**	
R12	E / 72	64	64	65	
R13	B / 67	65	66	**67**	
R14	E / 72	66	66	67	
R15	B / 67	70	70	**71**	Bellwood
R16	B / 67	64	64	65	Westchester
R17	B / 67	62	63	63	
R18	C / 67	59	60	61	
R19	B / 67	68	68	**68**	Bellwood
R20	B / 67	69	69	**69**	
R21	B / 67	60	60	60	
R22	C / 67	67	67	**67**	
R23	E / 72	66	66	67	
R24	B / 67	66	66	**67**	
R25	B / 67	64	65	**66**	Westchester
R26	B / 67	63	64	64	Bellwood
R27	B / 67	63	64	64	Westchester
R28	B / 67	62	63	64	Bellwood
R29	B / 67	64	65	**66**	Westchester
R30	B / 67	73	75	**75**	Bellwood
R31	C / 67	61	62	63	Broadview
R32	C / 67	68	69	**68**	Bellwood
R33	C / 67	70	70	**70**	Broadview
R34	E / 72	71	74	66	Bellwood
R35	B / 67	69	69	**68**	Maywood
R36	B / 67	64	65	64	Bellwood

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R37	B / 67	75	76	**77**	Bellwood
R38	B / 67	73	74	**76**	Maywood
R38A	C / 67	61	61	62	
R39	B / 67	73	74	**76**	
R40	B / 67	71	72	**74**	
R41	B / 67	74	75	**76**	
R42	C / 67	72	73	**75**	
R43	B / 67	77	77	**76**	Broadview
R44	B / 67	77	77	**78**	Maywood
R45	C / 67	73	73	**74**	
R46	E / 72	75	75	**76**	
R47	B / 67	74	75	**75**	
R48	C / 67	65	66	**66**	
R49	B / 67	75	75	**76**	
R50	C / 67	63	63	64	
R51	B / 67	69	69	**70**	
R52	C / 67	67	67	**68**	
R52A	C / 67	64	65	65	
R53	C / 67	67	68	**67**	
R54	B / 67	76	76	**76**	
R55	B / 67	76	76	**76**	
R56	C / 67	73	74	**74**	
R57	C / 67	64	64	64	
R58	B / 67	75	77	**76**	
R59	B / 67	75	76	**75**	
R60	E / 72	74	74	**73**	
R61	E / 72	74	75	**71**	
R62	C / 67	73	73	**73**	Forest Park
R63	C / 67	75	75	**71**	
R64	C / 67	75	75	**77**	
R65	C / 67	73	73	**73**	
R66	C / 67	70	71	**71**	
R67	C / 67	73	74	**74**	
R68	B / 67	69	69	**69**	
R69	C / 67	76	76	**76**	
R70	B / 67	75	75	**76**	
R71	E / 72	69	69	69	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R72	C / 67	71	71	**71**	Forest Park
R73	C / 67	76	77	**77**	
R74	B / 67	69	70	**70**	
R75	C / 67	69	70	**70**	
R76	B / 67	73	75	**71**	
R76A	C / 67	72	74	**73**	
R77	C / 67	69	70	**72**	Oak Park
R78	C / 67	72	73	**73**	
R79	C / 67	75	76	**75**	
R79A	B / 67	75	76	**77**	
R80	C / 67	72	73	**74**	
R81	C / 67	72	73	**73**	
R82	B / 67	75	75	**76**	
R83	B / 67	76	76	**77**	
R84	B / 67	76	76	**77**	
R85	B / 67	76	76	**77**	
R86	B / 67	77	77	**78**	
R87	E / 72	70	71	69	
R88	B / 67	67	68	**67**	
R89	E / 72	77	78	**78**	
R90	E / 72	69	70	70	
R91	B / 67	67	68	**68**	
R92	B / 67	75	75	**76**	
R93	C / 67	75	76	**77**	
R94	B / 67	77	77	**77**	
R95	C / 67	63	63	63	
R96	C / 67	69	69	**70**	
R96A	C / 67	74	74	**75**	
R97	B / 67	63	64	64	
R98	C / 67	75	75	**76**	
R99	B / 67	75	75	**76**	
R100	B / 67	78	78	**78**	
R101	C / 67	77	78	**78**	
R102	B / 67	72	73	**73**	
R103	C / 67	69	69	**70**	
R104	B / 67	73	73	**76**	
R105	B / 67	67	67	**68**	
R107	C / 67	66	66	**67**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R108	C / 67	62	62	63	Oak Park
R109	E / 72	60	61	62	
R110	E / 72	59	60	61	
R111	B / 67	75	75	**76**	
R112	E / 72	62	62	63	
R113	B / 67	66	66	**66**	
R114	C / 67	61	62	62	
R115	B / 67	66	67	**67**	
R116	E / 72	65	65	65	
R117	C / 67	75	75	**76**	
R118	C / 67	62	62	64	
R119	B / 67	78	79	**79**	
R120	C / 67	68	68	**67**	
R121	C / 67	61	62	62	
R122	B / 67	73	73	**73**	
R123	C / 67	59	60	59	
R124	C / 67	71	72	**72**	Chicago
R125	B / 67	74	74	**75**	
R126	C / 67	72	73	**70**	
R127	C / 67	73	74	**75**	
R127A	C / 67	70	71	**71**	
R127B	C / 67	63	64	64	
R128	B / 67	65	66	**66**	
R129	B / 67	77	78	**78**	
R129A	C / 67	66	67	**67**	
R130	C / 67	66	67	**67**	
R131	B / 67	67	67	**67**	
R132	C / 67	68	68	**68**	
R133	B / 67	68	69	**69**	
R134	C / 67	76	76	**75**	
R136	B / 67	68	68	**69**	
R137	C / 67	68	68	**69**	
R138	B / 67	71	71	**71**	
R139	C / 67	62	63	63	
R140	B / 67	72	73	**73**	
R141	B / 67	66	66	**66**	
R142	E / 72	64	64	64	
R143	C / 67	74	75	**74**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R143A	C / 67	62	63	63	Chicago
R144	C / 67	62	62	62	
R145	C / 67	60	61	61	
R146	B / 67	72	73	**73**	
R147	B / 67	64	64	64	
R148	C / 67	71	71	**70**	
R149	B / 67	76	76	**76**	
R150	B / 67	70	70	**69**	
R151	B / 67	74	75	**75**	
R152	B / 67	68	69	**68**	
R153	C / 67	66	67	**66**	
R154	B / 67	71	71	**72**	
R155	B / 67	69	70	**70**	
R156	B / 67	77	77	**77**	
R157	C / 67	65	66	**66**	
R158	B / 67	66	66	**66**	
R159	B / 67	73	74	**74**	
R160	C / 67	71	72	**72**	
R161	C / 67	75	75	**75**	
R162	B / 67	72	73	**73**	
R163	B / 67	77	77	**77**	
R164	B / 67	75	76	**75**	
R165	B / 67	77	77	**77**	
R166	B / 67	77	78	**78**	
R167	C / 67	68	68	**68**	
R168	C / 67	73	74	**74**	
R169	C / 67	72	72	**73**	
R170	B / 67	76	76	**76**	
R171	C / 67	77	77	**77**	
R172	B / 67	78	79	**79**	
R173	B / 67	76	76	**76**	
R174	C / 67	73	73	**74**	
R175	C / 67	77	77	**76**	
R176	B / 67	76	77	**77**	
R177	B / 67	75	76	**76**	
R178	E / 72	73	73	**74**	
R179	C / 67	69	71	**71**	
R180	B / 67	76	77	**77**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R181	B / 67	75	76	**76**	Chicago
R182	B / 67	76	77	**77**	
R183	C / 67	76	77	**77**	
R184	B / 67	75	76	**76**	
R185	B / 67	76	77	**77**	
R186	E / 72	75	76	**76**	
R187	B / 67	71	72	**72**	
R188	C / 67	66	66	**66**	
R189	B / 67	76	76	**76**	
R190	E / 72	66	66	66	
R191	B / 67	67	68	**68**	
R192	B / 67	69	69	**69**	
R193	B / 67	76	77	**77**	
R194	C / 67	65	65	65	
R195	B / 67	73	73	**72**	
R196	E / 72	73	74	**74**	
R197	B / 67	75	75	**75**	
R198	C / 67	78	78	**79**	
R199	B / 67	74	75	**74**	
R200	B / 67	76	77	**77**	
R201	C / 67	61	61	61	
R202	C / 67	75	76	**75**	
R203	C / 67	58	58	59	
R204	B / 67	77	77	**76**	
R205	C / 67	67	67	**68**	
R206	B / 67	78	78	**77**	
R207	C / 67	59	59	59	
R208	E / 72	74	75	**75**	
R209	C / 67	74	74	**74**	
R210	B / 67	75	76	**76**	
R211	C / 67	66	66	**66**	
R212	B / 67	72	72	**72**	
R213	E / 72	72	72	**71**	
R214	B / 67	58	58	59	
R216	B / 67	64	64	63	
R217	B / 67	72	73	**73**	
R218	C / 67	75	76	**76**	
R219	B / 67	73	74	**74**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R220	C / 67	71	72	**72**	Chicago
R221	B / 67	68	69	**69**	
R222	E / 72	67	67	67	
R223	B / 67	71	72	**72**	
R224	E / 72	75	76	**76**	
R225	C / 67	65	66	**66**	
R226	C / 67	70	71	**71**	
R227	B / 67	73	74	**72**	
R228	B / 67	75	77	**76**	
R229	C / 67	63	64	64	
R230	B / 67	76	76	**74**	
R231	E / 72	64	65	65	
R232	B / 67	65	66	65	
R233	C / 67	66	67	**67**	
R234	E / 72	75	76	**76**	
R235	B / 67	73	74	**74**	
R236	C / 67	74	75	**75**	
R237	C / 67	69	70	**70**	
R238	B / 67	77	77	**77**	
R239	C / 67	76	77	**77**	
R240	B / 67	76	78	**77**	
R241	C / 67	76	76	**76**	
R241A	C / 67	68	69	**68**	
R242	B / 67	76	77	**77**	
R243	B / 67	76	76	**75**	
R244	B / 67	75	75	**75**	
R245	B / 67	71	71	**71**	
R246	C / 67	75	76	**75**	
R247	B / 67	76	77	**76**	
R248	B / 67	76	76	**76**	
R248A	C / 67	66	66	**66**	
R249	B / 67	75	76	**76**	
R250	C / 67	70	71	**69**	
R251	C / 67	66	67	**67**	
R252	E / 72	62	62	62	
R253	C / 67	74	74	**74**	
R254	B / 67	75	77	**76**	
R255	C / 67	76	77	**76**	

Representative Receptor Number	Activity Category/ NAC (dB(A))	Existing Noise Level, dB(A)	No-Build 2040 Noise Level, dB(A)	Preliminary Preferred Alternative 2040 Noise Level, dB(A)	Community
R256	E / 72	57	57	58	Chicago
R257	C / 67	74	75	**75**	
R258	B / 67	72	73	**73**	
R259	C / 67	70	70	**70**	
R260	C / 67	75	76	**75**	
R261	B / 67	73	74	**74**	
R262	C / 67	73	74	**73**	
R263	C / 67	62	62	62	
R264	C / 67	75	76	**76**	
R265	C / 67	71	71	**72**	
R266	E / 72	75	76	**77**	
R267	E / 72	72	72	**74**	
R268	E / 72	62	62	62	
R269	B / 67	66	67	**67**	
R270	B / 67	74	76	**76**	
R271	C / 67	70	71	**71**	
R272	B / 67	74	76	**76**	
R273	C / 67	72	73	**73**	
R273A	C / 67	62	63	62	
R274	B / 67	63	64	63	
R275	B / 67	75	77	**76**	
R276	E / 72	63	64	64	
R277	C / 67	64	65	65	
R278	B / 67	69	71	**71**	
R279	B / 67	67	68	**68**	

Boldface indicates the noise levels approach (- 1 dB(A)), meet, or exceed the NAC in the ***future build condition***, constituting a ***noise impact.***

Observations and Conclusions

The 2040 traffic noise levels for the Preliminary Preferred Alternative as predicted by TNM range from 58 dB(A) at R256 to 79 dB(A) at R172 and R198. Noise level change from the No Build condition to the Preliminary Preferred Alternative condition ranges from -8 to 3 dB(A). Build traffic noise levels were found to decrease from the No Build condition for several representative receptors. This occurs due to roadway geometry changes in the western half of the corridor from 25th Avenue to Cicero Avenue (primarily due to interchange reconfigurations, I-290 lane shifts, and elevation modifications), as well as predicted slight traffic volume reductions in select areas of the eastern half of the corridor.

The lower elevation of I-290 relative to the representative receptors influenced noise levels; areas in a "trench" (such as in Forest Park and Oak Park) or other areas where I-290 is at a lower elevation than the surrounding land uses typically had lower noise levels than areas at nearly the same elevation as I-290. The "trench" provides some noise shielding to the surrounding representative receptors. In the Build condition, much of I-290 through Forest Park and Oak Park will be at a lower elevation than in existing conditions, which contributes to lower noise levels in some areas.

For the 2040 Preliminary Preferred Alternative, 228 of the 288 (79 percent) representative receptor locations approach, meet, or exceed the FHWA NAC, and therefore warrant a noise abatement analysis. None of the representative receptors are considered impacted due to a substantial increase (greater than 14 dB(A) increase) in traffic noise levels.

