I-290

Phase I Study

West of US 45 (Mannheim Road) to Racine Avenue

Draft Traffic Noise Analysis
Volume 2

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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 the traffic noise impacts 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[2] 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.

[2] 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	**69**	Bellwood
R33	C / 67	70	70	**70**	Broadview
R34	E / 72	71	74	67	Bellwood
R35	B / 67	69	69	**68**	Maywood
R36	B / 67	64	65	65	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	**78**	Bellwood
R38	B / 67	73	74	**75**	Maywood
R38A	C / 67	61	61	62	
R39	B / 67	73	74	**75**	
R40	B / 67	71	72	**73**	
R41	B / 67	74	75	**75**	
R42	C / 67	72	73	**75**	
R43	B / 67	77	77	**79**	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	**76**	
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	**67**	
R52A	C / 67	64	65	65	
R53	C / 67	67	68	**68**	
R54	B / 67	76	76	**78**	
R55	B / 67	76	76	**77**	
R56	C / 67	73	74	**74**	
R57	C / 67	64	64	64	
R58	B / 67	75	77	**77**	
R59	B / 67	75	76	**76**	
R60	E / 72	74	74	**74**	
R61	E / 72	74	75	**71**	
R62	C / 67	73	73	**73**	Forest Park
R63	C / 67	75	75	**76**	
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 R43, R172, and R198. Noise level change from the No Build condition to the Preliminary Preferred Alternative condition ranges from -7 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 (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 resulting in 2040 Build traffic noise levels that are as much as 7 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.[4] 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,
- consideration of the viewpoints of the benefited receptors (property owners and residents) results in a majority desiring the abatement.

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

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 Represented 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 Represented 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 Represented 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 barriers 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.[5]

[5] 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 Represented 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	95	$5,000 to $7,000	$29,474
B14	113	$5,000 to $7,000	$29,434
B15	80	$0 to $7,000	$27,400

Barrier	Benefited Represented Receptors	Adjustment Factor Range	Adjusted Allowable Cost per Benefited Receptors
B16	198	$0 to $7,000	$26,702
B17	60	$5,000 to $7,000	$29,483
B18	23	$6,000 to $7,000	$30,391
B19	40	$5,000 to $7,000	$29,800
B20	26	$6,000 to $7,000	$30,154
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	Does not meet IDOT Noise Reduction Design Goal		
B37	40	$0 to $7,000	$29,750
B38	31	$6,000 to $7,000	$30,032
B39	22	$1,000 to $7,000	$28,773
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 Represented 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.	2,621	13	$851,825	$2,800,000	95	$29,474	$8,967	0.30	Cost-Effective
B14	North of I-290, 25th Ave. to 17th Ave.	2,611	13	$848,575	$3,326,000	113	$29,434	$7,510	0.26	Cost-Effective
B15	North of I-290, 17th Avenue to 9th Avenue	2,349	13	$763,425	$2,192,000	80	$27,400	$9,543	0.35	Cost-Effective
B16	South of I-290, 17th Ave. to 9th Ave.	2,600	13	$845,000	$5,287,000	198	$26,702	$4,268	0.16	Cost-Effective
B17	South of I-290, 9th Ave. to 5th Ave.	1,285	15	$481,875	$1,769,000	60	$29,483	$8,031	0.27	Cost-Effective
B18	North of I-290, 9th Ave. to 5th Ave.	1,273	15	$477,375	$699,000	23	$30,391	$20,755	0.68	Cost-Effective
B19	South of I-290, 5th Ave. to 1st Ave.	1,314	15	$492,750	$1,192,000	52	$29,800	$12,319	0.41	Cost-Effective
B20	North of I-290, 5th Ave. to 1st Ave.	1,245	15	$466,875	$784,000	26	$30,154	$17,957	0.60	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 Represented 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.	Does not meet IDOT Noise Reduction Design Goal							n/a	Not reasonable
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.	1,302	17	$553,350	$633,000	22	$28,773	$25,152	0.87	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 reasonability 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 nine were found to be not reasonable. Of the nine barriers found to be not reasonable, two were found to not meet the IDOT noise reduction criterion (B11 and B21), and seven were found to be not cost effective (B21, B22, B23, B24, B25, B26, and B43). The twenty-nine 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 not 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 Represented 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 Represented 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 Represented 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 Represented 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 reasonability 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).

TABLE 10
COST AVERAGING ANALYSIS SUMMARY

Barrier Number	Benefited Represented 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
B16	198	$845,000	$4,268	$26,702	0.16	$2,570	$28,019	Cost-Effective Stand Alone

Barrier Number	Benefited Represented 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
B77	30	$158,850	$5,295	$31,000	0.17	$2,599	$28,051	Cost-Effective Stand Alone
B68	88	$411,125	$4,672	$27,250	0.17	$2,663	$28,026	Cost-Effective Stand Alone
B34	114	$553,775	$4,858	$29,404	0.17	$2,747	$28,079	Cost-Effective Stand Alone
B42	118	$618,750	$5,244	$29,763	0.18	$2,841	$28,143	Cost-Effective Stand Alone
B80	77	$399,575	$5,189	$29,325	0.18	$2,898	$28,171	Cost-Effective Stand Alone
B67	96	$502,350	$5,233	$27,635	0.19	$2,967	$28,156	Cost-Effective Stand Alone
B33	79	$459,000	$5,810	$30,443	0.19	$3,034	$28,209	Cost-Effective Stand Alone
B58	94	$553,350	$5,887	$30,340	0.19	$3,111	$28,267	Cost-Effective Stand Alone
B32	78	$463,875	$5,947	$29,692	0.20	$3,174	$28,299	Cost-Effective Stand Alone
B73	86	$545,275	$6,340	$30,163	0.21	$3,249	$28,343	Cost-Effective Stand Alone
B41	82	$543,150	$6,624	$29,634	0.22	$3,324	$28,372	Cost-Effective Stand Alone
B63	38	$285,975	$7,526	$31,000	0.24	$3,367	$28,399	Cost-Effective Stand Alone
B71	79	$573,750	$7,263	$29,557	0.25	$3,448	$28,423	Cost-Effective Stand Alone
B14	113	$848,575	$7,510	$29,434	0.26	$3,564	$28,452	Cost-Effective Stand Alone
B57	67	$550,800	$8,221	$30,433	0.27	$3,643	$28,485	Cost-Effective Stand Alone
B17	60	$481,875	$8,031	$29,483	0.27	$3,707	$28,500	Cost-Effective Stand Alone
B46	78	$551,250	$7,067	$25,000	0.28	$3,771	$28,434	Cost-Effective Stand Alone
B13	95	$851,825	$8,967	$29,474	0.30	$3,888	$28,457	Cost-Effective Stand Alone
B55	28	$267,325	$9,547	$30,571	0.31	$3,925	$28,471	Cost-Effective Stand Alone
B64	35	$346,775	$9,908	$30,829	0.32	$3,974	$28,490	Cost-Effective Stand Alone
B15	80	$763,425	$9,543	$27,400	0.35	$4,076	$28,470	Cost-Effective Stand Alone
B61	43	$488,750	$11,366	$29,047	0.39	$4,147	$28,476	Cost-Effective Stand Alone
B65	44	$454,125	$10,321	$25,591	0.40	$4,208	$28,447	Cost-Effective Stand Alone
B53	20	$250,125	$12,506	$30,300	0.41	$4,245	$28,456	Cost-Effective Stand Alone
B19	52	$492,750	$12,319	$29,800	0.41	$4,316	$28,468	Cost-Effective Stand Alone
B37	40	$492,000	$12,300	$29,750	0.41	$4,386	$28,479	Cost-Effective Stand Alone
B76	12	$132,525	$11,044	$26,000	0.42	$4,404	$28,472	Cost-Effective Stand Alone
B48	30	$400,125	$13,338	$30,833	0.43	$4,462	$28,488	Cost-Effective Stand Alone
B10 Ext	20	$262,125	$13,106	$29,250	0.45	$4,500	$28,491	Cost-Effective Stand Alone

