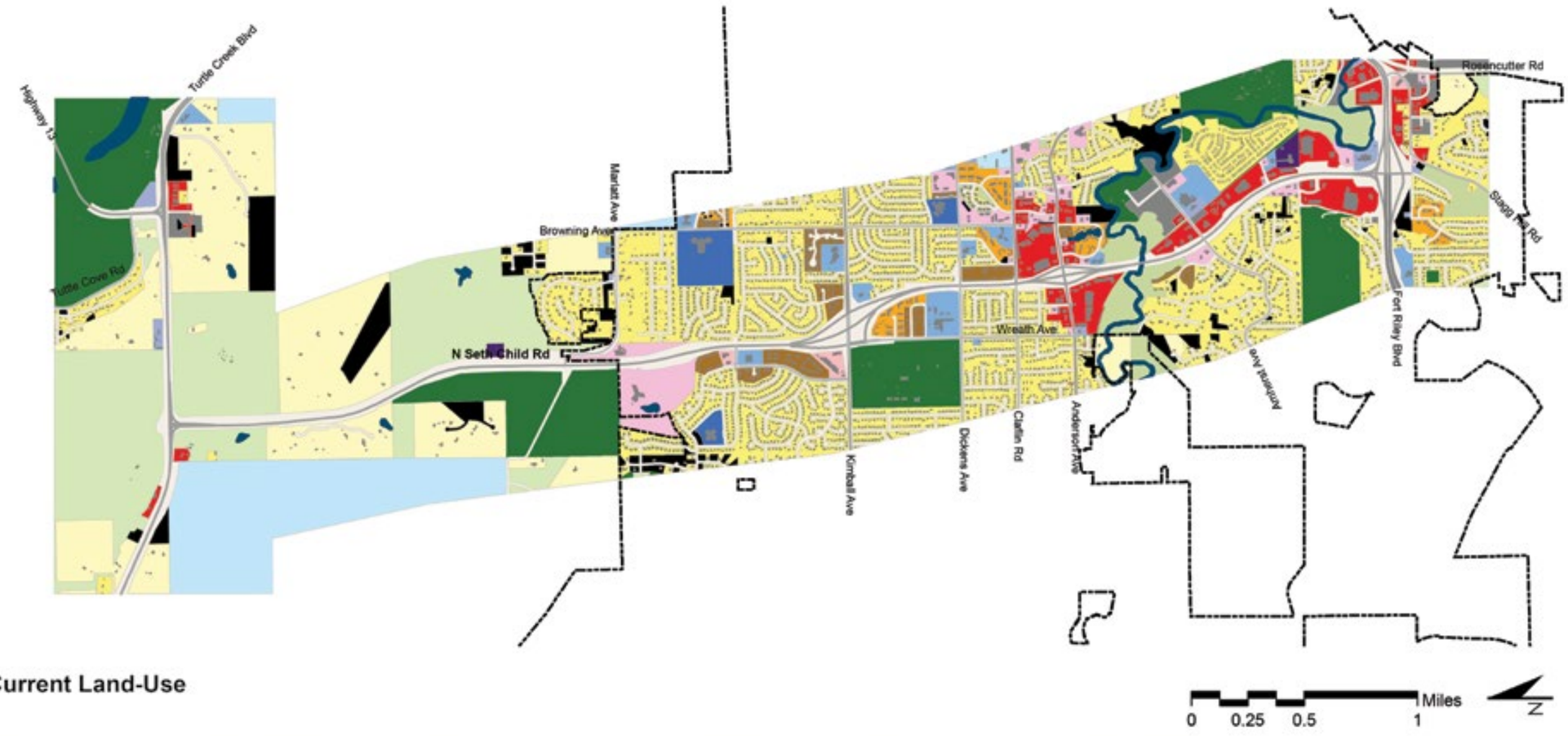
EXHIBIT 3.A - CURRENT LAND USE



Current Land-Use

District	Acres	Percentage
Agriculture	667.964	15%
Open Space	143.35	3%
Parks & Recreation	619.43	14%
Public/Semi-Public	21.4	0%
Institutional	83.75	2%
School	56.25	1%

District	Acres	Percentage
Kansas State University	360	8%
Community Commercial	185.77	4%
Neighborhood Commercial	12.31	0%
Industrial	53.16	1%
Office Research Park	128.67	3%
Rural Residential	644.81	14%

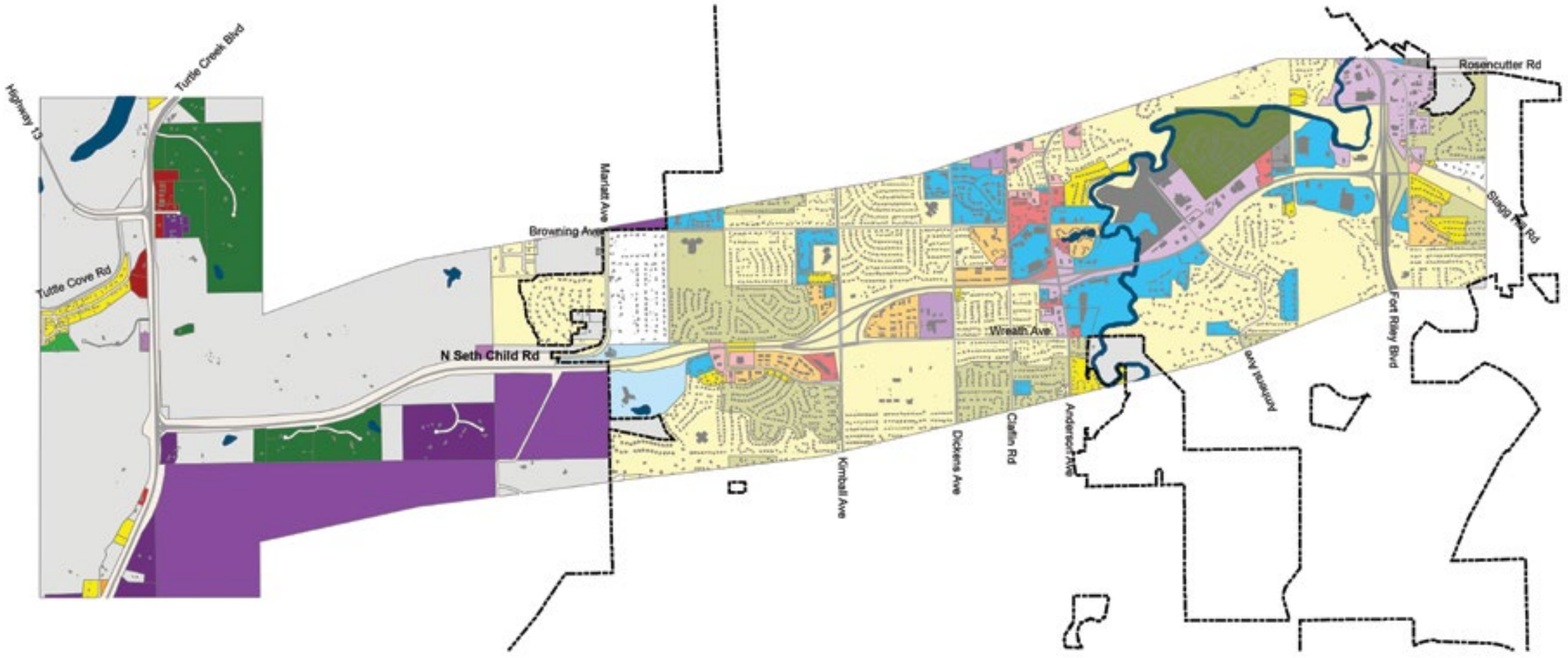
District	Acres	Percentage
Residential Low-Density	1,158.94	26%
Residential Medium-Density	59.74	1%
Residential High-Density	71.57	2%
Utilities	10.75	0%
Vacant	175.91	4%

City Boundary
Water Bodies

Total: 4,454 acres

APPENDIX A LAND USE

EXHIBIT 3.B - ZONING MAP



Zoning

Manhattan

District	Acres	Percentage
C-1 Restricted Business	34.38	1%
C-2 Neighborhood Shopping	44.57	2%
C-5 Highway Service Commercial	157.06	6%
I-2 Industrial Park	44.24	2%
I-3 Light Industrial	8.93	0%
I-5 Business Park	54.43	2%
PUD Planned Unit Development	298.3	11%

District	Acres	Percentage
R Single-Family Residential	1,386.67	1%
R-1 Single-Family Residential	385.25	2%
R-2 Single-Family Residential	69.7	6%
R-3 Multi-Family Residential	110.15	2%
R-5 Manufactured Home Park	94.61	0%
R-S Single-Family Residential Suburban	98.3	2%
U University	25.12	11%

Riley County

District	Acres	Percentage
AG Agricultural	1,324.56	60%
C-3 General Business	1.05	0%
C-4 Highway Business	21.25	1%
D-2 Light Industrial	5.06	0%
PUD Planned Unit Development	99.08	4%
Right-of-Way	2.7	0%
SF-1 Single-Family Residential	47.48	2%

District	Acres	Percentage
SF-2 Single Family Residential	0.93	0%
SF-3 Single Family Residential	32.47	1%
SF-4 Single Family Residential	5.39	0%
SF-5 Single Family Residential	232.14	10%
U University	453.61	20%
City Boundary		
Water Bodies		

Total: 5,038 acres

EXHIBIT 3.C - DEVELOPMENT PATTERN

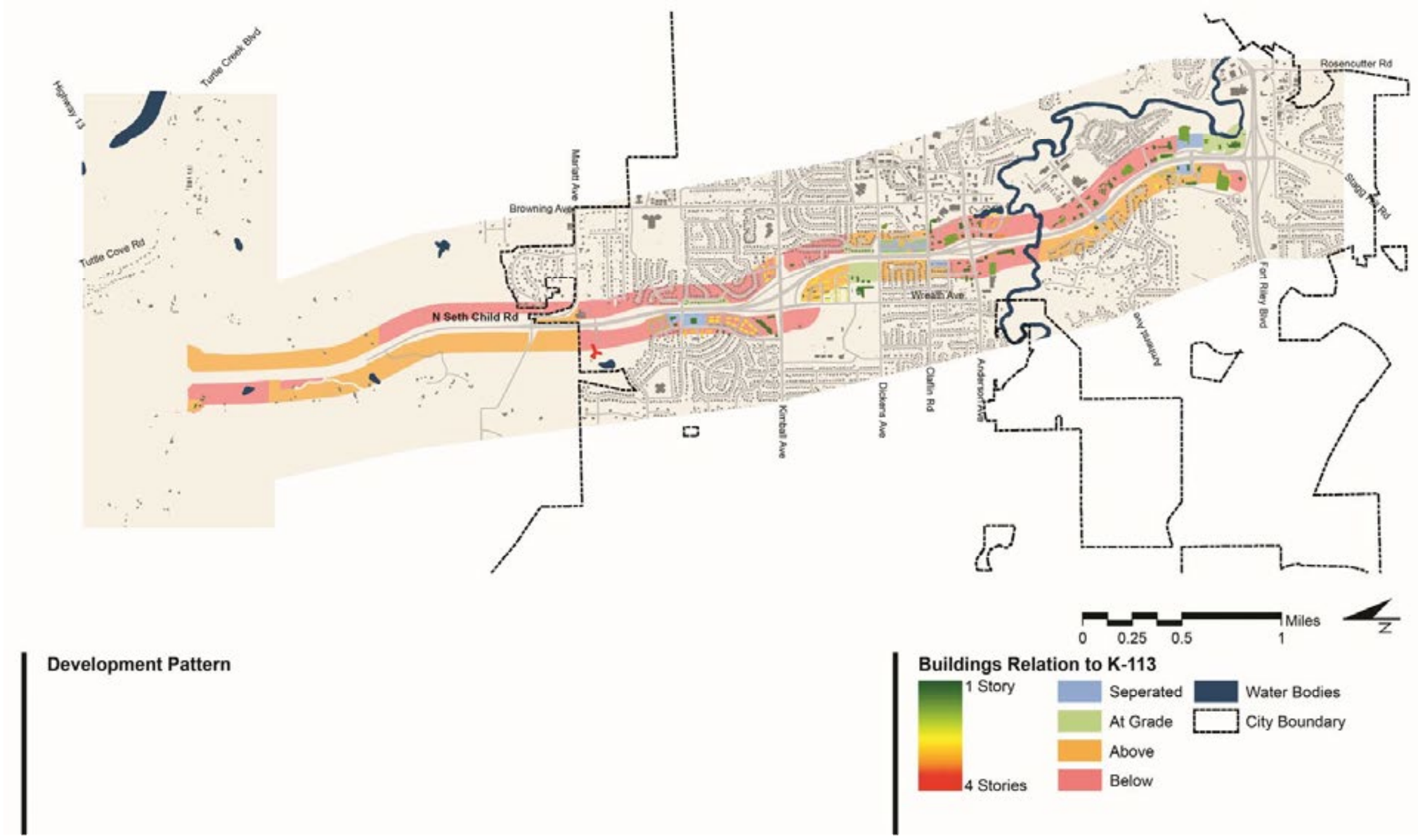
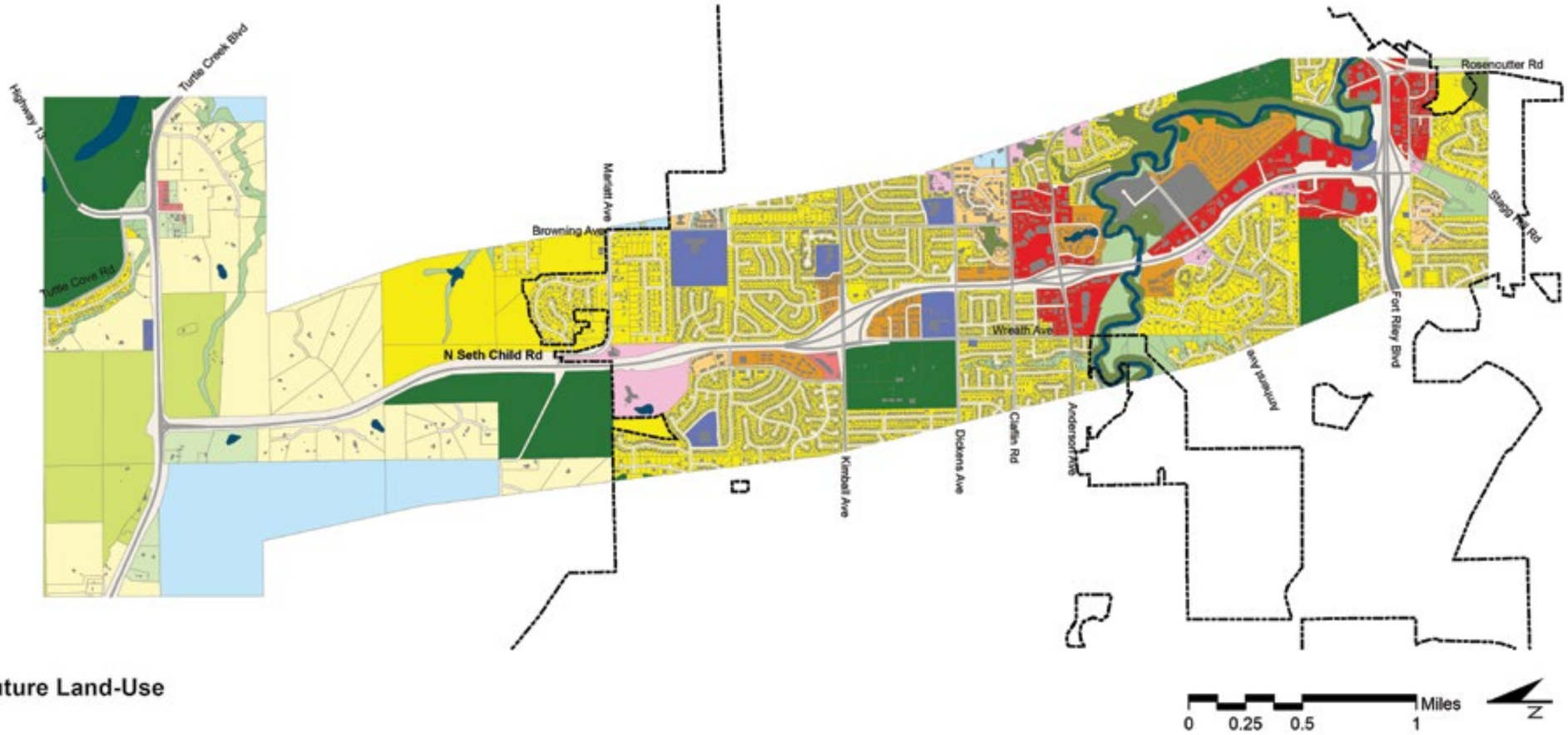


EXHIBIT 3.D - FUTURE CORRIDOR ZONING MAP



Future Land-Use

District	Acres	Percentage
Agriculture	73.3	2%
Environmentally Sensitive Areas	178.21	4%
Preserved Open Space	172.85	4%
Parks & Recreation	568.28	13%
Potential Growth Area	323.29	7%
Public/Semi-Public	94.92	2%

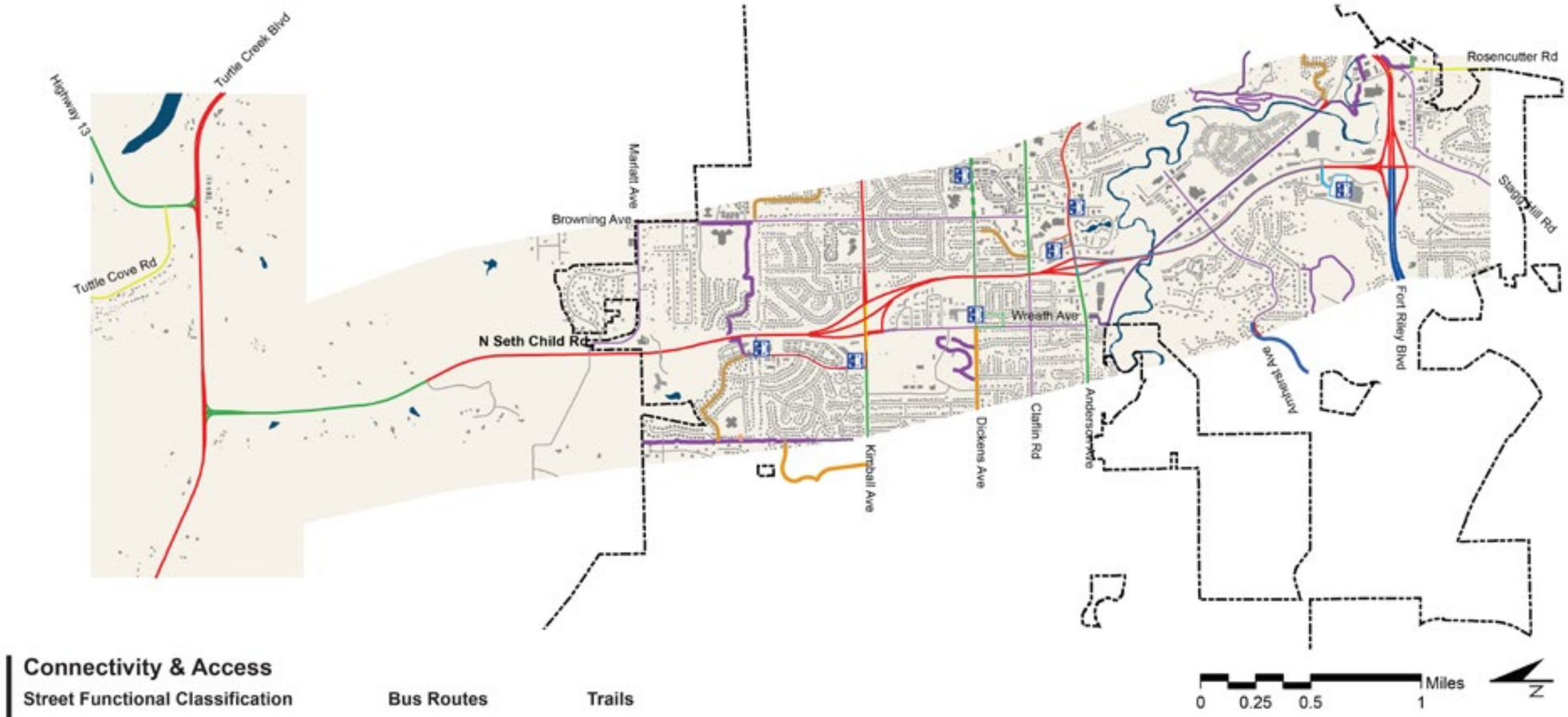
District	Acres	Percentage
Kansas State University	355.52	8%
Community Commercial	230.32	5%
Neighborhood Commercial	12.85	0%
Industrial	45.57	1%
Office Research Park	80.55	2%
Rural Residential	721.51	16%

District	Acres	Percentage
Residential Low/Medium Density	1,364.83	31%
Residential Medium/High Density	70.16	2%
Residential High Density	159.14	4%

City Boundary
Water Bodies

Total: 4,451 acres

EXHIBIT 3.E - FUNCTIONAL CLASSIFICATION MAP



Connectivity & Access

Street Functional Classification

- Freeway/Expressway (Non-Interstate)
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road

Bus Routes

- Red Line
- Greem Line
- Orange Line
- Blue Line
- Bus Stop

Trails

- Bike Lane
- Boulevard
- Boulevard, Proposed
- Route
- Sidewalk Connection
- Trail
- Limestone Screenings
- Earthen
- City Boundary
- Water Bodies