Individual traffic noise findings that deviate slightly from other trends in the corridor include:

- At R34, the proposed interchange geometry change at 25th Avenue (from a partial cloverleaf interchange to a single point urban interchange (SPUI)) is reflected in the noise results. In the existing and 2040 No Build conditions, Harrison Street west of 25th Avenue (north of I-290) carries local traffic and traffic for the 25th Avenue interchange westbound on ramp. In the Build condition, the westbound on ramp traffic is rerouted from Harrison Street to the new SPUI interchange ramp. As a result, there is less traffic on the frontage road west of 25th Avenue, resulting in 2040 Build traffic noise levels that are as much as 8 decibels lower that of the 2040 No Build (R34). R35, R32, and R33 also are influenced by the proposed Build 25th Avenue interchange design.
- At R76 and R76A (representative receptors in the northwest quadrant of the IL 43/Harlem Avenue interchange), the existing and 2040 No Build traffic noise levels will be the same or greater than those of the 2040 Build alternatives. The 2040 Build noise levels decrease due to the addition of vertical retaining walls needed to support the proposed Harlem interchange ramps. These walls reduce the noise level of the mainline noise (the greatest noise source) that reaches the representative receptors.
- Due to the proposed lower I-290 mainline elevation through Oak Park in combination with the proposed Harlem Avenue and Austin Boulevard interchange designs, additional shielding will be provided to representative receptors along the north side of I-290 through Oak Park, such as R79 (Wenonah Tot Lot, Oak Park, north side of I-290).

Section 4: Abatement Analysis

Abatement Alternatives

Traffic noise abatement measures were considered for the impacted representative receptors that approach, meet, or exceed the appropriate FHWA NAC. The most feasible approach to abating noise impacts in these areas would be to construct a noise barrier, which may include a noise wall, an earth berm, or a combination of both. Noise barriers placed adjacent to the roadway would attenuate traffic-related noise and are the most practical measure for this project. Noise abatement analysis is completed for all represented receptors within each CNE with an impacted representative (worst-case noise condition) receptor.[2] An effective noise barrier must be tall enough to break the line-of-sight between the receptor and source and typically extends beyond the last receptor four times the distance between the receptor and noise barrier. Noise barriers have a zone of effectiveness, or shadow zone, which is generally within 200 feet of the noise barrier; therefore, less noise reduction is achieved as the distance between the receptor and the noise barrier increases.

TNM was used to perform the noise barrier feasibility and reasonability evaluation for the impacted representative receptors. When determining if an abatement measure is feasible and reasonable, the noise reductions achieved, number of represented receptors benefited, total cost, and total cost per represented receptor benefited are considered.

Feasibility and Reasonableness

An analysis of noise abatement measures (noise barriers) was conducted in conformance with FHWA requirements contained in Title 23 Code of Federal Regulations Part 772 for each of the impacted representative receptors. In order for a noise abatement measure to be constructed, it must meet both the feasibility and reasonableness criteria, described below.

Feasibility

The feasibility evaluation is a combination of acoustical and engineering factors considered in the evaluation of a noise abatement measure. The acoustical portion of the IDOT policy, as required by FHWA regulations, considers noise abatement to be feasible if it achieves at least a 5 dB(A) traffic noise reduction at an impacted receptor. Factors including but not limited to safety, barrier height, topography, drainage, utilities, maintenance, and access issues also are considered.

Reasonableness

As per the FHWA regulations, a noise abatement measure is determined to be reasonable when all three of the following reasonableness evaluation factors are met:

- cost effectiveness of the highway traffic noise abatement measure;
- achievement of IDOT's noise reduction design goal; and,

[2] In the abatement analysis section of the report, all instances of "receptor," unless otherwise noted, are represented receptors.

- consideration of the viewpoints of the benefited receptors (property owners and residents) results in a majority desiring the abatement.

A noise abatement measure is considered cost-effective to construct if the noise wall construction cost per benefited receptor is less than the allowable cost per benefited receptor. A benefited receptor is any receptor that is afforded at least a 5 dB(A) traffic noise reduction from the proposed noise abatement measure. FHWA regulations allow each State Highway Authority to establish cost criteria for determining cost effectiveness.

IDOT policy establishes that the actual cost per benefited receptor shall be based on a noise wall cost of $25 per square foot, which includes engineering, materials, and construction. The base value allowable cost is $24,000 per benefited receptor, which can be increased based on three factors as summarized below:

- the absolute noise level of the benefited receptors in the design year build scenario before noise abatement;
- the incremental increase in noise level between the existing noise level at the benefited receptor and the predicted build noise level before noise abatement; and
- the date of development compared to the construction date of the highway. These factors are considered for all benefited receptors.

Absolute Noise Level Consideration

Predicted Build Noise Level Before Noise Abatement	Dollars Added to Base Value Cost per Benefited Receptor
Less than 70 dB(A)	$0
70 to 74 dB(A)	$1,000
75 to 79 dB(A)	$2,000
80 dB(A) or greater	$4,000

Source: IDOT Highway Traffic Noise Assessment Manual

Increase in Noise Level Consideration

Incremental Increase in Noise Level Between the Existing Noise Level and the Predicted Build Noise Level Before Noise Abatement	Dollars Added to Base Value Cost per Benefited Receptor
Less than 5 dB(A)	$0
5 to 9 dB(A)	$1,000
10 to 14 dB(A)	$2,000
15 dB(A) or greater	$4,000

Source: IDOT Highway Traffic Noise Assessment Manual

New Alignment / Construction Date Consideration

Project is on new alignment OR the receptor existed prior to the original construction of the highway	Dollars Added to Base Value Cost per Benefited Receptor
No for both	$0
Yes for either	$5,000

Note: No single optional reasonableness factor shall be used to determine that a noise abatement measure is unreasonable.
Source: IDOT Highway Traffic Noise Assessment Manual

The IDOT noise reduction design goal is to achieve an 8 dB(A) traffic noise reduction at a minimum of one benefited receptor. If a noise abatement measure is feasible, achieves the cost-effective criterion, and achieves the IDOT noise reduction design goal, then the viewpoints of benefited receptors are solicited, so they may vote regarding construction of the noise wall.

Noise Wall Analysis

TNM was used to perform the noise wall feasibility and reasonability check for the represented receptors in CNEs with a representative receptor impacted by the Preliminary Preferred Alternative. When determining if an abatement measure is feasible and reasonable, the noise reductions achieved, number of residences benefited, total barrier cost, total cost per residence benefited, and viewpoints of the benefited receptors are considered.

The noise wall analysis is reported in three sections.

- First, existing noise barriers (nine existing barriers are located between Butterfield Road and 25th Avenue and one barrier associated with the Jane Byrne Interchange that will soon be built between Loomis Street and Racine Avenue) and any recommended changes to those barriers are reported.
- Second, proposed new barriers are reported for the area from Butterfield Road to Cicero Avenue; this is an area proposed for complete I-290 reconstruction.
- Third, proposed new barriers are reported for the area from Cicero Avenue to Racine Avenue; this area is not proposed for reconstruction, but is proposed for I-290 restriping.

The noise barriers studied in the abatement analysis are shown in the Analyzed Noise Wall Location Map, Figure 2, found at the conclusion of the report.

Existing Noise Barriers

The project corridor contains nine existing noise walls from Butterfield Road to west of 25th Avenue (within the villages of Hillside, Westchester, and Bellwood), as well as one barrier that will soon be constructed as part of the Jane Byrne Interchange project between Loomis Street and Racine Avenue (within the City of Chicago). The goal of a noise wall is to perceptibly lower roadway noise levels, and not to reduce the noise levels below the NAC. There are often cases where a noise wall is performing as designed, meeting applicable criteria, and the noise levels behind the wall are still above the NAC. If noise impacts were determined for the Preliminary Preferred Alternative behind existing barriers in these areas, the existing barriers were studied to determine if it would be feasible and reasonable to increase the barriers in length and/or height.

IDOT's 2015 interim policy regarding analysis of existing noise barriers states:

> When an existing noise barrier is not physically impacted or relocated as part of a new Type I project and impacts are identified, the noise analyst shall determine if modification of the existing noise barrier is feasible and reasonable for the mitigation of additional impacts related to the new Build condition. The noise analyst will determine the design year noise levels with and without modification of the existing noise barrier. Should modification of the existing noise barrier be determined not feasible or not reasonable as defined in current policy; the existing noise barrier will be left in place without modification.[3]

[3] Noise Assessment Policy Interpretation Memorandum, Illinois Department of Transportation Bureau of Design and Environment. June 25, 2015

There are ten existing noise walls within the project corridor (B1, B2, B3, B4, B6, B7, B8, B9, B10, and B88). At least one representative receptor behind all of the existing barriers was predicted to have traffic noise impacts, except for B8. An analysis was performed to determine if increasing the height of these existing noise barriers would be feasible and reasonable under IDOT's 2015 interim policy for existing noise barriers. A summary of this analysis is in Table 5. It was found that noise barrier height increases at eight of the ten noise barriers would not be considered feasible, as they do not achieve the IDOT feasibility criterion of at least a 5 dB(A) traffic noise reduction at one or more impacted receptor locations. Height increases to the remaining two existing noise barriers did meet the IDOT feasibility criterion, but would not meet the criteria of reasonableness, as they do not achieve the IDOT noise reduction design goal of at least an 8 dB(A) traffic noise reduction at one or more benefited receptors. Since none of the height increases to the ten existing noise walls would be feasible and reasonable, height increases to the existing barriers are not planned as part of this project.

The results of the analysis for length extensions to existing barriers are reported in the following two sections, as their construction is similar to those of proposed new barriers.

TABLE 5
EXISTING I-290 NOISE BARRIERS
HEIGHT INCREASE ABATEMENT ANALYSIS

Barrier	Location of Existing Barrier	Height Increase Abatement Analysis Result	Ratio	Finding
B1	North of I-290, Butterfield Rd. to Wolf Rd.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B2	South of I-290, West of Darmstadt Rd.	Does not meet IDOT Noise Reduction Design Goal	n/a	Not Reasonable
B3	South of I-290, Darmstadt Rd. to Wolf Rd.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B4	North of I-290, Wolf Rd. to Hillside Dr.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B6	South of I-290, adjacent to Oak Ridge Ave.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B7	North of I-290, Mannheim Rd. to Bellwood Ave.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B8	South of I-290, Mannheim Rd. to Westchester Blvd.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B9	North of I-290, Bellwood Ave. to 30th Ave.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B10	South of I-290, Westchester Blvd. to Bristol Ave.	Does not meet IDOT Feasibility Criterion	n/a	Not Feasible
B88	North of I-290, Loomis St. to Entrance Ramp	Does not meet IDOT Noise Reduction Design Goal	n/a	Not Reasonable

West of Mannheim Road to Cicero Avenue (Proposed New Noise Barriers, Proposed I-290 Reconstruction)

The project corridor from west of Mannheim Road to Cicero Avenue (within the villages of Hillside, Westchester, Bellwood, Broadview, Maywood, Forest Park, Oak Park, and the city of Chicago) could receive new noise barriers as a result of this noise abatement analysis. This section of the project corridor is proposed for complete I-290 reconstruction.

Forty-one noise walls were evaluated for the impacted representative receptors within this section, including two extensions of existing noise barriers at B9 and B10. All but three of the noise walls (B12, B29, and B47) were found to be feasible, meaning they could achieve at least a 5 dB(A) reduction at an impacted receptor.

Thirty-six of the thirty-eight feasible noise barriers would meet the first criterion of reasonableness, as they achieve the IDOT noise reduction design goal of at least an 8 dB(A) traffic noise reduction at one or more benefited receptors. The noise walls B11 and B21 would not achieve the noise reduction design goal, and do not meet this reasonableness criterion. Generally, walls are not acoustically feasible or do not achieve the IDOT noise reduction design goal because the nearest receptors to the analyzed barrier are further away than in other locations, limiting the effectiveness of the barrier shadow zone. I-290 crossroad traffic noise contributions also are a factor for barriers B12 and B21. Additionally, the frontage road noise presented a challenge in several cases as it is not abated by the analyzed noise walls. High frontage road noise levels resulted in taller noise walls in order to achieve similar reductions to those found in areas with less frontage road traffic, or result in walls that were not feasible or do not achieve the NRDG.

The thirty-six feasible noise walls that also achieve the noise reduction design goal were then evaluated for cost-effectiveness. Table 6 summarizes the results of the adjusted allowable cost per benefited receptor determination. Each benefited receptor received a base allowable barrier cost of $24,000, which could be increased based upon absolute noise level considerations, increase in noise level considerations, and new alignment/construction data considerations. The range of these cost adjustment considerations per barrier is summarized as "Adjustment Factor Range" in Table 6. Table 7 summarizes the results of the noise abatement evaluation.