Barrier Number	Benefited Represented 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	$4,531	$28,494	Cost-Effective Stand Alone
B60	43	$575,025	$13,373	$29,628	0.45	$4,612	$28,504	Cost-Effective Stand Alone
B38	31	$423,150	$13,650	$30,032	0.45	$4,672	$28,514	Cost-Effective Stand Alone
B28	29	$402,475	$13,878	$30,069	0.46	$4,728	$28,524	Cost-Effective Stand Alone
B45	47	$573,625	$12,205	$25,128	0.49	$4,802	$28,491	Cost-Effective Stand Alone
B54	18	$266,250	$14,792	$30,389	0.49	$4,839	$28,498	Cost-Effective Stand Alone
B51	36	$549,000	$15,250	$29,194	0.52	$4,916	$28,503	Cost-Effective Stand Alone
B30	23	$378,000	$16,435	$29,696	0.55	$4,971	$28,509	Cost-Effective Stand Alone
B66	22	$390,650	$17,757	$30,818	0.58	$5,028	$28,519	Cost-Effective Stand Alone
B20	26	$466,875	$17,957	$30,154	0.60	$5,097	$28,528	Cost-Effective Stand Alone
B89	30	$473,525	$15,784	$25,000	0.63	$5,162	$28,506	Cost-Effective Stand Alone
B69	26	$492,000	$18,923	$29,615	0.64	$5,234	$28,512	Cost-Effective Stand Alone
B18	23	$477,375	$20,755	$30,391	0.68	$5,305	$28,521	Cost-Effective Stand Alone
B49	26	$607,325	$23,359	$30,500	0.77	$5,399	$28,531	Cost-Effective Stand Alone
B31	24	$546,000	$22,750	$29,125	0.78	$5,482	$28,534	Cost-Effective Stand Alone
B27	16	$383,825	$23,989	$29,625	0.81	$5,540	$28,537	Cost-Effective Stand Alone
B39	22	$553,350	$25,152	$28,773	0.87	$5,625	$28,538	Cost-Effective Stand Alone
B56	6	$142,875	$23,813	$25,833	0.92	$5,647	$28,535	Cost-Effective Stand Alone
B75	5	$280,725	$56,145	$30,800	1.82	$5,696	$28,537	Cost-Effective Cumulative
B79	10	$518,250	$51,825	$26,000	1.99	$5,787	$28,532	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 Feasibility Criterion							
B2	Does not meet IDOT Noise Reduction Design Goal							
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							
B9	Does not meet IDOT Feasibility Criterion							
B10	Does not meet IDOT Feasibility Criterion							
B11	Does not meet IDOT Noise Reduction Design Goal							
B12	Does not meet IDOT Feasibility Criterion							

Barrier Number	Benefited Represented 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
B21	Does not meet IDOT Noise Reduction Design Goal							
B29	Does not meet IDOT Feasibility Criterion							
B36	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 that meets the IDOT noise reduction design goal. Viewpoints solicitation packages, including an informational letter, voting form, and maps of the proposed wall, were sent to property owners and tenants at receptors that would benefit from the proposed wall. The received votes were tallied by noise wall per IDOT policy, as shown in Table 11 (Table 11 will be added upon the completion of the viewpoints solicitation process). If greater than fifty percent of a 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 receive fifty percent or more votes in favor of the wall are not recommended for construction as part of the project.

TABLE 11
VIEWPOINTS SOLICITATION SUMMARY

To be added upon the completion of the viewpoints solicitation process.

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 will be identified in Table 11 upon the completion of the viewpoints solicitation process. 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 use 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.

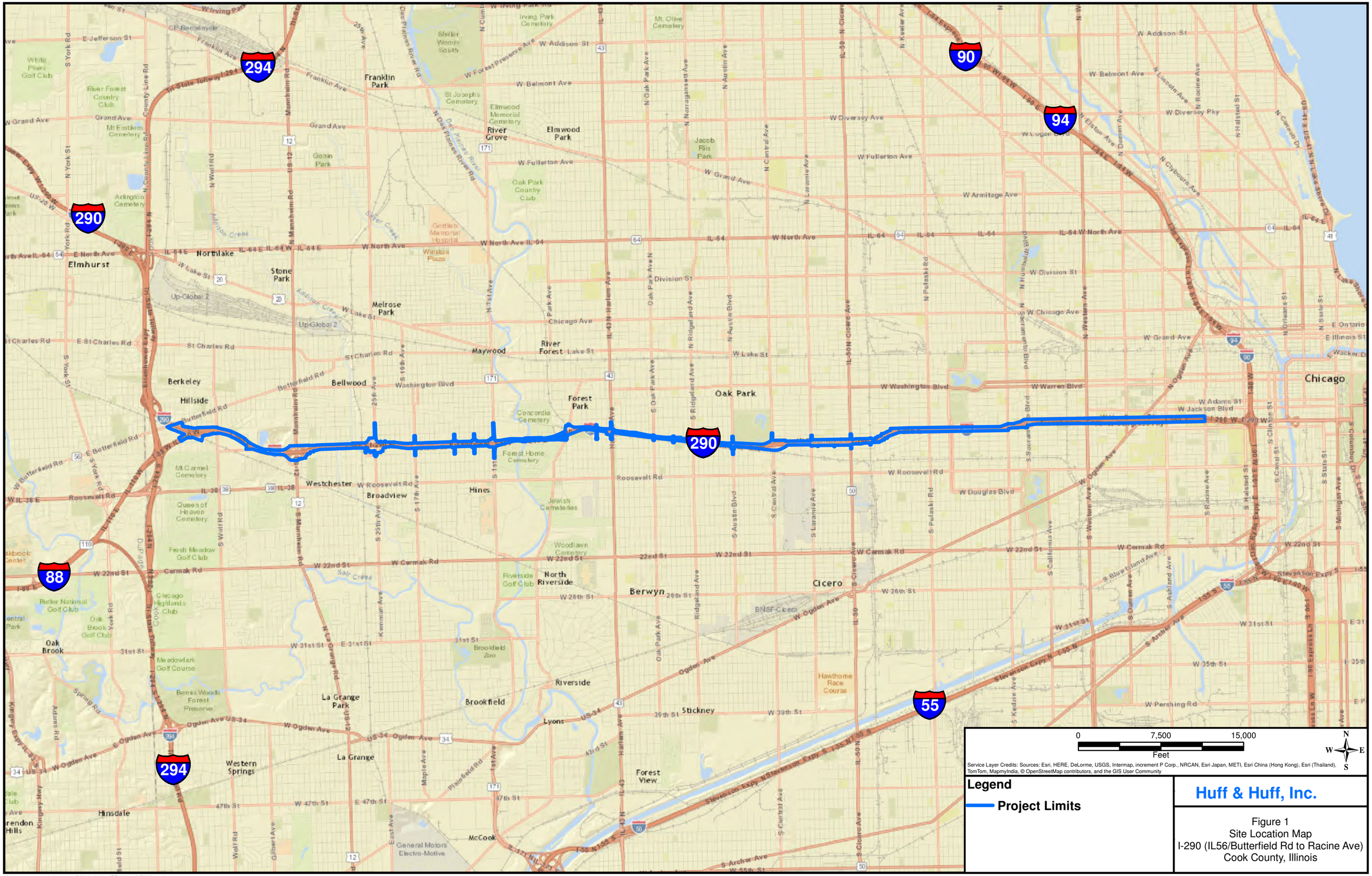
The seventy feasible noise walls that also achieve the noise reduction design goal were then evaluated for economic reasonability. Based on the evaluation, sixty of the remaining seventy noise walls would be economically reasonable on a stand-alone perspective, as the actual cost per benefited receptor 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.

Therefore, based on the traffic noise analysis and noise abatement evaluation conducted, highway traffic noise abatement measures were brought to the public for viewpoints solicitation for sixty-two noise wall locations 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 and the noise walls recommended for construction as part of the I-290 project will be included in the final version of this report. 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 addition 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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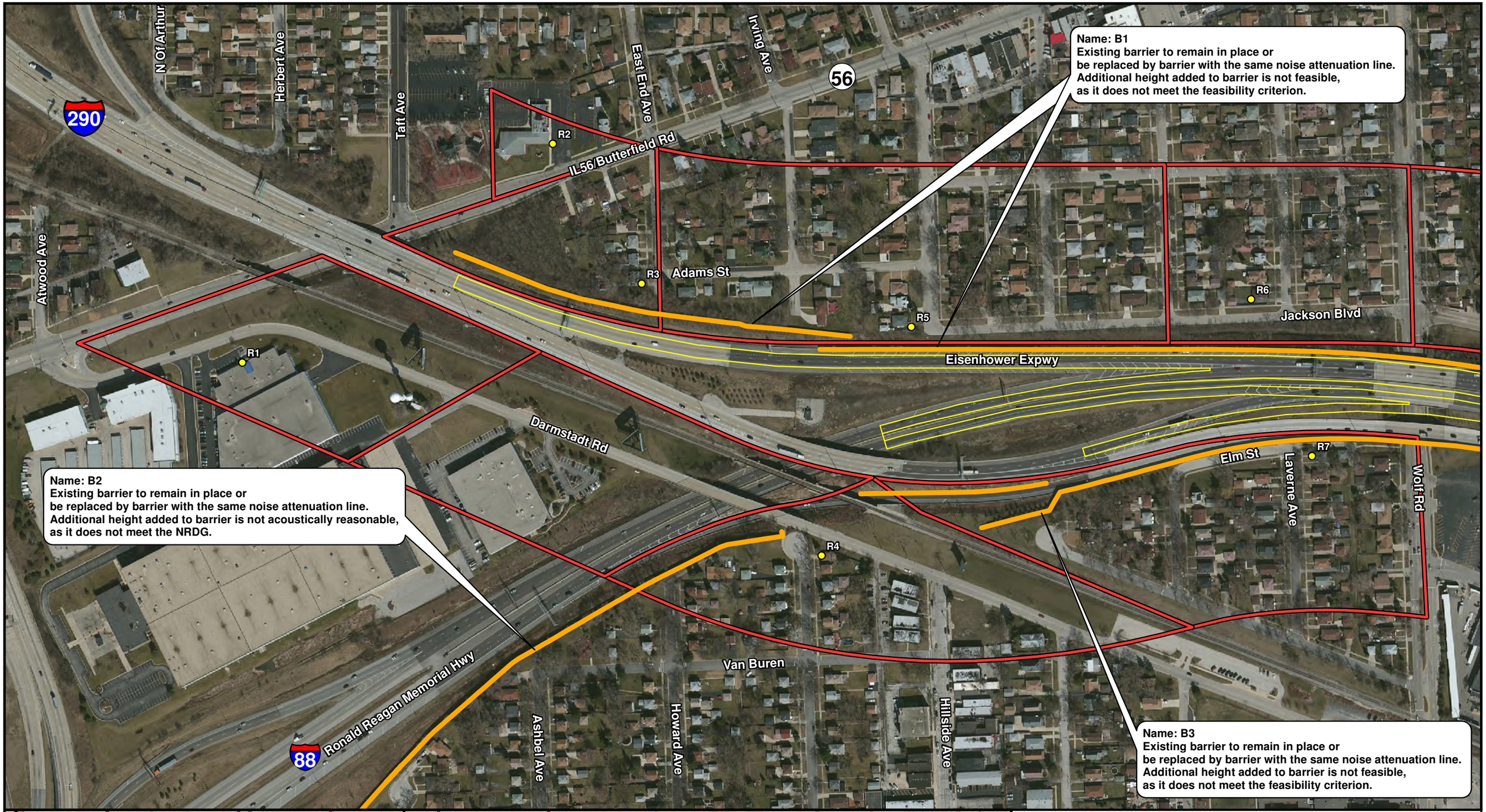