EXHIBIT 3.F - INFRASTRUCTURE MAP - SANITARY SEWER

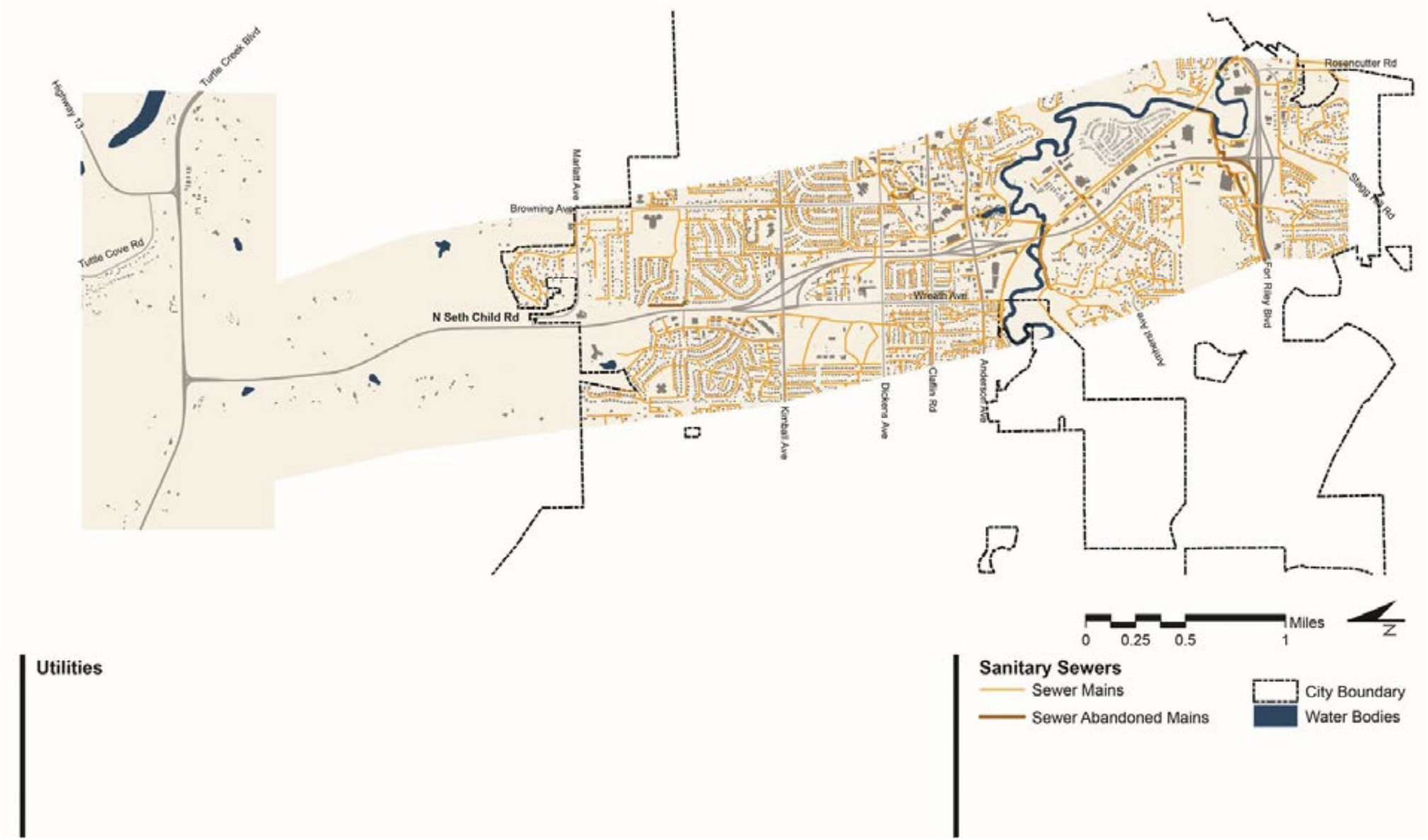


EXHIBIT 3. G - INFRASTRUCTURE MAP - WATER MAINS

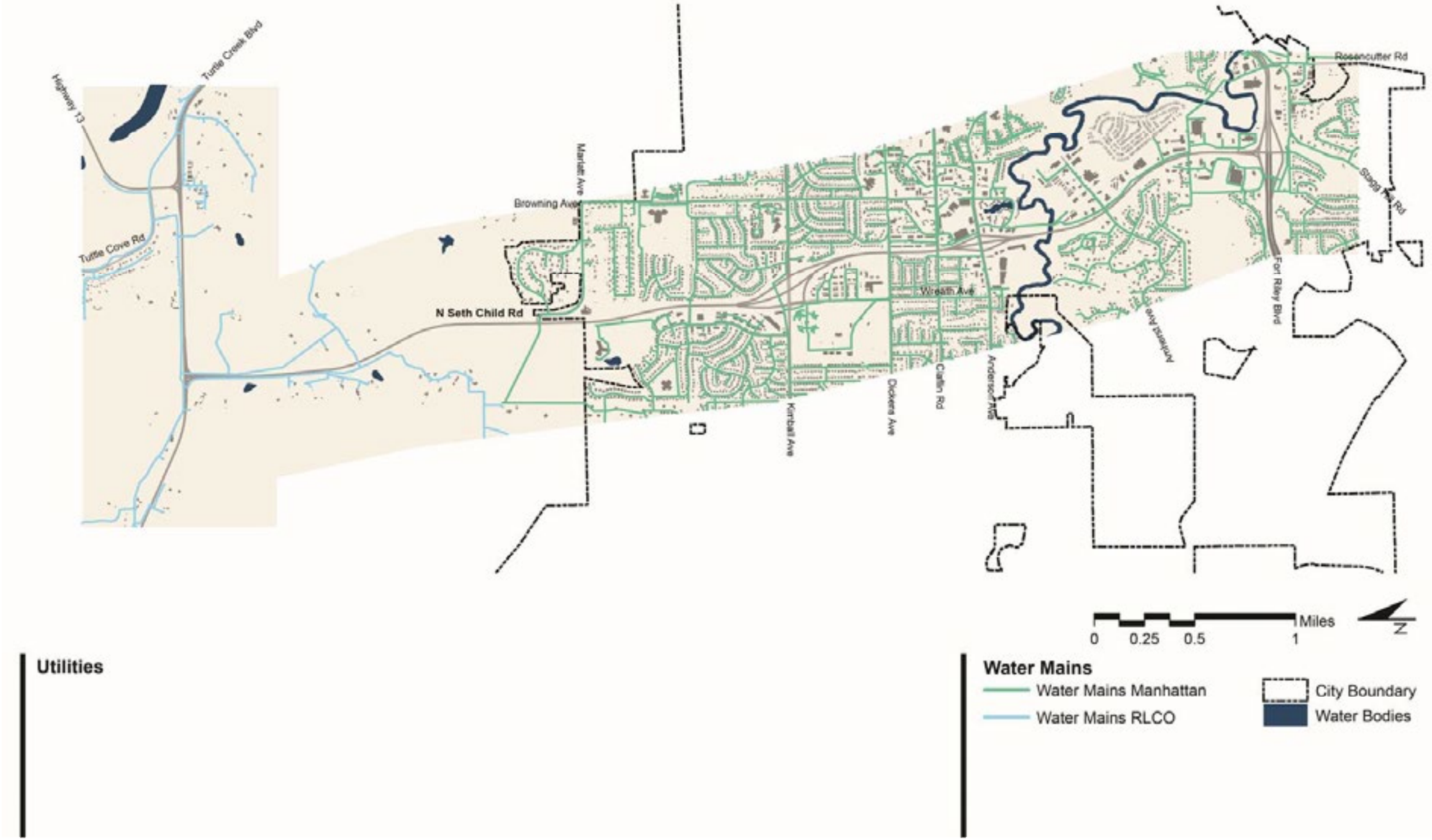
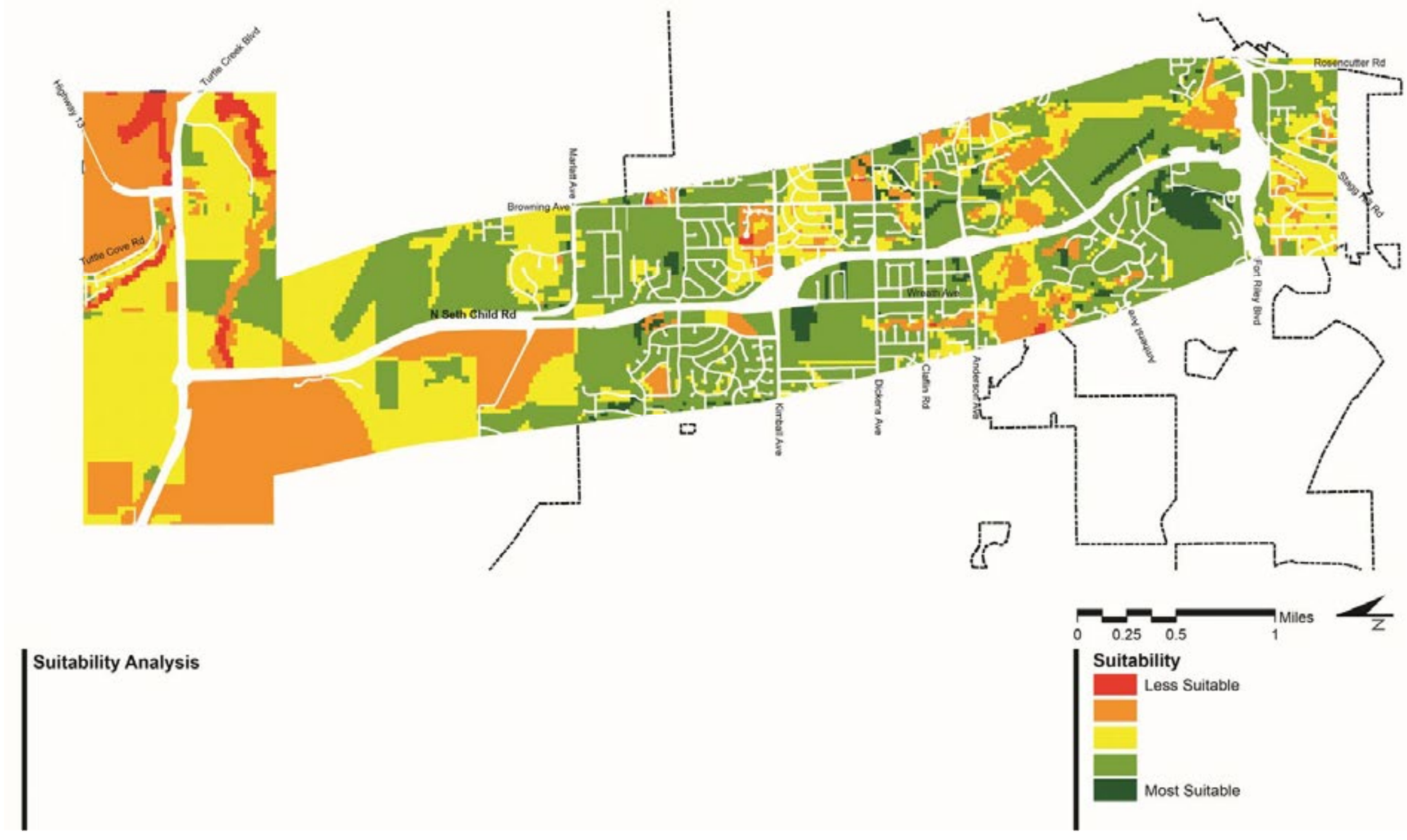


EXHIBIT 3.H - INFRASTRUCTURE MAP - STORMWATER

EXHIBIT 3.I - SITE SUITABILITY MAP



APPENDIX A LAND USE

EXHIBIT 3.J - POTENTIAL DEVELOPMENT / REDEVELOPMENT AREAS

POTENTIAL DEVELOPMENT/ REDEVELOPMENT AREAS

TABLE 3.B | MODERATE GROWTH SCENARIO

Moderate Growth	North (A)		Central (B)		South (C)		Corridor	
Residential	# of Units	Acres	# of Units	Acres	# of Units	Acres	# of Units	Acres
Single Family	5	-	4	1	7	-	16	1
Multi-Family	0	-	60	5	0	-	60	5
TOTAL	**5**	**0**	**64**	**6**	**7**	**0**	**76**	**6**
Commercial/Industrial	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres
Retail	0	-	49,400	4.54	30,100	2.76	79,500	7.30
Office	5,000	0.46	10,500	0.96	7,000	0.64	22,500	2.06
Industrial								
TOTAL	**5,000**	**0.46**	**59,900**	**5.50**	**37,100**	**3.40**	**102,000**	**9.36**

EXHIBIT 3.K - LOW GROWTH SCENARIO

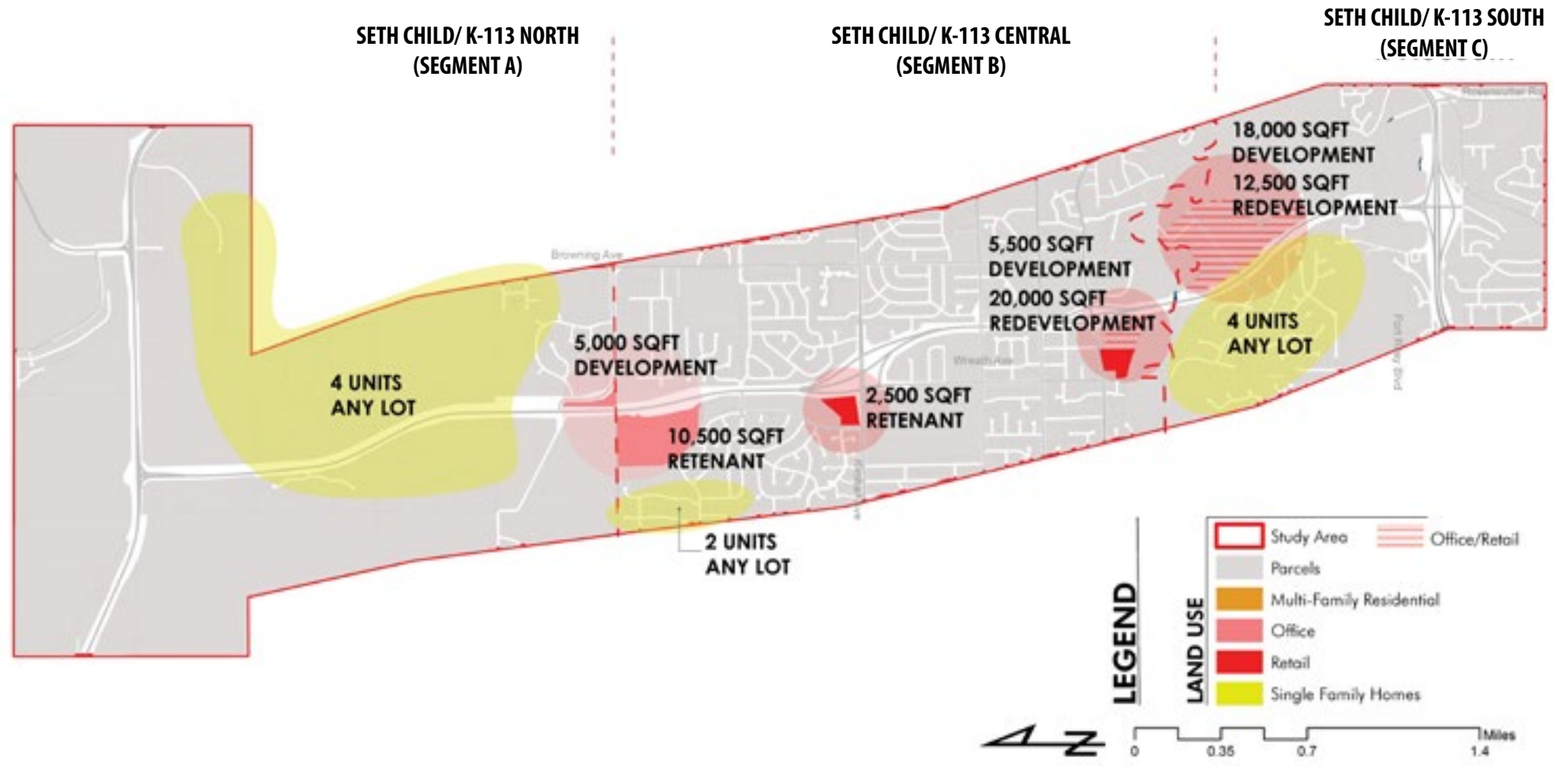


TABLE 3.A | LOW GROWTH SCENARIO

Low Growth	North (A)		Central (B)		South (C)		Corridor	
Residential	# of Units	Acres	# of Units	Acres	# of Units	Acres	# of Units	Acres
Single Family	4	1	2	.5	4	1	10	2.5
Multi-Family	0	-	0	-	0	-	0	0
TOTAL	**4**	**1**	**2**	**.5**	**4**	**1**	**10**	**2.5**
Commercial/Industrial	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres
Retail	0	-	28,000	2.57	24,500	2.25	52,500	4.82
Office	5,000	0.46	10,500	0.96	6,000	0.55	21,500	1.97
Industrial								
TOTAL	**5,000**	**0.46**	**38,500**	**3.53**	**30,500**	**2.80**	**74,000**	**6.79**

*** DEVELOPMENT ASSUMPTIONS:**
Single Family Residential: 4 Units/Acre
Multi-Family Residential: 12 Units/Acre
Retail and Office: 25% ILnd Coverage

EXHIBIT 3.L - MODERATE GROWTH SCENARIO

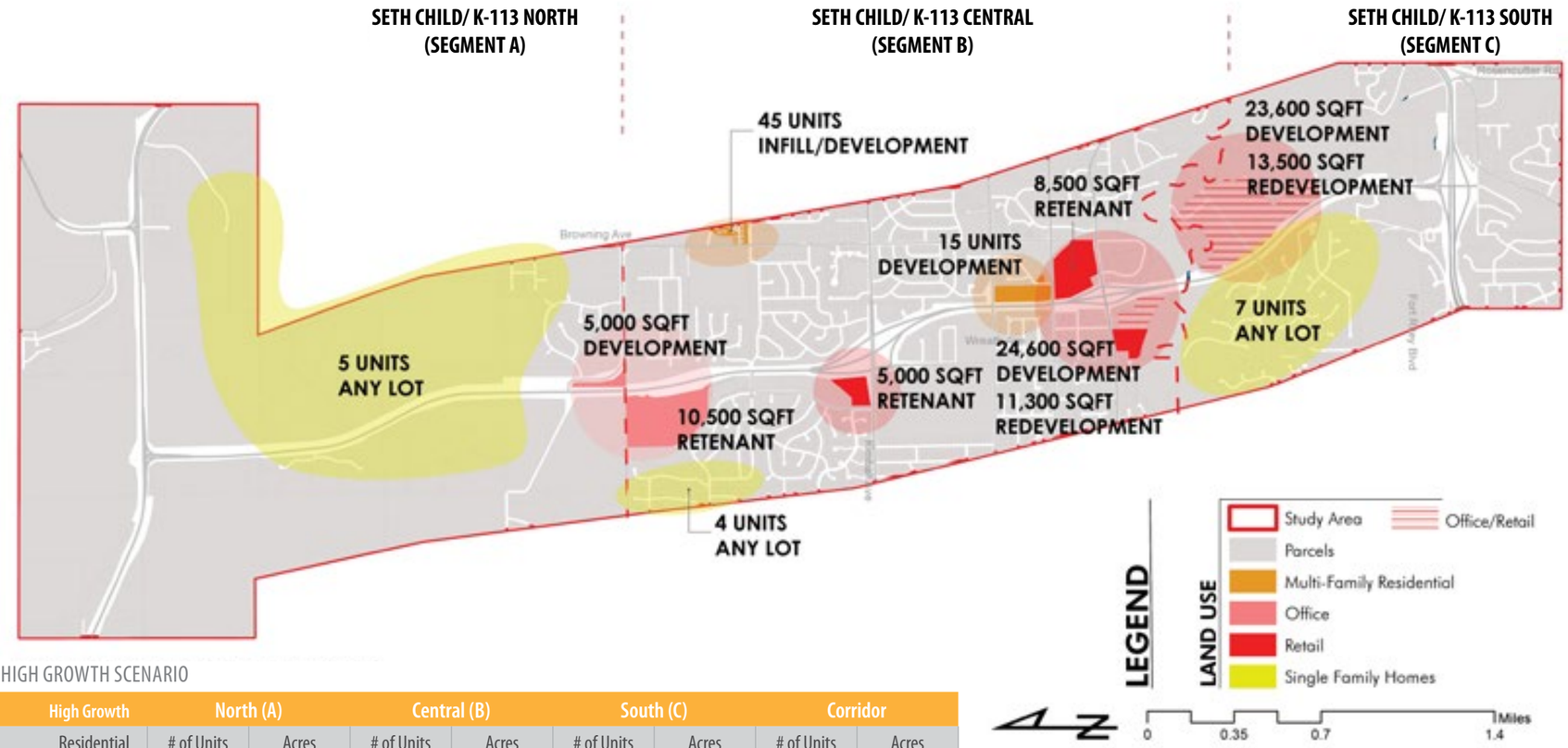


TABLE 3.C | HIGH GROWTH SCENARIO

High Growth	North (A)		Central (B)		South (C)		Corridor	
Residential	# of Units	Acres	# of Units	Acres	# of Units	Acres	# of Units	Acres
Single Family	7	-	6	1.50	9	2.25	22	3.75
Multi-Family	0	-	120	10	45	3.75	165	13.75
TOTAL	**7**	**0**	**126**	**11.50**	**54**	**6**	**187**	**17.50**
Commercial/Industrial	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres
Retail	0	-	65,300	6.00	59,500	5.46	124,800	11.46
Office	5,000	0.46	25,500	2.34	20,800	1.91	51,300	4.71
Industrial								
TOTAL	**5,000**	**0.46**	**90,800**	**8.34**	**80,300**	**7.37**	**176,100**	**16.17**

*** DEVELOPMENT ASSUMPTIONS:**
Single Family Residential: 4 Units/Acre
Multi-Family Residential: 12 Units/Acre
Retail and Office: 25% ILnd Coverage

EXHIBIT 3.M - HIGH GROWTH SCENARIO

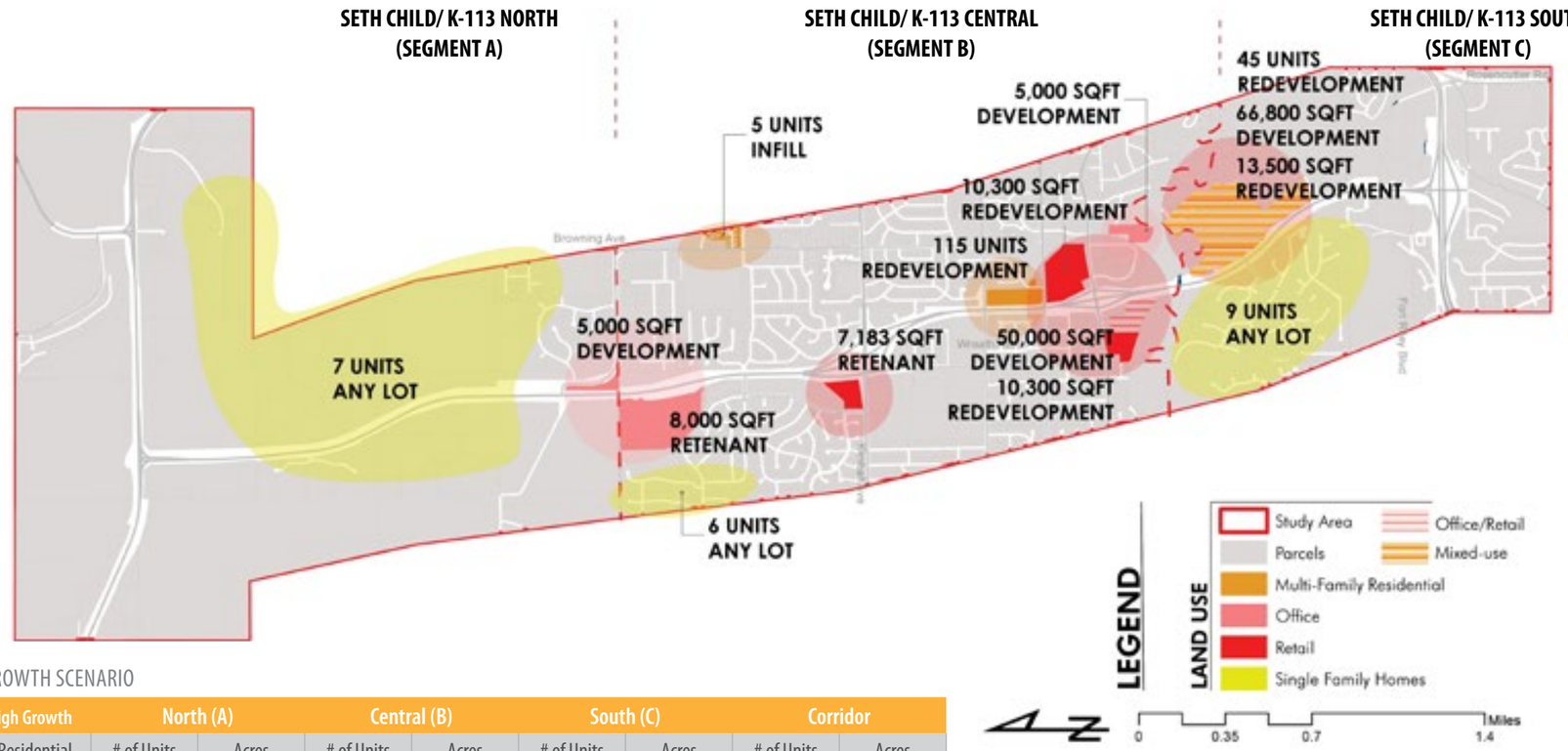


TABLE 3.C | HIGH GROWTH SCENARIO

High Growth	North (A)		Central (B)		South (C)		Corridor	
Residential	# of Units	Acres	# of Units	Acres	# of Units	Acres	# of Units	Acres
Single Family	7	-	6	1.50	9	2.25	22	3.75
Multi-Family	0	-	120	10	45	3.75	165	13.75
TOTAL	**7**	**0**	**126**	**11.50**	**54**	**6**	**187**	**17.50**
Commercial/Industrial	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres	Sq. Feet	Acres
Retail	0	-	65,300	6.00	59,500	5.46	124,800	11.46
Office	5,000	0.46	25,500	2.34	20,800	1.91	51,300	4.71
Industrial								
TOTAL	**5,000**	**0.46**	**90,800**	**8.34**	**80,300**	**7.37**	**176,100**	**16.17**

*** DEVELOPMENT ASSUMPTIONS:**
Single Family Residential: 4 Units/Acre
Multi-Family Residential: 12 Units/Acre
Retail and Office: 25% lLnd Coverage