TABLE 6
ADJUSTED ALLOWABLE COST PER BENEFITED RECEPTOR
I-290 ANAYLZED NEW BARRIERS: WEST OF MANNHEIM ROAD TO CICERO AVENUE

Barrier	Benefited Receptors	Adjustment Factor Range	Adjusted Allowable Cost per Benefited Receptors
B5	360	$0 to $2,000	$25,322
B9 Ext	17	$5,000 to $7,000	$29,294
B10 Ext	20	$0 to $7,000	$29,250
B11	Does not meet IDOT Noise Reduction Design Goal		
B12	Does not meet IDOT Feasibility Criterion		
B13	104	$5,000 to $7,000	$29,462

Barrier	Benefited Receptors	Adjustment Factor Range	Adjusted Allowable Cost per Benefited Receptors
B14	126	$5,000 to $7,000	$29,468
B15	85	$0 to $7,000	$27,600
B16	203	$0 to $7,000	$26,389
B17	49	$5,000 to $7,000	$29,571
B18	22	$6,000 to $7,000	$30,409
B19	52	$5,000 to $7,000	$29,712
B20	29	$5,000 to $7,000	$30,000
B21	Does not meet IDOT Noise Reduction Design Goal		
B22	2	$1,000	$25,000
B23	1	$2,000	$26,000
B24	6	$1,000 to $2,000	$25,500
B25	2	$1,000	$25,000
B26	9	$0 to $2,000	$24,889
B27	16	$2,000 to $7,000	$29,625
B28	29	$5,000 to $7,000	$30,069
B29	Does not meet IDOT Feasibility Criterion		
B30	23	$2,000 to $7,000	$29,696
B31	24	$1,000 to $7,000	$29,125
B32	78	$5,000 to $7,000	$29,692
B33	79	$5,000 to $7,000	$30,443
B34	114	$5,000 to $7,000	$29,404
B35	90	$5,000 to $7,000	$30,567
B36	36	$5,000 to $7,000	$29,750
B37	40	$0 to $7,000	$29,750
B38	31	$6,000 to $7,000	$30,032
B39	42	$1,000 to $7,000	$29,310
B40	156	$5,000 to $6,000	$29,083
B41	82	$0 to $7,000	$29,634
B42	118	$5,000 to $7,000	$29,763
B43	6	$1,000 to $2,000	$25,167
B44	310	$0 to $7,000	$30,558
B45	47	$2,000 to $7,000	$25,128
B46	78	$1,000	$25,000
B47	Does not meet IDOT Feasibility Criterion		
B48	30	$6,000 to $7,000	$30,833

TABLE 7
NOISE ABATEMENT ANALYSIS SUMMARY
I-290 ANALYZED NEW BARRIERS: WEST OF MANNHEIM ROAD TO CICERO AVENUE

Barrier	Location of Barrier	Barrier Length (ft) [1]	Average Barrier Height (ft) [1]	Barrier Construction Cost ($) [2]	Total Allowable Barrier Cost ($)[3]	Benefitted Receptors [4]	Adjusted Allowable Cost per Benefitted Receptor ($)	Actual Cost per Benefitted Receptor ($)	Ratio [5]	Finding
B5	North of I-290, East of Hillside Dr. Underpass	1,226	11	$337,150	$9,116,000	360	$25,322	$937	0.04	Cost-Effective
B9 Ext.	Extension of Existing B9 to the East	594	15	$222,750	$498,000	17	$29,294	$13,103	0.45	Cost-Effective
B10 Ext.	Extension of Existing B10 to the East	699	15	$262,125	$585,000	20	$29,250	$13,106	0.45	Cost-Effective
B11	North of I-290, NW quadrant of 25th Ave. interchange	Does not meet IDOT Noise Reduction Design Goal							n/a	Not reasonable
B12	South of I-290, SW quadrant of 25th Ave. interchange	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible
B13	South of I-290, 25th Ave. to 17th Ave.	2,695	13	$875,875	$3,064,000	104	$29,462	$8,422	0.29	Cost-Effective
B14	North of I-290, 25th Ave. to 17th Ave.	2,696	13	$876,200	$3,713,000	126	$29,468	$6,954	0.24	Cost-Effective
B15	North of I-290, 17th Avenue to 9th Avenue	2,795	13	$908,375	$2,346,000	85	$27,600	$10,687	0.39	Cost-Effective
B16	South of I-290, 17th Ave. to 9th Ave.	2,600	15	$975,000	$5,357,000	203	$26,389	$4,803	0.18	Cost-Effective
B17	South of I-290, 9th Ave. to 5th Ave.	1,446	15	$542,250	$1,449,000	49	$29,571	$11,066	0.37	Cost-Effective
B18	North of I-290, 9th Ave. to 5th Ave.	1,273	15	$477,375	$669,000	22	$30,409	$21,699	0.71	Cost-Effective
B19	South of I-290, 5th Ave. to 1st Ave.	1,300	15	$487,500	$1,545,000	52	$29,712	$9,375	0.32	Cost-Effective
B20	North of I-290, 5th Ave. to 1st Ave.	1,268	15	$475,500	$870,000	29	$30,000	$16,397	0.55	Cost-Effective
B21	North of I-290, NE quadrant of 1st Ave. interchange	Does not meet IDOT Noise Reduction Design Goal							n/a	Not reasonable
B22	South of I-290, 1st Ave. to Des Plaines River	1473	19	$699,675	$50,000	2	$25,000	$349,838	13.99	Not cost-effective (not reasonable)
B23	North of I-290, Cook County Court	1,001	19	$475,475	$26,000	1	$26,000	$475,475	18.29	Not cost-effective (not reasonable)
B24	North of I-290, Concordia Cemetery	1,405	21	$737,625	$153,000	6	$25,500	$122,938	4.82	Not cost-effective (not reasonable)
B25	South of I-290, Forest Home Cemetery	1,507	13	$489,775	$50,000	2	$25,000	$244,888	9.80	Not cost-effective (not reasonable)
B26	South of I-290, Des Plaines Ave. to Circle Avenue	1,985	13	$645,125	$224,000	9	$24,889	$71,681	2.88	Not cost-effective (not reasonable)
B27	North of I-290, Des Plaines Ave. to Circle Ave.	1,181	13	$383,825	$474,000	16	$29,625	$23,989	0.81	Cost-Effective
B28	North of I-290, Circle Ave. to Harlem Ave.	947	17	$402,475	$872,000	29	$30,069	$13,878	0.46	Cost-Effective
B29	South of I-290, Circle Ave. to Harlem Ave.	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible

Barrier	Location of Barrier	Barrier Length (ft) [1]	Average Barrier Height (ft) [1]	Barrier Construction Cost ($) [2]	Total Allowable Barrier Cost ($)[3]	Benefitted Receptors [4]	Adjusted Allowable Cost per Benefitted Receptor ($)	Actual Cost per Benefitted Receptor ($)	Ratio [5]	Finding
B30	South of I-290, Harlem Ave. to Home Ave.	1,008	15	$378,000	$683,000	23	$29,696	$16,435	0.55	Cost-Effective
B31	North of I-290, Harlem Ave. to Home Ave.	1,456	15	$546,000	$699,000	24	$29,125	$22,750	0.78	Cost-Effective
B32	North of I-290, Home Ave. to Oak Park Ave.	1,237	15	$463,875	$2,316,000	78	$29,692	$5,947	0.20	Cost-Effective
B33	South of I-290, Home Ave. to Oak Park Ave.	1,224	15	$459,000	$2,405,000	79	$30,443	$5,810	0.19	Cost-Effective
B34	North of I-290, Oak Park Ave. to East Ave.	1,303	17	$553,775	$3,352,000	114	$29,404	$4,858	0.17	Cost-Effective
B35	South of I-290, Oak Park Ave. to East Ave.	1,305	13	$424,125	$2,751,000	90	$30,567	$4,713	0.15	Cost-Effective
B36	North of I-290, East Ave. to Ridgeland Ave.	1,404	15	$526,500	$1,071,000	36	$29,750	$14,625	0.49	Cost-Effective
B37	South of I-290, East Ave. to Ridgeland Ave.	1,312	15	$492,000	$1,190,000	40	$29,750	$12,300	0.41	Cost-Effective
B38	North of I-290, Ridgeland Ave. to Lombard Ave.	1,302	13	$423,150	$931,000	31	$30,032	$13,650	0.45	Cost-Effective
B39	South of I-290, Ridgeland Ave. to Lombard Ave.	1,602	18	$720,900	$1,231,000	42	$29,310	$17,164	0.59	Cost-Effective
B40	North of I-290, Lombard Ave. to Austin Blvd.	1,303	17	$553,775	$4,537,000	156	$29,083	$3,550	0.12	Cost-Effective
B41	South of I-290, Lombard Ave. to Austin Blvd.	1,278	17	$543,150	$2,430,000	82	$29,634	$6,624	0.22	Cost-Effective
B42	South of I-290, East of Austin Blvd.	1,650	15	$618,750	$3,512,000	118	$29,763	$5,244	0.18	Cost-Effective
B43	North of I-290, Columbus Park	2,631	11	$723,525	$151,000	6	$25,167	$120,588	4.79	Not cost-effective (not reasonable)
B44	North of I-290, Central Ave. to Laramie Ave.	3,254	15	$1,220,250	$9,473,000	310	$30,558	$3,936	0.13	Cost-Effective
B45	South of I-290, West of Laramie Ave.	1,765	13	$573,625	$1,181,000	47	$25,128	$12,205	0.49	Cost-Effective
B46	North of I-290, Laramie Ave. to Lavergne Ave.	1,470	15	$551,250	$1,950,000	78	$25,000	$7,067	0.28	Cost-Effective
B47	North of I-290, Lavergne Ave. to Cicero Ave.	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible
B48	South of I-290, Lavergne Ave. to Cicero Ave.	1,067	15	$400,125	$925,000	30	$30,833	$13,338	0.43	Cost-Effective

[1] Barrier length and height are not listed for barriers that are not reasonable and feasible.

[2] Based on the IDOT policy value of $25 per square foot

[3] Per IDOT traffic noise policy and the reasonableness analysis

[4] Any receptor receiving at least a 5 dB(A) reduction due to the proposed barrier

[5] Ratio of actual build cost of a barrier per benefitted receptor to the adjusted allowable cost per benefitted receptor. This is used to determine if a barrier can be found cost effective through cost averaging. For a single noise abatement measure to be considered as part of a cost averaging solution, this ratio must not exceed 2.0 (the cost of noise abatement per benefitted receptor may not exceed two times the adjusted allowable noise abatement cost per benefitted receptor).

Forty-one noise barrier locations were studied within this section. Of the forty-one barriers, three were found to not be feasible (B12, B29, B47), and eight were found to be not reasonable. Of the eight barriers found to be not reasonable, two were found to not meet the IDOT noise reduction criterion (B11 and B21), and six were found to be not cost effective (B22, B23, B24, B25, B26, and B43). The thirty remaining noise barriers, which include extensions of existing noise barriers, were found to be feasible and reasonable as stand-alone noise barriers.

Cicero Avenue to Racine Avenue (Proposed New Noise Barriers, Proposed I-290 Restriping)

A noise abatement analysis was completed for potential new noise barriers in the project corridor from Cicero Avenue to Racine Avenue (within the city of Chicago). This section of the project corridor is proposed for I-290 restriping, but no roadway reconstruction is currently proposed for this section of the corridor.

Forty-one noise walls were evaluated for the impacted representative receptors within this section. All but three of the noise walls (B50, B78, and B84) were found to be feasible, meaning they could achieve at least a 5 dB(A) reduction at an impacted receptor.

Thirty-four of the thirty-eight noise barriers considered feasible meet the first criterion of reasonableness, as they achieve the IDOT noise reduction design goal of at least an 8 dB(A) traffic noise reduction at one or more benefited receptor locations. The noise walls B82, B85, B86, and B87 would not achieve the noise reduction design goal, and do not meet this reasonableness criterion. Generally, walls are not acoustically feasible or do not achieve the IDOT noise reduction design goal because the nearest represented receptors to the analyzed barrier are further away than in other locations, limiting the effectiveness of the barrier shadow zone. I-290 crossroad traffic noise contributions also are a factor for barriers B78 and B84. Additionally, the frontage road noise presented a challenge in several cases as it is not abated by the analyzed noise walls. High frontage road noise levels resulted in taller noise walls in order to achieve similar reductions to those found in areas with less frontage road traffic, or result in walls that were not feasible or do not achieve the NRDG.

The thirty-four feasible noise walls that also achieve the noise reduction design goal were then evaluated for cost-effectiveness. Table 8 summarizes the results of the adjusted allowable cost per benefited receptor determination. Each benefited receptor received a base allowable barrier cost of $24,000, which could be increased based upon absolute noise level considerations, increase in noise level considerations, and new alignment/construction data considerations. The range of these cost adjustment considerations per barrier is summarized as "Adjustment Factor Range" in Table 8. Table 9 summarizes the results of the noise abatement evaluation.