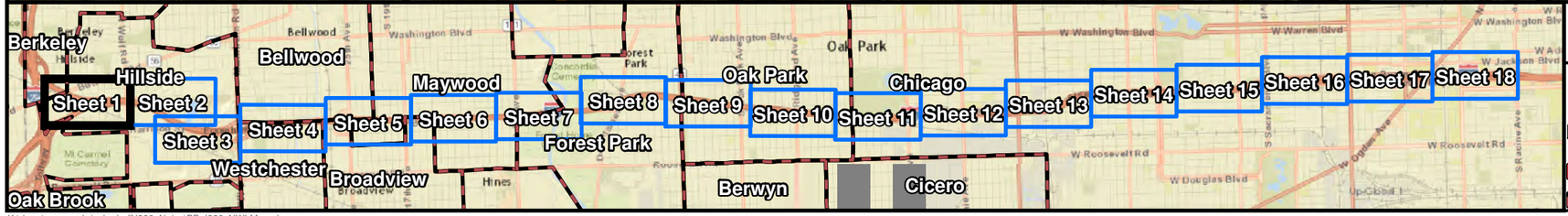

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Feet

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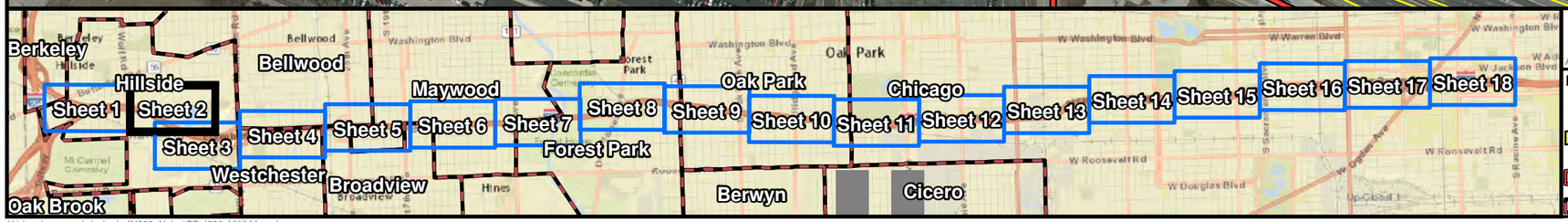
Name: B4
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line.
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

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



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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

R11

Harrison St

R13

R12

290

Eisenhower Expwy

12
20
45

Oak Ridge Ave

Oak Ave

Railroad Ave

R14

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.

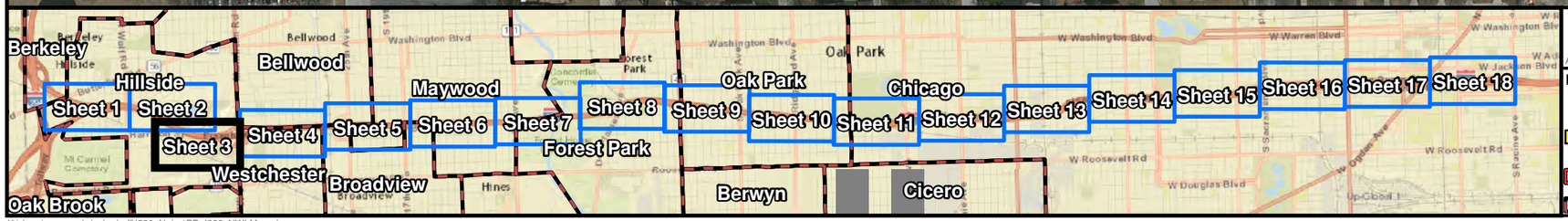
Fencl Ln

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

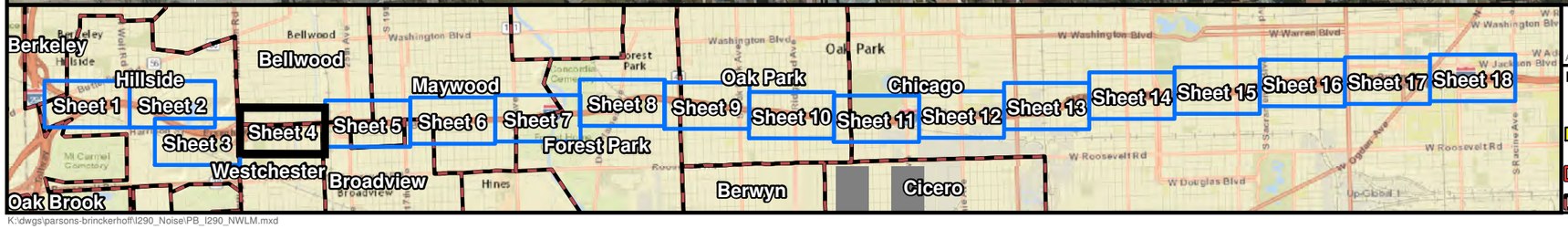
Name: B10
Existing barrier to remain in place or
be replaced by barrier with the same noise attenuation line
Additional height added to barrier is not feasible,
as it does not meet the feasibility criterion.

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
Balmoral Ave
Worchester Ave
Suffolk Ave
Norfolk 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

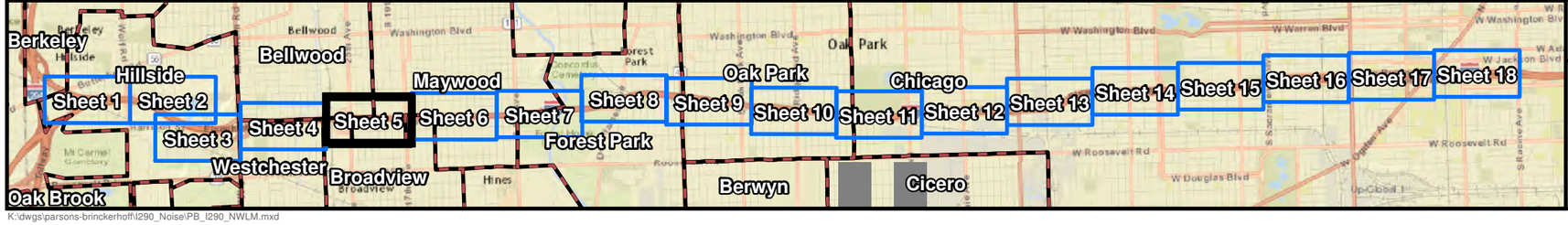
Name: B14
Height: 13'
Length: 2,611'
Benefitted Receptors: 113
Cost Per Benefitted Receptor: $7,510
Cost Effective Stand Alone

Name: B15
Height: 13'
Length: 2,349'
Benefitted Receptors: 80
Cost Per Benefitted Receptor: $9,543
Cost Effective Stand Alone

Name: B12
Not Feasible
Does Not Meet Feasibility Criterion

Name: B13
Height: 13'
Length: 2,621'
Benefitted Receptors: 95
Cost Per Benefitted Receptor: $8,967
Cost Effective Stand Alone