EXHIBIT 3.N - FLOODING MAP

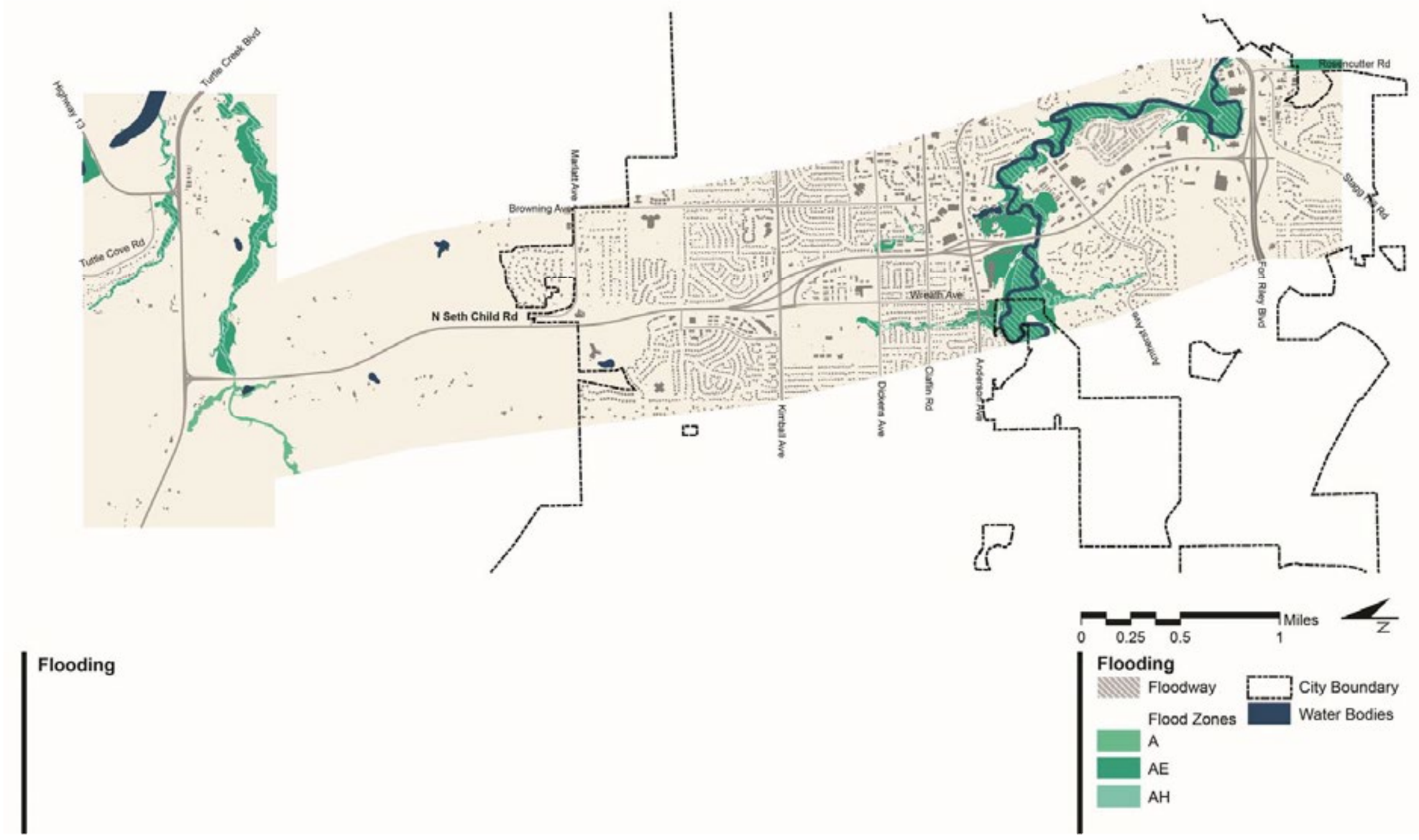
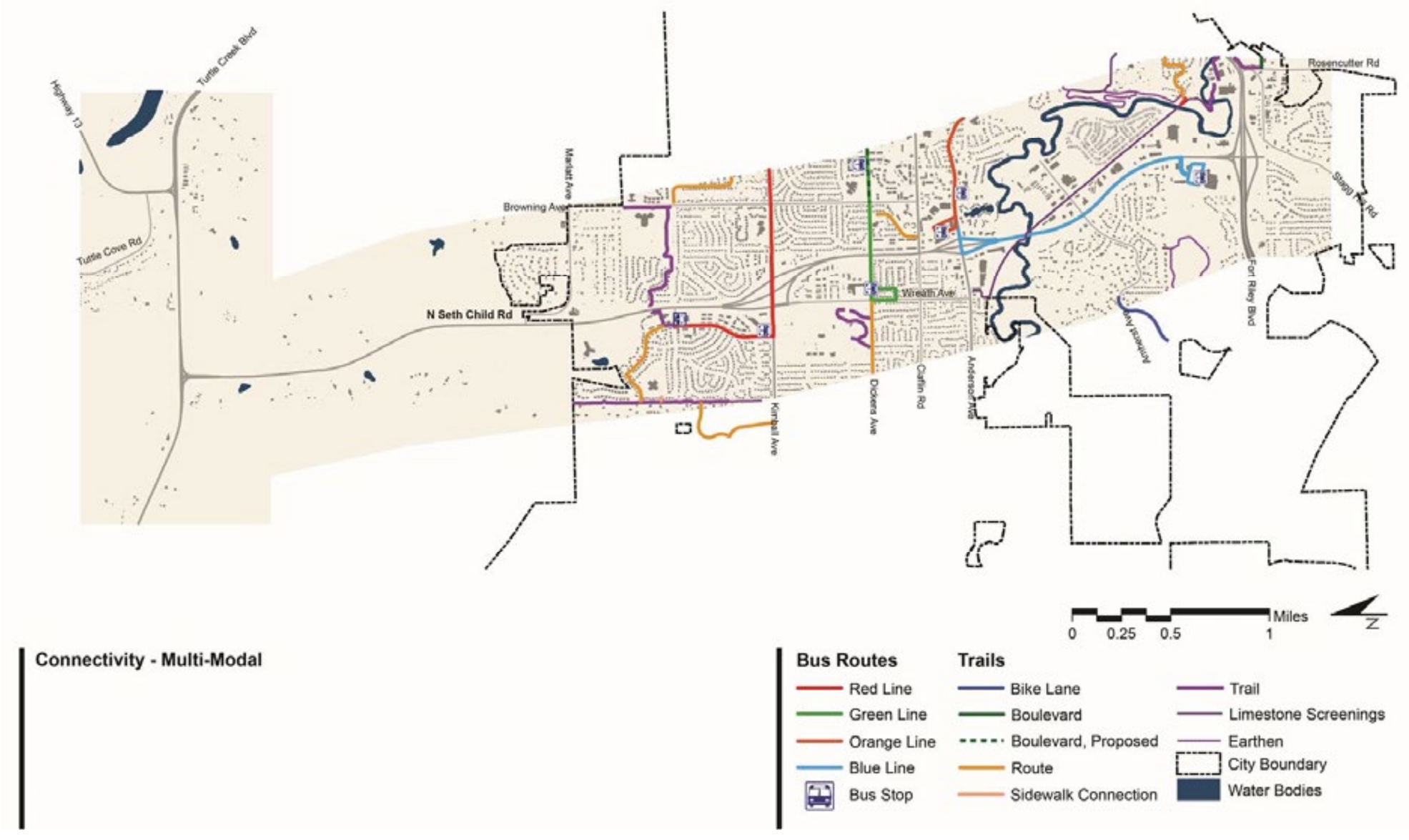


EXHIBIT 3.0 - CONNECTIVITY - MULTI-MODAL

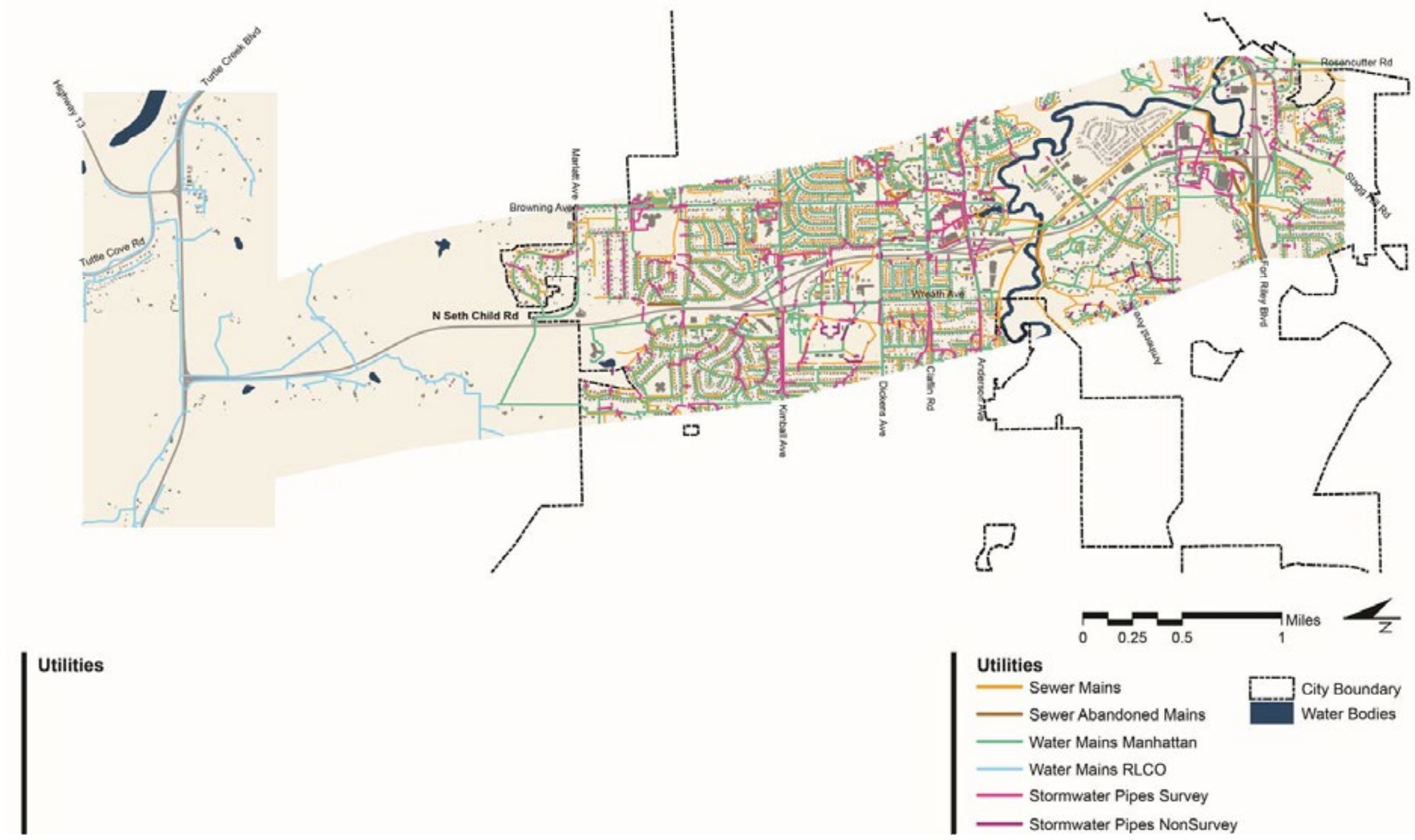


Connectivity - Multi-Modal

Bus Routes
- Red Line
- Green Line
- Orange Line
- Blue Line
- Bus Stop

Trails
- Bike Lane
- Boulevard
- Boulevard, Proposed
- Route
- Sidewalk Connection
- Trail
- Limestone Screenings
- Earthen
- City Boundary
- Water Bodies

EXHIBIT 3.P - UTILITIES MAP



Existing Conditions Analysis

Site characteristics were collected through field observations and review of aerial imagery via Google Earth and Google Street View. Crash data were obtained for the years 2012 through 2015 from both KDOT and the City of Manhattan. Crashes were matched by case number to eliminate duplicate crash reports in the KDOT and City of Manhattan data. Police crash reports were reviewed to properly place each crash at the appropriate intersection, ramp, or roadway segment. Within the four-year analysis period, a total of 403 crashes occurred within the study area, including 109 roadway segment, 224 intersection, 3 ramp, and 67 ramp terminal crashes. The Existing Conditions Memo (June 2017) provides a breakdown of crash type and frequencies for all individual roadway segments, intersections, ramp segments, and ramp terminals within the study area (Tables B8, B10, B12 and B16).

Table B21 shows the breakdown of crash type by location type for the entire study area. Multiple-vehicle crash frequency far outweighs the frequency of single-vehicle crashes with the study area. The most common single-vehicle crash type are animal crashes while the most common multi-vehicle crash types are rear-end and angle collisions, often occurring at intersections and ramp terminals. Table B22 displays crash rates by location type for the entire study area subdivided by crash severity. Tables B7, B9, B11 and B13 from Existing Conditions Memo provides presents a full breakdown of crash rates at all individual roadway segments, intersections, ramp segments, and ramp terminals in the study.

The Highway Safety Manual procedures were used to calculate the predicted crash frequency for all roadway segments, intersections, ramps and ramp terminals in the study area. The Empirical Bayes (EB) procedure presented in the HSM procedure was used to compute a weighted average of the observed and predicted crash frequencies. This weighted-average crash frequency, known as the expected crash frequency, represents the long-term average crash frequency for each road segment, intersection, ramp, and ramp terminal. Forecasts were also prepared for the crash frequencies likely to occur for each road segment, intersection, ramp, and ramp terminal during the 20-year period from January 1, 2020, to December 31, 2039, if no project was implemented (the "no-build" alternative). This analysis found that a total of 2,010 crashes would be expected during the 20-year period if no project was implemented. The Existing Conditions Memo provides breakdown of observed, predicted, and expected crash frequencies at all individual roadway segments, intersections, ramp segments, and ramp terminals in the study area, see Tables B15 through B20.

Preferred Alternative Analysis

As part of the analysis of potential design alternatives, estimates were prepared of the potential changes in crash frequency during the 20-year period from January 1, 2020, to December 31, 2039, if each alternative were implemented. Once the preferred alternative for the project was identified, tables summarizing the potential changes in crash frequency for that specific alternative were developed. The potential effects of the preferred alternative on crash frequency are summarized in the Tables B23 through B33 presented below.

The change in expected crash frequency potentially resulting from implementation of the preferred alternative were estimated. A total of 2,010 crashes are expected over 20 years (2020-2039) if no project were implemented. It is expected that 661 of these crashes would be fatal or injury crashes, while 1,349 would be property-damage-only crashes. The preferred alternative can be split into four unique combinations, allowing for consideration of both a traffic signal or a roundabout at the intersections of Seth Child Road with Marlatt Avenue and Anderson Avenue with Wreath Avenue. All other changes in the preferred alternative have been described previously in the report. Table B3 shows the expected change in 20-year crash frequency for all four options.

This appendix presents a breakdown of all individual roadway segments, intersections, ramp segments, and ramp terminals in the study area. In Segment A, conversion of the two US 24 intersections to roundabouts reduced the expected crash frequencies, depicted in Table B25 However, there is no explicit safety effectiveness measure available for bypass lanes at roundabouts, so this was not taken into account at the US 24/Seth Child Road intersection.

In Segment B, the preferred alternative calls for the removal of side street left turns at the intersections of Dickens Avenue, Gary Avenue, and Leadership Lane along Seth Child Road. There is no effectiveness measure available for removing side street left turns, so the analysis shows no change in expected crashes at these three intersections. There are two options for the intersection of Seth Child Road and Marlatt Ave in the preferred alternative. One option is to convert the four-leg minor stop-controlled intersection into a 4-leg signalized intersection. The second option is to convert the intersection to a roundabout. The safety analysis considered both options of the preferred analysis, summarized in Table B26 and B27.

Also within Segment B, both interchanges along Seth Child Road are replaced with signalized intersections in the preferred alternative. Because there are no ramps or ramp terminals with the preferred alternative, 100% of the expected crashes on these ramps and ramp terminals are eliminated. Because there is no observed crash history for the two future signalized intersections, the predicted crash frequency is used as the expected crash frequency for the two new signalized intersections at Seth Child Road/Anderson Ave and Seth Child Road/Kimball Ave. No changes are called for on Claflin Rd from the preferred alternative, so no change is expected in crash frequency. Tables B28 and B29 summarize the expected 20-Year crash frequency.

In Segment C, crashes are expected to be reduced due to the conversion of Seth Child Road to a 6-lane divided arterial with a 20-ft median as well as using protected-only left-turn phasing from Seth Child Road onto the minor roads, shown in Table B.30.

In Segment D, there are two options for the intersection of Anderson Ave and Wreath Ave in the preferred alternative. One option is to keep the intersection signalized, while the second option is to convert the signalized intersection to a roundabout. The safety analysis considered both intersection options of and summarized in Table B31 and B32.

In total, the 2,010 crashes forecast for the "no-build" alternative are expected to be reduced by 24.7% to 26.6% with implementation of the preferred alternative, depending upon the specific options selected at Seth Child Road/Marlatt Ave and Anderson Ave/Wreath Ave, summarized in Table B33. Fatal and injury crashes are expected to be reduced by 28.9% to 31.5%, while property-damage-only crashes are expected to be reduced by 22.5% to 24.4%. The option that produces the greatest reduction in fatal-and-injury and total crashes is the option to convert both Seth Child Road/Marlatt Ave and Anderson Ave/Wreath Ave into roundabouts.

TABLE B1 | CURRENT AND FUTURE TRAFFIC VOLUMES FOR ROADWAY SEGMENTS IN THE STUDY CORRIDOR

Roadway	From	To	Roadway Type	Length (mi)	AADT (veh/day) 2013	2017	2020	2040	Growth Rate (% per year)
K-113	South Project Limit	Southwind Rd	U4D	0.078	21,200	21,910	22,550	27,550	1
K-113	Southwind Rd	Farm Bureau Rd	U4D	0.215	21,650	22,330	23,000	28,050	1
K-113	Farm Bureau Rd	Amherst Ave	U4D	0.376	23,000	23,750	24,450	29,850	1
K-113	Amherst Ave	South Ramps at Anderson Ave	U4U	0.462	23,500	24,390	25,150	30,650	1
K-113	South Ramps at Anderson Ave	North Ramps at Anderson Ave	U4U	0.325	15,200	15,810	16,550	22,250	1.5
K-113	North Ramps at Anderson Ave	Claflin Rd	U4U	0.075	22,650	23,770	24,850	33,500	1.5
K-113	Claflin Rd	Dickens Ave	U4U	0.247	18,750	19,730	20,650	27,800	1.5
K-113	Dickens Ave	South Ramps at Kimball Ave	U4D	0.258	14,650	15,430	16,150	21,750	1.5
K-113	South Ramps at Kimball Ave	North Ramps at Kimball Ave	U4D	0.552	8,200	8,650	9,200	13,650	2
K-113	North Ramps at Kimball Ave	Gary Ave	U4D	0.244	9,850	10,580	11,250	16,700	2
K-113	Gary Ave	Leadership Ln	U4D	0.442	7,650	8,410	9,050	14,850	2.5
K-113	Leadership Ln	Marlatt Ave	U4D	0.323	6,700	7,390	7,950	13,050	2.5
K-113	Marlatt Ave	Top of the World Dr	R2U	0.759	5,300	5,610	5,850	7,900	1.5
K-113	Top of the World Dr	High Plains Ranch	R2U	0.165	4,950	5,200	5,450	7,300	1.5
K-113	High Plains Ranch	Eagle Ridge Rd	R2U	0.171	4,950	5,200	5,450	7,300	1.5
K-113	Eagle Ridge Rd	US 24	R2U	0.697	4,950	5,200	5,450	7,300	1.5
Southwind Rd	Southwind Pl	K-113	U4U	0.073	14,950	15,060	15,300	16,900	0.5
Southwind Rd	K-113	Frontage Rd	U4U	0.036	3,250	3,300	3,300	3,300	0
Farm Bureau Rd	K-113	Linear Trail	U2U	0.119	3,600	3,680	3,750	4,150	0.5
Amherst Ave	Research Dr	K-113	U2U	0.087	5,500	5,420	5,400	5,200	-0.2
Amherst Ave	K-113	Frontage Rd	U2U	0.017	2,600	2,640	2,700	2,950	0.5
Amherst Ave	Frontage Rd	Plymate Ln/Farm Bureau Rd	U2U	0.285	1,950	2,000	2,050	2,250	0.5
Anderson Ave	Wreath Ave	Waters St	U4U	0.136	15,950	15,850	15,750	15,150	-0.2
Anderson Ave	Waters St	K-113 west ramp terminal	U4U	0.098	17,650	17,530	17,450	16,750	-0.2
Anderson Ave	K-113 west ramp terminal	K-113 east ramp terminal	U4U	0.075	17,350	17,250	17,150	16,450	-0.2
Anderson Ave	K-113 east ramp terminal	Garden Way	U4U	0.054	21,450	21,290	21,150	20,350	-0.2
Claflin Rd	Wreath Ave	Nichols St	U2U	0.068	3,600	2,900	2,900	2,900	0
Claflin Rd	Nichols St	Waters St	U2U	0.066	2,800	2,900	2,900	2,900	0
Claflin Rd	Waters St	Brighton Rd	U2U	0.071	4,100	4,170	4,150	4,150	0
Claflin Rd	Brighton Rd	K-113	U2U	0.030	4,100	4,170	4,150	4,150	0
Claflin Rd	K-113	Cambridge Pl	U2U	0.050	9,300	9,590	9,750	10,750	0.5
Claflin Rd	Cambridge Pl	Beechwood Terr	U2U	0.034	9,300	9,590	9,750	10,750	0.5
Claflin Rd	Beechwood Terr	Browning Ave	U2U	0.178	9,300	9,590	9,750	10,750	0.5
Kimball Ave	Candlewood Dr	Wreath Ave/K-113 west ramp terminal	U4U	0.156	18,900	19,380	20,250	27,300	1.5
Kimball Ave	Wreath Ave/K-113 west ramp terminal	K-113 east ramp terminal	U4D	0.136	15,600	16,600	17,350	23,400	1.5
Kimball Ave	K-113 east ramp terminal	Seaton Ave	U4D	0.072	16,950	17,760	18,550	25,000	1.5
Kimball Ave	Seaton Ave	Indiana Ln	U4U	0.088	16,950	17,760	18,550	25,000	1.5
Kimball Ave	Indiana Ln	Shirley Ln	U4U	0.018	16,950	17,760	18,550	25,000	1.5
Kimball Ave	Shirley Ln	Vermont St	U4U	0.046	16,950	17,760	18,550	25,000	1.5
Kimball Ave	Vermont St	North Pointe Dr	U4U	0.105	16,950	17,760	18,550	25,000	1.5
Kimball Ave	North Pointe Dr	Browning Ave	U4U	0.051	16,950	17,760	18,550	25,000	1.5
Wreath Ave	K-113 SB on-ramp	Kimball Ave	U4U	0.076	6,700	7,150	7,500	10,050	1.5
Gary Ave	Candlewood Dr	K-113	U4D	0.092	6,200	6,620	6,600	6,600	0
Gary Ave	K-113	Meadowood Dr	U2U	0.035	2,900	2,920	2,900	2,900	0
Gary Ave	Meadowood Dr	Terry Way	U2U	0.033	1,850	2,050	2,050	2,050	0
Gary Ave	Terry Way	Cheryl Terr	U2U	0.083	1,850	2,050	2,050	2,050	0
Gary Ave	Cheryl Terr	Seaton Ave	U2U	0.097	1,850	2,050	2,050	2,050	0
Marlatt Ave	Future Grand Mere Pkwy Conn	Prairie Star Rd	U2U	0.406	180	280	400	5,700	14
Marlatt Ave	Prairie Star Dr	K-113	U2U	0.632	180	280	400	5,700	14
Marlatt Ave	K-113	Tatarrax Dr (west jct)	U2U	0.090	2,300	2,640	2,950	5,800	3.5
Marlatt Ave	Tatarrax Dr (west jct)	Glenns Dr	U2U	0.374	2,300	2,640	2,950	5,800	3.5
Marlatt Ave	Glenns Dr	Tatarrax Dr (east jct)	U2U	0.077	2,300	2,640	2,950	5,800	3.5
Marlatt Ave	Tatarrax Dr (east jct)	Browning Ave	U2U	0.226	2,300	2,640	2,950	5,800	3.5

NOTE: R2U = Rural two-lane undivided highway; U2U = Urban two-lane undivided street; U4U = Urban four-lane undivided street; U4D = Urban four-lane divided street

TABLE B2 | CURRENT AND FUTURE TRAFFIC VOLUMES FOR INTERSECTIONS IN THE STUDY CORRIDOR

Major Road	Minor Road	Intersection Type	Major Road AADT (veh/day)				Minor Road AADT (veh/day)				Growth Rate (% per year)	
			2013	2017	2020	2040	2013	2017	2020	2040	Major Road	Minor Road
K-113	Southwind Rd	U/4SG	21,650	22,330	23,000	28,050	14,950	15,060	15,300	16,900	1.0	0.5
K-113	Farm Bureau Rd	U/3SG	23,000	23,750	24,450	29,850	3,600	3,680	3,750	4,150	1.0	0.5
K-113	Amherst Ave	U/4SG	23,500	24,390	25,150	30,650	5,500	5,420	5,400	5,200	1.0	-0.2
K-113	Claflin Rd	U/4SG	22,650	23,770	24,850	33,500	9,300	9,590	9,750	10,750	1.5	0.5
K-113	Dickens Ave	U/4ST	18,750	19,730	20,650	27,800	7,373	7,730	7,950	9,700	1.5	1.0
K-113	Gary Ave	U/4ST	9,850	10,580	11,250	16,700	6,600	6,620	6,600	6,600	2.0	0.0
K-113	Leadership Ln	U/4ST	7,650	8,410	9,050	14,850	1,500	1,650	1,750	2,600	2.5	2.0
K-113	Marlatt Ave	U/4ST	6,700	7,390	7,950	13,050	2,300	2,640	2,950	5,800	2.5	3.5
K-113	Top of the World Dr	R2U/3ST	5,300	5,610	5,850	7,900	100	100	100	150	1.5	1.5
K-113	High Plains Ranch	R2U/3ST	4,950	5,200	5,450	7,300	50	50	50	50	1.5	1.5
K-113	Eagle Ridge Rd	R2U/3ST	4,950	5,200	5,450	7,300	50	50	50	50	1.5	1.5
US 24	K-113	R2U/3ST	6,600	6,820	6,900	7,650	4,950	5,200	5,450	7,300	0.5	1.5
US 24	K-13	R4D/4ST	5,850	6,050	6,150	6,800	2,550	2,600	2,650	2,900	0.5	0.5
Southwind Rd	Southwind Pl	U/3ST	14,950	15,060	15,300	16,900	2,950	3,000	3,050	3,350	0.5	0.5
Southwind Rd	Frontage Rd	U/3ST	3,250	3,300	3,300	3,300	2,100	2,300	2,450	3,650	0.0	2.0
Amherst Ave	Research Dr	U/3ST	5,500	5,420	5,400	5,200	1,000	1,000	1,000	950	-0.2	-0.2
Amherst Ave	Frontage Rd	U/4ST	2,600	2,640	2,700	2,950	1,000	1,000	1,000	1,100	0.5	0.5
Amherst Ave	Plymate Ln/Farm Bureau Rd	U/4ST	1,950	2,000	2,050	2,250	600	600	600	650	0.5	0.5
Anderson Ave	Wreath Ave	U/3SG	15,950	15,850	15,750	15,150	3,550	3,500	3,500	3,350	-0.2	-0.2
Anderson Ave	Waters St	U/3ST	17,650	17,530	17,450	16,750	1,350	1,350	1,350	1,300	-0.2	-0.2
Anderson Ave	Garden Way	U/4ST	21,450	21,290	21,150	20,350	2,950	2,950	2,950	2,800	-0.2	-0.2
Claflin Rd	Wreath Ave	U/4ST	2,800	2,900	2,900	2,900	4,250	4,250	4,250	4,250	0.0	0.0
Claflin Rd	Nichols St	U/4ST	2,800	2,900	2,900	2,900	400	400	400	400	0.0	0.0
Claflin Rd	Waters St	U/3ST	4,100	4,170	4,150	4,150	1,250	1,350	1,450	2,150	0.0	2.0
Claflin Rd	Brighton Rd	U/3ST	4,100	4,170	4,150	4,150	200	200	200	300	0.0	2.0
Claflin Rd	Cambridge Pl	U/3ST	9,300	9,590	9,750	10,750	500	500	500	550	0.5	0.5
Claflin Rd	Beechwood Terr	U/4SG	9,300	9,590	9,750	10,750	8,750	8,950	9,100	10,050	0.5	0.5
Claflin Rd	Browning Ave	U/3ST	9,300	9,590	9,750	10,750	3,900	4,000	4,050	4,500	0.5	0.5
Kimball Ave	Candlewood Ln	U/4SG	18,900	19,380	20,250	27,300	5,100	5,400	5,650	7,600	1.5	1.5
Kimball Ave	Seaton Ave	U/3ST	16,950	17,760	18,550	25,000	1,950	2,050	2,150	2,900	1.5	1.5
Kimball Ave	Indiana Ln	U/3ST	16,950	17,760	18,550	25,000	750	800	850	1,150	1.5	1.5
Kimball Ave	Shirley Ln	U/3ST	16,950	17,760	18,550	25,000	150	150	150	200	1.5	1.5
Kimball Ave	Vermont St	U/3ST	16,950	17,760	18,550	25,000	750	800	850	1,150	1.5	1.5
Kimball Ave	North Pointe Dr	U/3ST	16,950	17,760	18,550	25,000	450	500	500	700	1.5	1.5
Kimball Ave	Browning Ave	U/4SG	16,950	17,760	18,550	25,000	4,700	5,000	5,250	7,050	1.5	1.5
Gary Ave	Candlewood Dr	U/RBT	6,200	6,620	6,600	6,600	1,600	1,600	1,600	1,600	0.0	0.0
Gary Ave	Meadowood Dr	U/3ST	2,900	2,920	2,900	2,900	950	950	950	950	0.0	0.0
Gary Ave	Terry Way	U/3ST	950	950	2,050	950	250	250	250	250	0.0	0.0
Gary Ave	Cheryl Terr	U/3ST	800	800	2,050	800	200	200	200	200	0.0	0.0
Gary Ave	Seaton Ave	U/3ST	800	800	2,050	800	400	400	400	400	0.0	0.0
Marlatt Ave	Prairie Star Dr	U/3ST	180	280	400	5,700	50	50	50	100	14.0	2.0
Marlatt Ave	Tatarrax Dr (west jct)	U/3ST	2,300	2,640	2,950	5,800	350	400	450	900	3.5	3.5