TABLE 8
ADJUSTED ALLOWABLE COST PER BENEFITED RECEPTOR
I-290 ANALYZED NEW BARRIERS: CICERO AVENUE TO RACINE AVENUE

Barrier	Benefited Receptors	Adjustment Factor Range	Adjusted Allowable Cost per Benefited Receptors
B49	26	$6,000 to $7,000	$30,500
B50	Does not meet IDOT Feasibility Criterion		
B51	36	$0 to $7,000	$29,194
B52	166	$5,000 to $7,000	$29,476
B53	20	$6,000 to $7,000	$30,300
B54	18	$6,000 to $7,000	$30,389
B55	28	$5,000 to $7,000	$30,571
B56	6	$1,000 to $2,000	$25,833
B57	67	$5,000 to $7,000	$30,433
B58	94	$1,000 to $7,000	$30,340
B59	196	$5,000 to $7,000	$30,378
B60	43	$2,000 to $7,000	$29,628
B61	43	$5,000 to $7,000	$29,047
B62	116	$6,000 to $7,000	$30,897
B63	38	$7,000	$31,000
B64	35	$2,000 to $7,000	$30,829
B65	44	$1,000 to $2,000	$25,591
B66	22	$6,000 to $7,000	$30,818
B67	96	$1,000 to $6,000	$27,635
B68	88	$1,000 to $5,000	$27,250
B69	26	$1,000 to $6,000	$29,615
B70	7	$2,000 to $7,000	$28,714
B71	79	$5,000 to $7,000	$29,557
B72	78	$0 to $7,000	$29,167
B73	86	$5,000 to $7,000	$30,163
B74	132	$6,000 to $7,000	$30,280
B75	5	$6,000 to $7,000	$30,800
B76	12	$2,000	$26,000
B77	30	$7,000	$31,000
B78	Does not meet IDOT Feasibility Criterion		
B79	10	$2,000	$26,000
B80	77	$2,000 to $7,000	$29,325
B81	75	$2,000	$26,000
B82	Does not meet IDOT Noise Reduction Design Goal		
B83	700	$1,000 to $6,000	$27,143
B84	Does not meet IDOT Feasibility Criterion		

Barrier	Benefited Receptors	Adjustment Factor Range	Adjusted Allowable Cost per Benefited Receptors
B85	Does not meet IDOT Noise Reduction Design Goal		
B86	Does not meet IDOT Noise Reduction Design Goal		
B87	Does not meet IDOT Noise Reduction Design Goal		
B88 Ext	178	$0	$7,000
B89	30	$1,000	$25,000

TABLE 9
NOISE ABATEMENT ANALYSIS SUMMARY
I-290 ANALYZED NEW BARRIERS: CICERO AVENUE TO RACINE AVENUE

Barrier	Location of Barrier	Barrier Length (ft) [1]	Average Barrier Height (ft) [1]	Barrier Construction Cost ($) [2]	Total Allowable Barrier Cost ($)[3]	Benefitted Receptors [4]	Adjusted Allowable Cost per Benefitted Receptor ($)	Actual Cost per Benefitted Receptor ($)	Ratio [5]	Finding
B49	North of I-290, Cicero Av. to RR	1,429	17	$607,325	$793,000	26	$30,500	$23,359	0.77	Cost-Effective
B50	South of I-290, East of Cicero Ave.	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible
B51	North of I-290, RR to Kostner Ave.	1,464	15	$549,000	$1,051,000	36	$29,194	$15,250	0.52	Cost-Effective
B52	South of I-290, RR to Kostner Ave.	1,455	13	$472,875	$4,893,000	166	$29,476	$2,849	0.10	Cost-Effective
B53	North of I-290, Kostner Ave. to Kildare Ave.	667	15	$250,125	$606,000	20	$30,300	$12,506	0.41	Cost-Effective
B54	South of I-290, Kostner Ave. to Kildare Ave.	710	15	$266,250	$547,000	18	$30,389	$14,792	0.49	Cost-Effective
B55	North of I-290, Kildare Ave. to Keeler Ave.	629	17	$267,325	$856,000	28	$30,571	$9,547	0.31	Cost-Effective
B56	South of I-290, Kildare Ave. to Keeler Ave.	635	9	$142,875	$155,000	6	$25,833	$23,813	0.92	Cost-Effective
B57	South of I-290, Keeler Ave. to Pulaski Rd.	1,296	17	$550,800	$2,039,000	67	$30,433	$8,221	0.27	Cost-Effective
B58	North of I-290, Keeler Ave. to Pulaski Rd.	1,302	17	$553,350	$2,852,000	94	$30,340	$5,887	0.19	Cost-Effective
B59	North of I-290, Pulaski Rd. to Independence Blvd.	1,509	17	$641,325	$5,954,000	196	$30,378	$3,272	0.11	Cost-Effective
B60	South of I-290, Pulaski Rd. to Independence Blvd.	1,353	17	$575,025	$1,274,000	43	$29,628	$13,373	0.45	Cost-Effective
B61	South of I-290, Independence Blvd. to Central Park Ave.	1,150	17	$488,750	$1,249,000	43	$29,047	$11,366	0.39	Cost-Effective
B62	North of I-290, Independence Blvd. to Central Park Ave.	1,248	15	$468,000	$3,584,000	116	$30,897	$4,034	0.13	Cost-Effective
B63	North of I-290, Central Park Ave. to Homan Ave.	1,271	9	$285,975	$1,178,000	38	$31,000	$7,526	0.24	Cost-Effective
B64	South of I-290, Central Park Ave. to Homan Ave.	1,261	11	$346,775	$1,079,000	35	$30,829	$9,908	0.32	Cost-Effective
B65	North of I-290, Homan Ave. to Kedzie Ave.	1,211	15	$454,125	$1,126,000	44	$25,591	$10,321	0.40	Cost-Effective
B66	South of I-290, Homan Ave. to Kedzie Ave.	1,202	13	$390,650	$678,000	22	$30,818	$17,757	0.58	Cost-Effective
B67	North of I-290, Kedzie Ave. to Sacramento Blvd.	1,182	17	$502,350	$2,653,000	96	$27,635	$5,233	0.19	Cost-Effective
B68	South of I-290, Kedzie Ave. to Sacramento Blvd.	1,265	13	$411,125	$2,398,000	88	$27,250	$4,672	0.17	Cost-Effective
B69	South of I-290, Sacramento Blvd. to California Ave.	1,312	15	$492,000	$770,000	26	$29,615	$18,923	0.64	Cost-Effective
B70	North of I-290, Sacramento Blvd. to California Ave.	1,279	17	$543,575	$201,000	7	$28,714	$77,654	2.70	Not cost-effective (not reasonable)

Barrier	Location of Barrier	Barrier Length (ft) [1]	Average Barrier Height (ft) [1]	Barrier Construction Cost ($) [2]	Total Allowable Barrier Cost ($)[3]	Benefitted Receptors [4]	Adjusted Allowable Cost per Benefitted Receptor ($)	Actual Cost per Benefitted Receptor ($)	Ratio [5]	Finding
B71	North of I-290, California Ave. to RR	1,350	17	$573,750	$2,335,000	79	$29,557	$7,263	0.25	Cost-Effective
B72	South of I-290, California Ave. to RR	1,357	9	$305,325	$2,275,000	78	$29,167	$3,914	0.13	Cost-Effective
B73	North of I-290, Maplewood Ave. to Western Ave.	1,283	17	$545,275	$2,594,000	86	$30,163	$6,340	0.21	Cost-Effective
B74	South of I-290, Maplewood Ave. to Western Ave.	1,369	13	$444,925	$3,997,000	132	$30,280	$3,371	0.11	Cost-Effective
B75	South of I-290, Western Ave. to Oakley Blvd.	591	19	$280,725	$154,000	5	$30,800	$56,145	1.82	Not cost-effective (not reasonable)
B76	North of I-290, Western Ave. to Oakley Blvd.	589	9	$132,525	$312,000	12	$26,000	$11,044	0.42	Cost-Effective
B77	North of I-290, Oakley Blvd. to Leavitt St.	706	9	$158,850	$930,000	30	$31,000	$5,295	0.17	Cost-Effective
B78	South of I-290, Oakley Blvd to Leavitt St.	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible
B79	South of I-290, Leavitt St. to Damen Ave.	1,382	15	$518,250	$260,000	10	$26,000	$51,825	1.99	Not cost-effective (not reasonable)
B80	North of I-290, Leavitt St. to Damen Ave.	1,453	11	$399,575	$2,258,000	77	$29,325	$5,189	0.18	Cost-Effective
B81	North of I-290, Damen Ave. to Ogden Ave.	1,249	9	$281,025	$1,950,000	75	$26,000	$3,747	0.14	Cost-Effective
B82	South of I-290, Damen Ave. to Ogden Ave.	Does not meet IDOT Noise Reduction Design Goal							n/a	Not Reasonable
B83	South of I-290, Ogden Avenue to Ashland Avenue	1,916	13	$622,700	$19,000,000	700	$27,143	$890	0.03	Cost-Effective
B84	North of I-290, Ogden Ave. to Paulina St.	Does not meet IDOT Feasibility Criterion							n/a	Not Feasible
B85	North of I-290, Paulina St. to Ashland Ave.	Does not meet IDOT Noise Reduction Design Goal							n/a	Not Reasonable
B86	North of I-290, Ashland Ave. to Loomis St.	Does not meet IDOT Noise Reduction Design Goal							n/a	Not Reasonable
B87	South of I-290, Ashland Ave. to Loomis St.	Does not meet IDOT Noise Reduction Design Goal							n/a	Not Reasonable
B88 Ext.	North of I-290, Entrance Ramp to Racine Ave.	883	21	$463,575	$4,374,000	178	$24,573	$2,604	0.11	Cost-Effective
B89	North of I-290, Loomis St. to Racine Ave.	1,457	13	$473,525	$750,000	30	$25,000	$15,784	0.63	Cost-Effective

[1] Barrier length and height are not listed for barriers that are not reasonable and feasible.
[2] Based on the IDOT policy value of $25 per square foot
[3] per IDOT traffic noise policy and the reasonableness analysis
[4] Any receptor receiving at least a 5 dB(A) reduction due to the proposed barrier
[5] Ratio of actual build cost of a barrier per benefitted receptor to the adjusted allowable cost per benefitted receptor. This is used to determine if a barrier can be found cost effective through cost averaging. For a single noise abatement measure to be considered as part of a cost averaging solution, this ratio must not exceed 2.0 (the cost of noise abatement per benefitted receptor may not exceed two times the adjusted allowable noise abatement cost per benefitted receptor).

Forty-one noise barrier locations were studied within this section. Of the forty-one barriers, three were found to not be feasible (B50, B78, and B84), and seven were found to be not reasonable. Of the seven barriers found to be not reasonable, four were found not to meet the IDOT noise reduction criterion (B82, B85, B86, and B87), and three were found to be not cost effective (B70, B75, and B79). The thirty-one remaining noise barriers were found to be feasible and reasonable as stand-alone noise barriers.

Cost Averaging

After the noise barrier locations were considered reasonable or feasible as stand-alone barriers, the noise wall costs were then considered cumulatively, across Common Noise Environments, to determine if any barrier found to be not cost effective standing alone could be cost effective cumulatively. As shown in Table 10, the cost averaging analysis places analyzed barriers in order of increasing cost effective ratio (ratio between the actual cost per benefited receptor and the adjusted allowable cost per benefited receptor). Noise abatement measures achieve the cost reasonableness criterion cumulatively if the cumulative estimated noise wall cost per benefited receptor is less than cumulative adjusted allowable cost per benefited receptor, when considering all barriers that are feasible and meet the noise reduction design goal. Table 10 summarizes the cost averaging analysis.

Considering the noise walls on a cumulative basis, two additional noise walls would be considered cost-effective (B75 and B79), resulting in 63 cost-effective noise walls.

TABLE 10
COST AVERAGING ANALYSIS SUMMARY

Barrier Number	No. Benefited Receptors	Noise Wall Cost	Actual Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Ratio of Est. Build/ Adjust. Allowable	Cumulative Estimated Build Cost/Benefited	Cumulative Adjusted Allowable Cost/Benefited	Result of Determination
B83	700	$622,700	$890	$27,143	0.03	$890	$27,143	Cost-Effective Stand Alone
B5	360	$337,150	$937	$25,322	0.04	$906	$26,525	Cost-Effective Stand Alone
B52	166	$472,875	$2,849	$29,476	0.10	$1,169	$26,924	Cost-Effective Stand Alone
B88 Ext	178	$463,575	$2,604	$24,573	0.11	$1,351	$26,626	Cost-Effective Stand Alone
B59	196	$641,325	$3,272	$30,378	0.11	$1,586	$27,086	Cost-Effective Stand Alone
B74	132	$444,925	$3,371	$30,280	0.11	$1,722	$27,329	Cost-Effective Stand Alone
B40	156	$553,775	$3,550	$29,083	0.12	$1,873	$27,474	Cost-Effective Stand Alone
B44	310	$1,220,250	$3,936	$30,558	0.13	$2,164	$27,909	Cost-Effective Stand Alone
B62	116	$468,000	$4,034	$30,897	0.13	$2,258	$28,059	Cost-Effective Stand Alone
B72	78	$305,325	$3,914	$29,167	0.13	$2,312	$28,095	Cost-Effective Stand Alone
B81	75	$281,025	$3,747	$26,000	0.14	$2,355	$28,031	Cost-Effective Stand Alone
B35	90	$424,125	$4,713	$30,567	0.15	$2,438	$28,120	Cost-Effective Stand Alone