Name: B16
Height: 13'
Length: 2,600'
Benefitted Receptors: 198
Cost Per Benefitted Receptor: $4,268
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: 2,349'
Benefitted Receptors: 80
Cost Per Benefitted Receptor: $9,543
Cost Effective Stand Alone

Name: B18
Height: 15'
Length: 1,273'
Benefitted Receptors: 23
Cost Per Benefitted Receptor: $20,755
Cost Effective Stand Alone

Name: B20
Height: 15'
Length: 1,245'
Benefitted Receptors: 26
Cost Per Benefitted Receptor: $17,957
Cost Effective Stand Alone

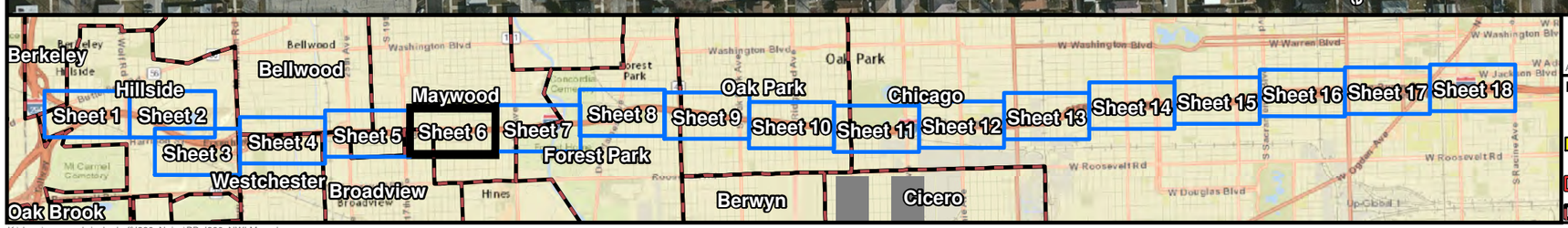
13th Ave
Van Buren
16th Ave
15th Ave
14th Ave
7th Ave
5th Ave
R42
R44
R45
R46
R48
R49
R54
Harrison St
Eisenhower Expwy
290
Bataan Dr
R43
12th Ave
11th Ave
10th Ave
R47
R50
R51
R52
R53
R55
6th Ave
R56
R57
Lexington St
R52A

Name: B16
Height: 13'
Length: 2,600'
Benefitted Receptors: 198
Cost Per Benefitted Receptor: $4,268
Cost Effective Stand Alone

Name: B17
Height: 15'
Length: 1,285'
Benefitted Receptors: 60
Cost Per Benefitted Receptor: $8,031
Cost Effective Stand Alone

Name: B19
Height: 15'
Length: 1,314'
Benefitted Receptors: 52
Cost Per Benefitted Receptor: $12,319
Cost Effective Stand Alone

9th Ave
8th Ave
4th Ave



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Feet

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 6 of 18
NRDG: Noise Reduction Design Plan

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Name: B20
Height: 15'
Length: 1,245'
Benefitted Receptors: 26
Cost Per Benefitted Receptor: $17,957
Cost Effective Stand Alone

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

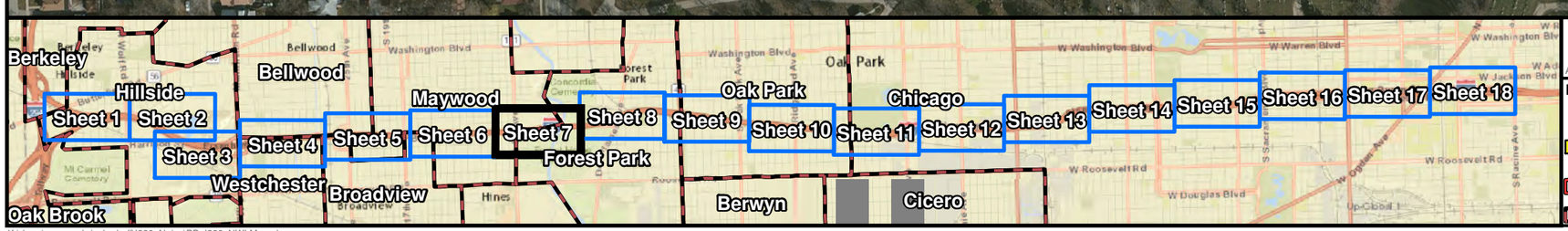
Name: B23
Height: 19'
Length: 1,001'
Benefitted Receptors: 1
Cost Per Benefitted Receptor: $475,475
Not cost-effective (not reasonable)

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: 1,314'
Benefitted Receptors: 52
Cost Per Benefitted Receptor: $12,319
Cost Effective Stand Alone



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Feet

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

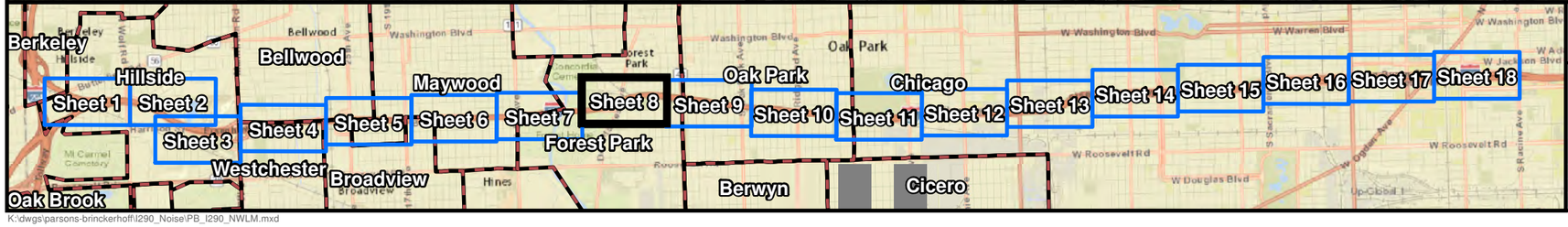
Name: B29
Not Feasible
Does Not Meet Feasibility Criterion

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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Feet

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 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: 79
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
Maple Ave
Harrison St
Eisenhower Expwy
290
Harlem Ave
Home Ave
Clinton Ave
Jackson Blvd
Kenilworth
Euclid Ave
Oak Park Ave
Grove Ave
Garfield St
Elgin Ave
Marengo Ave
Lexington St
Wenonah

R75 R76 R76A R77 R78 R79 R79A R80 R81 R82 R83 R84 R85 R86 R87 R88 R89 R90 R91

Berkeley
Bellwood
Hillside
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

0 250 500
Feet

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 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

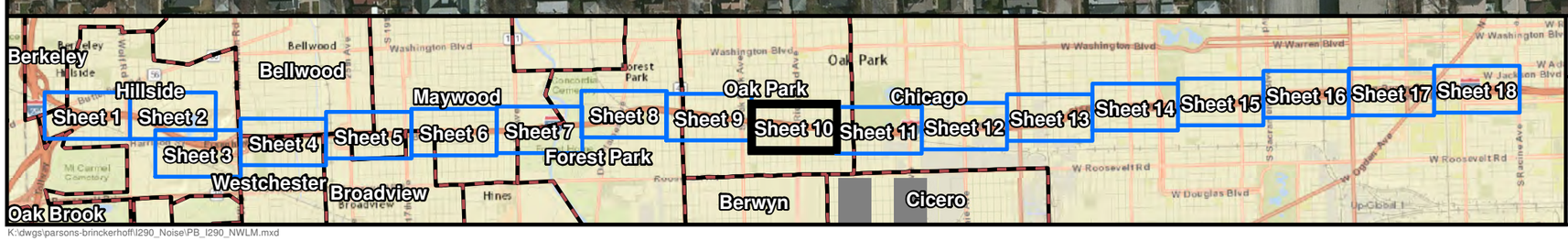
Name: B37
Height: 15'
Length: 1,312'
Benefitted Receptors: 40
Cost Per Benefitted Receptor: $12,300
Cost Effective Stand Alone

Name: B39
Height: 17'
Length: 1,302'
Benefitted Receptors: 22
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 R102 R103 R105 R107 R104 R100 R101 R112 R113 R114 R115 R118 R120 R109 R108 R110 R116 R121 R119 R92 R93 R96A R99 R96 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



0 250 500
Feet

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

Name: B43
Height: 11'
Length: 2,631'
Benefitted Receptors: 6
Cost Per Benefitted Receptor: $120,588
Not cost-effective (not reasonable)

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

Name: B42
Height: 15'
Length: 1,650'
Benefitted Receptors: 118
Cost Per Benefitted Receptor: $5,244
Cost Effective Stand Alone

Name: B44
Height: 15'
Length: 3,254'
Benefitted Receptors: 310
Cost Per Benefitted Receptor: $3,936
Cost Effective Stand Alone

Lyman Ave
Humphrey Ave
Austin Blvd
Eisenhower Expwy
290
Garfield St
Harvard St
Railroad Ave
Monitor Ave
Central Ave
Congress Pkwy
Harrison St
Flournoy St
Taylor St
R122
R123
R124
R125
R126
R127
R127A
R127B
R128