TABLE B3 | CURRENT AND FORECAST TRAFFIC VOLUMES FOR RAMPS IN STUDY CORRIDOR

Ramp	From	To	Length (mi)	AADT (veh/day)				Growth Rate (% per year)
				2013	2017	2020	2040	
K-113 NB off-ramp	K-113	Anderson Ave	0.166	4,440	4,400	4,600	6,200	1.5
K-113 NB on-ramp	Anderson Ave	K-113	0.131	4,430	4,560	4,750	6,400	1.5
K-113 SB off-ramp	K-113	Anderson Ave	0.130	3,370	3,450	3,600	4,850	1.5
K-113 SB on-ramo	Anderson Ave	K-113	0.160	4,160	4,190	4,400	5,900	1.5
K-113 NB off-ramp	K-113	Kimball Ave	0.236	3,320	3,390	3,550	4,750	1.5
K-113 NB on-ramp	Kimball Ave	K-113	0.269	1,110	1,140	1,200	1,600	1.5
K-113 SB off-ramp	K-113	Kimball Ave	0.243	780	900	1,000	1,800	3.0
K-113 SB on-ramp	Wreath Ave (south of Kimball Ave)	K-113	0.130	3,320	3,390	3,550	4,750	1.5

TABLE B4 | CURRENT AND FUTURE TRAFFIC VOLUMES FOR RAMP TERMINALS IN STUDY CORRIDOR

Major Road	Minor Road	Major Road AADT (veh/day)				Minor Road AADT (veh/day)				Growth Rate (% per year)	
		2013	2017	2020	2040	2013	2017	2020	2040	Major Road	Minor Road
Anderson Ave	K-113 west ramp terminal	17,680	17,650	17,620	17,590	3,350	3,450	3,600	4,850	-0.2	1.5
Anderson Ave	K-113 east ramp terminal	21,490	21,450	21,410	21,370	4,450	4,400	4,600	6,200	-0.2	1.5
Kimball Ave	Wreath Ave/K-113 west ramp terminal	18,780	18,900	19,020	19,140	6,750	7,150	7,500	10,050	1.5	1.5
Kimball Ave	K-113 east ramp terminal	16,750	16,950	17,150	17,350	3,300	3,390	3,550	4,750	1.5	1.5
Wreath Ave	K-113 SB on-ramp	6,600	6,700	6,800	6,900	3,300	3,390	3,550	4,750	1.5	1.5

TABLE B6 | SUMMARY OF CRASHES IN THE STUDY CORRIDOR BY CRASH TYPE

Location Type	Single-Vehicle Crashes								Multiple-vehicle crashes							Total
	Pedestrian	Bicycle	Animal	Fixed Object	Other Object	Overturned	Other Noncollision	Total SV	Head-On	Rear-End	Angle	Sideswipe Same	Sideswipe Opposite	Other MV	Total MV	
Roadway Segment	0	0	25	8	1	1	4	39	2	19	35	10	2	2	70	109
Intersection	2	4	3	3	1	3	5	21	10	66	104	10	9	4	203	224
Ramps	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	3
Ramp Terminals	1	1	0	1	0	0	1	4	0	39	22	1	1	0	63	67
Total	3	5	28	12	2	4	10	64	12	126	161	22	12	6	339	403

Note: SV = Single Vehicle; MV = Multiple Vehicle

TABLE B7 | CRASH FREQUENCIES AND RATE FOR ROADWAY SEGMENTS IN THE STUDY CORRIDOR

Roadway	From	To	Length (mi)	Number of Crashes (2012-2015)				Crash rate (per mi per year)				Exposure (100 MVMT)	Crash rate (per 100 MVMT)			
				Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total		Fatal	Injury	PDO	Total
K-113	South Project Limit	Southwind Rd	0.078	0	1	3	4	0.0	3.2	9.6	12.8	0.024	0.0	41.2	123.6	164.9
K-113	Southwind Rd	Farm Bureau Rd	0.215	0	0	1	1	0.0	0.0	1.2	1.2	0.068	0.0	0.0	14.6	14.6
K-113	Farm Bureau Rd	Amherst Ave	0.376	0	0	5	5	0.0	0.0	3.3	3.3	0.127	0.0	0.0	39.4	39.4
K-113	Amherst Ave	South ramp terminal at Anderson Ave	0.462	0	3	3	6	0.0	1.6	1.6	3.2	0.159	0.0	18.8	18.8	37.7
K-113	South ramp terminal at Anderson Ave	North ramp terminal at Anderson Ave	0.325	0	1	2	3	0.0	0.8	1.5	2.3	0.073	0.0	13.8	27.5	41.3
K-113	North ramp terminal at Anderson Ave	Claflin Rd	0.075	0	0	0	0	0.0	0.0	0.0	0.0	0.025	0.0	0.0	0.0	0.0
K-113	Claflin Rd	Dickens Ave	0.247	0	0	1	1	0.0	0.0	1.0	1.0	0.068	0.0	0.0	14.7	14.7
K-113	Dickens Ave	South ramp terminal at Kimball	0.258	0	0	0	0	0.0	0.0	0.0	0.0	0.056	0.0	0.0	0.0	0.0
K-113	South ramp terminal at Kimball	North ramp terminal at Kimball	0.552	0	0	4	4	0.0	0.0	1.8	1.8	0.067	0.0	0.0	59.9	59.9
K-113	North ramp terminal at Kimball	Gary Ave	0.244	0	0	0	0	0.0	0.0	0.0	0.0	0.035	0.0	0.0	0.0	0.0
K-113	Gary Ave	Leadership Ln	0.442	0	0	3	3	0.0	0.0	1.7	1.7	0.050	0.0	0.0	60.0	60.0
K-113	Leadership Ln	Marlatt Ave	0.323	0	1	6	7	0.0	0.8	4.6	5.4	0.032	0.0	31.2	187.5	218.7
K-113	Marlatt Ave	Top of the World Dr	0.759	0	0	3	3	0.0	0.0	1.0	1.0	0.059	0.0	0.0	50.7	50.7
K-113	Top of the World Dr	High Plains Ranch	0.165	0	2	1	3	0.0	3.0	1.5	4.5	0.012	0.0	166.5	83.2	249.7
K-113	High Plains Ranch	Eagle Ridge Rd	0.171	0	0	0	0	0.0	0.0	0.0	0.0	0.012	0.0	0.0	0.0	0.0
K-113	Eagle Ridge Rd	US 24	0.697	0	0	6	6	0.0	0.0	2.2	2.2	0.051	0.0	0.0	118.2	118.2
Southwind Rd	Southwind Rd/Commons	K-113	0.073	0	0	0	0	0.0	0.0	0.0	0.0	0.016	0.0	0.0	0.0	0.0
Southwind Rd	K-113	Frontage Rd	0.036	0	0	0	0	0.0	0.0	0.0	0.0	0.002	0.0	0.0	0.0	0.0
Farm Bureau Rd	K-113	Linear Trail	0.119	0	0	1	1	0.0	0.0	2.1	2.1	0.006	0.0	0.0	159.5	159.5
Amherst Ave	Research Dr	K-113	0.087	0	0	1	1	0.0	0.0	2.9	2.9	0.007	0.0	0.0	143.3	143.3
Amherst Ave	K-113	Frontage Rd	0.017	0	0	0	0	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
Amherst Ave	Frontage Rd	Plymate Ln/Farm Bureau Rd	0.285	0	0	1	1	0.0	0.0	0.9	0.9	0.008	0.0	0.0	122.9	122.9
Anderson Ave	Wreath Ave	Waters St	0.136	0	0	9	9	0.0	0.0	16.5	16.5	0.032	0.0	0.0	284.5	284.5
Anderson Ave	Waters St	K-113 west ramp terminal	0.098	0	3	10	13	0.0	7.7	25.5	33.2	0.025	0.0	118.9	396.4	515.3
Anderson Ave	K-113 west ramp terminal	K-113 east ramp terminal	0.075	0	0	3	3	0.0	0.0	10.0	10.0	0.019	0.0	0.0	158.1	158.1
Anderson Ave	K-113 east ramp terminal	Garden Way	0.054	0	1	1	2	0.0	4.6	4.6	9.3	0.017	0.0	59.2	59.2	118.4
Claflin Rd	Wreath Ave	Nichols St	0.068	0	0	0	0	0.0	0.0	0.0	0.0	0.004	0.0	0.0	0.0	0.0
Claflin Rd	Nichols St	Waters St	0.066	0	0	1	1	0.0	0.0	3.8	3.8	0.003	0.0	0.0	370.6	370.6
Claflin Rd	Waters St	Brighton Rd	0.071	0	0	0	0	0.0	0.0	0.0	0.0	0.004	0.0	0.0	0.0	0.0
Claflin Rd	Brighton Rd	K-113	0.030	0	0	0	0	0.0	0.0	0.0	0.0	0.002	0.0	0.0	0.0	0.0
Claflin Rd	K-113	Cambridge Pl	0.050	0	0	2	2	0.0	0.0	10.0	10.0	0.007	0.0	0.0	293.9	293.9
Claflin Rd	Cambridge Pl	Beechwood Terr	0.034	0	0	1	1	0.0	0.0	7.4	7.4	0.005	0.0	0.0	216.1	216.1
Claflin Rd	Beechwood Terr	Browning Ave	0.178	0	2	7	9	0.0	2.8	9.8	12.6	0.024	0.0	82.5	288.9	371.4
Kimball Ave	Candlewood Dr	Wreath Ave/K-113 west ramp terminal	0.156	0	3	5	8	0.0	4.8	8.0	12.8	0.043	0.0	69.2	115.3	184.4
Kimball Ave	Wreath Ave/K-113 west ramp terminal	K-113 east ramp terminal	0.136	0	1	1	2	0.0	1.8	1.8	3.7	0.031	0.0	32.0	32.0	64.1
Kimball Ave	K-113 east ramp terminal	Seaton Ave	0.072	0	0	0	0	0.0	0.0	0.0	0.0	0.018	0.0	0.0	0.0	0.0
Kimball Ave	Seaton Ave	Indiana Ln	0.088	0	0	0	0	0.0	0.0	0.0	0.0	0.022	0.0	0.0	0.0	0.0
Kimball Ave	Indiana Ln	Shirley Ln	0.018	0	0	0	0	0.0	0.0	0.0	0.0	0.004	0.0	0.0	0.0	0.0
Kimball Ave	Shirley Ln	Vermont Ave	0.046	0	0	1	1	0.0	0.0	5.4	5.4	0.011	0.0	0.0	87.2	87.2
Kimball Ave	Vermont Ave	North Pointe Dr	0.105	0	0	2	2	0.0	0.0	4.8	4.8	0.026	0.0	0.0	76.4	76.4
Kimball Ave	North Pointe Dr	Browning Ave	0.051	0	0	0	0	0.0	0.0	0.0	0.0	0.013	0.0	0.0	0.0	0.0
Wreath Ave	K-113 SB on-ramp	Kimball Ave	0.076	0	0	0	0	0.0	0.0	0.0	0.0	0.007	0.0	0.0	0.0	0.0
Gary Ave	Candlewood Dr	K-113	0.092	0	0	0	0	0.0	0.0	0.0	0.0	0.008	0.0	0.0	0.0	0.0
Gary Ave	K-113	Meadowood Dr	0.035	0	0	0	0	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
Gary Ave	Meadowood Dr	Terry Way	0.033	0	0	0	0	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
Gary Ave	Terry Way	Cheryl Terr	0.083	0	0	0	0	0.0	0.0	0.0	0.0	0.002	0.0	0.0	0.0	0.0
Gary Ave	Cheryl Terr	Seaton Ave	0.097	0	0	0	0	0.0	0.0	0.0	0.0	0.003	0.0	0.0	0.0	0.0
Marlatt Ave	Future Grand Mere Connection	Prairie Star Dr	0.406	0	0	0	0	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
Marlatt Ave	Prairie Star Dr	K-113	0.632	0	0	0	0	0.0	0.0	0.0	0.0	0.002	0.0	0.0	0.0	0.0
Marlatt Ave	K-113	Tatafax Dr (west jct)	0.090	0	0	0	0	0.0	0.0	0.0	0.0	0.003	0.0	0.0	0.0	0.0
Marlatt Ave	Tatafax Dr (west jct)	Glenns Dr	0.374	0	0	2	2	0.0	0.0	1.3	1.3	0.013	0.0	0.0	156.4	156.4
Marlatt Ave	Glenns Dr	Tatafax Dr (east jct)	0.077	0	1	0	1	0.0	3.2	0.0	3.2	0.003	0.0	379.9	0.0	379.9
Marlatt Ave	Tatafax Dr (east jct)	Browning Ave	0.226	0	0	4	4	0.0	0.0	4.4	4.4	0.008	0.0	0.0	517.7	517.7
			Totals	0	19	90	109									

TABLE B8 | SUMMARY OF CRASHES ON ROADWAY SEGMENTS IN THE STUDY CORRIDOR BY CRASH TYPE

Roadway	From	To	Single-Vehicle Crashes								Multiple-vehicle crashes							Total
			Pedestrian	Bicycle	Animal	Fixed Object	Other Object	Overturned	Other Noncollision	Total SV	Head-On	Rear-End	Angle	Sideswipe Same	Sideswipe Opposite	Other MV	Total MV	
K-113	South Project Limit	Southwind Rd	0	0	0	0	0	0	1	1	0	2	0	1	0	0	3	4
K-113	Southwind Rd	Farm Bureau Rd	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
K-113	Farm Bureau Rd	Amherst Ave	0	0	1	0	0	0	0	1	0	3	0	1	0	0	4	5
K-113	Amherst Ave	South ramp terminal at Anderson Ave	0	0	1	1	0	0	0	2	0	2	0	0	2	0	4	6
K-113	South ramp terminal at Anderson Ave	North ramp terminal at Anderson Ave	0	0	1	0	0	1	0	2	0	0	0	0	0	1	1	3
K-113	North ramp terminal at Anderson Ave	Claflin Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	Claflin Rd	Dickens Ave	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
K-113	Dickens Ave	South ramp terminal at Kimball	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	South ramp terminal at Kimball	North ramp terminal at Kimball	0	0	2	1	0	0	1	4	0	0	0	0	0	0	0	4
K-113	North ramp terminal at Kimball	Gary Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	Gary Ave	Leadership Ln	0	0	1	1	0	0	0	2	0	0	0	1	0	0	1	3
K-113	Leadership Ln	Marlatt Ave	0	0	6	0	0	0	0	6	0	0	0	1	0	0	1	7
K-113	Marlatt Ave	Top of the World Dr	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	3
K-113	Top of the World Dr	High Plains Ranch	0	0	1	2	0	0	0	3	0	0	0	0	0	0	0	3
K-113	High Plains Ranch	Eagle Ridge Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	Eagle Ridge Rd	US 24	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	6
Southwind Rd	Southwind Pl	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwind Rd	K-113	Frontage Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Farm Bureau Rd	K-113	Linear Trail	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Amherst Ave	Research Dr	K-113	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Amherst Ave	K-113	Frontage Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amherst Ave	Frontage Rd	Plymate Ln/Farm Bureau Rd	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Anderson Ave	Wreath Ave	Waters St	0	0	0	0	0	0	0	0	0	2	6	1	0	0	9	9
Anderson Ave	Waters St	K-113 west ramp terminal	0	0	0	0	0	0	1	1	1	1	9	1	0	0	12	13
Anderson Ave	K-113 west ramp terminal	K-113 east ramp terminal	0	0	0	0	0	0	1	1	0	1	0	1	0	0	2	3
Anderson Ave	K-113 east ramp terminal	Garden Way	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2
Claflin Rd	Wreath Ave	Nichols St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Nichols St	Waters St	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Claflin Rd	Waters St	Brighton Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Brighton Rd	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	K-113	Cambridge Pl	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Claflin Rd	Cambridge Pl	Beechwood Terr	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Claflin Rd	Beechwood Terr	Browning Ave	0	0	0	0	0	0	0	0	0	4	4	1	0	0	9	9
Kimball Ave	Candlewood Dr	Wreath Ave/K-113 west ramp terminal	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	8
Kimball Ave	Wreath Ave/K-113 west ramp terminal	K-113 east ramp terminal	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	2
Kimball Ave	K-113 east ramp terminal	Seaton Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimball Ave	Seaton Ave	Indiana Ln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimball Ave	Indiana Ln	Shirley Ln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimball Ave	Shirley Ln	Vermont Ave	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Kimball Ave	Vermont Ave	North Pointe Dr	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
Kimball Ave	North Pointe Dr	Browning Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wreath Ave	K-113 SB on-ramp	Kimball Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Candlewood Dr	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	K-113	Meadowood Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Meadowood Dr	Terry Way	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Terry Way	Cheryl Terr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Cheryl Terr	Seaton Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Future Grand Mere Connection	Prairie Star Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Prairie Star Dr	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	K-113	Tatafax Dr (west jct)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Tatafax Dr (west jct)	Glenns Dr	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	2
Marlatt Ave	Glenns Dr	Tatafax Dr (east jct)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Marlatt Ave	Tatafax Dr (east jct)	Browning Ave	0	0	1	1	1	0	0	3	0	0	1	0	0	0	1	4
		TOTALS	0	0	25	8	1	1	4	39	2	19	35	10	2	2	70	109

Note: SV = Single Vehicle; MV = Multiple Vehicle

TABLE B9 | CRASH FREQUENCIES AND RATES FOR INTERSECTION IN THE STUDY CORRIDOR

Major Road	Minor Road	Number of Crashes (2012-2015)				Crash rate (per year)				Exposure (100 MEV)	Crash rate (per 100 MEV)			
		Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total		Fatal	Injury	PDO	Total
K-113	Southwind Rd	0	12	25	37	0.0	3.0	6.3	9.3	0.537	0.0	22.4	46.6	69.0
K-113	Farm Bureau Rd	0	4	9	13	0.0	1.0	2.3	3.3	0.390	0.0	10.3	23.1	33.3
K-113	Amherst Ave	0	11	20	31	0.0	2.8	5.0	7.8	0.425	0.0	25.9	47.1	72.9
K-113	Claflin Rd	0	8	18	26	0.0	2.0	4.5	6.5	0.469	0.0	17.0	38.4	55.4
K-113	Dickens Ave	0	4	1	5	0.0	1.0	0.3	1.3	0.384	0.0	10.4	2.6	13.0
K-113	Gary Ave	0	4	2	6	0.0	1.0	0.5	1.5	0.242	0.0	16.6	8.3	24.8
K-113	Leadership Ln	0	0	0	0	0.0	0.0	0.0	0.0	0.135	0.0	0.0	0.0	0.0
K-113	Marlatt Ave	0	0	1	1	0.0	0.0	0.3	0.3	0.133	0.0	0.0	7.5	7.5
K-113	Top of the World Dr	0	0	1	1	0.0	0.0	0.3	0.3	0.079	0.0	0.0	12.6	12.6
K-113	High Plains Ranch	0	0	0	0	0.0	0.0	0.0	0.0	0.074	0.0	0.0	0.0	0.0
K-113	Eagle Ridge Rd	0	0	0	0	0.0	0.0	0.0	0.0	0.074	0.0	0.0	0.0	0.0
US 24	K-113	0	1	1	2	0.0	0.3	0.3	0.5	0.169	0.0	5.9	5.9	11.8
US 24	K-13	2	6	4	12	0.5	1.5	1.0	3.0	0.123	16.3	48.8	32.5	97.6
Southwind Rd	Southwind Pl	0	0	1	1	0.0	0.0	0.3	0.3	0.262	0.0	0.0	3.8	3.8
Southwind Rd	Frontage Rd	0	0	0	0	0.0	0.0	0.0	0.0	0.078	0.0	0.0	0.0	0.0
Amherst Ave	Research Dr	0	0	0	0	0.0	0.0	0.0	0.0	0.095	0.0	0.0	0.0	0.0
Amherst Ave	Frontage Rd	0	0	0	0	0.0	0.0	0.0	0.0	0.053	0.0	0.0	0.0	0.0
Amherst Ave	Plymate Ln/Farm Bureau Rd	0	1	0	1	0.0	0.3	0.0	0.3	0.037	0.0	26.8	0.0	26.8
Anderson Ave	Wreath Ave	0	4	5	9	0.0	1.0	1.3	2.3	0.284	0.0	14.1	17.6	31.6
Anderson Ave	Waters St	0	0	1	1	0.0	0.0	0.3	0.3	0.277	0.0	0.0	3.6	3.6
Anderson Ave	Garden Way	0	7	11	18	0.0	1.8	2.8	4.5	0.356	0.0	19.7	30.9	50.6
Claflin Rd	Wreath Ave	0	4	7	11	0.0	1.0	1.8	2.8	0.103	0.0	38.9	68.0	106.9
Claflin Rd	Nichols St	0	0	0	0	0.0	0.0	0.0	0.0	0.047	0.0	0.0	0.0	0.0
Claflin Rd	Waters St	0	0	0	0	0.0	0.0	0.0	0.0	0.078	0.0	0.0	0.0	0.0
Claflin Rd	Brighton Rd	0	0	0	0	0.0	0.0	0.0	0.0	0.063	0.0	0.0	0.0	0.0
Claflin Rd	Cambridge Pl	0	0	0	0	0.0	0.0	0.0	0.0	0.143	0.0	0.0	0.0	0.0
Claflin Rd	Beechwood Terr	0	2	12	14	0.0	0.5	3.0	3.5	0.264	0.0	7.6	45.4	53.0
Claflin Rd	Browning Ave	0	6	12	18	0.0	1.5	3.0	4.5	0.193	0.0	31.1	62.1	93.2
Kimball Ave	Candlewood Ln	0	0	1	1	0.0	0.0	0.3	0.3	0.353	0.0	0.0	2.8	2.8
Kimball Ave	Seaton Ave	0	0	1	1	0.0	0.0	0.3	0.3	0.278	0.0	0.0	3.6	3.6
Kimball Ave	Indiana Ln	0	0	0	0	0.0	0.0	0.0	0.0	0.260	0.0	0.0	0.0	0.0
Kimball Ave	Shirley Ln	0	0	2	2	0.0	0.0	0.5	0.5	0.252	0.0	0.0	8.0	8.0
Kimball Ave	Vermont St	0	0	0	0	0.0	0.0	0.0	0.0	0.260	0.0	0.0	0.0	0.0
Kimball Ave	North Pointe Dr	0	0	1	1	0.0	0.0	0.3	0.3	0.256	0.0	0.0	3.9	3.9
Kimball Ave	Browning Ave	0	1	3	4	0.0	0.3	0.8	1.0	0.318	0.0	3.1	9.4	12.6
Gary Ave	Candlewood Dr	0	0	3	3	0.0	0.0	0.8	0.8	0.114	0.0	0.0	26.3	26.3
Gary Ave	Meadowood Dr	0	0	0	0	0.0	0.0	0.0	0.0	0.056	0.0	0.0	0.0	0.0
Gary Ave	Terry Way	0	0	0	0	0.0	0.0	0.0	0.0	0.018	0.0	0.0	0.0	0.0
Gary Ave	Cheryl Terr	0	0	1	1	0.0	0.0	0.3	0.3	0.015	0.0	0.0	68.5	68.5
Gary Ave	Seaton Ave	0	1	0	1	0.0	0.3	0.0	0.3	0.018	0.0	57.1	0.0	57.1
Marlatt Ave	Prairie Star Dr	0	0	0	0	0.0	0.0	0.0	0.0	0.004	0.0	0.0	0.0	0.0
Marlatt Ave	Tatarrax Dr (west jct)	0	0	0	0	0.0	0.0	0.0	0.0	0.039	0.0	0.0	0.0	0.0
Marlatt Ave	Glenns Dr	0	0	0	0	0.0	0.0	0.0	0.0	0.035	0.0	0.0	0.0	0.0
Marlatt Ave	Tatarrax Dr (east jct)	0	1	0	1	0.0	0.3	0.0	0.3	0.039	0.0	25.4	0.0	25.4
Marlatt Ave	Browning Ave	0	0	2	2	0.0	0.0	0.5	0.5	0.091	0.0	0.0	21.9	21.9
	TOTALS	2	77	145	224									