Barrier Number	No. Benefited Receptors	Noise Wall Cost	Actual Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Ratio of Est. Build/ Adjust. Allowable	Cumulative Estimated Build Cost/Benefited	Cumulative Adjusted Allowable Cost/Benefited	Result of Determination
B34	114	$553,775	$4,858	$29,404	0.17	$2,542	$28,175	Cost-Effective Stand Alone
B77	30	$158,850	$5,295	$31,000	0.17	$2,572	$28,207	Cost-Effective Stand Alone
B68	88	$411,125	$4,672	$27,250	0.17	$2,639	$28,176	Cost-Effective Stand Alone
B42	118	$618,750	$5,244	$29,763	0.18	$2,744	$28,241	Cost-Effective Stand Alone
B80	77	$399,575	$5,189	$29,325	0.18	$2,807	$28,269	Cost-Effective Stand Alone
B16	203	$975,000	$4,803	$26,389	0.18	$2,934	$28,149	Cost-Effective Stand Alone
B67	96	$502,350	$5,233	$27,635	0.19	$3,002	$28,134	Cost-Effective Stand Alone
B33	79	$459,000	$5,810	$30,443	0.19	$3,068	$28,188	Cost-Effective Stand Alone
B58	94	$553,350	$5,887	$30,340	0.19	$3,144	$28,247	Cost-Effective Stand Alone
B32	78	$463,875	$5,947	$29,692	0.20	$3,206	$28,279	Cost-Effective Stand Alone
B73	86	$545,275	$6,340	$30,163	0.21	$3,281	$28,323	Cost-Effective Stand Alone
B41	82	$543,150	$6,624	$29,634	0.22	$3,355	$28,353	Cost-Effective Stand Alone
B14	126	$876,200	$6,954	$29,468	0.24	$3,473	$28,389	Cost-Effective Stand Alone
B63	38	$285,975	$7,526	$31,000	0.24	$3,513	$28,415	Cost-Effective Stand Alone
B71	79	$573,750	$7,263	$29,557	0.25	$3,588	$28,438	Cost-Effective Stand Alone
B57	67	$550,800	$8,221	$30,433	0.27	$3,665	$28,471	Cost-Effective Stand Alone
B46	78	$551,250	$7,067	$25,000	0.28	$3,730	$28,405	Cost-Effective Stand Alone
B13	104	$875,875	$8,422	$29,462	0.29	$3,847	$28,431	Cost-Effective Stand Alone
B55	28	$267,325	$9,547	$30,571	0.31	$3,884	$28,445	Cost-Effective Stand Alone
B19	52	$487,500	$9,375	$29,712	0.32	$3,951	$28,461	Cost-Effective Stand Alone
B64	35	$346,775	$9,908	$30,829	0.32	$4,000	$28,480	Cost-Effective Stand Alone
B17	49	$542,250	$11,066	$29,571	0.37	$4,079	$28,492	Cost-Effective Stand Alone
B15	85	$908,375	$10,687	$27,600	0.39	$4,206	$28,475	Cost-Effective Stand Alone
B61	43	$488,750	$11,366	$29,047	0.39	$4,274	$28,481	Cost-Effective Stand Alone
B65	44	$454,125	$10,321	$25,591	0.40	$4,333	$28,453	Cost-Effective Stand Alone
B53	20	$250,125	$12,506	$30,300	0.41	$4,369	$28,461	Cost-Effective Stand Alone
B37	40	$492,000	$12,300	$29,750	0.41	$4,438	$28,472	Cost-Effective Stand Alone
B76	12	$132,525	$11,044	$26,000	0.42	$4,455	$28,465	Cost-Effective Stand Alone
B48	30	$400,125	$13,338	$30,833	0.43	$4,513	$28,481	Cost-Effective Stand Alone

Barrier Number	No. Benefited Receptors	Noise Wall Cost	Actual Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Ratio of Est. Build/ Adjust. Allowable	Cumulative Estimated Build Cost/Benefited	Cumulative Adjusted Allowable Cost/Benefited	Result of Determination
B9 Ext	17	$222,750	$13,103	$29,294	0.45	$4,544	$28,484	Cost-Effective Stand Alone
B10 Ext	20	$262,125	$13,106	$29,250	0.45	$4,581	$28,487	Cost-Effective Stand Alone
B60	43	$575,025	$13,373	$29,628	0.45	$4,661	$28,497	Cost-Effective Stand Alone
B38	31	$423,150	$13,650	$30,032	0.45	$4,720	$28,507	Cost-Effective Stand Alone
B28	29	$402,475	$13,878	$30,069	0.46	$4,775	$28,517	Cost-Effective Stand Alone
B45	47	$573,625	$12,205	$25,128	0.49	$4,848	$28,484	Cost-Effective Stand Alone
B54	18	$266,250	$14,792	$30,389	0.49	$4,885	$28,491	Cost-Effective Stand Alone
B36	36	$526,500	$14,625	$29,750	0.49	$4,957	$28,500	Cost-Effective Stand Alone
B51	36	$549,000	$15,250	$29,194	0.52	$5,032	$28,505	Cost-Effective Stand Alone
B20	29	$475,500	$16,397	$30,000	0.55	$5,099	$28,514	Cost-Effective Stand Alone
B30	23	$378,000	$16,435	$29,696	0.55	$5,152	$28,520	Cost-Effective Stand Alone
B66	22	$390,650	$17,757	$30,818	0.58	$5,207	$28,530	Cost-Effective Stand Alone
B39	42	$720,900	$17,164	$29,310	0.59	$5,307	$28,536	Cost-Effective Stand Alone
B89	30	$473,525	$15,784	$25,000	0.63	$5,369	$28,515	Cost-Effective Stand Alone
B69	26	$492,000	$18,923	$29,615	0.64	$5,439	$28,521	Cost-Effective Stand Alone
B49	26	$607,325	$23,359	$30,500	0.77	$5,530	$28,531	Cost-Effective Stand Alone
B31	24	$546,000	$22,750	$29,125	0.78	$5,611	$28,534	Cost-Effective Stand Alone
B27	16	$383,825	$23,989	$29,625	0.81	$5,668	$28,537	Cost-Effective Stand Alone
B18	19	$477,375	$25,125	$30,474	0.82	$5,739	$28,544	Cost-Effective Stand Alone
B56	6	$142,875	$23,813	$25,833	0.92	$5,760	$28,541	Cost-Effective Stand Alone
B75	5	$280,725	$56,145	$30,800	1.82	$5,809	$28,543	Cost-Effective Cumulative
B79	10	$518,250	$51,825	$26,000	1.99	$5,898	$28,538	Cost-Effective Cumulative
~~B70~~	~~7~~	~~$543,575~~	~~$77,654~~	~~$28,714~~	~~2.70~~	Not part of evaluation as estimated cost is more than 2 times the adjusted allowed cost		
~~B26~~	~~9~~	~~$645,125~~	~~$71,681~~	~~$24,889~~	~~2.88~~			
~~B43~~	~~6~~	~~$723,525~~	~~$120,588~~	~~$25,167~~	~~4.79~~			
~~B24~~	~~6~~	~~$737,625~~	~~$122,938~~	~~$25,500~~	~~4.82~~			
~~B25~~	~~2~~	~~$489,775~~	~~$244,888~~	~~$25,000~~	~~9.80~~			
~~B22~~	~~2~~	~~$699,675~~	~~$349,838~~	~~$25,000~~	~~13.99~~			
~~B23~~	~~1~~	~~$475,475~~	~~$475,475~~	~~$26,000~~	~~18.29~~			
B1	Does not meet IDOT Noise Reduction Design Goal							
B2	Does not meet IDOT Feasibility Criterion							
B3	Does not meet IDOT Feasibility Criterion							
B4	Does not meet IDOT Feasibility Criterion							
B6	Does not meet IDOT Feasibility Criterion							
B7	Does not meet IDOT Feasibility Criterion							

Barrier Number	No. Benefited Receptors	Noise Wall Cost	Actual Cost per Benefited Receptor	Adjusted Allowable Cost per Benefited Receptor	Ratio of Est. Build/ Adjust. Allowable	Cumulative Estimated Build Cost/Benefited	Cumulative Adjusted Allowable Cost/Benefited	Result of Determination
B9	Does not meet IDOT Feasibility Criterion							
B10	Does not meet IDOT Noise Reduction Design Goal							
B11	Does not meet IDOT Feasibility Criterion							
B12	Does not meet IDOT Noise Reduction Design Goal							
B21	Does not meet IDOT Feasibility Criterion							
B29	Does not meet IDOT Noise Reduction Design Goal							
B47	Does not meet IDOT Feasibility Criterion							
B50	Does not meet IDOT Feasibility Criterion							
B78	Does not meet IDOT Feasibility Criterion							
B82	Does not meet IDOT Noise Reduction Design Goal							
B84	Does not meet IDOT Feasibility Criterion							
B85	Does not meet IDOT Noise Reduction Design Goal							
B86	Does not meet IDOT Noise Reduction Design Goal							
B87	Does not meet IDOT Noise Reduction Design Goal							
B88	Does not meet IDOT Feasibility Criterion							

Viewpoints Solicitation

The third component of reasonableness is obtaining the viewpoints of those who would be benefitted by a feasible and cost-effective noise barrier meeting the IDOT noise reduction design goal. Viewpoints solicitation packages, including an informational letter, voting form, a rendering of a typical noise barrier, and maps of the proposed wall, were sent to property owners and tenants at receptors that would benefit proposed walls. Table 11 is a summary of the viewpoints solicitation voting results. The received votes were tallied by noise wall per IDOT policy. 14 of the 63 total noise walls received at least a 33% response rate in the first round of voting, and the remaining noise walls that did not receive a 33% response rate with the initial voting round required a second round of voting. Votes were received until March 2, 2016[4]. If more than fifty percent of the received wall's votes were in support of wall construction, the wall was recommended for construction and will likely be included in final design plans for the project. Conversely, walls that did not have more than fifty percent of the received votes in favor of the wall are not recommended for construction as part of the project. Figure 3 is a map of noise walls recommended for construction following the results of the viewpoints solicitation. Details of voting results are in Appendix C.

Table 11 shows that of the 63 walls up for a vote, 46 walls were voted in favor, and will be recommended for construction. Eight walls will be recommended for construction in Bellwood, Westchester, Broadview, or Maywood (more than one of these villages were present behind a single barrier). Two walls will be recommended for construction in Forest Park. Five walls will be recommended for construction in Oak Park. Thirty-one walls will be recommended for construction in Chicago.

[4] Viewpoints solicitation was reevaluated for the noise study area between 25th Avenue and 1st Avenue due to revisions to the Preliminary Preferred Alternative. For this section of the corridor, final votes were received between August 19, 2016 and October 14, 2016.

TABLE 11
VIEWPOINTS SOLICITATION SUMMARY

Noise Wall	Community	Voting Response Rate[1]	Percent of Votes In Favor	Voting Results	Wall Recommended for Construction?[2]
B5	Hillside	0%	n/a	No Votes	No
B9 Ext	Bellwood	44%	88%	In Favor	Yes
B10 Ext	Westchester	33%	100%	In Favor	Yes
B13	Maywood	34%	76%	In Favor	Yes
B14	Bellwood/Maywood	34%	85%	In Favor	Yes
B15	Maywood	26%	70%	In Favor	Yes
B16	Broadview/Maywood	28%	91%	In Favor	Yes
B17	Maywood	53%	85%	In Favor	Yes
B18	Maywood	23%	50%	Against	No
B19	Maywood	18%	78%	In Favor	Yes
B20	Maywood	14%	50%	Against	No
B27	Forest Park	63%	100%	In Favor	Yes
B28	Forest Park	38%	100%	In Favor	Yes
B30	Oak Park	48%	48%	Against	No
B31	Oak Park	62%	69%	In Favor	Yes
B32	Oak Park	50%	46%	Against	No
B33	Oak Park	43%	59%	In Favor	Yes
B34	Oak Park	40%	24%	Against	No
B35	Oak Park	51%	35%	Against	No
B36	Oak Park	39%	77%	In Favor	Yes
B37	Oak Park	39%	26%	Against	No
B38	Oak Park	30%	60%	In Favor	Yes
B39	Oak Park	70%	15%	Against	No
B40	Oak Park	38%	64%	In Favor	Yes
B41	Oak Park	34%	50%	Against	No
B42	Chicago	38%	86%	In Favor	Yes
B44	Chicago	16%	79%	In Favor	Yes
B45	Chicago	18%	84%	In Favor	Yes
B46	Chicago	100%	100%	In Favor	Yes
B48	Chicago	30%	35%	Against	No
B49	Chicago	4%	100%	In Favor	Yes
B51	Chicago	11%	100%	In Favor	Yes
B52	Chicago	6%	63%	In Favor	Yes
B53	Chicago	24%	100%	In Favor	Yes
B54	Chicago	53%	100%	In Favor	Yes
B55	Chicago	26%	74%	In Favor	Yes

Noise Wall	Community	Voting Response Rate[1]	Percent of Votes In Favor	Voting Results	Wall Recommended for Construction?[2]
B56	Chicago	61%	74%	In Favor	Yes
B57	Chicago	25%	25%	Against	No
B58	Chicago	23%	49%	Against	No
B59	Chicago	19%	62%	In Favor	Yes
B60	Chicago	8%	86%	In Favor	Yes
B61	Chicago	26%	94%	In Favor	Yes
B62	Chicago	17%	90%	In Favor	Yes
B63	Chicago	36%	71%	In Favor	Yes
B64	Chicago	17%	100%	In Favor	Yes
B65	Chicago	32%	100%	In Favor	Yes
B66	Chicago	31%	31%	Against	No
B67	Chicago	37%	90%	In Favor	Yes
B68	Chicago	6%	83%	In Favor	Yes
B69	Chicago	9%	75%	In Favor	Yes
B71	Chicago	24%	83%	In Favor	Yes
B72	Chicago	40%	74%	In Favor	Yes
B73	Chicago	4%	100%	In Favor	Yes
B74	Chicago	32%	73%	In Favor	Yes
B75	Chicago	31%	100%	In Favor	Yes
B76	Chicago	8%	86%	In Favor	Yes
B77	Chicago	0%	n/a	No Votes	No
B79	Chicago	0%	n/a	No Votes	No
B80	Chicago	19%	77%	In Favor	Yes
B81	Chicago	100%	100%	In Favor	Yes
B83	Chicago	57%	100%	In Favor	Yes
B88 Ext	Chicago	10%	74%	In Favor	Yes
B89	Chicago	0%	n/a	No Votes	No

[1] Of all potential votes of receptors benefited by the noise wall

[2] In order to be recommended for construction, a noise wall must have greater than 50% of votes received in favor of the wall

Likelihood Statement

Based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures are likely to be implemented based on preliminary design. The noise barriers determined to meet the feasibility and reasonableness criteria are identified in Table 11 and Figure 3. If it subsequently develops during final design that constraints not foreseen in the preliminary design arise or if public input substantially changes, the abatement measures may be modified or removed from the project plans. A final decision of the installation of the abatement measures will be made upon completion of the project's final design and the public involvement process.