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

0 250 500
Feet

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 11 of 18
NRDG: Noise Reduction Design Plan

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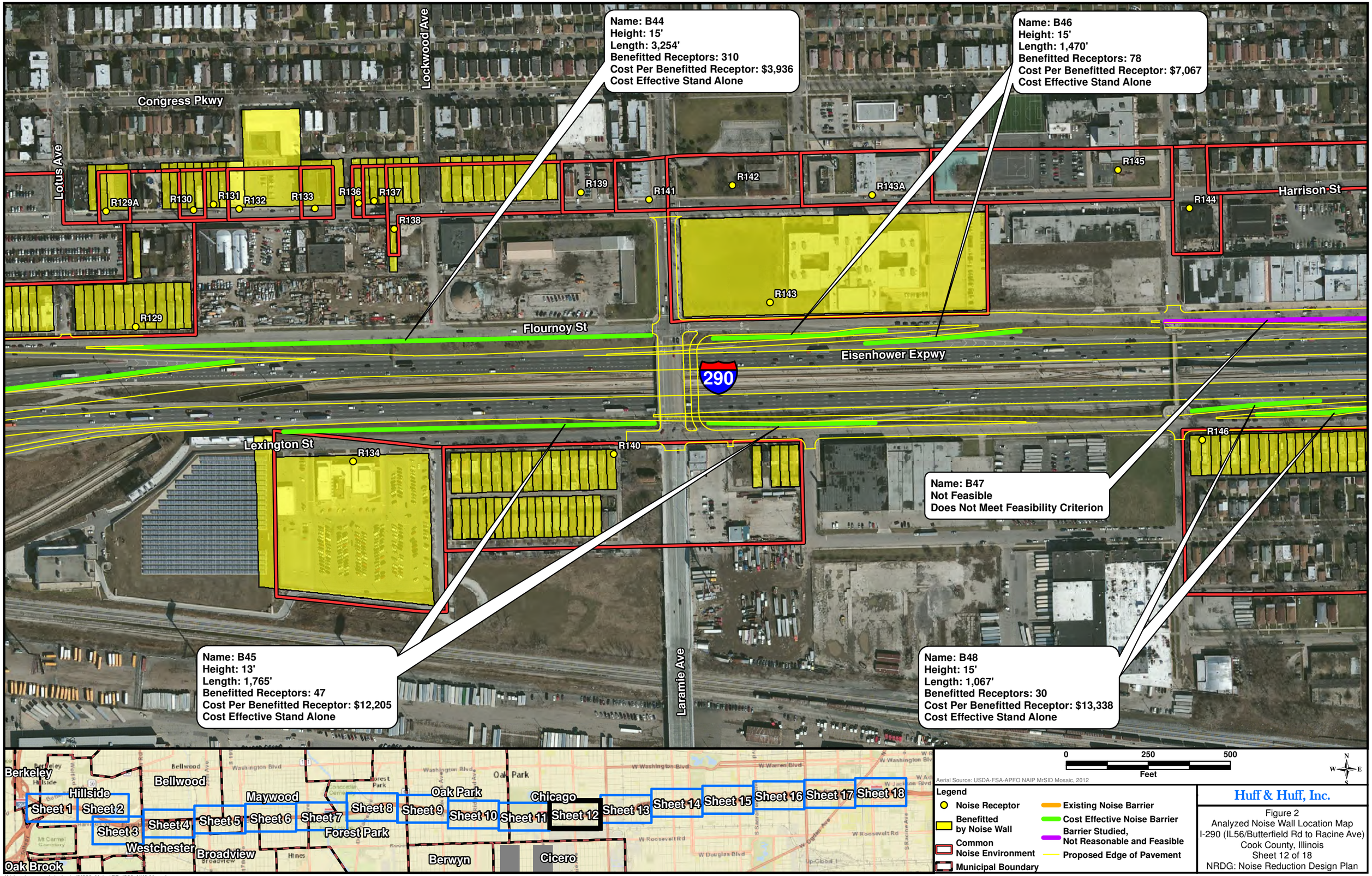

Huff & Huff, Inc.

Figure 2
Analyzed Noise Wall Location Map
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 12 of 18
NRDG: Noise Reduction Design Plan

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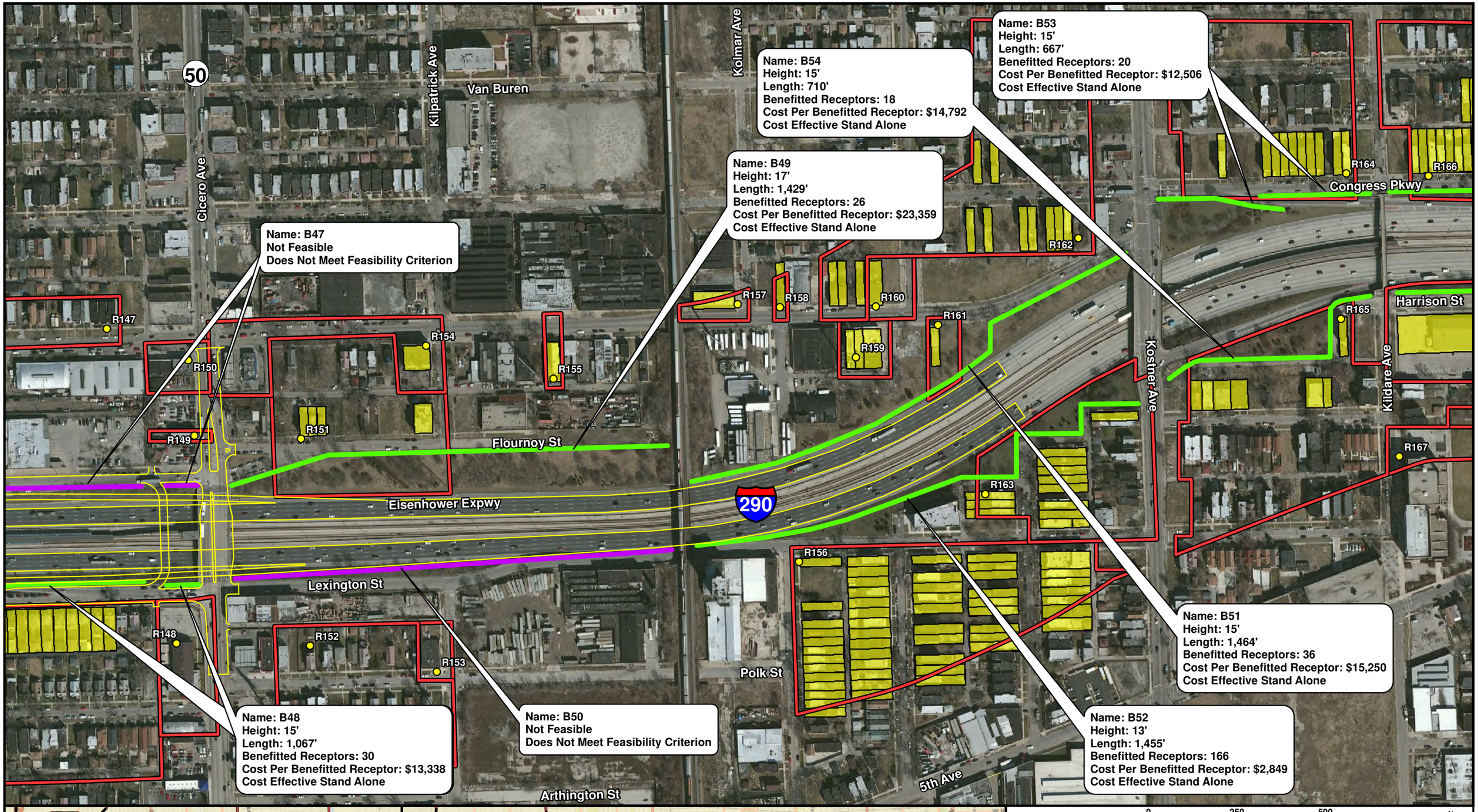

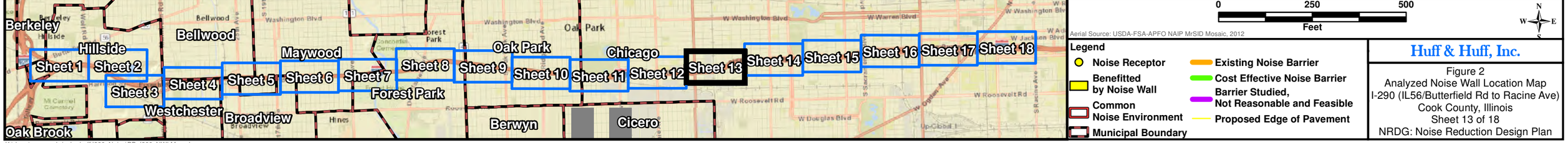

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Name: B55
Height: 17'
Length: 629'
Benefitted Receptors: 28
Cost Per Benefitted Receptor: $9,547
Cost Effective Stand Alone