TABLE B10 | SUMMARY OF CRASHES AT INTERSECTION IN THE STUDY CORRIDOR BY CRASH TYPE

		Single-Vehicle Crashes								Multiple-vehicle crashes							
Major Road	Minor Road	Pedestrian	Bicycle	Animal	Fixed Object	Other Object	Over-turned	Other Noncollision	Total SV	Head-On	Rear-End	Angle	Sideswipe Same	Sideswipe Opposite	Other MV	Total MV	Total
K-113	Southwind Rd	0	0	1	0	0	0	0	1	2	11	16	4	3	0	36	37
K-113	Farm Bureau Rd	0	0	0	0	0	0	0	0	2	6	5	0	0	0	13	13
K-113	Amherst Ave	0	0	0	0	0	0	0	0	0	17	8	0	4	2	31	31
K-113	Claflin Rd	0	0	0	0	0	0	0	0	1	6	13	4	2	0	26	26
K-113	Dickens Ave	0	1	0	0	0	0	0	1	0	3	1	0	0	0	4	5
K-113	Gary Ave	0	0	0	0	0	1	0	1	1	0	4	0	0	0	5	6
K-113	Leadership Ln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	Marlatt Ave	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
K-113	Top of the World Dr	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
K-113	High Plains Ranch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113	Eagle Ridge Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
US 24	K-113	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	2
US 24	K-13	0	0	0	0	0	0	2	2	0	2	7	1	0	0	10	12
Southwind Rd	Southwind Pl	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Southwind Rd	Frontage Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amherst Ave	Research Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amherst Ave	Frontage Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amherst Ave	Plymate Ln/Farm Bureau Rd	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Anderson Ave	Wreath Ave	0	0	0	0	0	0	1	1	2	3	2	0	0	1	8	9
Anderson Ave	Waters St	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Anderson Ave	Garden Way	1	3	0	0	0	0	0	4	0	5	8	1	0	0	14	18
Claflin Rd	Wreath Ave	0	0	0	0	0	0	0	0	0	0	11	0	0	0	11	11
Claflin Rd	Nichols St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Waters St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Brighton Rd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Cambridge Pl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Claflin Rd	Beechwood Terr	0	0	0	2	0	1	0	3	1	2	8	0	0	0	11	14
Claflin Rd	Browning Ave	0	0	0	0	0	0	0	0	0	5	12	0	0	1	18	18
Kimball Ave	Candlewood Ln	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Kimball Ave	Seaton Ave	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Kimball Ave	Indiana Ln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimball Ave	Shirley Ln	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
Kimball Ave	Vermont St	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimball Ave	North Pointe Dr	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Kimball Ave	Browning Ave	1	0	0	0	0	0	0	1	0	2	1	0	0	0	3	4
Gary Ave	Candlewood Dr	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3	3
Gary Ave	Meadowood Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Terry Way	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gary Ave	Cheryl Terr	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Gary Ave	Seaton Ave	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Marlatt Ave	Prairie Star Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Tatarrax Dr (west jct)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Glenns Dr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marlatt Ave	Tatarrax Dr (east jct)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Marlatt Ave	Browning Ave	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	2
	TOTALS	2	4	3	3	1	3	5	21	10	66	104	10	9	4	203	224

Note: SV = Single Vehicle; MV = Multiple Vehicle

TABLE B11 | CRASH FREQUENCIES AND RATES FOR RAMPS IN THE STUDY CORRIDOR

Ramp	From	To	Length (mi)	Number of Crashes (2012-2015)				Crash rate (per mi per year)				Exposure (100 MVMT)	Crash rate (per 100 MVMT)			
				Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total		Fatal	Injury	PDO	Total
K-113 NB off-ramp	K-113	Anderson Ave	0.166	0	0	0	0	0.0	0.0	0.0	0.0	0.0108	0.0	0.0	0.0	0.0
K-113 NB on-ramp	Anderson Ave	K-113	0.131	0	1	1	2	0.0	1.9	1.9	3.8	0.0085	0.0	117.1	117.1	234.3
K-113 SB off-ramp	K-113	Anderson Ave	0.130	0	0	0	0	0.0	0.0	0.0	0.0	0.0064	0.0	0.0	0.0	0.0
K-113 SB on-ramp	Anderson Ave	K-113	0.160	0	0	0	0	0.0	0.0	0.0	0.0	0.0098	0.0	0.0	0.0	0.0
K-113 NB off-ramp	K-113	Kimball Ave	0.236	0	0	0	0	0.0	0.0	0.0	0.0	0.0115	0.0	0.0	0.0	0.0
K-113 NB on-ramp	Kimball Ave	K-113	0.269	0	0	0	0	0.0	0.0	0.0	0.0	0.0044	0.0	0.0	0.0	0.0
K-113 SB off-ramp	K-113	Kimball Ave	0.243	0	0	0	0	0.0	0.0	0.0	0.0	0.0028	0.0	0.0	0.0	0.0
K-113 SB on-ramp	Wreath Ave (south of Kimball Ave)	K-113	0.130	0	0	1	1	0.0	0.0	1.9	1.9	0.0063	0.0	0.0	157.5	157.5
		TOTALS		0	1	2	3									

NOTE: Includes crashes on the ramp itself as well as merge and diverge crashes along K-113/Seth Child Road

TABLE B12 | SUMMARY OF CRASHES ON RAMPS IN THE STUDY CORRIDOR BY CRASH TYPE

Ramp	From	To	Single-Vehicle Crashes								Multiple-vehicle crashes							Total
			Pedestrian	Bicycle	Animal	Fixed Object	Other Object	Over-turned	Other Noncollision	Total SV	Head-On	Rear-End	Angle	Sideswipe Same	Sideswipe Opposite	Other MV	Total MV	
K-113 NB off-ramp	K-113	Anderson Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 NB on-ramp	Anderson Ave	K-113	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
K-113 SB off-ramp	K-113	Anderson Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 SB on-ramp	Anderson Ave	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 NB off-ramp	K-113	Kimball Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 NB on-ramp	Kimball Ave	K-113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 SB off-ramp	K-113	Kimball Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-113 SB on-ramp	Wreath Ave (south of Kimball Ave)	K-113	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2
		TOTALS	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	3

Note: SV = Single Vehicle; MV = Multiple Vehicle

TABLE B13 | CRASH FREQUENCIES AND RATES FOR RAMP TERMINALS IN THE STUDY CORRIDOR

Major Road	Minor Road	Number of Crashes (2012-2015)				Crash rate (per year)				Exposure (100 MEV)	Crash rate (per 100 MEV)			
		Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total		Fatal	Injury	PDO	Total
Anderson Ave	K-113 west ramp terminal	0	2	13	15	0.0	0.5	3.3	3.8	0.307	0.0	6.5	42.3	48.8
Anderson Ave	K-113 east ramp terminal	0	11	11	22	0.0	2.8	2.8	5.5	0.379	0.0	29.0	29.0	58.1
Kimball Ave	Wreath Ave/K-113 west ramp terminal	0	1	8	9	0.0	0.3	2.0	2.3	0.376	0.0	2.7	21.3	24.0
Kimball Ave	K-113 east ramp terminal	0	3	16	19	0.0	0.8	4.0	4.8	0.295	0.0	10.2	54.2	64.4
Wreath Ave	K-113 SB on-ramp	0	1	1	2	0.0	0.3	0.3	0.5	0.146	0.0	6.9	6.9	13.7
	TOTALS	0	18	49	67									

TABLE B14 | SUMMARY OF CRASHES AT RAMP TERMINALS IN THE STUDY CORRIDOR BY CRASH TYPE

Major Road	Minor Road	Single-Vehicle Crashes								Multiple-vehicle crashes							Total
		Pedestrian	Bicycle	Animal	Fixed Object	Other Object	Overturned	Other Noncollision	Total SV	Head-On	Rear-End	Angle	Sideswipe Same	Sideswipe Opposite	Other MV	Total MV	
Anderson Ave	K-113 west ramp terminal	1	1	0	0	0	0	0	2	0	7	5	0	1	0	13	15
Anderson Ave	K-113 east ramp terminal	0	0	0	0	0	0	1	1	0	16	5	0	0	0	21	22
Kimball Ave	Wreath Ave/K-113 west ramp terminal	0	0	0	1	0	0	0	1	0	1	6	1	0	0	8	9
Kimball Ave	K-113 east ramp terminal	0	0	0	0	0	0	0	0	0	15	4	0	0	0	19	19
Wreath Ave	K-113 SB on-ramp	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
	TOTALS	1	1	0	1	0	0	1	4	0	39	22	1	1	0	63	67

Note: SV = Single Vehicle; MV = Multiple Vehicle

TABLE B15 | HSM ANALYSIS FOR ROADWAY SEGMENTS IN THE STUDY CORRIDOR (2012 - 2015)

From	To	To	Predicted crashes from HSM (2012-2015)						Observed crashes (2012-2015)						Long-term expected annual average crash frequency (2012-2015)		
			Multiple-vehicle	Single-vehicle	Driveway	Pedestrian	Bicycle	Total	Multiple-vehicle	Single-vehicle	Driveway	Pedestrian	Bicycle	TOTAL	FI	PDO	Total
South Project Limit	Southwind Rd	Southwind Rd	1.2	0.3	0.0	0.0	0.0	1.5	3	1	0	0	0	4	0.24	0.68	0.92
Southwind Rd	Farm Bureau Rd	Farm Bureau Rd	3.2	0.7	0.0	0.0	0.0	4.0	0	1	0	0	0	1	0.08	0.25	0.33
Farm Bureau Rd	Amherst Ave	Amherst Ave	5.6	1.2	0.0	0.0	0.0	6.8	4	1	0	0	0	5	0.14	1.24	1.38
Amherst Ave	South ramp terminal at Anderson Ave	South ramp terminal at Anderson Ave	10.2	2.1	0.0	0.0	0.0	12.3	4	2	0	0	0	6	0.72	0.85	1.58
South ramp terminal at Anderson Ave	North ramp terminal at Anderson Ave	North ramp terminal at Anderson Ave	4.2	1.1	0.0	0.0	0.0	5.4	1	2	0	0	0	3	0.21	0.53	0.74
North ramp terminal at Anderson Ave	Claflin Rd	Claflin Rd	1.4	0.3	0.0	0.0	0.0	1.7	0	0	0	0	0	0	0.03	0.03	0.06
Claflin Rd	Dickens Ave	Dickens Ave	4.0	1.0	0.0	0.0	0.0	5.0	1	0	0	0	0	1	0.10	0.33	0.43
Dickens Ave	South ramp terminal at Kimball	South ramp terminal at Kimball	2.3	0.6	0.0	0.0	0.0	3.0	0	0	0	0	0	0	0.08	0.08	0.16
South ramp terminal at Kimball	North ramp terminal at Kimball	North ramp terminal at Kimball	2.3	0.2	0.0	0.0	0.0	2.5	0	4	0	0	0	4	0.09	0.23	0.32
North ramp terminal at Kimball	Gary Ave	Gary Ave	1.6	0.6	0.0	0.0	0.0	2.1	0	0	0	0	0	0	0.06	0.08	0.14
Gary Ave	Leadership Ln	Leadership Ln	2.1	0.9	0.0	0.0	0.0	3.0	1	2	0	0	0	3	0.10	0.65	0.75
Leadership Ln	Marlatt Ave	Marlatt Ave	1.3	0.6	0.0	0.0	0.0	1.9	1	6	0	0	0	7	0.22	1.04	1.25
Marlatt Ave	Top of the World Dr	Top of the World Dr	1.6	3.7	0.0	0.0	0.0	5.3	0	3	0	0	0	3	0.39	0.83	1.22
Top of the World Dr	High Plains Ranch	High Plains Ranch	0.3	0.8	0.0	0.0	0.0	1.2	0	3	0	0	0	3	0.12	0.25	0.37
High Plains Ranch	Eagle Ridge Rd	Eagle Ridge Rd	0.4	1.0	0.0	0.0	0.0	1.4	0	0	0	0	0	0	0.09	0.20	0.29
Eagle Ridge Rd	US 24	US 24	1.4	3.3	0.0	0.0	0.0	4.6	0	6	0	0	0	6	0.39	0.82	1.21
Southwind Pl	K-113	K-113	0.3	0.2	0.0	0.0	0.0	0.5	0	0	0	0	0	0	0.02	0.02	0.04
K-113	Frontage Rd	Frontage Rd	0.1	0.1	0.0	0.0	0.0	0.2	0	0	0	0	0	0	0.01	0.01	0.02
K-113	Linear Trail	Linear Trail	0.1	0.2	0.4	0.0	0.0	0.8	1	0	0	0	0	1	0.04	0.15	0.19
Research Dr	K-113	K-113	0.2	0.3	0.6	0.0	0.0	1.1	0	0	1	0	0	1	0.04	0.25	0.30
K-113	Frontage Rd	Frontage Rd	0.1	0.1	0.0	0.0	0.0	0.2	0	0	0	0	0	0	0.01	0.01	0.02
Frontage Rd	Plymate Ln/Farm Bureau Rd	Plymate Ln/Farm Bureau Rd	0.1	0.4	0.2	0.0	0.0	0.8	0	0	1	0	0	1	0.06	0.16	0.21
Wreath Ave	Waters St	Waters St	2.4	1.0	2.6	0.0	0.0	6.0	3	0	6	0	0	9	0.12	2.18	2.29
Waters St	K-113 west ramp terminal	K-113 west ramp terminal	2.0	0.7	0.9	0.0	0.0	3.6	3	1	9	0	0	13	0.56	2.25	2.81
K-113 west ramp terminal	K-113 east ramp terminal	K-113 east ramp terminal	1.1	0.3	0.0	0.0	0.0	1.4	2	1	0	0	0	3	0.03	0.67	0.70
K-113 east ramp terminal	Garden Way	Garden Way	1.1	0.3	1.5	0.0	0.0	2.9	1	0	1	0	0	2	0.25	0.27	0.53
Wreath Ave	Nichols St	Nichols St	0.1	0.1	0.1	0.0	0.0	0.4	0	0	0	0	0	0	0.02	0.03	0.05
Nichols St	Waters St	Waters St	0.1	0.2	0.1	0.0	0.0	0.4	1	0	0	0	0	1	0.02	0.15	0.18
Waters St	Brighton Rd	Brighton Rd	0.2	0.2	0.1	0.0	0.0	0.5	0	0	0	0	0	0	0.02	0.04	0.06
Brighton Rd	K-113	K-113	0.1	0.1	0.0	0.0	0.0	0.2	0	0	0	0	0	0	0.01	0.01	0.02
K-113	Cambridge Pl	Cambridge Pl	0.7	0.3	0.9	0.0	0.0	1.8	0	0	2	0	0	2	0.04	0.49	0.53
Cambridge Pl	Beechwood Terr	Beechwood Terr	0.4	0.2	0.0	0.0	0.0	0.6	0	0	1	0	0	1	0.02	0.02	0.03
Beechwood Terr	Browning Ave	Browning Ave	1.4	0.7	0.4	0.0	0.0	2.6	5	0	4	0	0	9	0.42	1.18	1.60
Candlewood Dr	Wreath Ave/K-113 west ramp terminal	Wreath Ave/K-113 west ramp terminal	2.0	0.5	0.8	0.0	0.0	3.4	0	0	8	0	0	8	0.53	1.02	1.55
Wreath Ave/K-113 west ramp terminal	K-113 east ramp terminal	K-113 east ramp terminal	1.6	0.4	0.0	0.0	0.0	2.0	1	1	0	0	0	2	0.25	0.23	0.48
K-113 east ramp terminal	Seaton Ave	Seaton Ave	0.6	0.1	0.1	0.0	0.0	0.8	0	0	0	0	0	0	0.03	0.02	0.05
Seaton Ave	Indiana Ln	Indiana Ln	1.3	0.1	0.5	0.0	0.0	1.8	0	0	0	0	0	0	0.04	0.05	0.09
Indiana Ln	Shirley Ln	Shirley Ln	0.3	0.1	0.0	0.0	0.0	0.4	0	0	0	0	0	0	0.01	0.01	0.02
Shirley Ln	Vermont Ave	Vermont Ave	0.7	0.2	0.8	0.0	0.0	1.7	1	0	0	0	0	1	0.03	0.26	0.29
Vermont Ave	North Pointe Dr	North Pointe Dr	1.6	0.4	0.3	0.0	0.0	2.2	1	0	1	0	0	2	0.05	0.44	0.49
North Pointe Dr	Browning Ave	Browning Ave	0.9	0.2	0.0	0.0	0.0	1.1	0	0	0	0	0	0	0.02	0.02	0.04
K-113 SB on-ramp	Kimball Ave	Kimball Ave	0.3	0.2	0.0	0.0	0.0	0.4	0	0	0	0	0	0	0.02	0.02	0.04
Candlewood Dr	K-113	K-113	0.2	0.2	0.1	0.0	0.0	0.5	0	0	0	0	0	0	0.02	0.03	0.06
K-113	Meadowood Dr	Meadowood Dr	0.1	0.1	0.0	0.0	0.0	0.2	0	0	0	0	0	0	0.01	0.01	0.02
Meadowood Dr	Terry Way	Terry Way	0.1	0.1	0.1	0.0	0.0	0.2	0	0	0	0	0	0	0.02	0.01	0.03
Terry Way	Cheryl Terr	Cheryl Terr	0.1	0.1	0.1	0.0	0.0	0.3	0	0	0	0	0	0	0.02	0.02	0.05
Cheryl Terr	Seaton Ave	Seaton Ave	0.1	0.2	0.1	0.0	0.0	0.3	0	0	0	0	0	0	0.03	0.03	0.05
Future Grand Mere Connection	Prairie Star Dr	Prairie Star Dr	0.1	0.3	0.0	0.0	0.0	0.3	0	0	0	0	0	0	0.04	0.03	0.07
Prairie Star Dr	K-113	K-113	0.1	0.4	0.0	0.0	0.0	0.5	0	0	0	0	0	0	0.06	0.04	0.10
K-113	Tatarrax Dr (west jct)	Tatafax Dr (west jct)	0.1	0.2	0.0	0.0	0.0	0.2	0	0	0	0	0	0	0.02	0.02	0.04
Tatarrax Dr (west jct)	Glenns Dr	Glenns Dr	0.3	0.6	0.0	0.0	0.0	0.9	0	2	0	0	0	2	0.06	0.32	0.38
Glenns Dr	Tatarrax Dr (east jct)	Tatafax Dr (east jct)	0.1	0.2	0.1	0.0	0.0	0.4	1	0	0	0	0	1	0.09	0.03	0.12
Tatarrax Dr (east jct)	Browning Ave	Browning Ave	0.3	0.5	0.2	0.0	0.0	0.9	0	3	1	0	0	4	0.06	0.58	0.64
			64.2	28.4	11.0	0.3	0.1	104.1	35	39	35	0	0	109	6.17	19.18	25.34

NOTE: FI = Fatal and injury; PDO = Property damage only

TABLE B16 | HSM FORECAST OF FUTURE CRASH FREQUENCIES ON ROADWAY SEGMENTS (2020 - 2039)

Roadway	From	To	Expected average annual crash frequency (1/1/2012-12/31/2015)			Expected 20-yr total crash frequency (1/1/2020-12/31/2039)		
			FI	PDO	Total	FI	PDO	Total
K-113	South Project Limit	Southwind Rd	0.2	0.7	0.9	5.4	13.2	18.6
K-113	Southwind Rd	Farm Bureau Rd	0.1	0.3	0.3	1.8	4.9	6.7
K-113	Farm Bureau Rd	Amherst Ave	0.1	1.2	1.4	3.2	24.2	27.4
K-113	Amherst Ave	South ramp terminal at Anderson	0.7	0.9	1.6	15.8	23.9	39.7
K-113	South ramp terminal at Anderson Ave	North ramp terminal at Anderson	0.2	0.5	0.7	4.7	16.0	20.7
K-113	North ramp terminal at Anderson Ave	Claflin Rd	0.0	0.0	0.1	0.7	0.9	1.6
K-113	Claflin Rd	Dickens Ave	0.1	0.3	0.4	2.3	10.0	12.3
K-113	Dickens Ave	South ramp terminal at Kimball	0.1	0.1	0.2	1.8	1.7	3.4
K-113	South ramp terminal at Kimball	North ramp terminal at Kimball	0.1	0.2	0.3	2.2	5.4	7.6
K-113	North ramp terminal at Kimball	Gary Ave	0.1	0.1	0.1	1.5	1.5	3.1
K-113	Gary Ave	KFB Plaza/Leadership Ln	0.1	0.7	0.8	2.6	13.2	15.8
K-113	KFB Plaza/Leadership Ln	Marlatt Ave	0.2	1.0	1.3	5.5	20.6	26.1
K-113	Marlatt Ave	Top of the World Dr	0.4	0.8	1.2	8.7	18.5	27.2
K-113	Top of the World Dr	High Plains Ranch	0.1	0.2	0.4	2.8	5.5	8.2
K-113	High Plains Ranch	Eagle Ridge Rd	0.1	0.2	0.3	1.9	4.4	6.3
K-113	Eagle Ridge Rd	US 24	0.4	0.8	1.2	8.7	18.2	27.0
Southwind Rd	Southwind Rd/Commons	K-113	0.0	0.0	0.0	0.4	0.8	1.2
Southwind Rd	K-113	Frontage Rd	0.0	0.0	0.0	0.2	0.3	0.5
Farm Bureau Rd	K-113	Linear Trail	0.0	0.1	0.2	0.8	6.1	6.9
Amherst Ave	Research Dr	K-113	0.0	0.3	0.3	0.9	9.7	10.5
Amherst Ave	K-113	Frontage Rd	0.0	0.0	0.0	0.2	0.3	0.5
Amherst Ave	Frontage Rd	Plymate Ln/Farm Bureau Rd	0.1	0.2	0.2	1.2	8.3	9.5
Anderson Ave	Wreath Ave	Waters St	0.1	2.2	2.3	2.4	52.1	54.5
Anderson Ave	Waters St	K-113 west ramp terminal	0.6	2.2	2.8	11.5	57.0	68.5
Anderson Ave	K-113 west ramp terminal	K-113 east ramp terminal	0.0	0.7	0.7	0.6	17.7	18.3
Anderson Ave	K-113 east ramp terminal	Graden Way	0.3	0.3	0.5	5.0	6.3	11.3
Claflin Rd	Wreath Ave	Nichols St	0.0	0.0	0.1	0.4	1.2	1.6
Claflin Rd	Nichols St	Waters St	0.0	0.2	0.2	0.4	8.0	8.5
Claflin Rd	Waters St	Brighton Rd	0.0	0.0	0.1	0.4	1.8	2.3
Claflin Rd	Brighton Rd	K-113	0.0	0.0	0.0	0.2	0.7	0.9
Claflin Rd	K-113	Cambridge Pl	0.0	0.5	0.5	0.8	16.6	17.5
Claflin Rd	Cambridge Pl	Beechwood Terr	0.0	0.0	0.0	0.3	0.7	1.1
Claflin Rd	Beechwood Terr	Browning Ave	0.4	1.2	1.6	8.9	54.1	63.0
Kimball Ave	Candlewood Dr	Wreath Ave/K-113 west ramp term.	0.5	1.0	1.5	11.8	29.2	41.1
Kimball Ave	Wreath Ave/K-113 west ramp term.	K-113 east ramp terminal	0.2	0.2	0.5	5.8	4.5	10.2
Kimball Ave	K-113 east ramp terminal	Seaton Ave	0.0	0.0	0.0	0.6	0.5	1.1
Kimball Ave	Seaton Ave	Indiana Ln	0.0	0.0	0.1	1.0	1.1	2.1
Kimball Ave	Indiana Ln	Shirley Ln	0.0	0.0	0.0	0.2	0.2	0.4
Kimball Ave	Shirley Ln	Vermont Ave	0.0	0.3	0.3	0.8	6.9	7.6
Kimball Ave	Vermont Ave	North Pointe Dr	0.1	0.4	0.5	1.2	12.8	14.1
Kimball Ave	North Pointe Dr	Browning Ave	0.0	0.0	0.0	0.5	0.6	1.1
Wreath Ave	K-113 SB on-ramp	Kimball Ave	0.0	0.0	0.0	0.4	0.9	1.3
Gary Ave	Candlewood Dr	K-113	0.0	0.0	0.1	0.5	0.6	1.1
Gary Ave	K-113	Meadowood Dr	0.0	0.0	0.0	0.2	0.5	0.8
Gary Ave	Meadowood Dr	Terry Way	0.0	0.0	0.0	0.3	0.6	0.9
Gary Ave	Terry Way	Cheryl Terr	0.0	0.0	0.0	0.5	1.2	1.7
Gary Ave	Cheryl Terr	Seaton Ave	0.0	0.0	0.1	0.6	1.3	1.9
Marlatt Ave	Future Grand Mere Connection	Prairie Star Dr	0.0	0.0	0.1	1.5	2.7	4.2
Marlatt Ave	Prairie Star Dr	K-113	0.1	0.0	0.1	1.9	4.0	6.0
Marlatt Ave	K-113	Tatafax Dr (west jct)	0.0	0.0	0.0	0.4	1.6	2.0
Marlatt Ave	Tatafax Dr (west jct)	Glenns Dr	0.1	0.3	0.4	1.3	22.9	24.2
Marlatt Ave	Glenns Dr	Tatafax Dr (east jct)	0.1	0.0	0.1	2.1	2.0	4.2
Marlatt Ave	Tatafax Dr (east jct)	Browning Ave	0.1	0.6	0.6	1.5	34.8	36.2
		TOTALS	6.2	19.2	25.3	137.5	553.0	690.5

Note: FI = Fatal and injury; PDO = Property damage only

TABLE B17 | HSM ANALYSIS FOR INTERSECTIONS IN THE STUDY CORRIDOR (2012 - 2015)