SECTION 5: Coordination with Local Officials for Undeveloped Lands

Figure 1 depicts the proposed alignment within the project limits. Undeveloped parcels of land (Activity Category G) adjacent to the project corridor exist in Bellwood, as well as scattered vacant properties in Chicago from Lockwood Avenue to Western Avenue. There is a parcel of undeveloped land in Forest Park (with a recently demolished building), but this parcel has been recently purchased by the Park District of Forest Park for parkland; for this reason, this parcel was included in the CNE for R69.

For local agency planning and development purposes, the Preliminary Preferred Alternative was analyzed to predict traffic noise levels in the undeveloped areas in Bellwood and Chicago. This analysis was a worst-case assessment of noise, assuming no noise barriers in front of the undeveloped areas.

The 66 dB(A) noise contours in the undeveloped areas along the Preliminary Preferred Alternative correspond to the NAC for Activity B and C uses, and were located between approximately:

- Bellwood: The NAC of 67 dB(A) is not expected to be approached, met, or exceeded in the Activity Category G uses in Bellwood.
- Chicago (Lockwood to Cicero): The NAC of 67 dB(A) is expected to be approached, met, or exceeded throughout Activity Category G uses in this area.
- Chicago (Cicero to Independence): The NAC of 67 dB(A) is expected to be approached, met, or exceeded within 500 feet of the nearest outside I-290 mainline travel lane to Activity Category G uses in this area.
- Chicago (Independence to Western): The NAC of 67 dB(A) is expected to be approached, met, or exceeded within 400 feet of the nearest outside I-290 mainline travel lane to Activity Category G uses in this area.

The 71 dB(A) noise contours in the undeveloped areas along the Preliminary Preferred Alternative correspond to the NAC for Activity E uses, and were located between approximately:

- Bellwood: The NAC of 72 dB(A) is not expected to be approached, met, or exceeded in the Activity Category G use in Bellwood.
- Chicago (Lockwood to Cicero): The NAC of 72 dB(A) is expected to be approached, met, or exceeded within 250 feet of the nearest outside I-290 mainline travel lane to Activity Category G uses in this area.
- Chicago (Cicero to Independence): The NAC of 72 dB(A) is expected to be approached, met, or exceeded within 200 feet of the nearest outside I-290 mainline travel lane to Activity Category G uses in this area.
- Chicago (Independence to Western): The NAC of 72 dB(A) is expected to be approached, met, or exceeded within 200 feet of the nearest outside I-290 mainline travel lane to Activity Category G uses in this area.

Appendix B includes letters to be sent to the local officials having jurisdiction over these adjacent undeveloped lands, and an exhibit (as an attachment to the letter), depicting the approximate distances where the NAC is approached.

SECTION 6: Construction Noise

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Residents along the alignment will at some time experience perceptible construction noise from implementation of the project. To minimize or eliminate the effect of construction noise on these areas, mitigation measures have been incorporated into the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction as Article 107.35.

Construction noise effects will be further investigated with stakeholders separately from this analysis, which is intended to address traffic noise.

SECTION 7: Conclusion

This traffic noise study has been coordinated to evaluate traffic noise impacts for the proposed improvements to the Eisenhower Expressway (I-290) from west of Mannheim Road to Racine Avenue. Traffic noise was evaluated at 288 representative receptor locations. The Existing noise levels range from 57 dB(A) at R256 to 78 dB(A) at R100, R119, R172, R198, and R206. The projected No Build 2040 traffic noise levels range from 57 dB(A) at R256 to 79 dB(A) at R119 and R172. Representative receptor noise levels either remain the same or increase up to 3 dB(A) from the Existing condition to the 2040 No Build condition; the majority of areas have no change or a 1 dB(A) increase in noise from Existing to 2040 No Build.

A sensitivity analysis for the four Build alternatives carried forward indicated there would be no significant or perceptible change in noise among these alternatives.

The projected Preliminary Preferred Alternative traffic noise levels range from 58 dB(A) to 79 dB(A). In the proposed 2040 Build scenario for the Preliminary Preferred Alternative, 228 representative receptor locations are impacted because noise levels approach, meet, or exceed the NAC, and therefore warrant a noise abatement analysis. None of the representative receptors are impacted due to a substantial increase in noise.

Ninety-two noise walls were evaluated for the impacted representative receptors, including the extension of three existing noise barriers and the potential height increase of ten existing barriers. Seventy-six of the ninety-two noise walls in new locations studied met IDOT's feasibility criterion. Seventy of these seventy-six feasible noise barriers achieved IDOT's noise reduction design goal of at least an 8 dB(A) traffic noise reduction at one or more benefited receptor locations.

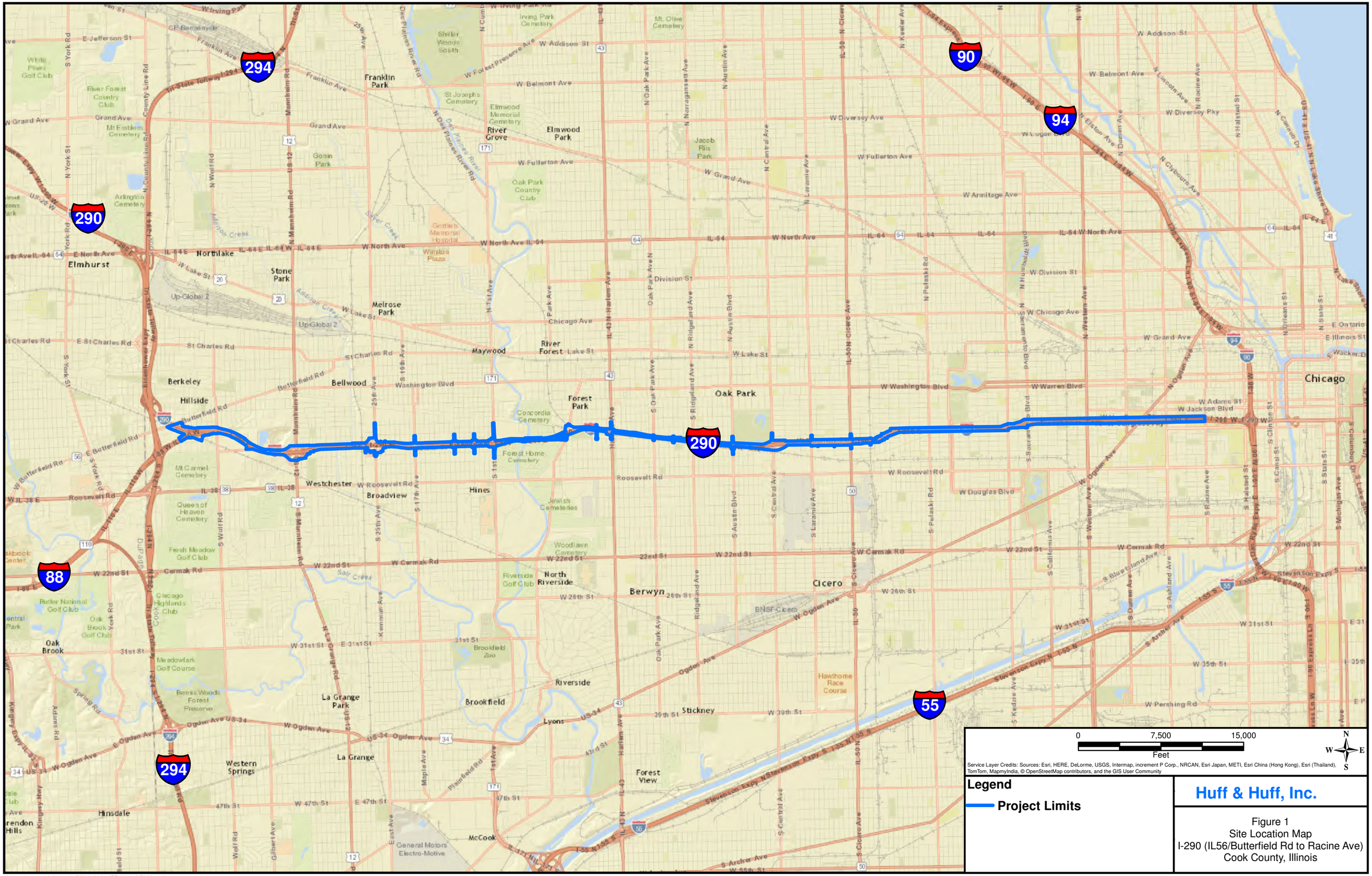
The seventy feasible noise walls that also achieve the noise reduction design goal were then evaluated for economic reasonability. Based on the evaluation, 61 of the remaining seventy noise walls would be economically reasonable on a stand-alone perspective, as the actual cost per benefited receptor does not exceed the adjusted allowable cost per benefited receptor.

The noise walls' cost-effectiveness was then considered cumulatively, which resulted in two additional noise walls being cost-effective, bringing the total number of cost-effective noise walls to 63. Highway traffic noise abatement measures at these 63 locations were brought to the public for viewpoints solicitation, based on preliminary design. The noise barriers determined to meet the feasibility and two of the three reasonableness criteria are identified in Tables 7 and 9, and are shown in Figure 2.

Results of the viewpoints solicitations process found that of the 63 walls up for a vote, 46 walls were voted in favor, and will be recommended for construction. Eight walls will be recommended for construction in Bellwood, Westchester, Broadview, or Maywood (more than one of these villages were present behind a single barrier). Two walls will be recommended for construction in Forest Park. Five walls will be recommended for construction in Oak Park. Thirty-one walls will be recommended for construction in Chicago. Figure 3 is a map of the noise walls recommended for construction.

If it subsequently develops during final design that constraints not foreseen in the preliminary design occur, or public input substantially changes reasonableness, the abatement measures may need to be modified or removed from the project plans. A final decision on the installation of abatement measures will be made during the project's final design phase, which includes additional public involvement and aesthetics coordination.

APPENDIX A



Huff & Huff, Inc.

Figure 1
Site Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois

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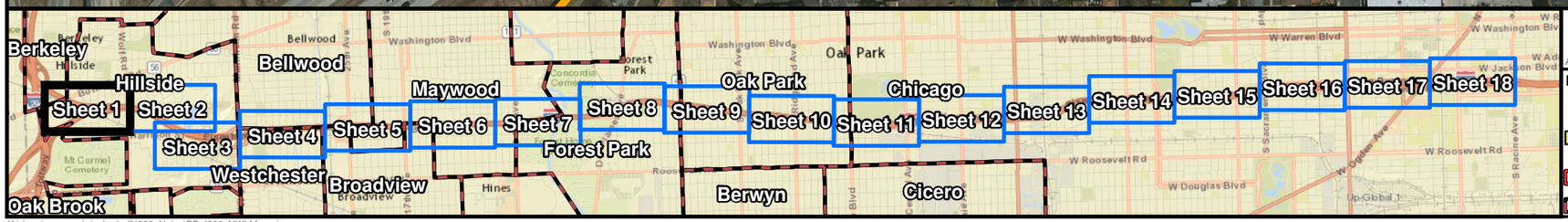
Name: B1
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Name: B2
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not acoustically reasonable,
as it does not meet the NRDG.