Name: B58
Height: 17'
Length: 1,302'
Benefitted Receptors: 94
Cost Per Benefitted Receptor: $5,887
Cost Effective Stand Alone

Name: B59
Height: 17'
Length: 1,509'
Benefitted Receptors: 196
Cost Per Benefitted Receptor: $3,272
Cost Effective Stand Alone

Name: B62
Height: 15'
Length: 1,248'
Benefitted Receptors: 116
Cost Per Benefitted Receptor: $4,034
Cost Effective Stand Alone

Name: B61
Height: 17'
Length: 1,150'
Benefitted Receptors: 43
Cost Per Benefitted Receptor: $11,366
Cost Effective Stand Alone

Name: B60
Height: 17'
Length: 1,353'
Benefitted Receptors: 43
Cost Per Benefitted Receptor: $13,373
Cost Effective Stand Alone

Name: B56
Height: 9'
Length: 635'
Benefitted Receptors: 6
Cost Per Benefitted Receptor: $23,813
Cost Effective Stand Alone

Name: B57
Height: 17'
Length: 1,296'
Benefitted Receptors: 67
Cost Per Benefitted Receptor: $8,221
Cost Effective Stand Alone

Gladys Ave
Springfield Ave
Congress Pkwy
Eisenhower Expwy
290
Keeler Ave
Pulaski Rd
Garfield St
Harrison St
Lexington St
Polk St
Millard Ave
Lawndale Ave
5th Ave

R168 R169 R170 R171 R172 R173 R174 R175 R176 R177 R178 R179 R180 R181 R182 R183 R184 R185 R186 R187 R188 R189 R190 R191 R192 R193 R194

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

0 250 500
Feet

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 14 of 18
NRDG: Noise Reduction Design Plan

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Name: B62
Height: 15'
Length: 1,248'
Benefitted Receptors: 116
Cost Per Benefitted Receptor: $4,034
Cost Effective Stand Alone

Name: B63
Height: 9'
Length: 1,271'
Benefitted Receptors: 38
Cost Per Benefitted Receptor: $7,526
Cost Effective Stand Alone

Name: B65
Height: 15'
Length: 1,211'
Benefitted Receptors: 44
Cost Per Benefitted Receptor: $10,321
Cost Effective Stand Alone

Name: B67
Height: 17'
Length: 1,182'
Benefitted Receptors: 96
Cost Per Benefitted Receptor: $5,233
Cost Effective Stand Alone

Name: B68
Height: 13'
Length: 1,265'
Benefitted Receptors: 88
Cost Per Benefitted Receptor: $4,672
Cost Effective Stand Alone

Name: B61
Height: 17'
Length: 1,150'
Benefitted Receptors: 43
Cost Per Benefitted Receptor: $11,366
Cost Effective Stand Alone

Name: B64
Height: 11'
Length: 1,261'
Benefitted Receptors: 35
Cost Per Benefitted Receptor: $9,908
Cost Effective Stand Alone

Name: B66
Height: 13'
Length: 1,202'
Benefitted Receptors: 22
Cost Per Benefitted Receptor: $17,757
Cost Effective Stand Alone

Jackson Blvd
Spaulding Ave
Albany Ave
Whipple St
Van Buren
Kedzie Ave
Congress Pkwy
Eisenhower Expwy
290
Central Park Ave
Harrison St
Homan Ave
Flournoy St
Lexington St

R197 R196 R195 R198 R199 R200 R201 R202 R203 R204 R205 R206 R207 R208 R209 R210 R211 R212 R213 R214 R216 R217 R218 R219

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

0 250 500
Feet

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 15 of 18
NRDG: Noise Reduction Design Plan

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Name: B70
Height: 17'
Length: 1,279'
Benefitted Receptors: 7
Cost Per Benefitted Receptor: $77,654
Not cost-effective (not reasonable)

Name: B71
Height: 17'
Length: 1,350'
Benefitted Receptors: 79
Cost Per Benefitted Receptor: $7,263
Cost Effective Stand Alone

Name: B73
Height: 17'
Length: 1,283'
Benefitted Receptors: 86
Cost Per Benefitted Receptor: $6,340
Cost Effective Stand Alone

Name: B74
Height: 13'
Length: 1,369'
Benefitted Receptors: 132
Cost Per Benefitted Receptor: $3,371
Cost Effective Stand Alone

Name: B72
Height: 9'
Length: 1,357'
Benefitted Receptors: 78
Cost Per Benefitted Receptor: $3,914
Cost Effective Stand Alone

Name: B68
Height: 13'
Length: 1,265'
Benefitted Receptors: 88
Cost Per Benefitted Receptor: $4,672
Cost Effective Stand Alone

Name: B69
Height: 15'
Length: 1,312'
Benefitted Receptors: 26
Cost Per Benefitted Receptor: $18,923
Cost Effective Stand Alone

Adams St
Van Buren
Eisenhower Expwy
290
Congress Pkwy
Sacramento Dr
California Ave
Harrison St
Campbell Ave
Flournoy St

R220 R221 R222 R223 R224 R225 R226 R227 R228 R229 R230 R231 R232 R233 R234 R235 R236 R237 R238 R239 R240 R241 R241A R242 R243 R244

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

0 250 500
Feet

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 16 of 18
NRDG: Noise Reduction Design Plan

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Name: B76
Height: 9'
Length: 589'
Benefitted Receptors: 12
Cost Per Benefitted Receptor: $11,044
Cost Effective Stand Alone

Name: B77
Height: 9'
Length: 706'
Benefitted Receptors: 30
Cost Per Benefitted Receptor: $5,295
Cost Effective Stand Alone

Name: B80
Height: 11'
Length: 1,453'
Benefitted Receptors: 77
Cost Per Benefitted Receptor: $5,189
Cost Effective Stand Alone

Name: B81
Height: 9'
Length: 1,249'
Benefitted Receptors: 75
Cost Per Benefitted Receptor: $3,747
Cost Effective Stand Alone

Name: B84
Not Feasible
Does Not Meet Feasibility Criterion

Name: B82
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

Name: B78
Not Feasible
Does Not Meet Feasibility Criterion

Name: B75
Height: 19'
Length: 591'
Benefitted Receptors: 5
Cost Per Benefitted Receptor: $56,145
Cost Effective Cumulatively

Name: B79
Height: 15'
Length: 1,382'
Benefitted Receptors: 10
Cost Per Benefitted Receptor: $51,825
Cost Effective Cumulatively

Name: B83
Height: 13'
Length: 1,916'
Benefitted Receptors: 700
Cost Per Benefitted Receptor: $890
Cost Effective Stand Alone

Adams St
Western Ave
Jackson Blvd
Van Buren
Eisenhower Expwy
290
Leavitt St
Damen Ave
Ogden Ave
Oakley Ave
Congress Pkwy
Harrison St
Flournoy St
Hoyne Ave

R246 R248 R245 R248A R251 R250 R247 R249 R252 R253 R254 R255 R256 R257 R258 R259 R260 R261 R262

Berkeley
Hillside
Bellwood
Maywood
Oak Park
Chicago
Forest Park
Westchester
Broadview
Berwyn
Cicero
Oak Brook
Hines
Mt Carmel Cemetery

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

0 250 500
Feet

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 17 of 18
NRDG: Noise Reduction Design Plan

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Name: B84
Not Feasible
Does Not Meet Feasibility Criterion

Name: B85
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

Name: B88
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 criteria.

Name: B88 Extension
Height: 21'
Length: 883'
Benefitted Receptors: 178
Cost Per Benefitted Receptor: $2,604
Cost Effective Stand Alone

Name: B86
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

Name: B83
Height: 13'
Length: 1,916'
Benefitted Receptors: 700
Cost Per Benefitted Receptor: $890
Cost Effective Stand Alone

Name: B87
Does Not Achieve NRDG,
Is Not Acoustically Reasonable

Name: B89
Height: 13'
Length: 1,457'
Benefitted Receptors: 30
Cost Per Benefitted Receptor: $15,784
Cost Effective Stand Alone

Paulina St
Adams St
Quincy St
Racine Ave
Cottage Pl
Jackson Blvd
Gladys Ave
Van Buren
Eisenhower Expwy
Ashland Ave
Congress Pkwy
Loomis St
Harrison St
Wood St
Flournoy St
Ada St

R263 R264 R265 R266 R267 R268 R269 R270 R271 R272 R273 R273A R274 R275 R276 R277 R278 R279

290

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

Berkeley
Hillside
Bellwood
Maywood
Oak Park
Chicago
Forest Park
Westchester
Broadview
Berwyn
Cicero
Oak Brook

0 250 500
Feet

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 18 of 18
NRDG: Noise Reduction Design Plan

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Appendix B

[DATE]

Tonita LeShore
Director
Community Development and Human Resources
Village of Bellwood
3200 Washington Boulevard
Bellwood, IL 60104

Re: Traffic Noise Information for Undeveloped Lands
Eisenhower Expressway (I-290) Reconstruction

The Illinois Department of Transportation is currently conducting environmental (Phase I) preliminary engineering studies for proposed improvements to the Eisenhower Expressway (I-290) in Cook County, IL. The proposed improvements include reconstruction of the expressway from I-88 to Cicero Avenue/IL Route 50, as well as roadway restriping from Cicero Avenue/IL Route 50 to Racine Avenue.