		Predicted crashes from HSM (2012-2015)					Observed crashes (2012-2015)					Long-term expected annual average crash frequency (2012-2015)		
Major Road	Minor Road	Multiple-vehicle	Single-vehicle	Pedestrian	Bicycle	Total	Multiple-vehicle	Single-vehicle	Pedestrian	Bicycle	TOTAL	FI	PDO	Total
K-113	Southwind Rd	12.115	0.806	0.039	0.197	13.157	36	1	0	0	37	2.24	5.30	7.55
K-113	Farm Bureau Rd	8.879	0.703	0.019	0.097	9.698	13	0	0	0	13	0.97	2.08	3.05
K-113	Amherst Ave	14.392	0.958	0.047	0.234	15.631	31	0	0	0	31	2.12	4.85	6.96
K-113	Claflin Rd	12.832	0.855	0.042	0.209	13.938	26	0	0	0	26	1.72	4.13	5.86
K-113	Dickens Ave	4.777	0.760	0.120	0.103	5.761	4	0	0	1	5	0.70	0.58	1.28
K-113	Gary Ave	4.053	0.648	0.102	0.088	4.891	5	1	0	0	6	0.63	0.66	1.29
K-113	Leadership Ln	2.871	0.456	0.072	0.062	3.461	0	0	0	0	0	0.24	0.33	0.57
K-113	Marlatt Ave	2.888	0.458	0.072	0.062	3.481	0	1	0	0	1	0.24	0.37	0.61
K-113	Top of the World Dr	1.446	0.596	0.004	0.002	2.048	0	1	0	0	1	0.17	0.26	0.43
K-113	High Plains Ranch	1.004	0.414	0.003	0.001	1.422	0	0	0	0	0	0.12	0.17	0.29
K-113	Eagle Ridge Rd	1.227	0.506	0.003	0.002	1.738	0	0	0	0	0	0.15	0.19	0.34
US 24	K-113	7.535	3.106	0.021	0.011	10.672	0	2	0	0	2	0.58	0.69	1.27
US 24	K-13	3.395	0.888	0.030	0.004	4.317	10	2	0	0	12	0.84	0.90	1.73
Southwind Rd	Southwind Pl	1.614	0.381	0.041	0.033	2.069	1	0	0	0	1	0.17	0.30	0.47
Southwind Rd	Frontage Rd	1.159	0.272	0.030	0.024	1.485	0	0	0	0	0	0.11	0.15	0.26
Amherst Ave	Research Dr	1.602	0.377	0.041	0.033	2.054	0	0	0	0	0	0.14	0.19	0.33
Amherst Ave	Frontage Rd	1.981	0.316	0.050	0.043	2.390	0	0	0	0	0	0.18	0.26	0.44
Amherst Ave	Plymate Ln/Farm Bureau Rd	0.790	0.126	0.020	0.017	0.952	1	0	0	0	1	0.11	0.12	0.24
Anderson Ave	Wreath Ave	6.327	0.497	0.014	0.069	6.907	8	1	0	0	9	0.73	1.23	1.95
Anderson Ave	Waters St	3.097	0.730	0.079	0.064	3.971	1	0	0	0	1	0.26	0.42	0.68
Anderson Ave	Garden Way	4.620	0.736	0.117	0.100	5.573	14	0	1	3	18	0.68	1.92	2.60
Claflin Rd	Wreath Ave	3.733	0.597	0.094	0.081	4.505	11	0	0	0	11	0.69	1.24	1.93
Claflin Rd	Nichols St	1.997	0.318	0.050	0.043	2.409	0	0	0	0	0	0.18	0.26	0.44
Claflin Rd	Waters St	1.619	0.382	0.042	0.033	2.076	0	0	0	0	0	0.16	0.19	0.35
Claflin Rd	Brighton Rd	0.713	0.168	0.018	0.015	0.914	0	0	0	0	0	0.08	0.11	0.19
Claflin Rd	Cambridge Pl	0.062	0.015	0.002	0.001	0.079	0	0	0	0	0	0.01	0.01	0.02
Claflin Rd	Beechwood Terr	10.704	0.712	0.035	0.174	11.625	11	3	0	0	14	0.74	2.39	3.13
Claflin Rd	Browning Ave	6.706	1.589	0.172	0.138	8.604	18	0	0	0	18	1.40	2.64	4.04
Kimball Ave	Candlewood Ln	9.271	0.615	0.030	0.151	10.068	1	0	0	0	1	0.39	0.69	1.09
Kimball Ave	Seaton Ave	6.007	1.425	0.154	0.123	7.709	1	0	0	0	1	0.41	0.53	0.94
Kimball Ave	Indiana Ln	3.933	0.933	0.101	0.081	5.048	0	0	0	0	0	0.31	0.30	0.60
Kimball Ave	Shirley Ln	1.960	0.464	0.050	0.040	2.514	2	0	0	0	2	0.18	0.45	0.64
Kimball Ave	Vermont St	3.933	0.933	0.101	0.081	5.048	0	0	0	0	0	0.31	0.30	0.60
Kimball Ave	North Pointe Dr	3.183	0.756	0.082	0.066	4.086	1	0	0	0	1	0.26	0.42	0.69
Kimball Ave	Browning Ave	9.066	0.604	0.030	0.148	9.847	3	0	1	0	4	0.39	1.05	1.44
Gary Ave	Candlewood Dr	1.652	0.263	0.042	0.036	1.992	3	0	0	0	3	0.16	0.45	0.60
Gary Ave	Meadowood Dr	0.653	0.154	0.017	0.013	0.837	0	0	0	0	0	0.07	0.10	0.17
Gary Ave	Terry Way	0.250	0.059	0.006	0.005	0.320	0	0	0	0	0	0.03	0.04	0.07
Gary Ave	Cheryl Terr	0.218	0.052	0.006	0.004	0.280	0	1	0	0	1	0.03	0.05	0.08
Gary Ave	Seaton Ave	0.281	0.066	0.007	0.006	0.360	1	0	0	0	1	0.05	0.05	0.10
Marlatt Ave	Prairie Star Dr	0.078	0.020	0.002	0.002	0.101	0	0	0	0	0	0.01	0.02	0.02
Marlatt Ave	Tatarrax Dr (west jct)	0.718	0.172	0.018	0.015	0.923	0	0	0	0	0	0.08	0.11	0.19
Marlatt Ave	Glenns Dr	0.294	0.070	0.007	0.006	0.378	0	0	0	0	0	0.03	0.05	0.09
Marlatt Ave	Tatarrax Dr (east jct)	0.775	0.186	0.020	0.016	0.997	1	0	0	0	1	0.13	0.11	0.24
Marlatt Ave	Browning Ave	1.808	0.434	0.046	0.037	2.326	0	2	0	0	2	0.17	0.34	0.51
	TOTALS	168.213	25.576	2.102	2.769	198.659	203	15	2	4	224	19.39	36.99	56.39

NOTE: FI = Fatal and injury; PDO = Property damage only

TABLE B18 | HSM FORECAST OF FUTURE CRASH FREQUENCIES AT INTERSECTIONS (2020 - 2039)

Major Road	Minor Road	Expected average annual crash frequency (1/1/2012-12/31/2015)			Expected 20-yr total crash frequency (1/1/2020-12/31/2039)		
		FI	PDO	Total	FI	PDO	Total
K-113	Southwind Rd	2.24	5.30	7.55	51.84	114.94	166.78
K-113	Farm Bureau Rd	0.97	2.08	3.05	21.79	45.51	67.30
K-113	Amherst Ave	2.12	4.85	6.96	48.87	104.89	153.76
K-113	Claflin Rd	1.72	4.13	5.86	41.67	93.49	135.16
K-113	Dickens Ave	0.70	0.58	1.28	17.27	12.80	30.07
K-113	Gary Ave	0.63	0.66	1.29	16.01	14.87	30.87
K-113	Leadership Ln	0.24	0.33	0.57	6.53	7.82	14.34
K-113	Marlatt Ave	0.24	0.37	0.61	6.62	8.82	15.44
K-113	Top of the World Dr	0.17	0.26	0.43	3.79	5.85	9.64
K-113	High Plains Ranch	0.12	0.17	0.29	2.80	3.72	6.52
K-113	Eagle Ridge Rd	0.15	0.19	0.34	3.31	4.35	7.66
US 24	K-113	0.58	0.69	1.27	12.50	14.58	27.08
US 24	K-13	0.84	0.90	1.73	18.06	19.01	37.06
Southwind Rd	Southwind Pl	0.17	0.30	0.47	3.95	6.25	10.20
Southwind Rd	Frontage Rd	0.11	0.15	0.26	2.53	3.17	5.71
Amherst Ave	Research Dr	0.14	0.19	0.33	3.09	3.68	6.77
Amherst Ave	Frontage Rd	0.18	0.26	0.44	4.22	5.30	9.52
Amherst Ave	Plymate Ln/Farm Bureau Rd	0.11	0.12	0.24	2.63	2.58	5.21
Anderson Ave	Wreath Ave	0.73	1.23	1.95	14.77	24.10	38.87
Anderson Ave	Waters St	0.26	0.42	0.68	5.62	8.20	13.82
Anderson Ave	Garden Way	0.68	1.92	2.60	15.00	37.86	52.86
Claflin Rd	Wreath Ave	0.69	1.24	1.93	15.65	25.01	40.66
Claflin Rd	Nichols St	0.18	0.26	0.44	4.14	5.23	9.37
Claflin Rd	Waters St	0.16	0.19	0.35	3.57	3.93	7.50
Claflin Rd	Brighton Rd	0.08	0.11	0.19	1.75	2.15	3.90
Claflin Rd	Cambridge Pl	0.01	0.01	0.02	0.18	0.25	0.42
Claflin Rd	Beechwood Terr	0.74	2.39	3.13	16.51	50.24	66.75
Claflin Rd	Browning Ave	1.40	2.64	4.04	32.31	56.17	88.48
Kimball Ave	Candlewood Ln	0.39	0.69	1.09	9.49	15.62	25.11
Kimball Ave	Seaton Ave	0.41	0.53	0.94	10.18	12.47	22.65
Kimball Ave	Indiana Ln	0.31	0.30	0.60	7.67	7.02	14.69
Kimball Ave	Shirley Ln	0.18	0.45	0.64	4.53	10.39	14.92
Kimball Ave	Vermont St	0.31	0.30	0.60	7.67	7.02	14.69
Kimball Ave	North Pointe Dr	0.26	0.42	0.69	6.61	9.90	16.51
Kimball Ave	Browning Ave	0.39	1.05	1.44	9.48	23.94	33.43
Gary Ave	Candlewood Dr	0.16	0.45	0.60	3.57	9.11	12.68
Gary Ave	Meadowood Dr	0.07	0.10	0.17	1.62	1.99	3.61
Gary Ave	Terry Way	0.03	0.04	0.07	0.92	1.24	2.16
Gary Ave	Cheryl Terr	0.03	0.05	0.08	0.88	1.51	2.39
Gary Ave	Seaton Ave	0.05	0.05	0.10	1.69	1.49	3.17
Marlatt Ave	Prairie Star Dr	0.01	0.02	0.02	0.68	1.15	1.83
Marlatt Ave	Tatarrax Dr (west jct)	0.08	0.11	0.19	2.42	3.20	5.62
Marlatt Ave	Glenns Dr	0.03	0.05	0.09	1.03	1.44	2.47
Marlatt Ave	Tatarrax Dr (east jct)	0.13	0.11	0.24	3.89	3.40	7.28
Marlatt Ave	Browning Ave	0.17	0.34	0.51	5.20	10.06	15.26
	TOTALS	19.39	36.99	56.39	454.51	805.70	1260.21

Note: FI = Fatal and injury; PDO = Property damage only

TABLE B19 | HSM ANALYSIS FOR RAMPS IN THE STUDY CORRIDOR (2012 - 2015)

Ramp	From	To	Predicted crashes from HSM (2012-2015)			Observed crashes (2012-2015)			Long-term expected annual average crash frequency (2012-2015)		
			FI	PDO	Total	Multiple-vehicle	Single-vehicle	TOTAL	FI	PDO	Total
K-113 NB off-ramp	K-113	Anderson Ave	0.5	0.6	1.0	0	0	0	0.09	0.11	0.20
K-113 NB on-ramp	Anderson Ave	K-113	0.3	0.4	0.7	1	0	1	0.07	0.10	0.17
K-113 SB off-ramp	K-113	Anderson Ave	0.3	0.4	0.7	0	0	0	0.06	0.07	0.14
K-113 SB on-ramp	Anderson Ave	K-113	0.4	0.5	0.9	0	0	0	0.08	0.11	0.18
K-113 NB off-ramp	K-113	Kimball Ave	0.4	0.5	1.0	0	0	0	0.09	0.11	0.20
K-113 NB on-ramp	Kimball Ave	K-113	0.2	0.3	0.5	0	0	0	0.05	0.07	0.12
K-113 SB off-ramp	K-113	Kimball Ave	0.2	0.2	0.4	0	0	0	0.04	0.05	0.08
K-113 SB on-ramp	Wreath Ave (south of Kimball Ave)	K-113	0.3	0.4	0.6	2	0	2	0.05	0.09	0.14
		TOTALS	2.5	3.3	5.8	3	0	3	0.53	0.70	1.23

NOTE: FI = Fatal and injury; PDO = Property damage only

TABLE B20 | HSM FORECAST OF FUTURE CRASH FREQUENCIES ON RAMP (2020 - 2039)

Ramp	From	To	Expected average annual crash frequency (1/1/2012-12/31/2015)			Expected 20-yr total crash frequency (1/1/2020-12/31/2039)		
			FI	PDO	Total	FI	PDO	Total
K-113 NB off-ramp	K-113	Anderson Ave	0.09	0.11	0.20	2.59	3.30	5.89
K-113 NB on-ramp	Anderson Ave	K-113	0.07	0.10	0.17	1.76	2.50	4.26
K-113 SB off-ramp	K-113	Anderson Ave	0.06	0.07	0.14	1.83	2.11	3.94
K-113 SB on-ramp	Anderson Ave	K-113	0.08	0.11	0.18	2.17	2.97	5.14
K-113 NB off-ramp	K-113	Kimball Ave	0.09	0.11	0.20	2.41	3.13	5.54
K-113 NB on-ramp	Kimball Ave	K-113	0.05	0.07	0.12	1.32	1.67	2.99
K-113 SB off-ramp	K-113	Kimball Ave	0.04	0.05	0.08	1.11	1.40	2.51
K-113 SB on-ramp	Wreath Ave (south of Kimball Ave)	K-113	0.05	0.09	0.14	1.43	2.21	3.64
		TOTALS	0.53	0.70	1.23	14.62	19.29	33.91

Note: FI = Fatal and injury; PDO = Property damage only

TABLE B21 | OBSERVED CRASH FREQUENCIES BY CRASH TYPE WITHIN STUDY AREA FOR 2012-2015

Location Type	SINGLE-VEHICLE CRASHES								Total SV
	Pedestrian	Parked Vehicle	Pedalcycle	Animal	Fixed Object	Other Object	Overturned	Other Noncollision	
Roadway Segment	0	0	0	25	8	1	1	4	39
Intersections	2	0	4	3	3	1	3	5	21
Ramps	0	0	0	0	0	0	0	0	0
Ramp Terminals	1	0	1	0	1	0	0	1	4
Total	**3**	**0**	**5**	**28**	**12**	**2**	**4**	**10**	**64**

Location Type	MULTIPLE-VEHICLE CRASHES							TOTAL
	Head-on	Rear-end	Angle	Sideswipe same direction	Sideswipe opposite direction	Other MV	Total MV	
Roadway Segment	2	19	35	10	2	2	70	109
Intersections	10	66	104	10	9	4	203	224
Ramps	0	2	0	1	0	0	3	3
Ramp Terminals	0	39	22	1	1	0	63	67
Total	**12**	**126**	**161**	**22**	**12**	**6**	**339**	**403**

TABLE B22 | CRASH RATES BY LOCATION TYPE FOR ENTIRE STUDY AREA SUBDIVIDED BY CRASH SEVERITY

Location Type	NUMBER OF CRASHES (2012-2015)				LENGTH (mi)	NUMBER OF CRASHES (2012-2015)			
	Fatal	Injury	PDO	Total		Fatal	Injury	PDO	Total
Roadway Segment	0	19	90	109	9.759	0.00	0.49	2.31	2.79
Ramps	0	1	2	3	1.465	0.00	0.17	0.34	0.51
					Intersections	**Crash Rate (per intersection per year)**			
Intersections	2	77	145	224	45	0.01	0.43	0.81	1.24
Ramp Terminals	0	18	49	67	5	0.00	0.90	2.45	3.35

Location Type	Exposure (100 MVMT)	CRASH RATE (PER 100 MVMT)			
		Fatal	Injury	PDO	Total
Roadway Segment	1.321	0.00	14.39	68.14	82.53
Ramps	0.061	0.00	16.48	32.95	49.43
	Exposure (100 MEV)	**Crash Rate (per 100 MEV)**			
Intersections	7.975	0.25	9.66	18.18	28.09
Ramp Terminals	1.502	0.00	11.98	32.62	44.60

TABLE B23 | EXPECTED 20-YR CRASH FREQUENCY (2020-2039) FOR NO-BUILD AND PREFERRED ALTERNATIVES

Options	NO-BUILD ALTERNATIVE: EXPECTED 20-YR TOTAL CRASH FREQUENCY (1/1/2020-12/31/2039)			PREFERRED ALTERNATIVE: EXPECTED 20-YR TOTAL CRASH FREQUENCY (1/1/2020-12/31/2039)		
	FI	PDO	Total	FI	PDO	Total
K-113/Marlatt Signal; Anderson/Wreath Signal	661.0	1349.0	2010.0	470.2	1044.1	1514.3
K-113/Marlatt Roundabout; Anderson/Wreath Signal	661.0	1349.0	2010.0	467.9	1045.4	1513.3
K-113/Marlatt Signal; Anderson/Wreath Roundabout	661.0	1349.0	2010.0	455.4	1020.0	1475.4
K-113/Marlatt Roundabout; Anderson/Wreath Roundabout	661.0	1349.0	2010.0	453.1	1021.3	1474.4

TABLE B24 | EXPECTED 20-YR CRASH REDUCTION (2020-2039)

Options	NUMBER OF CRASHES REDUCED: EXPECTED 20-YR TOTAL CRASH FREQUENCY REDUCTION (1/1/2020-12/31/2039)			PERCENTAGE OF CRASHES REDUCED: EXPECTED 20-YR TOTAL PERCENTAGE CRASH REDUCTION (1/1/2020-12/31/2039)		
	FI	PDO	Total	FI	PDO	Total
K-113/Marlatt Signal; Anderson/Wreath Signal	190.8	304.8	495.7	28.9	22.6	24.7
K-113/Marlatt Roundabout; Anderson/Wreath Signal	193.1	303.6	496.7	29.2	22.5	24.7
K-113/Marlatt Signal; Anderson/Wreath Roundabout	205.6	328.9	534.5	31.1	24.4	26.6
K-113/Marlatt Roundabout; Anderson/Wreath Roundabout	207.9	327.7	535.6	31.5	24.3	26.6

Safety Analysis

TABLE B25 | SEGMENT A - PARTS 1 AND 2

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			ALTERNATIVE #1 Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Part 1 - Seth Child Road from immediately north of Marlatt Avenue to immediately south of US-24				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Roadway segment	Seth Child Road	Marlatt Ave	Top of the World Dr	8.7	18.5	27.2	8.7	18.5	27.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Top of the World Dr		3.8	5.8	9.6	3.8	5.8	9.6	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	Top of the World Dr	High Plains Ranch	2.8	5.5	8.3	2.8	5.5	8.3	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	High Plains Ranch		2.8	3.7	6.5	2.8	3.7	6.5	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	High Plains Ranch	Eagle Ridge Rd	1.9	4.4	6.3	1.9	4.4	6.3	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Eagle Ridge Rd		3.3	4.4	7.7	3.3	4.4	7.7	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	Eagle Ridge Rd	US 24	8.7	18.2	26.9	8.7	18.2	26.9	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
TOTALS -- Segment A Part 1				**32.0**	**60.5**	**92.5**	**32.0**	**60.5**	**92.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	
Part 2 - US-24 at Seth Child Road and K-13																
Intersection	US 24	Seth Child Road		12.5	14.6	27.1	2.3	12.9	15.2	10.3	1.7	11.9	82.0	11.5	44.0	Convert to Roundabout with WB Bypass Lane*
Intersection	US 24	K-13		18.1	19.0	37.1	3.3	17.5	20.8	14.8	1.5	16.3	82.0	7.8	44.0	Convert to Roundabout
TOTALS -- Segment A Part 2				**30.6**	**33.6**	**64.2**	**5.5**	**30.4**	**36.0**	**25.1**	**3.2**	**28.2**	**82.0**	**9.4**	**44.0**	
													***no explicit safety effectiveness measure available for bypass lane**			

TABLE B26 | SEGMENT B - PART 1 WITH SIGNAL AT MARLATT

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Part 1 - Seth Child Road				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Roadway segment	Seth Child Road	Wildcat Creek bridge	South ramp terminals at Anderson Ave	5.5	8.4	13.9	3.4	5.8	9.2	2.1	2.6	4.7	38.0	31.0	33.8	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	South ramp terminals at Anderson Ave	Future Anderson Ave intersections	2.5	8.3	10.8	1.6	5.7	7.3	1.0	2.6	3.5	38.0	31.0	32.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	Future Anderson Ave intersection	North ramp terminals at Anderson Ave	2.2	7.6	9.8	1.4	5.2	6.6	0.8	2.4	3.2	38.0	31.0	32.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	North ramp terminals at Anderson Ave	Claflin Road	0.7	0.9	1.6	0.4	0.6	1.1	0.3	0.3	0.5	38.0	31.0	34.1	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Claflin Rd		41.7	93.5	135.2	41.7	93.5	135.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	Claflin Rd	Dickens Ave	2.3	10.0	12.3	1.4	6.9	8.3	0.9	3.1	4.0	38.0	31.0	32.3	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Dickens Ave		17.3	12.8	30.1	17.3	12.8	30.1	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	Seth Child Road	Dickens Ave	South ramp terminals at Kimball Ave	1.8	1.7	3.5	1.1	1.2	2.3	0.7	0.5	1.2	38.0	31.0	34.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	South ramp terminals at Kimball Ave	Future Kimball Ave intersections	0.9	2.4	3.3	0.6	1.7	2.2	0.3	0.7	1.1	38.0	31.0	32.9	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	Future Kimball Ave intersection	North ramp terminals at Kimball Ave	1.2	3.0	4.2	1.2	3.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	North ramp terminals at Kimball Ave	Gary Ave	1.5	1.5	3.0	1.5	1.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Gary Ave		16.0	14.9	30.9	16.0	14.9	30.9	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	Seth Child Road	Gary Ave	Leadership Ln	2.6	13.2	15.8	2.6	13.2	15.8	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Leadership Ln		6.5	7.8	14.3	6.5	7.8	14.3	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	Seth Child Road	Leadership Ln	Marlatt Ave	5.5	20.6	26.1	5.5	20.6	26.1	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Marlatt		6.6	8.8	15.4	3.5	6.2	9.7	3.1	2.6	5.7	46.9	30.0	37.2	Convert to 4-leg signalized intersection
			TOTALS - Segment B Part 1	**114.8**	**215.4**	**330.2**	**105.7**	**200.6**	**306.2**	**9.1**	**14.8**	**24.0**	**8.0**	**6.9**	**7.3**	

TABLE B27 | SEGMENT B - PART 1 WITH ROUNDABOUT AT MARLATT

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Part 1 - Seth Child Road				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Roadway segment	Seth Child Road	Wildcat Creek bridge	South ramp terminals at Anderson Ave	5.5	8.4	13.9	3.4	5.8	9.2	2.1	2.6	4.7	38.0	31.0	33.8	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	South ramp terminals at Anderson Ave	Future Anderson Ave intersections	2.5	8.3	10.8	1.6	5.7	7.3	1.0	2.6	3.5	38.0	31.0	32.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	Future Anderson Ave intersection	North ramp terminals at Anderson Ave	2.2	7.6	9.8	1.4	5.2	6.6	0.8	2.4	3.2	38.0	31.0	32.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	North ramp terminals at Anderson Ave	Claflin Road	0.7	0.9	1.6	0.4	0.6	1.1	0.3	0.3	0.5	38.0	31.0	34.1	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Claflin Rd		41.7	93.5	135.2	41.7	93.5	135.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	Claflin Rd	Dickens Ave	2.3	10.0	12.3	1.4	6.9	8.3	0.9	3.1	4.0	38.0	31.0	32.3	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Dickens Ave		17.3	12.8	30.1	17.3	12.8	30.1	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	K--113	Dickens Ave	South ramp terminals at Kimball Ave	1.8	1.7	3.5	1.1	1.2	2.3	0.7	0.5	1.2	38.0	31.0	34.6	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	South ramp terminals at Kimball Ave	Future Kimball Ave intersections	0.9	2.4	3.3	0.6	1.7	2.2	0.3	0.7	1.1	38.0	31.0	32.9	Convert to 6D arterial with 20-ft median
Roadway segment	Seth Child Road	Future Kimball Ave intersection	North ramp terminals at Kimball Ave	1.2	3.0	4.2	1.2	3.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Seth Child Road	North ramp terminals at Kimball Ave	Gary Ave	1.5	1.5	3.0	1.5	1.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Gary Ave		16.0	14.9	30.9	16.0	14.9	30.9	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	Seth Child Road	Gary Ave	Leadership Ln	2.6	13.2	15.8	2.6	13.2	15.8	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Leadership Ln		6.5	7.8	14.3	6.5	7.8	14.3	0.0	0.0	0.0	0.0	0.0	0.0	Remove side street left turns*
Roadway segment	Seth Child Road	Leadership Ln	Marlatt Ave	5.5	20.6	26.1	5.5	20.6	26.1	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Seth Child Road	Marlatt		6.6	8.8	15.4	1.2	7.4	8.6	5.4	1.4	6.8	82.0	15.6	44.1	Convert to roundabout
			TOTALS - Segment B Part 1	**114.8**	**215.4**	**330.2**	**103.3**	**201.8**	**305.2**	**11.5**	**13.6**	**25.0**	**10.0**	**6.3**	**7.6**	