Name: B3
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

N Of Arthur
Herbert Ave
Taft Ave
East End Ave
Irving Ave
56
290
IL56/Butterfield Rd
Atwood Ave
Adams St
Jackson Blvd
Eisenhower Expwy
Darmstadt Rd
Elm St
Laverne Ave
Wolf Rd
Ronald Reagan Memorial Hwy
88
Van Buren
Ashbel Ave
Howard Ave
Hillside Ave
R1
R2
R3
R4
R5
R6
R7



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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 1 of 18
NRDG: Noise Reduction Design Plan

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Name: B4
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Name: B5
Height: 11'
Length: 1,226'
Benefitted Receptors: 360
Cost Per Benefitted Receptor: $937
Cost Effective Stand Alone

Iroquois Rd
High Ridge Rd
Maple Ln
Home Ave
Craig Pl
Raymond Dr
Clayton Rd
Jackson Blvd
R8
R9
R10
290
South Frt Rd
Eisenhower Expwy

Berkeley
Hillside
Bellwood
Maywood
Oak Park
Chicago
Forest Park
Westchester
Broadview
Berwyn
Cicero
Oak Brook
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
Sheet 13
Sheet 14
Sheet 15
Sheet 16
Sheet 17
Sheet 18

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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend
- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 2 of 18
NRDG: Noise Reduction Design Plan

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South Frt Rd

Harrison St

R11

R12

R13

R14

290

Eisenhower Expwy

12
20
45

Oak Ridge Ave

Oak Ave

Railroad Ave

Mannheim Rd

Name: B6
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

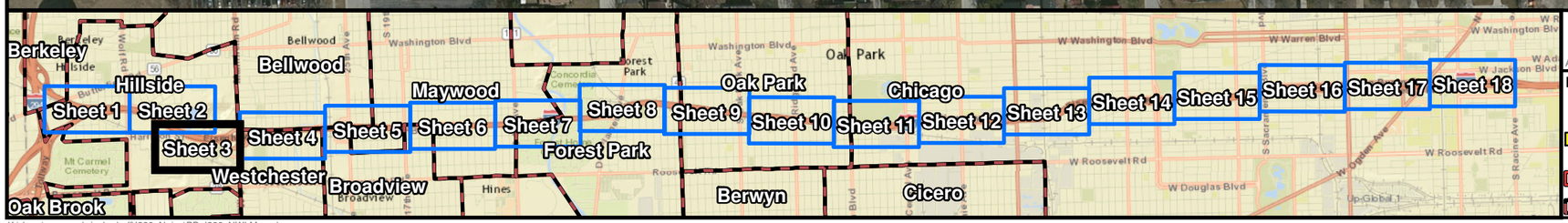
Fencl Ln

Maple Ave

Home Ave

Orchard Ave

Division St



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N W E S

Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 3 of 18
NRDG: Noise Reduction Design Plan

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Name: B7
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Name: B9
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Name: B9 Ext
Height: 15'
Length: 594'
Benefitted Receptors: 17
Cost Per Benefitted Receptor: $13,103
Cost Effective Stand Alone

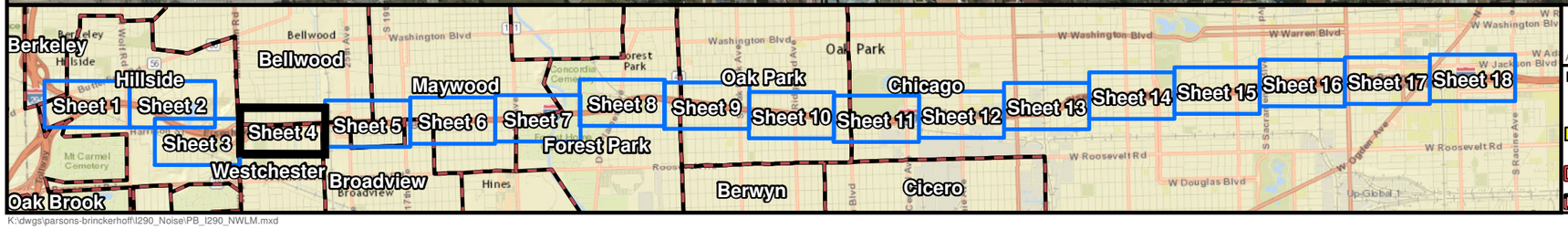
Name: B10
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Name: B10 Ext
Height: 15'
Length: 699'
Benefitted Receptors: 20
Cost Per Benefitted Receptor: $13,106
Cost Effective Stand Alone

Name: B8
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

Van Buren
Congress Pkwy
Harrison St
Eisenhower Expwy
290
Wedgwood Dr
York St
Suffolk Ave
Norfolk Ave
Balmoral Ave
Worchester Ave
Newcastle Ave
Portsmouth Ave
Manchester Ave
Bristol Ave
Gardner Rd
Gladstone St

R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31



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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 4 of 18
NRDG: Noise Reduction Design Plan

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Name: B11
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

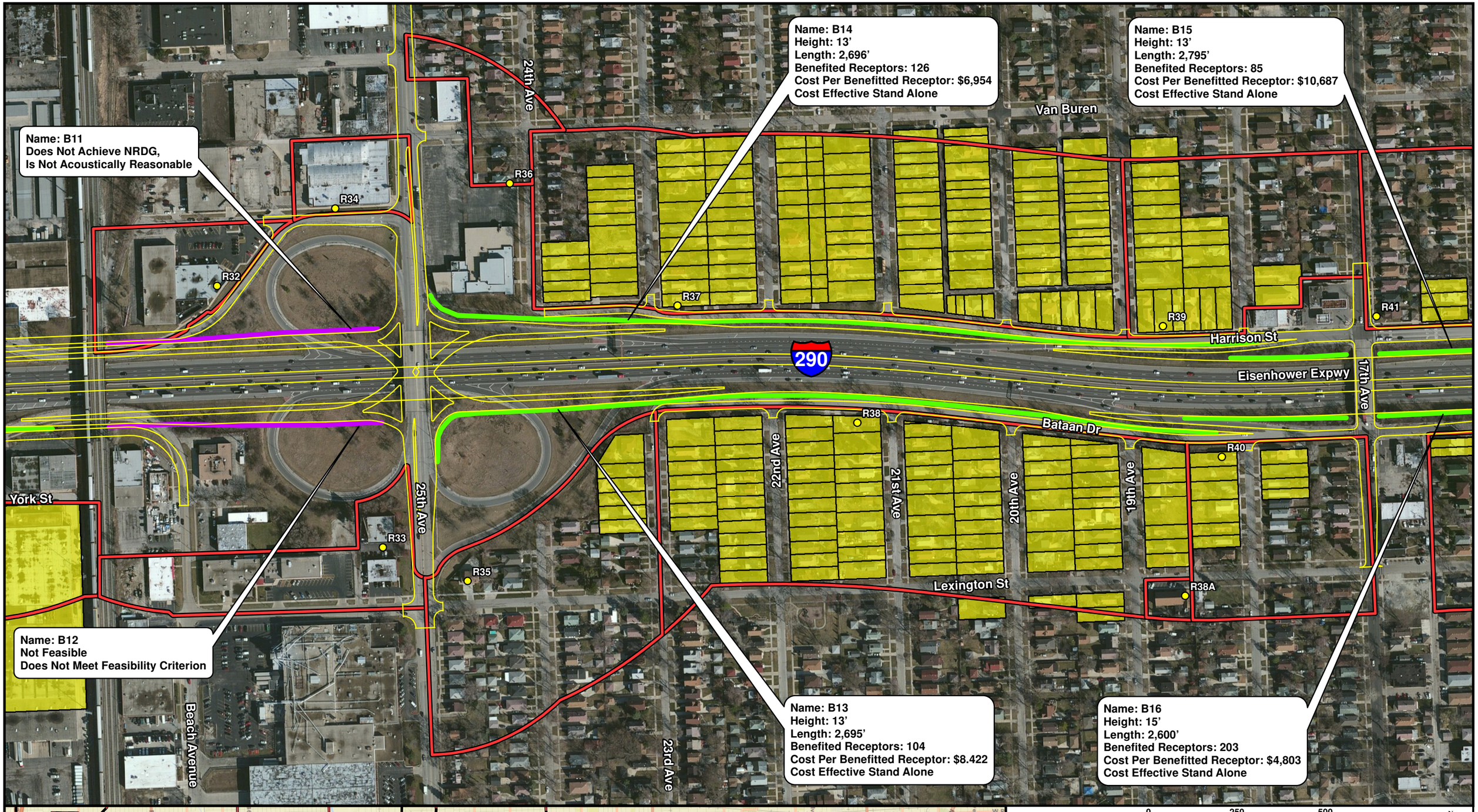
Name: B14
Height: 13'
Length: 2,696'
Benefited Receptors: 126
Cost Per Benefitted Receptor: $6,954
Cost Effective Stand Alone

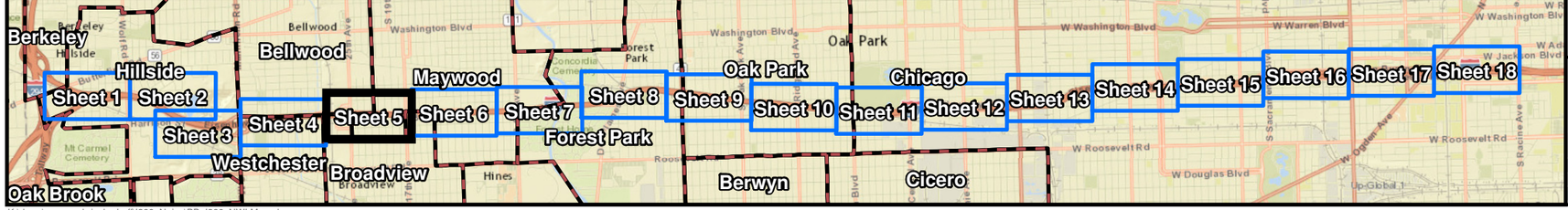
Name: B15
Height: 13'
Length: 2,795'
Benefited Receptors: 85
Cost Per Benefitted Receptor: $10,687
Cost Effective Stand Alone

Name: B12
Not Feasible
Does Not Meet Feasibility Criterion

Name: B13
Height: 13'
Length: 2,695'
Benefited Receptors: 104
Cost Per Benefitted Receptor: $8.422
Cost Effective Stand Alone

Name: B16
Height: 15'
Length: 2,600'
Benefited Receptors: 203
Cost Per Benefitted Receptor: $4,803
Cost Effective Stand Alone





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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 5 of 18
NRDG: Noise Reduction Design Plan

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Name: B15
Height: 13'
Length: 2,795'
Benefited Receptors: 85
Cost Per Benefitted Receptor: $10,687
Cost Effective Stand Alone

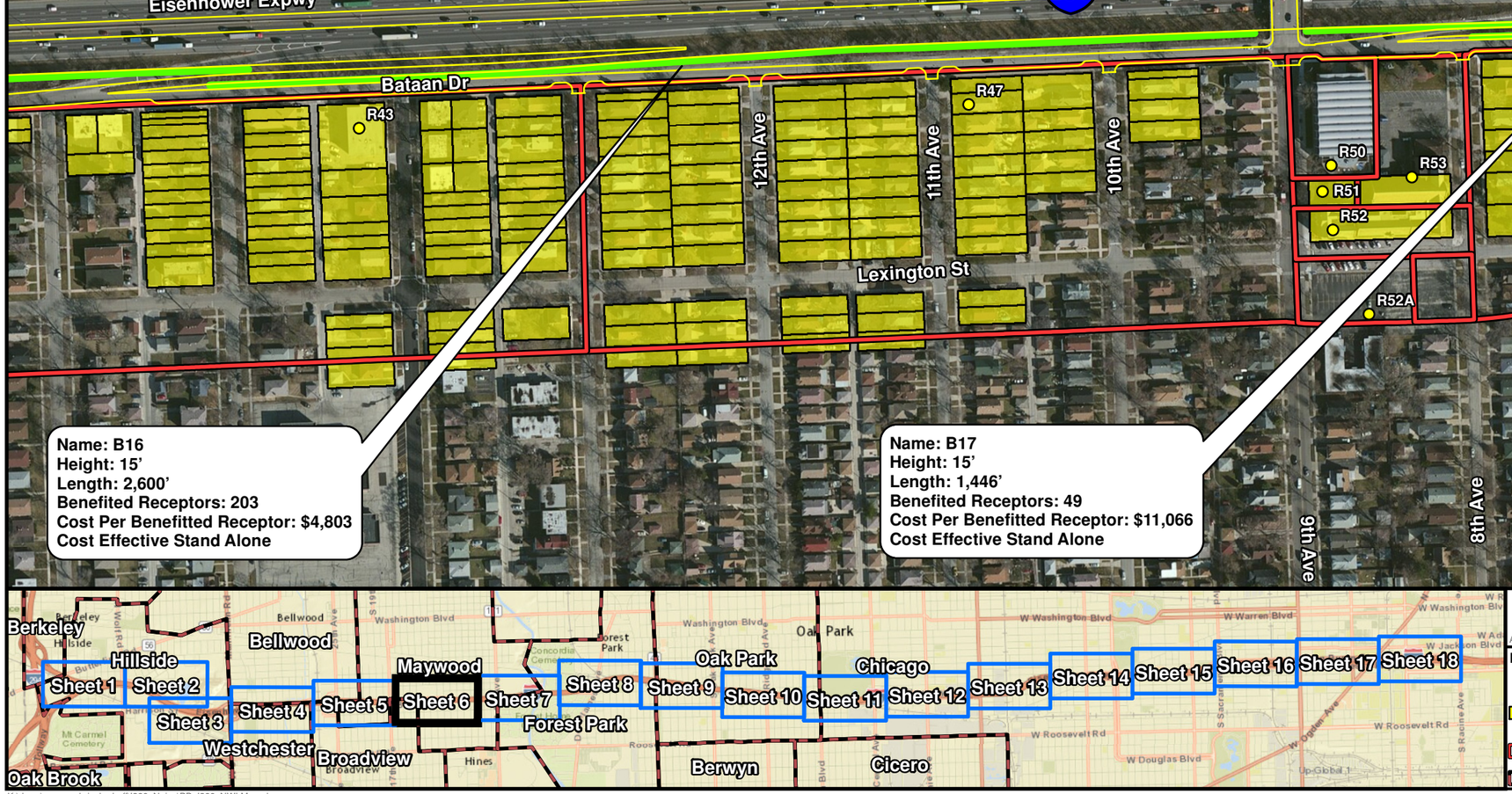
Name: B18
Height: 15'
Length: 1,273'
Benefited Receptors: 22
Cost Per Benefitted Receptor: $21,699
Cost Effective Stand Alone

Name: B20
Height: 15'
Length: 1,268'
Benefited Receptors: 29
Cost Per Benefitted Receptor: $16,397
Cost Effective Stand Alone

Name: B16
Height: 15'
Length: 2,600'
Benefited Receptors: 203
Cost Per Benefitted Receptor: $4,803
Cost Effective Stand Alone