As part of the Phase I Environmental Study for this proposed project, projected future traffic noise levels were evaluated for lands (either currently under your jurisdiction or land that may come under your jurisdiction) near the proposed roadway improvement. For your information, this study area includes land that may be planned for future development in a comprehensive land use plan.

This letter includes an exhibit showing the predicted design year (2040) build traffic noise levels for the undeveloped lands along the project corridor within your jurisdiction. This information is for your use in planning and permitting future development. We recommend that you carefully consider the future predicted noise levels to avoid potential issues of public concern over incompatible noise levels.

The figure shows currently vacant/future development areas in red, and also shows the distance from the center of the nearest outside I-290 mainline travel lane (based on the proposed improvement) to both the 66- and 71-dB(A) noise level contours.

- A 66-dB(A) noise contour represents noise levels that would be a noise impact for residential areas, schools, places of worship, medical offices, recreational areas, and institutional uses.
- A 71-dB(A) noise contour represents noise levels that would be a noise impact for hotels, restaurants, and offices.

To help with your future planning and discernment regarding permitting decisions, we encourage you to obtain the Federal Highway Administration (FHWA) publication titled *Entering the Quiet Zone: Noise Compatible Land Use Planning*. This publication can be obtained from the FHWA website:

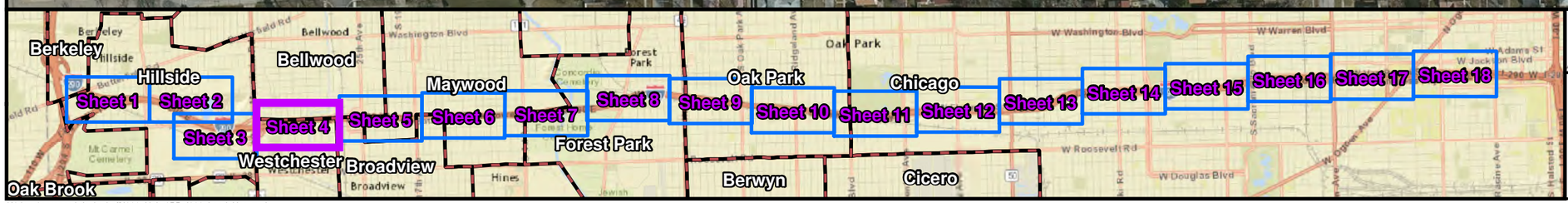
www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/land_use/quietezon.pdf

For additional information regarding traffic noise, regulations and policy, noise analyses or noise abatement, we encourage you to visit the Department's web site at: http://www.dot.il.gov/. Click on the "Environment" link and then the "Traffic Noise" link to access this information.

Sincerely,

NAC noise levels (either 67 dB(A) or 72 dB(A)) are not expected to be reached in this location in the 2040 Build condition.

Buren
Marshall Ave
Bellwood Ave
Linden Ave
Rice Ave
Eastern Ave
32nd Ave
31st St
30th Ave
Cernan Dr
Congress Pkwy
Harrison St
290
Eisenhower Expwy
Wedgwood Dr
Indian Joe Dr
York St
Newcastle Ave
Balmoral Ave
Gardner Rd
Westchester Blvd
Hull Ave
Kitchener St
Portsmouth Ave
Suffolk Ave
Norfolk Ave
Manchester Ave
Bristol Ave
Worchester Ave
Cromwell
Gladstone St



0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 4 of 18

K:\dwgs\parsons-brinckerhoff\I290_Noise\PB_I290_Land_Use.mxd

[DATE]

Andrew Mooney
Commissioner
Planning and Development
City of Chicago
121 N. LaSalle Street
Chicago, IL 60602

Re: Traffic Noise Information for Undeveloped Lands
Eisenhower Expressway (I-290) Reconstruction

The Illinois Department of Transportation is currently conducting environmental (Phase I) preliminary engineering studies for proposed improvements to the Eisenhower Expressway (I-290) in Cook County, IL. The proposed improvements include reconstruction of the expressway from I-88 to Cicero Avenue/IL Route 50, as well as roadway restriping from Cicero Avenue/IL Route 50 to Racine Avenue.

As part of the Phase I Environmental Study for this proposed project, projected future traffic noise levels were evaluated for lands (either currently under your jurisdiction or land that may come under your jurisdiction) near the proposed roadway improvement. For your information, this study area includes land that may be planned for future development in a comprehensive land use plan.

This letter includes an exhibit showing the predicted design year (2040) build traffic noise levels for the undeveloped lands along the project corridor within your jurisdiction. This information is for your use in planning and permitting future development. We recommend that you carefully consider the future predicted noise levels to avoid potential issues of public concern over incompatible noise levels.

The figure shows currently vacant/future development areas in red, and also shows the distance from the center of the nearest outside I-290 mainline travel lane (based on the proposed improvement) to both the 66- and 71-dB(A) noise level contours.

- A 66-dB(A) noise contour represents noise levels that would be a noise impact for residential areas, schools, places of worship, medical offices, recreational areas, and institutional uses.
- A 71-dB(A) noise contour represents noise levels that would be a noise impact for hotels, restaurants, and offices.

To help with your future planning and discernment regarding permitting decisions, we encourage you to obtain the Federal Highway Administration (FHWA) publication titled *Entering the Quiet Zone: Noise Compatible Land Use Planning*. This publication can be obtained from the FHWA website:

www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/land_use/quitezon.pdf

For additional information regarding traffic noise, regulations and policy, noise analyses or noise abatement, we encourage you to visit the Department's web site at: http://www.dot.il.gov/. Click on the "Environment" link and then the "Traffic Noise" link to access this information.

Sincerely,

Congress Pkwy
Lotus Ave
Lockwood Ave
Leamington Ave
Lavergne Ave
Harrison St
Flournoy St
Eisenhower Expwy
290
Lexington St
Polk St
Laramie Ave
Arthington St

For all Activity Category G areas from Lockwood to Cicero in the City of Chicago, Build 2040 noise levels are expected to:
- Approach, meet, or exceed an NAC of 67 dB(A) at all Activity Category G uses in this area
- Approach, meet, or exceed an NAC of 72 dB(A)) within 250' of I-290

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

0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 12 of 18

K:\dwgs\parsons-brinckerhoff\I290_Noise\PB_I290_Land_Use.mxd

For all Activity Category G areas from Cicero to Independence in the City of Chicago, Build 2040 noise levels are expected to:

- Approach, meet, or exceed an NAC of 67 dB(A) within 500' of I-290
- Approach, meet, or excced an NAC of 72 dB(A)) within 200' of I-290

50
Van Buren
Kilpatrick Ave
Kolmar Ave
Kilbourn Ave
Congress Pkwy
Harrison St
Cicero Ave
Flournoy St
Kildare Ave
Eisenhower Expwy
290
Lexington St
Kenneth Ave
Kostner Ave
5th Ave
Polk St
Arthington St

0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis

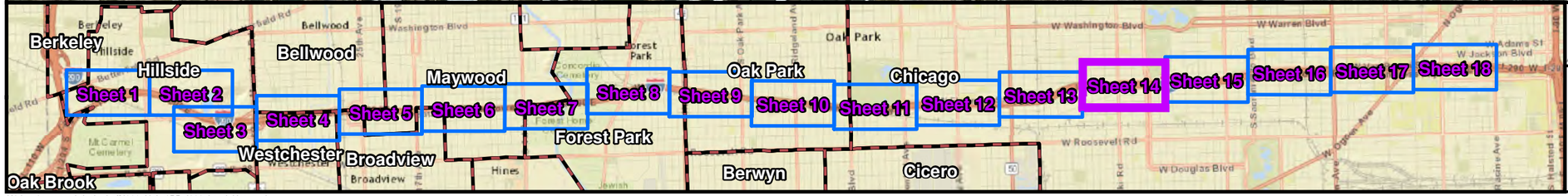
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 13 of 18

K:\dwgs\parsons-brinckerhoff\I290_Noise\PB_I290_Land_Use.mxd

For all Activity Category G areas from Independence to Western in the City of Chicago, Build 2040 noise levels are expected to:

- Approach, meet, or exceed an NAC of 67 dB(A) within 400' of I-290
- Approach, meet, or exceed an NAC of 72 dB(A)) within 200' of I-290

Gladys Ave
Karlov Ave
Pulaski Rd
Springfield Ave
Hamlin Ave
Van Buren
Millard Ave
Congress Pkwy
Eisenhower Expwy
290
Garfield St
Harrison St
Flournoy St
Independence Blvd
Tripp Ave
Keeler Ave
5th Ave
Kedvale Ave
Lexington St
Lawndale Ave
Polk St