* no effectiveness measure is available for removing side street left turns

TABLE B 28 | SEGMENT B - PARTS 2 AND 3

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Part 2 - Anderson Avenue interchange				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Ramp	NB off ramp	Seth Child Road	Anderson Ave east ramp terminal	2.6	3.3	5.9	0.0	0.0	0.0	2.6	3.3	5.9	100.0	100.0	100.0	Remove
Ramp	SB on ramp	Anderson Ave west ramp terminal	Seth Child Road	2.2	3.0	5.2	0.0	0.0	0.0	2.2	3.0	5.2	100.0	100.0	100.0	Remove
Ramp	NB on ramp	Anderson Ave east ramp terminal	Seth Child Road	2.6	3.3	5.9	0.0	0.0	0.0	2.6	3.3	5.9	100.0	100.0	100.0	Remove
Ramp	SB off ramp	Seth Child Road	Anderson Ave west ramp terminal	1.8	2.1	3.9	0.0	0.0	0.0	1.8	2.1	3.9	100.0	100.0	100.0	Remove
Intersection	Future Anderson Ave intersection			0.0	0.0	0.0	33.8	61.5	95.3	-33.8	-61.5	-95.3				Add 4-leg signalized intersection
Ramp	Extended portion of NB on ramp			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Ramp	Extended portion of SB on ramp			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Ramp terminal	Anderson Ave east ramp terminal			56.2	74.9	131.1	0.0	0.0	0.0	56.2	74.9	131.1	100.0	100.0	100.0	Remove
Ramp terminal	Anderson Ave west ramp terminal			56.6	75.1	131.7	0.0	0.0	0.0	56.6	75.1	131.7	100.0	100.0	100.0	Remove
Roadway segment	Anderson Ave	Anderson Ave west ramp terminal	Future Anderson Ave intersection	0.3	9.4	9.7	0.3	9.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Anderson Ave	Future Anderson Ave intersection	Anderson Ave east ramp terminal	0.3	8.3	8.6	0.3	8.3	8.6	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
TOTALS - Segment B Part 2				**114.8**	**215.4**	**330.2**	**103.3**	**201.8**	**305.2**	**11.5**	**13.6**	**25.0**	**10.0**	**6.3**	**7.6**	
Part 3 - Kimball Avenue interchange																
Ramp	NB off ramp	Seth Child Road	Kimball Ave east ramp terminal	2.4	3.1	5.5	0.0	0.0	0.0	2.4	3.1	5.5	100.0	100.0	100.0	Remove
Ramp	SB on ramp	Wreath Ave	Seth Child Road	1.4	2.2	3.6	0.0	0.0	0.0	1.4	2.2	3.6	100.0	100.0	100.0	Remove
Ramp	NB on ramp	Kimball Ave east ramp terminal	Seth Child Road	1.3	1.7	3.0	0.0	0.0	0.0	1.3	1.7	3.0	100.0	100.0	100.0	Remove
Ramp	SB off ramp	Seth Child Road	Kimball Ave west ramp terminal	1.1	1.4	2.5	0.0	0.0	0.0	1.1	1.4	2.5	100.0	100.0	100.0	Remove
Intersection	Future Kimball Ave intersection			0.0	0.0	0.0	28.5	51.7	80.2	-28.5	-51.7	-80.2				Add 4-leg signalized intersection
Ramp terminal	Kimball Ave east ramp terminal			23.5	52.2	75.7	0.0	0.0	0.0	23.5	52.2	75.7	100.0	100.0	100.0	Remove
Ramp terminal	Kimball Ave west ramp terminal			24.0	46.7	70.7	0.0	0.0	0.0	24.0	46.7	70.7	100.0	100.0	100.0	Remove
Ramp terminal	Wreath Ave ramp terminal			5.5	14.0	19.5	0.0	0.0	0.0	5.5	14.0	19.5	100.0	100.0	100.0	Remove
Roadway segment	Wreath Ave	Wreath Ave ramp terminal	Kimball Ave west ramp terminal	0.4	0.9	1.3	0.2	0.5	0.7	0.2	0.4	0.6	52.0	48.0	49.2	Reduce from 4U to 2U
Roadway segment	Kimball Ave	Kimball Ave west ramp terminal	Future Kimball Ave intersection	3.0	2.3	5.3	3.0	2.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Kimball Ave	Future Kimball Ave intersection	Kimball Ave east ramp terminal	2.8	2.2	5.0	2.8	2.2	5.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
TOTALS - Segment B Part 3				**63.0**	**123.6**	**186.6**	**34.5**	**56.7**	**91.2**	**28.5**	**66.9**	**95.4**	**45.3**	**54.2**	**51.1**	

TABLE B29 | SEGMENT B - PART 4

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Part 4 - Claflin Rd				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Intersection	Claflin Rd	Wreath Ave		15.7	25.0	40.7	15.7	25.0	40.7	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Wreath Ave	Nichols St	0.4	1.2	1.6	0.4	1.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Nichols St		4.1	5.2	9.3	4.1	5.2	9.3	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Nichols St	Waters St	0.4	8.0	8.4	0.4	8.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Waters St		3.6	3.9	7.5	3.6	3.9	7.5	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Waters St	Brighton Rd	0.4	1.8	2.2	0.4	1.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Brighton Rd		1.8	2.2	4.0	1.8	2.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Brighton Rd	Seth Child Road	0.2	0.7	0.9	0.2	0.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Seth Child Road	Cambridge Pl	0.8	16.6	17.4	0.8	16.6	17.4	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Cambridge Pl		0.2	0.2	0.4	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Cambridge Pl	Beechwood Terr	0.3	0.7	1.0	0.3	0.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Beechwood Terr		16.5	50.2	66.7	16.5	50.2	66.7	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Claflin Rd	Beechwood Terr	Browning Ave	8.9	54.1	63.0	8.9	54.1	63.0	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Intersection	Claflin Rd	Browning Ave		32.3	56.2	88.5	32.3	56.2	88.5	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
TOTALS - Segment B Part 4				**85.6**	**226.0**	**311.6**	**85.6**	**226.0**	**311.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	

TABLE B30 | SEGMENT C

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Segment 3 - Seth Child Road				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Roadway segment	Seth Child Road	South Project Limit	Southwind Rd	5.4	13.2	18.6	3.4	9.1	12.5	2.1	4.1	6.1	38.0	31.0	33.0	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Southwind Rd		51.8	114.9	166.8	46.8	103.7	150.4	5.1	11.3	16.3	9.8	9.8	9.8	Protected left-turn phases
Roadway segment	Seth Child Road	Southwind Rd	Farm Bureau Rd	1.8	4.9	6.7	1.1	3.4	4.5	0.7	1.5	2.2	38.0	31.0	32.9	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Farm Bureau Rd		21.8	45.5	67.3	19.7	41.0	60.7	2.1	4.5	6.6	9.8	9.8	9.8	Protected left-turn phases
Roadway segment	Seth Child Road	Farm Bureau Rd	Amherst Ave	3.2	24.2	27.4	2.0	16.7	18.7	1.2	7.5	8.7	38.0	31.0	31.8	Convert to 6D arterial with 20-ft median
Intersection	Seth Child Road	Amherst Ave		48.9	104.9	153.8	44.1	94.6	138.7	4.8	10.3	15.1	9.8	9.8	9.8	Protected left-turn phases
Roadway segment	Seth Child Road	Amherst Ave	Wildcat Creek Bridge	10.2	15.5	25.8	6.3	10.7	17.1	3.9	4.8	8.7	38.0	31.0	33.8	Convert to 6D arterial with 20-ft median
			TOTALS - Segment C	**143.1**	**323.2**	**466.3**	**123.3**	**279.3**	**402.5**	**19.8**	**43.9**	**63.8**	**13.9**	**13.6**	**13.7**	

TABLE B31 | SEGMENT D - WREATH SIGNAL

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Anderson Avenue				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Intersection	Anderson Ave	Wreath Ave		14.8	24.1	38.9	14.8	24.1	38.9	0.0	0.0	0.0	0.0	0.0	0.0	Unchanged
Roadway segment	Anderson Ave	Wreath Avenue	Waters St	2.4	52.1	54.5	0.93	20.3	21.2	1.4	31.8	33.2	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Waters St		5.6	8.2	13.8	3.99	5.82	9.8	1.6	2.4	4.0	29.0	29.0	29.0	No left turns because of median
Roadway segment	Anderson Ave	Waters St	Seth Child Road west ramp terminal	11.5	57.0	68.5	4.48	22.2	26.7	7.0	34.8	41.8	61.0	61.0	61.0	Convert to 4D - 4-ft median
Roadway segment	Anderson Ave	Seth Child Road east ramp terminal	Garden Way	2.5	3.1	5.7	0.98	1.2	2.2	1.5	1.9	3.5	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Garden Way		15.0	27.2	42.2	10.65	19.31	30.0	4.4	7.9	12.2	29.0	29.0	29.0	No left turns because of median
Roadway segment	Anderson Ave	Garden Way	Westloop Pl	5.0	0.9	5.9	1.95	0.4	2.3	3.1	0.5	3.6	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Westloop Pl		12.5	14.6	27.1	11.5	18.1	29.6	1.0	-3.5	-2.5	8.0	-24.0	-9.2	Convert to signal
			TOTALS - Segment D	**69.3**	**187.3**	**256.6**	**49.3**	**111.5**	**160.7**	**20.0**	**75.8**	**95.8**	**28.9**	**40.5**	**37.4**	

TABLE B32 | SEGMENT D - WREATH ROUNDABOUT

FEATURE TYPE	ROADWAY	FROM/AT	TO	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)			
Anderson Avenue				FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	PLANNED CHANGE
Intersection	Anderson Ave	Wreath Ave		14.8	24.1	38.9	0.0	0.0	0.0	14.8	24.1	38.9	100.0	100.0	100.0	Convert to roundabout
Roadway segment	Anderson Ave	Wreath Avenue	Waters St	2.4	52.1	54.5	0.93	20.3	21.2	1.4	31.8	33.2	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Waters St		5.6	8.2	13.8	3.99	5.82	9.8	1.6	2.4	4.0	29.0	29.0	29.0	No left turns because of median
Roadway segment	Anderson Ave	Waters St	Seth Child Road west ramp terminal	11.5	57.0	68.5	4.48	22.2	26.7	7.0	34.8	41.8	61.0	61.0	61.0	Convert to 4D - 4-ft median
Roadway segment	Anderson Ave	Seth Child Road east ramp terminal	Garden Way	2.5	3.1	5.7	0.98	1.2	2.2	1.5	1.9	3.5	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Garden Way		15.0	27.2	42.2	10.65	19.31	30.0	4.4	7.9	12.2	29.0	29.0	29.0	No left turns because of median
Roadway segment	Anderson Ave	Garden Way	Westloop Pl	5.0	0.9	5.9	1.95	0.4	2.3	3.1	0.5	3.6	61.0	61.0	61.0	Convert to 4D - 4-ft median
Intersection	Anderson Ave	Westloop Pl		12.5	14.6	27.1	11.5	18.1	29.6	1.0	-3.5	-2.5	8.0	-24.0	-9.2	Convert to signal
			TOTALS - Segment D	**69.3**	**187.3**	**256.6**	**34.5**	**87.4**	**121.9**	**34.8**	**99.9**	**134.7**	**50.2**	**53.3**	**52.5**	

TABLE B33 | PROJECT TOTALS

	NO-BUILD ALTERNATIVE Expected 20-year total crash frequency (1/1/2020-12/3/2039)			PREFERRED ALTERNATIVE Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			NUMBER OF CRASHES REDUCED Expected 20-year total crash frequency reduction (1/1/2020-12/31/2039)			PERCENTAGE OF CRASH REDUCED Expected 20-year total percentage crash reduction (1/1/2020-12/3/2039)		
	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total	FI	PDO	Total
Preferred Alternative Totals: Marlatt Signal, Wreath Signal	661.0	1349.0	2010.0	470.2	1044.1	1514.3	190.8	304.8	495.7	28.9	22.6	24.7
Preferred Alternative Totals: Marlatt Roundabout, Wreath Signal	661.0	1349.0	2010.0	467.9	1045.4	1513.3	193.1	303.6	496.7	29.2	22.5	24.7
Preferred Alternative Totals: Marlatt Signal, Wreath Roundabout	661.0	1349.0	2010.0	455.4	1020.0	1475.4	205.6	328.9	534.5	31.1	24.4	26.6
Preferred Alternative Totals: Marlatt Roundabout, Wreath Roundabout	661.0	1349.0	2010.0	453.1	1021.3	1474.4	207.9	327.7	535.6	31.5	24.3	26.6

PEDESTRIAN AND CYCLING CONNECTIVITY ANALYSIS

Background and Purpose

GCA, Inc. was tasked with identifying existing and proposed conditions for pedestrians and non-motorized cyclists along the Seth Child Road Corridor, extending from Southwind Road to the Manhattan city limits, north of Gary Avenue. The evaluation of the facilities for pedestrians and cyclists was completed using the Street Audit software and methodologies developed by Transport Research Laboratory (TRL) in the United Kingdom. Two components of Street Audit, consisting of PERS (Pedestrian Environmental Research System) and CERS (Cycling Environmental Research System) were used to evaluate the pedestrian and the cycling facilities using the parameters that are further defined in more detail. Appendix C shows the parameters and criteria used for the evaluation.

The purpose of the Street Audit evaluation is to document the pedestrians and cycling facilities along the Seth Child Road Corridor for both the existing conditions and for the Preferred Alternative conditions. The overall objectives of the PERS and CERS assessments are to:

- Conduct an on-site audit of the existing pedestrian and cycling facilities within the study area.
- Conduct a review of proposed pedestrian and cycling facility improvements developed for the study area.
- Prepare a summary report documenting the findings, including a comparison, of the existing conditions and preferred alternative.

Study Area

Exhibit C.1 identifies the Seth Child Road Corridor by links and routes. Links are the north-south roadway segments along Seth Child Road and routes are the east-west cross streets throughout the study corridor. Eight links were identified for evaluation between Southwind Road and the Manhattan city limits. Eight cross streets or routes were identified for evaluation as noted below from north to south.

- Gary Avenue (Candlewood Drive to Terry Way)
- Kimball Avenue (Candlewood Drive to Browning Ave)
- Dickens Avenue (Wreath Avenue to Browning Avenue)
- Claflin Road (Wreath Avenue to Beechwood Terrace)
- Anderson Avenue (Wreath Avenue to Garden Way)
- Amherst Avenue (Research Drive to Linear Trail)
- Farm Bureau Road (Seth Child Road to Linear Trail)
- Southwind Avenue (Southwind Road and Frontage Road)

For purposes of the evaluation, the study links were labeled N1 to N8 to represent the northbound direction and the links for the southbound direction are labeled S1 to S8, shown in Exhibit C.1

EXHIBIT C.1 | SETH CHILD ROAD CORRIDOR PEDESTRIAN EVALUATION AREA

APPENDIX C PEDESTRIAN & BICYCLE

Street Audit - PERS Audit Methodology

PERS street audit methodology combines on-street assessments, conducted by trained auditors, with a software data analysis and graphical tool for presenting results. The PERS methodology provides a holistic and cost-effective way for reviewing all types of pedestrian space and identifying locations where improvements should be considered. A PERS review is based upon the following two key principles:

- The quality of the pedestrian environment may be evaluated according to the degree to which the pedestrian needs are met.
- In evaluating the degree to which pedestrians' needs are met by the environment, the objective should be to satisfy as many people as possible, with the 'standard' pedestrian being considered towards the vulnerable end of the spectrum, such as pedestrians with mobility problems or sensory impairments.

More specifically, a PERS audit identifies various components making up the pedestrian environment, including:

- Links – sections of sidewalks and paths;
- Routes - A way that links a trip origin and a trip destination, for example from a residential area to a work and shopping location.

Auditors assessed and graded components within the pedestrian environment within each component type based on a standardized, evidence-based methodology. During the audit, the components were individually scored against a range of parameters using an approved review form. The auditor evaluated the separate components of each designated parameter with comments as needed. Parameters were scored from -3 to +3, where +3 is the highest score and -3 is the lowest. For a parameter to score +3, it would need to be exemplary and of a standard to be identified as best practice. A score of 0 represents the average and a score of -3 is used when no facility exists or is in very poor condition. The scores for the parameters were weighted based on a default weighting system. In the default settings, these groups are weighted at 1, 3 and 5 respectively for PERS and 1 through 5 for CERS, with the weighting factor acting as a multiplier. The weighted scores were then totaled to provide an overall weighted score for each pedestrian link and route.

Street Audit - CERS Audit Methodology

CERS is an on-street audit methodology for assessing the cycling environment and facilities in urban areas such as the Seth Child Road Corridor. The methodology guides the auditor through a multitude of urban design considerations that impact cyclists. The auditing is done by traveling along the links and routes in the audit area and conducting an assessment of each component. The CERS audit follows the assessment methodology:

- Links and Routes– sections of cycle lane or road space used by cyclists

Similar to PERS, auditors assessed and graded components within the cycling environment within each component type based on a standardized, evidence-based methodology. During the audit, the components were individually scored against a range of parameters using the scoring system described earlier. The scores for each parameter were weighted and then totaled to provide an overall weighted score for each cycling link and route.

Evaluation Results

Based on the street audit methodologies previously described, the following tables present the results of the PERS and CERS evaluations for the Preferred Alternative links and routes.

PERS Links Evaluation

As described earlier, the audit was conducted from south to north (N1 to N8) in the northbound direction and from north to south (S8 to S1) in the southbound direction. Table C.1 presents the evaluation results for the PERS (pedestrian) links street audit. The overall weighted scores are also shown graphically for each link in Figures C.1 and C.2.

TABLE C.1 | PERS LINKS EVALUATION

Link Id.*	PARAMETERS																		Overall Weighted Score
	Effective Width		Dropped Kerbs (Curb Cuts)		Gradient		Obstructions		Permeability (Accessibility)		Legibility (Wayfinding)		Lighting		User Conflict		Quality of Environment		
Unweighted/ weighted	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Range: -75 to +100
N1	-3	-15	-3	-9	-1	-1	1	6	-2	-6	1	2	1	6	-3	-15	-3	-3	-35
N2	-3	-15	-3	-9	-1	-1	1	6	-2	-6	1	2	1	6	-3	-15	-3	-3	-35
N3	-3	-15	-3	-9	0	1	1	6	-2	-6	1	2	1	6	-3	-15	-3	-3	-33
N4	-3	-15	-3	-9	-2	-2	1	6	-2	-6	1	2	1	6	-3	-15	-3	-3	-36
N5	-3	-15	-3	-9	-1	-1	1	6	-3	-9	1	2	1	6	-3	-15	-3	-3	-38
N6	-3	-15	-3	-9	0	1	1	6	-3	-9	1	2	1	6	-3	-15	-3	-3	-36
N7	-3	-15	-3	-9	-2	-2	1	6	-3	-9	1	2	1	6	-3	-15	-3	-3	-39
N8	-3	-15	-3	-9	-2	-2	1	6	-3	-9	1	2	-3	-9	-3	-15	-3	-3	-54
S8	3	20	3	12	2	3	1	6	-3	-9	1	2	-3	-9	2	15	-1	-1	39
S7	3	20	3	12	1	2	1	6	-3	-9	1	2	1	6	2	15	-1	-1	53
S6	3	20	3	12	1	2	1	6	-3	-9	1	2	1	6	2	15	-1	-1	53
S5	3	20	3	12	1	2	1	6	-3	-9	1	2	1	6	2	15	-1	-1	53
S4	3	20	3	12	1	2	1	6	-2	-6	1	2	1	6	3	15	-1	1	56
S3	3	20	3	12	1	2	1	6	-2	-6	1	2	1	6	2	15	-1	-1	56
S2	3	20	3	12	1	2	1	6	-2	-6	1	2	1	6	2	15	-1	-1	56
S1	3	20	3	12	1	2	1	6	-2	-6	1	2	1	6	2	15	-1	-1	56

* N1 to N8 - South to North; S8 to S1 - North to South

Link limts:

N1 and S1 - Southwind Road to Farm Bureau Rd
N2 and S2 - Farm Bureau Rd to Amhearst Ave
N3 and S3 - Amhearst Ave to Anderson Ave
N4 and S4 - Anderson Ave to Claflin Rd
N5 and S5 - Claflin Rd to Dickens Rd
N6 and S6 - Dickens Rd to Kimball Ave
N7 and S7 - Kimball Ave to Gary Ave
N8 and S8 - Gary Ave to Manhattan City Limits

The overall weighted scores, shown in the Table C.1, for the northbound direction range from – 54 to -33 out of a possible range of -75 to +100 (the possible range is the minimum and maximum total of the weighted score for each parameter). However, the southbound direction, with the proposed multi-use trail range from +39 to +56. Each of the pedestrian links continued to score poorly along the northbound direction mainly due to the absence of pedestrian facilities. All the pedestrian links along the southbound direction scored well due to the improved bike and pedestrian facilities. Individual survey tables are included at the end of this section of the Appendix X.

CERS Links Evaluation

Similar to the PERS evaluation above, the audit was conducted in the same directions and the same study limits. Table C.2 presents the evaluation results for the CERS (cycling) links street audit. The individual link extents are described below in the table. The overall weighted scores for northbound and southbound links are shown graphically in Figures C.3 and C.4.

TABLE C.2 | CERS LINKS EVALUATION

Link Id. *	PARAMETERS																Overall Weighted Score
	Continuity		Legibility (Wayfinding)		Directness		Traffic Proximity/ Mix		Link Conflict Points		Effective Width		Overall Effort		Quality of Environment		
Unweighted /Weighted	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Range: -78 to +78
N1	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-1	-3	-3	-3	-45
N2	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-1	-3	-3	-3	-45
N3	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	0	0	-3	-3	-42
N4	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-2	-6	-3	-3	-48
N5	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-1	-3	-3	-3	-45
N6	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	0	0	-3	-3	-42
N7	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-2	-6	-3	-3	-48
N8	-3	-6	1	3	2	6	-3	-15	-3	-12	-3	-15	-2	-6	-3	-3	-48
S8	3	6	1	3	2	6	3	15	1	4	3	15	2	6	-1	-1	54
S7	3	6	1	3	2	6	3	15	1	4	3	15	2	6	-1	-1	54
S6	3	6	1	3	2	6	3	15	1	4	3	15	0	0	-1	-1	48
S5	3	6	1	3	2	6	3	15	1	4	3	15	1	3	-1	-1	51
S4	3	6	1	3	2	6	3	15	2	8	3	15	2	6	-1	-1	58
S3	3	6	1	3	2	6	3	15	2	8	3	15	0	0	-1	-1	52
S2	3	6	1	3	2	6	3	15	2	8	3	15	1	3	-1	-1	55
S1	3	6	1	3	2	6	3	15	1	4	3	15	1	3	-1	-1	51

* N1 to N8 - South to North; S8 to S1 - North to South

Link limts:

N1 and S1 - Southwind Road to Farm Bureau Rd

N2 and S2 - Farm Bureau Rd to Amhearst Ave

N3 and S3 - Amhearst Ave to Anderson Ave

N4 and S4 - Anderson Ave to Claflin Rd

N5 and S5 - Claflin Rd to Dickens Rd

N6 and S6 - Dickens Rd to Kimball Ave

N7 and S7 - Kimball Ave to Gary Ave

N8 and S8 - Gary Ave to Manhattan City Limits

The overall weighted scores for the northbound direction range from -48 to -42 out of a possible range of -78 to +78, shown in Table C.2 (the possible range is the minimum and maximum total of the weighted score for each parameter). However, the southbound direction, with the proposed multi-use trail range from +48 to +58. Each of the northbound links continued to score poorly due to the absence of bike facilities. All the southbound links scored well due to the improved bike and pedestrian facilities.

PERS Routes Evaluation

Unlike the links that are parallel to the Seth Child Road Corridor, the PERS routes represent the cross streets traversing perpendicularly to the Seth Child Road Corridor. Table C.3 presents the evaluation results for the PERS (pedestrian) routes street audit. Each route (cross street) is identified on the left side of the table with an eastbound (EB) or westbound (WB) designation. The limits of each of the routes are provided below the table. The overall weighted scores are shown graphically for each route in Figures C.5 and C.6. Gary Avenue to Claflin Road and Anderson Avenue to Southwind Road, respectively.

TABLE C.3 | PERS ROUTES EVALUATION

Route Id.		PARAMETERS												Overall Weighted Score
		Directness		Permeability (Accessibility)		Road Safety		Legibility (Wayfinding)		Rest Points		Quality of Environment		
Unweighted/ Weighted	Direction	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Range: -54 to +72
Gary Ave	EB	2	15	-1	-3	-3	-15	-2	-6	-3	-3	-3	-3	-15
	WB	2	15	-1	-3	-3	-15	-2	-6	-3	-3	-3	-3	-15
Kimbal Ave	EB	1	10	-1	-3	-1	-5	1	6	-3	-3	-1	-1	4
	WB	0	5	-1	-3	-1	-5	1	6	-3	-3	-1	-1	-1
Dickens Ave	EB	2	15	-1	-3	-3	-15	-1	-3	-3	-3	-2	-2	-11
	WB	2	15	-1	-3	-3	-15	-1	-3	-3	-3	-2	-2	-11
Claflin Rd	EB	2	15	-1	-3	-2	-10	-1	-3	-3	-3	-1	-1	-5
	WB	2	15	-1	-3	-1	-5	-1	-3	-3	-3	-1	-1	0
Anderson Ave (signal at Wreath Ave)	EB	2	15	-2	-6	0	5	1	6	-3	-3	-1	-1	16
	WB	2	15	-2	-6	0	5	1	6	-3	-3	-1	-1	16
Anderson Ave (rbt at Wreath Ave)	EB	1	10	-2	-6	1	10	1	6	-3	-3	-1	-1	16
	WB	1	10	-2	-6	1	10	1	6	-3	-3	-1	-1	16
Amhearst Ave	EB	1	10	-1	-3	-2	-10	-2	-6	-3	-3	-3	-3	-15
	WB	2	15	-1	-3	-3	-15	-2	-6	-3	-3	-3	-3	-15
Farm Bureau Rd	EB	2	15	-1	-3	-3	-15	-2	-6	-3	-3	-3	-3	-15
	WB	2	15	-1	-3	-2	-10	-2	-6	-3	-3	-3	-3	-10
Southwind Rd	EB	2	15	-1	-3	-3	-15	-2	-6	-3	-3	-3	-3	-15
	WB	2	15	-1	-3	1	10	-2	-6	-3	-3	-1	-1	12

Route Limits:

Gary Ave - between Candlewood Dr and Terry Way

Kimbal Ave - between Candlewood Dr and Browning Ave

Dickens Ave - between Wreath Ave and Browning Ave

Claflin Rd - between Wreath Ave and Beechwood Ter

Anderson Ave - between Wreath Ave and Garden Way

Amhearst Ave - between Research Dr and Linear Trail

Farm Bureau Rd - between K-113 and Linear Trail

Southwind Rd - between Southwind Rd and frontage road

The overall weighted scores for the routes range from -15 to +16 out of a possible range of -54 to +72, shown in Table C.3 (the possible range is the minimum and maximum total of the weighted score for each parameter). Overall, most of the routes continue to score poorly, primarily due to the fact that the routes are unimproved except for some modifications at their intersection with Seth Child Road. Two scenarios were evaluated for Anderson Avenue, one with a traffic signal at Wreath Avenue and with driveways along Anderson Avenue. The other scenario is with a roundabout at Wreath Avenue and with right-in/right-out only driveways along Anderson Avenue. However, it should be noted that any cross road identified be geometric modifications would include pedestrian facilities meeting current design standards..