Name: B17
Height: 15'
Length: 1,446'
Benefited Receptors: 49
Cost Per Benefitted Receptor: $11,066
Cost Effective Stand Alone

Name: B19
Height: 15'
Length: 1,300'
Benefited Receptors: 52
Cost Per Benefitted Receptor: $9,375
Cost Effective Stand Alone



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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 6 of 18
NRDG: Noise Reduction Design Plan

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Name: B20
Height: 15'
Length: 1,268'
Benefited Receptors: 29
Cost Per Benefitted Receptor: $16,397
Cost Effective Stand Alone

Name: B21
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

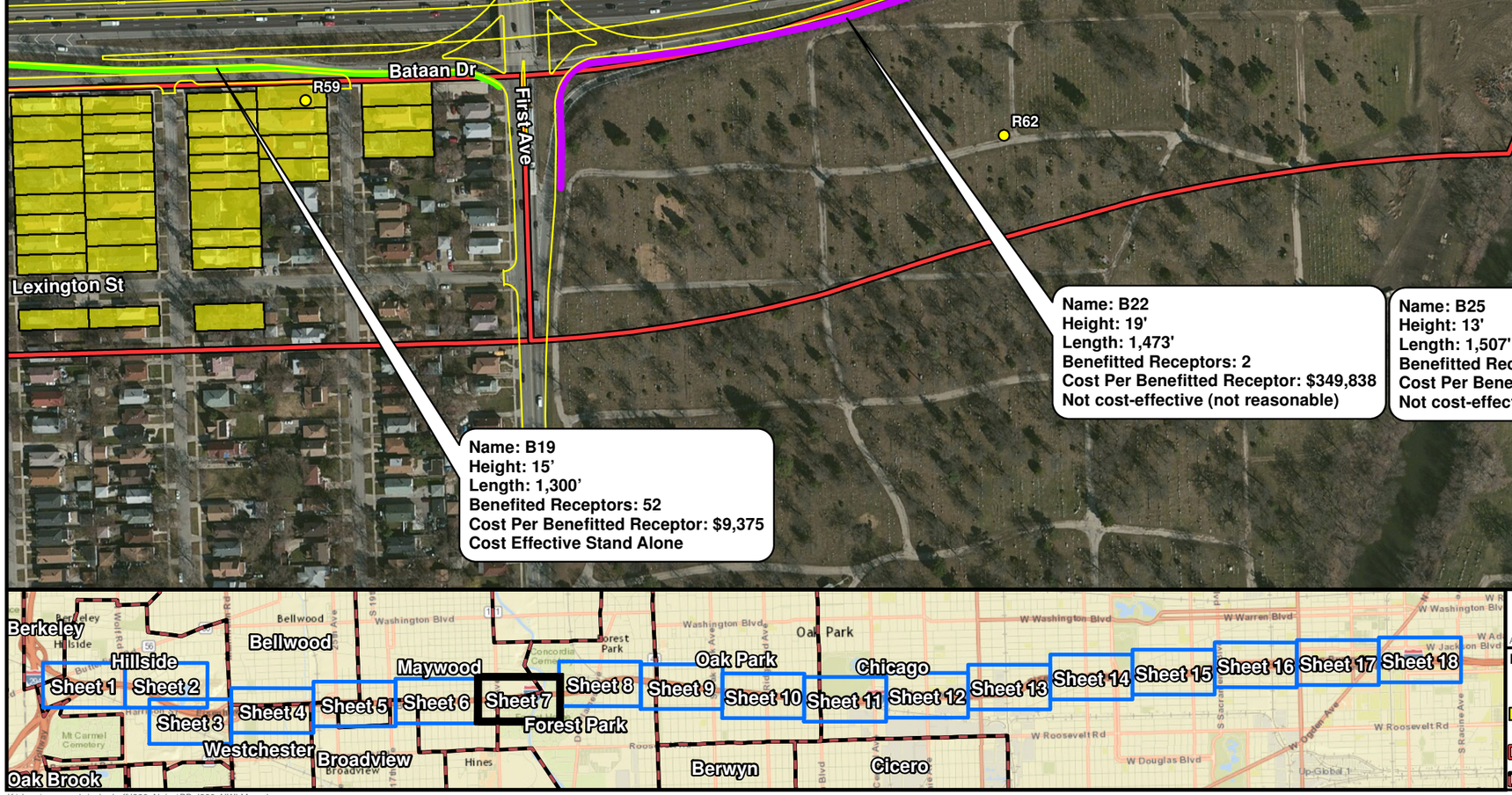
Name: B23
Height: 19'
Length: 1,001'
Benefitted Receptors: 1
Cost Per Benefitted Receptor: $475,475
Not cost-effective (not reasonable)

Name: B24
Height: 21'
Length: 1,405'
Benefitted Receptors: 6
Cost Per Benefitted Receptor: $122,938
Not cost-effective (not reasonable)

Name: B22
Height: 19'
Length: 1,473'
Benefitted Receptors: 2
Cost Per Benefitted Receptor: $349,838
Not cost-effective (not reasonable)

Name: B25
Height: 13'
Length: 1,507'
Benefitted Receptors: 2
Cost Per Benefitted Receptor: $244,888
Not cost-effective (not reasonable)

Name: B19
Height: 15'
Length: 1,300'
Benefited Receptors: 52
Cost Per Benefitted Receptor: $9,375
Cost Effective Stand Alone



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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 7 of 18
NRDG: Noise Reduction Design Plan

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Name: B24
Height: 21'
Length: 1,405'
Benefitted Receptors: 6
Cost Per Benefitted Receptor: $122,938
Not cost-effective (not reasonable)

Name: B27
Height: 13'
Length: 1,181'
Benefitted Receptors: 16
Cost Per Benefitted Receptor: $23,989
Cost Effective Stand Alone

Name: B28
Height: 17'
Length: 947'
Benefitted Receptors: 29
Cost Per Benefitted Receptor: $13,878
Cost Effective Stand Alone

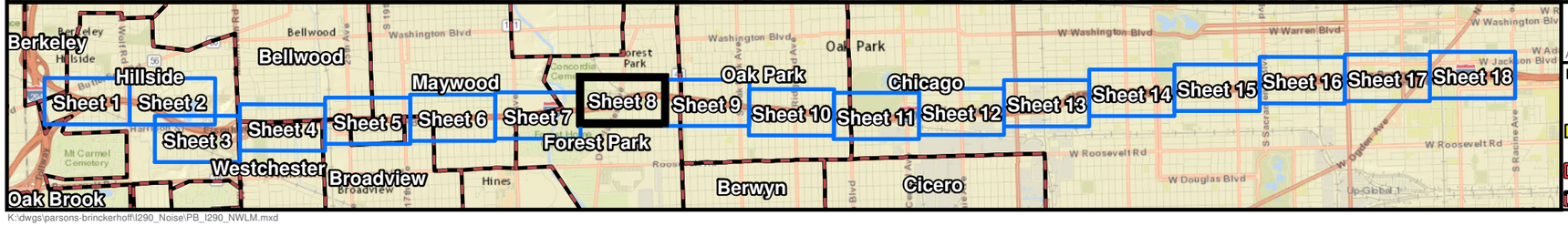
Name: B29
Not Feasible
Does Not Meet Feasibility Criterion

Name: B26
Height: 13'
Length: 1,985'
Benefitted Receptors: 9
Cost Per Benefitted Receptor: $71,681
Not cost-effective (not reasonable)

Name: B25
Height: 13'
Length: 1,507'
Benefitted Receptors: 2
Cost Per Benefitted Receptor: $244,888
Not cost-effective (not reasonable)

Jackson Blvd
Van Buren
Des Plaines Ave
Lehmer Ave
Eisenhower Expwy
290
Harrison St
York St
Lathrop Ave
Ferdinand Ave
Beloit Ave
Hannah Ave
Circle Ave
Lexington St

R65 R66 R67 R68 R69 R70 R71 R72 R73 R74



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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend

- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 8 of 18
NRDG: Noise Reduction Design Plan

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Name: B28
Height: 17'
Length: 947'
Benefitted Receptors: 29
Cost Per Benefitted Receptor: $13,878
Cost Effective Stand Alone

Name: B31
Height: 15'
Length: 1,456'
Benefitted Receptors: 24
Cost Per Benefitted Receptor: $22,750
Cost Effective Stand Alone

Name: B32
Height: 15'
Length: 1,237'
Benefitted Receptors: 78
Cost Per Benefitted Receptor: $5,947
Cost Effective Stand Alone

Name: B34
Height: 17'
Length: 1,303'
Benefitted Receptors: 114
Cost Per Benefitted Receptor: $4,858
Cost Effective Stand Alone

Name: B29
Not Feasible
Does Not Meet Feasibility Criterion

Name: B30
Height: 15'
Length: 1,008'
Benefitted Receptors: 23
Cost Per Benefitted Receptor: $16,435
Cost Effective Stand Alone

Name: B33
Height: 15'
Length: 1,224'
Benefitted Receptors: 81
Cost Per Benefitted Receptor: $5,810
Cost Effective Stand Alone

Name: B35
Height: 13'
Length: 1,305'
Benefitted Receptors: 90
Cost Per Benefitted Receptor: $4,713
Cost Effective Stand Alone

Lehmer Ave
Harrison St
Eisenhower Expwy
290
43
Maple Ave
Harlem Ave
Home Ave
Clinton Ave
Jackson Blvd
Kenilworth
Euclid Ave
Oak Park Ave
Grove Ave
Garfield St
Lexington St
Marengo Ave
Elgin Ave
Wenonah
R75
R76
R76A
R77
R78
R79
R79A
R80
R81
R82
R83
R84
R85
R86
R87
R88
R89
R90
R91

Berkeley
Hillside
Bellwood
Maywood
Oak Park
Chicago
Forest Park
Westchester
Broadview
Berwyn
Cicero
Oak Brook
Sheet 1
Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Sheet 10
Sheet 11
Sheet 12
Sheet 13
Sheet 14
Sheet 15
Sheet 16
Sheet 17
Sheet 18

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Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend
- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 9 of 18
NRDG: Noise Reduction Design Plan

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Name: B34
Height: 17'
Length: 1,303'
Benefitted Receptors: 114
Cost Per Benefitted Receptor: $4,858
Cost Effective Stand Alone

Name: B36
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

Name: B40
Height: 17'
Length: 1,303'
Benefitted Receptors: 156
Cost Per Benefitted Receptor: $3,550
Cost Effective Stand Alone

Name: B38
Height: 13'
Length: 1,302'
Benefitted Receptors: 31
Cost Per Benefitted Receptor: $13,650
Cost Effective Stand Alone

Name: B35
Height: 13'
Length: 1,305'
Benefitted Receptors: 90
Cost Per Benefitted Receptor: $4,713
Cost Effective Stand Alone

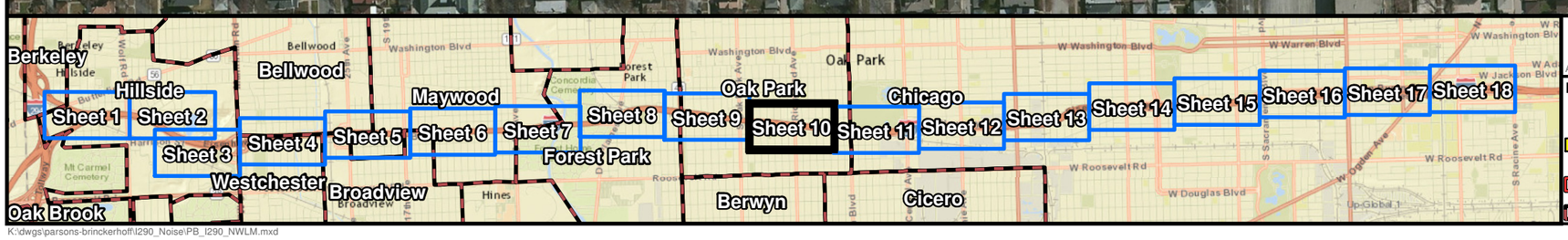
Name: B37
Height: 15'
Length: 1,312'
Benefitted Receptors: 40
Cost Per Benefitted Receptor: $12,300
Cost Effective Stand Alone

Name: B39
Height: 17'
Length: 1,302'
Benefitted Receptors: 42
Cost Per Benefitted Receptor: $25,152
Cost Effective Stand Alone

Name: B41
Height: 17'
Length: 1,278'
Benefitted Receptors: 82
Cost Per Benefitted Receptor: $6,624
Cost Effective Stand Alone

R95 R94 R98 R100 R101 R102 R103 R104 R105 R107 R108 R109 R110 R112 R113 R114 R115 R116 R118 R120 R121 R119 R92 R93 R96A R96 R99 R97 R111 R117

Elmwood Ave
Ridgeland Ave
Van Buren
Cuyler Ave
Highland Ave
Scoville Ave
Gunderson Ave
Harrison St
East Ave
290
Eisenhower Expwy
Flournoy St
Lombard Ave
Garfield St
Harvey Ave
Wesley Ave
Clarence Ave
Harvard St



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N W E S

Aerial Source: USDA-FSA-APFO NAIP MrSID Mosaic, 2012

Legend
- Noise Receptor
- Benefitted by Noise Wall
- Common Noise Environment
- Municipal Boundary
- Existing Noise Barrier
- Cost Effective Noise Barrier
- Barrier Studied, Not Reasonable and Feasible
- Proposed Edge of Pavement

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 10 of 18
NRDG: Noise Reduction Design Plan

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