0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis

I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 14 of 18

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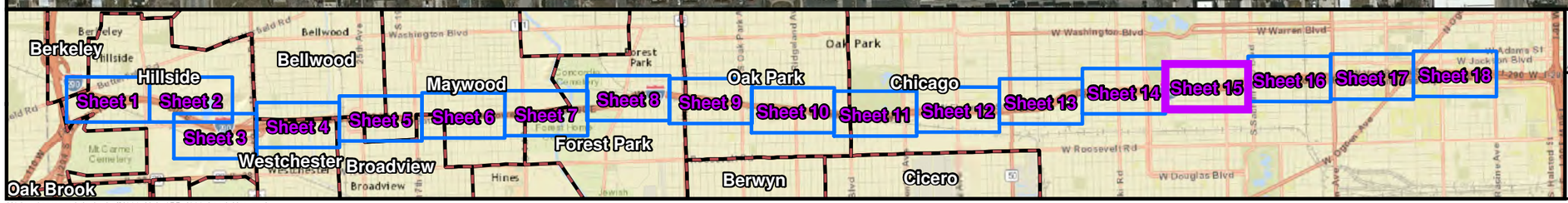
Jackson Blvd
Central Park Ave
5th Ave
Trumbull Ave
Gladys Ave
Whipple St
Van Buren
Homan Ave
Kedzie Ave
Congress Pkwy
Eisenhower Expwy
290
Harrison St
St Louis Ave
Flournoy St
Albany Ave
Lexington St

For all Activity Category G areas from Independence to Western in the City of Chicago, Build 2040 noise levels are expected to:

- Approach, meet or exceed an NAC of 67 dB(A) within 400' of I-290
- Approach, meet, or exceed an NAC of 72 dB(A)) within 200' of I-290



0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 15 of 18

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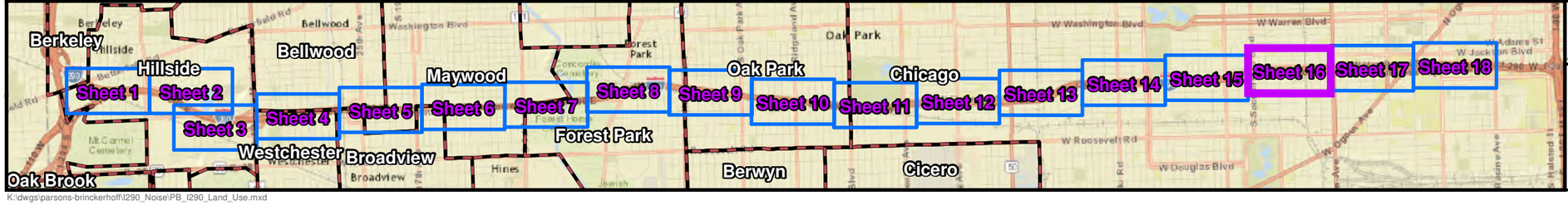
Adams St
Rockwell St
Jackson Blvd
Richmond St
Mozart St
Gladys Ave
Maplewood Ave
Artesian Ave
Van Buren
Eisenhower Expwy
290
Congress Pkwy
Washtenaw Ave
Harrison St
Sacramento Dr
Francisco Ave
California Ave
Flournoy St
Bellwood Ave
Campbell Ave

For all Activity Category G areas from Independence to Western in the City of Chicago, Build 2040 noise levels are expected to:

- Approach, meet, or exceed an NAC of 67 dB(A) within 400' of I-290
- Approach, meet, or exceed an NAC of 72 dB(A)) within 200' of I-290



0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
B	C
C	E
E	F
F	Municipal Boundary
G	

Huff & Huff, Inc.

Undeveloped Lands Analysis

I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 16 of 18

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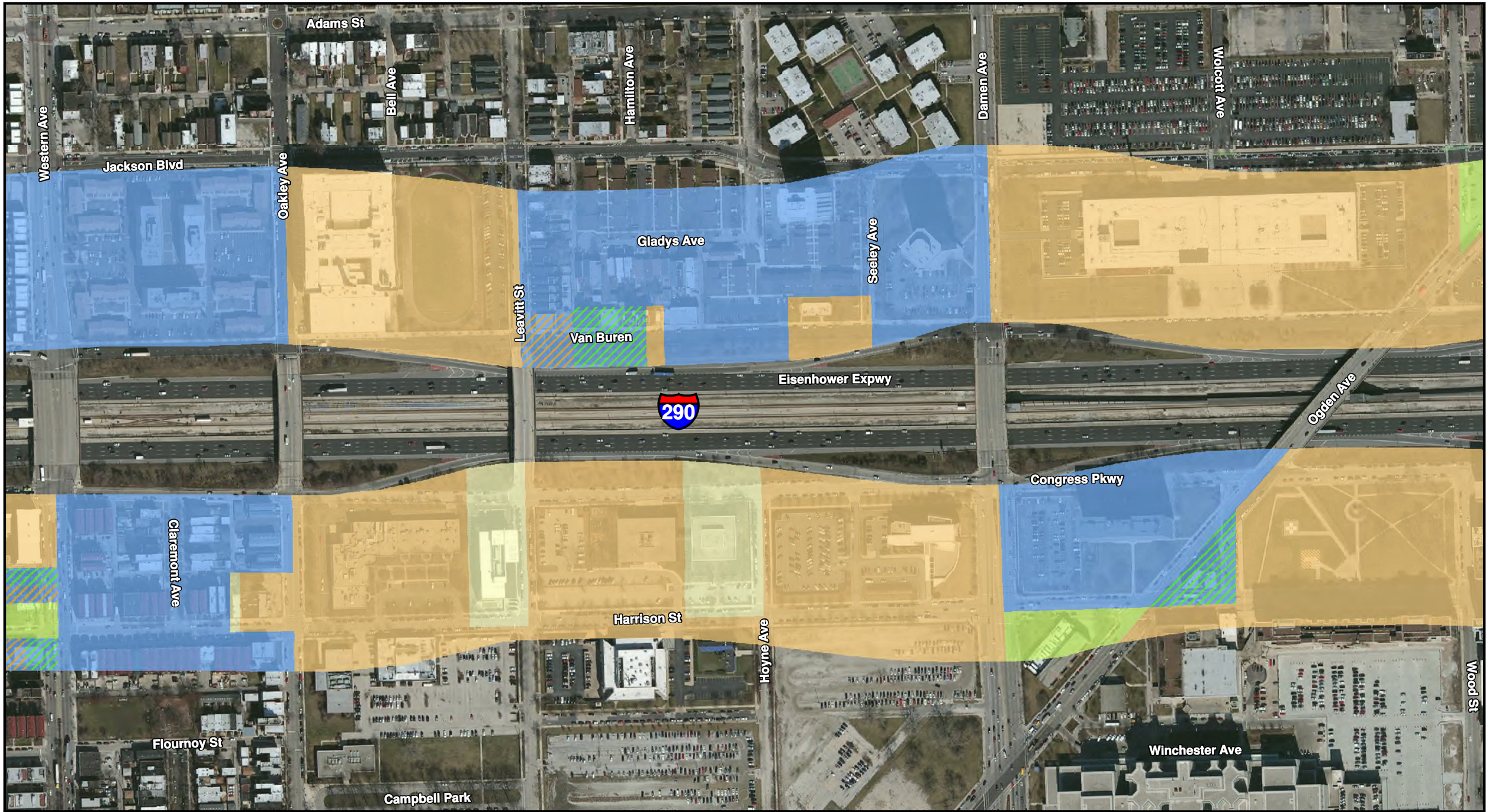

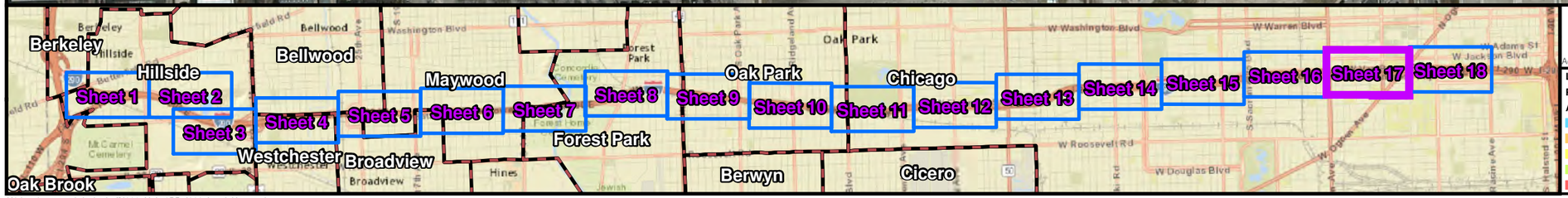

0 250 500
Feet

N W E S

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

Legend

Primary Land Use Activity Category	Secondary Land Use Activity Category
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Undeveloped Lands Analysis
I-290 (IL56/Butterfield Rd to Racine Ave)
Cook County, Illinois
Sheet 17 of 18

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