APPENDIX C PEDESTRIAN & BICYCLE

CERS Routes Evaluation

Similar to the PERS routes described previously, the CERS routes are the cross streets traversing perpendicularly to the Seth Child Road Corridor. Table C.4 summarizes the evaluation results for the CERS routes street audit. The routes are identified on the left side of the table with an eastbound (EB) and westbound (WB) designation and the limits of each of the routes are listed below the table. Appendix items graphically illustrate the overall weighted scores for each route.

TABLE C.4 | CERS ROUTES EVALUATION

Route Id.		PARAMETERS														Overall Weighted Score
		Directness		Permeability/ Junctions (Accessibility/ Intersections)		Identifying Where to Go (Wayfinding)		Road Safety		Rest Points/ Feeling Comfortable		Quality of Environment		Obstructions		
Unweighted/ Weighted	Direction	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Un-Wtd	Wtd	Range: -66 to +66
Gary Ave	EB	-1	-5	-1	-4	0	0	-3	-15	-3	-3	-2	-2	-2	-4	-33
	WB	-1	-5	-1	-4	0	0	-3	-15	-3	-3	-2	-2	-2	-4	-33
Kimbal Ave	EB	2	10	0	0	1	4	-2	-10	-5	-5	-2	-2	2	4	5
	WB	2	10	0	0	1	4	-2	-10	-5	-5	-2	-2	2	4	5
Dickens Ave	EB	-1	-5	-1	-4	0	0	-3	-15	-3	-3	-2	-2	-2	-4	-33
	WB	-1	-5	-1	-4	0	0	-3	-15	-3	-3	-2	-2	-2	-4	-33
Claflin Rd	EB	2	10	-1	-4	1	4	-3	-15	-3	-3	-2	-2	1	2	-8
	WB	2	10	-1	-4	1	4	-3	-15	-3	-3	-2	-2	1	2	-8
Anderson Ave (signal at Wreath Ave)	EB	2	10	2	8	1	4	-2	-10	-3	-3	-2	-2	2	4	11
	WB	2	10	2	8	1	4	-2	-10	-3	-3	-2	-2	2	4	11
Anderson Ave (rot at Wreath Ave)	EB	2	10	1	4	1	4	-2	-10	-3	-3	-2	-2	2	4	7
	WB	2	10	1	4	1	4	-2	-10	-3	-3	-2	-2	2	4	7
Amhcorst Ave	EB	2	10	1	4	1	4	-3	-15	-3	-3	2	-2	1	2	0
	WB	2	10	1	4	1	4	-5	-15	-5	-5	-2	-2	1	2	0
Farm Bureau Rd	EB	2	10	1	4	1	4	-5	-15	-5	-5	-2	-2	1	2	0
	WB	2	10	1	4	1	4	-3	-15	-3	-3	-2	-2	1	2	0
Southwind Rd	FR	2	10	-1	-4	1	4	-3	-15	-3	-3	-2	-2	1	2	-8
	WR	2	10	-1	-4	1	4	-3	-15	-3	-3	-2	-2	1	2	-8

Route Limits:

Gary Ave - between Candlewood Dr and Terry Way

Kimbal Ave - between Candlewood Dr and Browning Ave

Dickens Ave - between Wreath Ave and Browning Ave

Claflin Rd - between Wreath Ave and Beechwood Ter

Anderson Ave - between Wreath Ave and Garden Way

Amhearst Ave - between Research Dr and Linear Trail

Farm Bureau Rd - between K-113 and Linear Trail

Southwind Rd - between Southwind Rd and frontage road

The overall weighted scores range from -33 to +11 out of a possible range of -66 to +66, depicted in Table C.4 (the possible range is the minimum and maximum sum total of the weighted score for each parameter). Overall, the majority of the routes continue to score poorly, primarily due to the fact that the routes are unimproved except for some modifications at their intersection with Seth Child Road (K-113). Two scenarios were evaluated for Anderson Avenue: Scenario 1 with a traffic signal at Wreath Avenue and with R-CUT driveways along Anderson Avenue; and Scenario 2 with a roundabout at Wreath Avenue and with right-in/right-out driveways along Anderson Avenue. However, it should be noted that with each cross street modification, the pedestrian facilities will be improved as part of the roadway improvements.

Conclusions

The Preferred Alternative PERS and CERS assessments identified the following:

- No designated bike or pedestrian facilities are to be provided along Seth Child Road (K-113) in the northbound direction. The conditions for pedestrians and cyclists are expected to remain unchanged along the east side of Seth Child Road. However, the opportunity exists to add sidewalks along both sides of the corridor. This analysis was based with a multi-use path along the west side of the Corridor. For this evaluation, pedestrian facilities were only shown graphically along the west side.
- A designated multi-use trail for bikes and pedestrians is proposed along Seth Child Road in the southbound direction. Safety and the quality of the environment for pedestrians and cyclists is expected to improve significantly along the westside of Seth Child Road.
- The pedestrian facilities would be improved for each of the side road intersections that are proposed to have full access along Seth Child Road. The intersection modifications at Gary Avenue and Dickens Avenue are proposed to be ¾ access intersections. This type of intersection would impact cyclists because they would need to deviate from their route.

PEDESESTRIAN ANALYSIS

K-113 Corridor Study Area

Pedestrian Links (Northbound)

Pedestrian Links (Southbound)

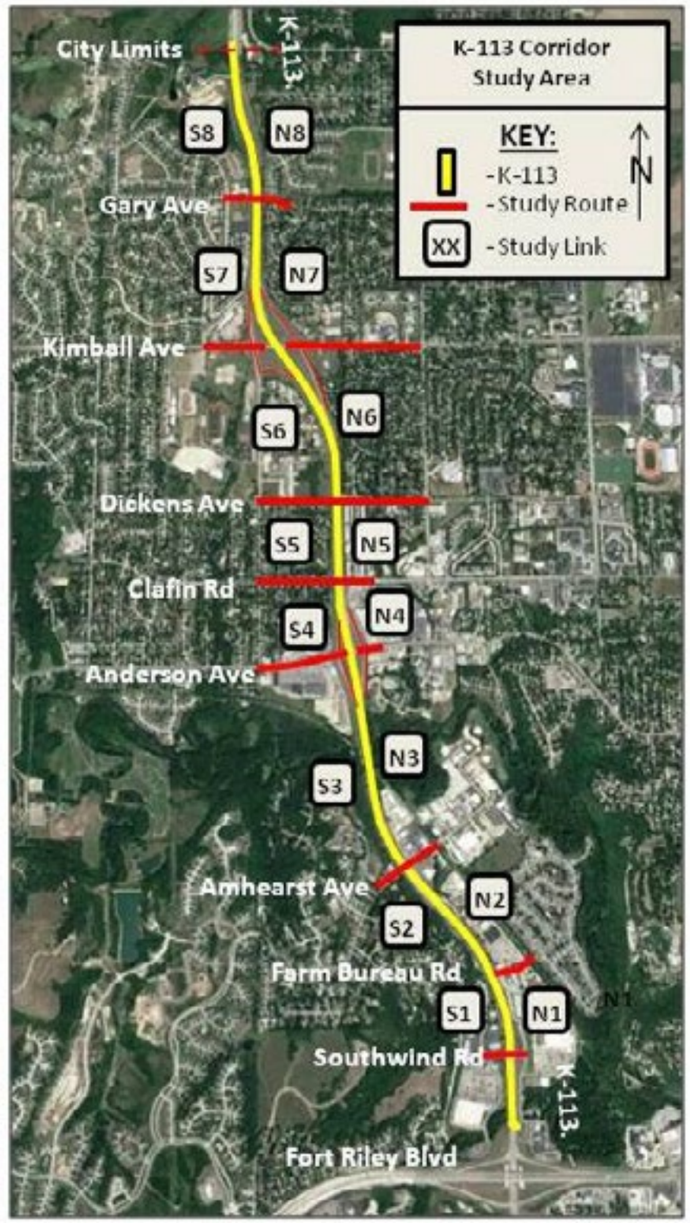
Cycle Links (Northbound)

Cycle Links (Southbound)

Pedestrian Routes

Cycle Routes

K-113 CORRIDOR STUDY AREA



K-113 CORRIDOR STUDY AREA

APPENDIX C PEDESTRIAN & BICYCLE

FIGURE C1 | PERS OVERALL WEIGHTED SCORES BY NORTHBOUND LINKS

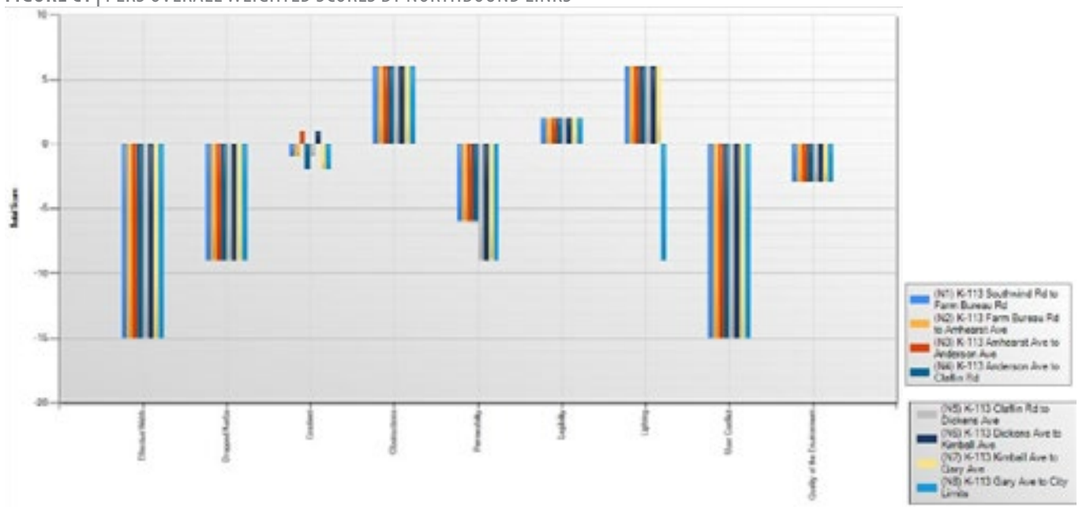


FIGURE C2 | PERS OVERALL WEIGHTED SCORES BY SOUTHBOUND LINKS

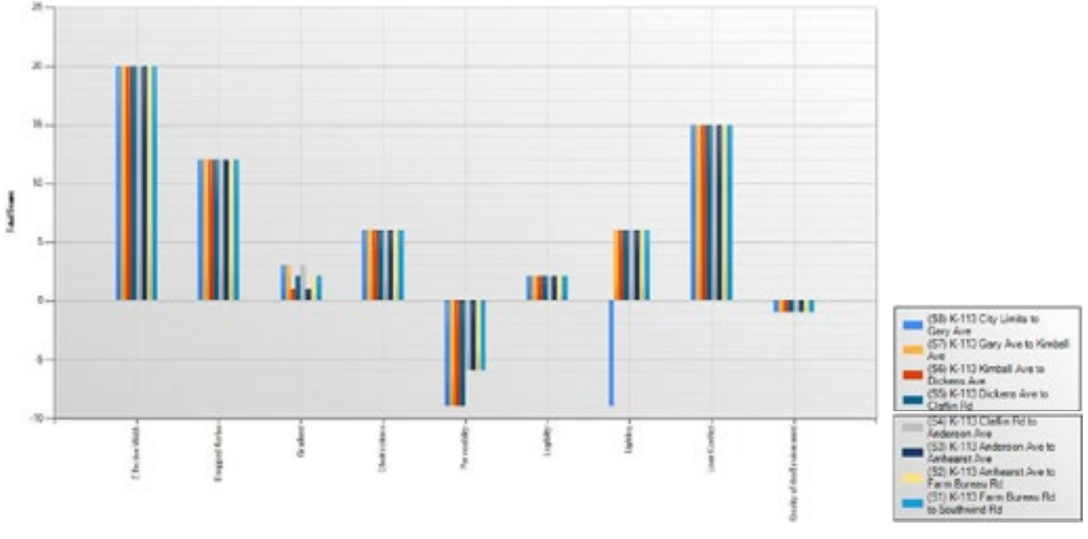


FIGURE C3 | CERS OVERALL WEIGHTED SCORES BY NORTHBOUND LINKS

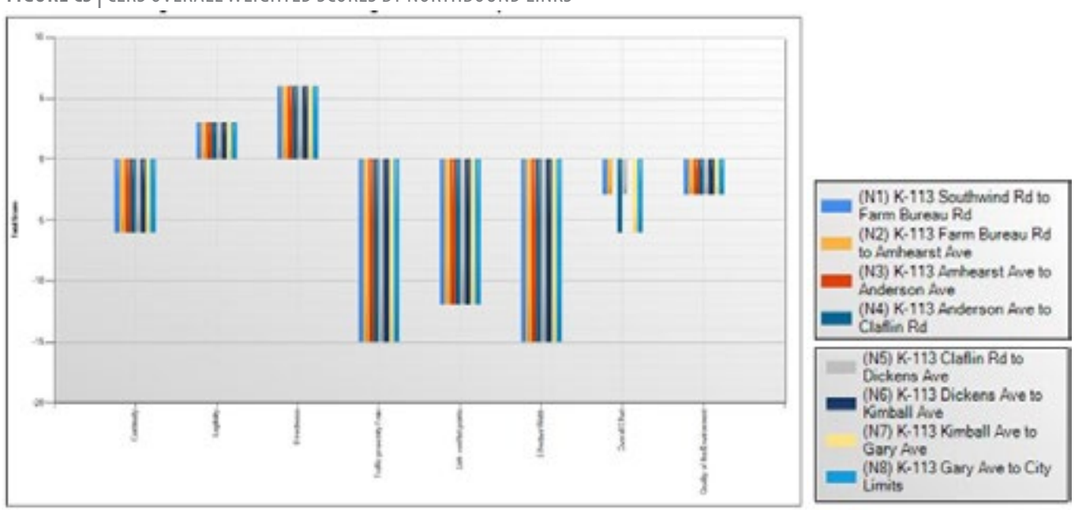


FIGURE C4 | CERS OVERALL WEIGHTED SCORES BY SOUTHBOUND LINKS

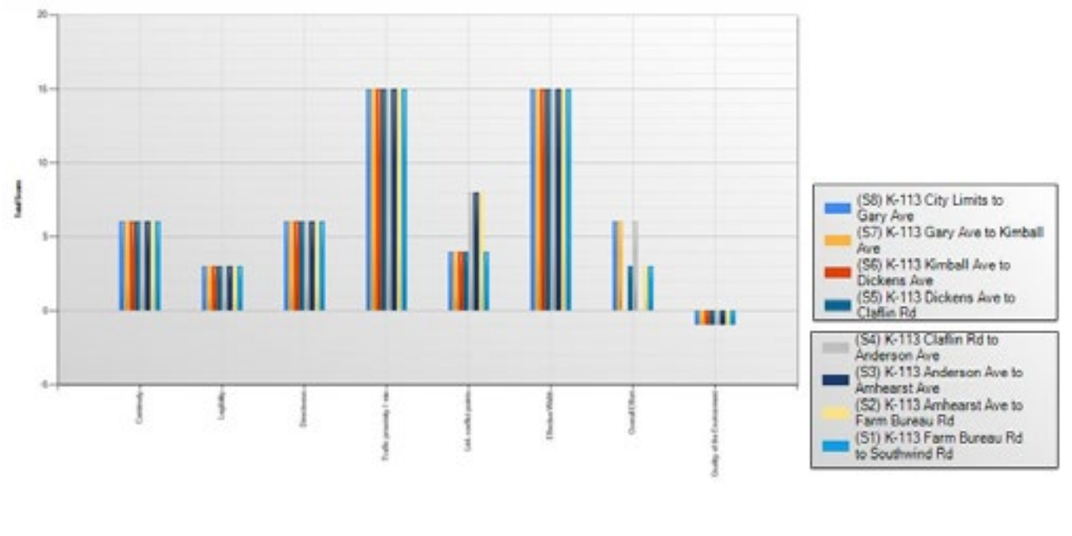


FIGURE C5 | CERS OVERALL WEIGHTED SCORES BY SOUTHBOUND LINKS

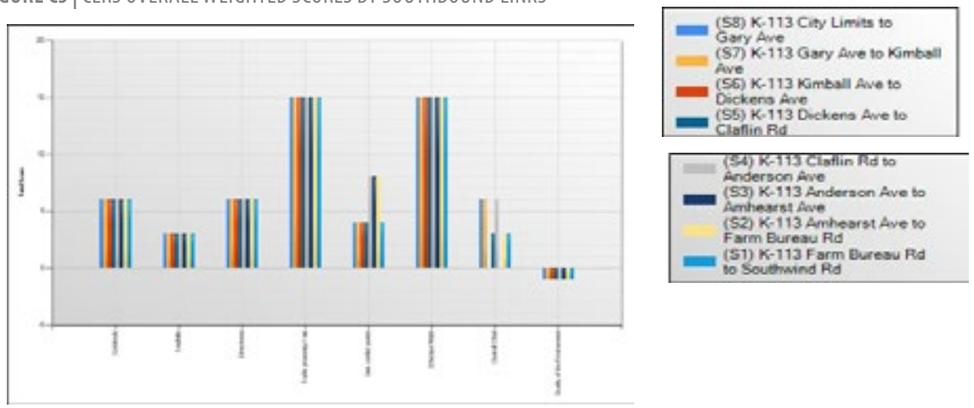


FIGURE C6 | PERS OVERALL WEIGHTED SCORES BY EASTBOUND AND WESTBOUND ROUTES (GRAY AVE. TO CLAFLIN RD.)

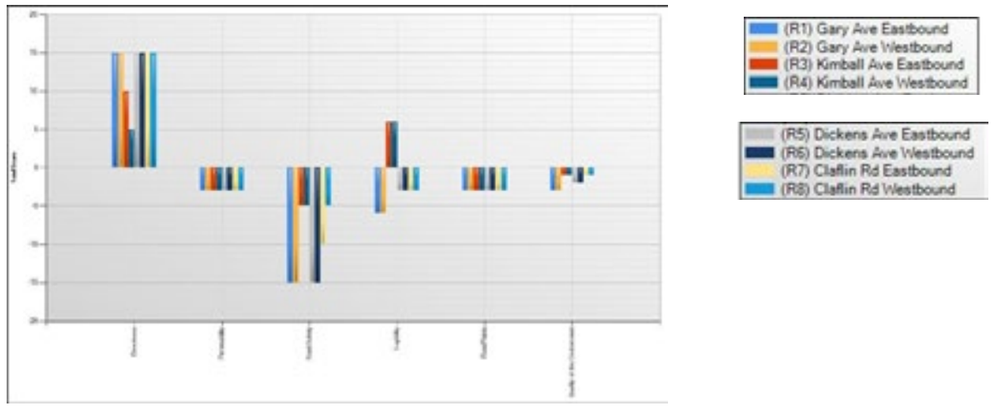


FIGURE C7 | PERS OVERALL WEIGHTED SCORES BY EASTBOUND AND WESTBOUND ROUTES (ANDERSON AVE. TO SOUTHWIND RD)

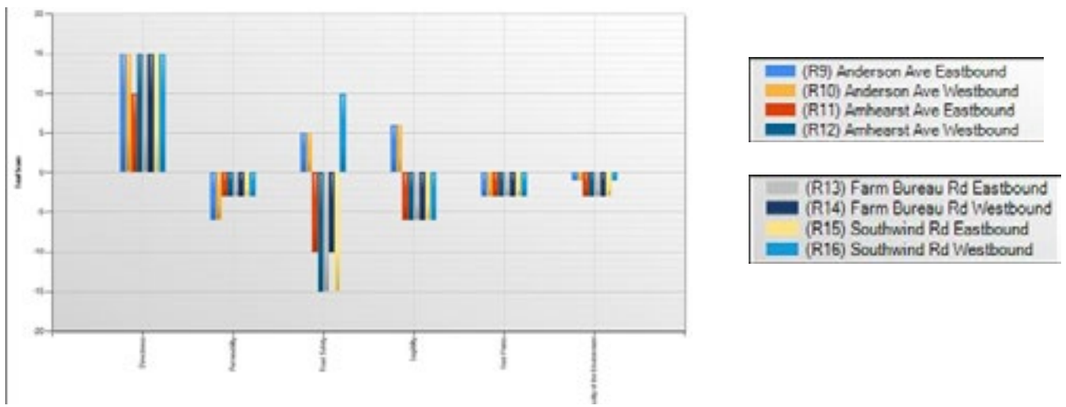


FIGURE C8 | CERS OVERALL WEIGHTED SCORES BY EASTBOUND AND WESTBOUND ROUTES (GARY AVE TO CLAFLIN ROAD

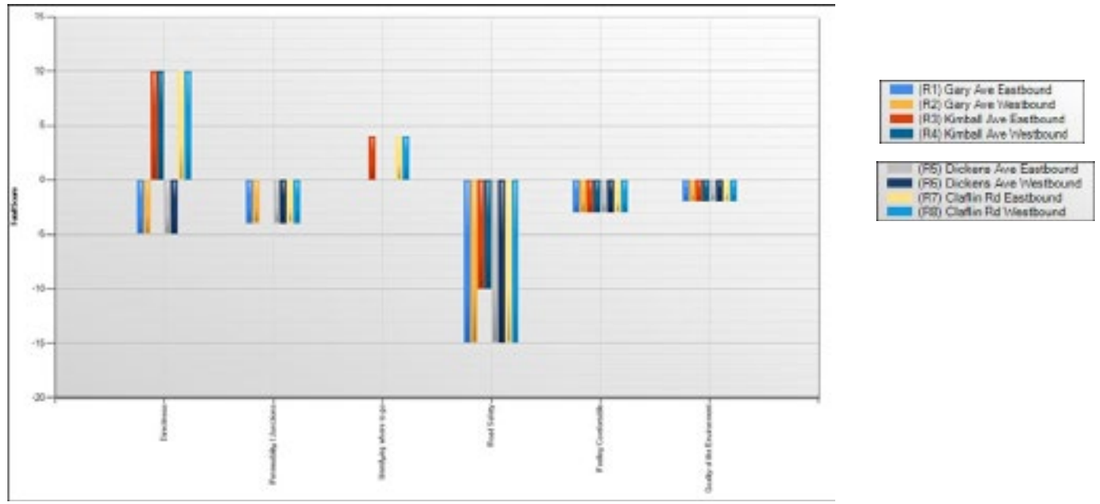
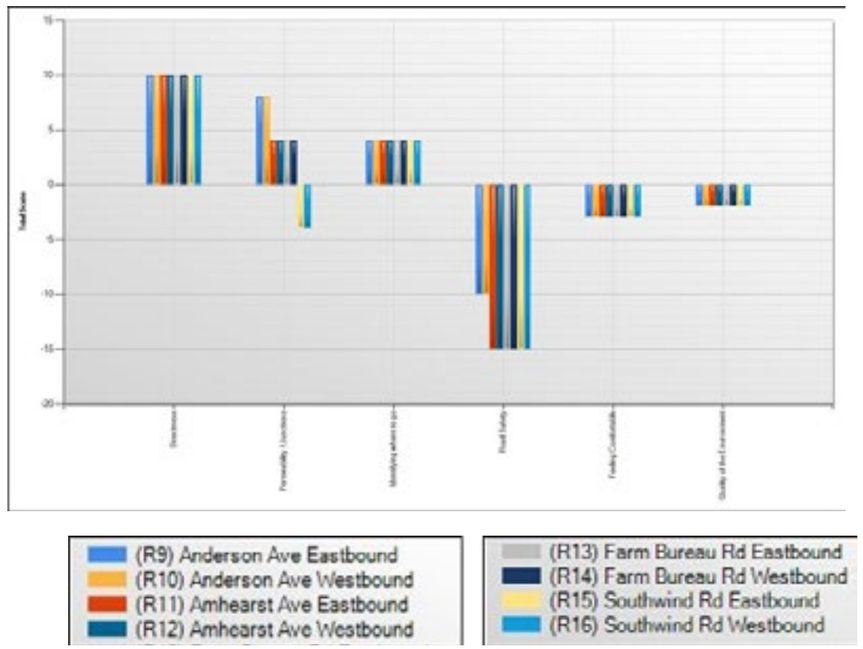


FIGURE C9 | CERS OVERALL WEIGHTED SCORES BY EASTBOUND AND WESTBOUND ROUTES (ANDERSON AVE TO SOUTHWIND RD)



APPENDIX C PEDESTRIAN & BICYCLE

Comparison of Existing and Proposed Conditions

Tables C5 to C8 show the comparison between the existing conditions and the proposed conditions with the Preferred Alternative for the evaluated links and routes. The results of the comparisons are shown below:

TABLE C5 | COMPARISON OF PERS LINKS

Link Id.*	Overall Weighted Score		Difference in Weighted Score	Comment
	Existing	Proposed		
N1	-38	-35	3	Minor improvement due to crosswalks across K-113 at both ends of the link
N2	-38	-35	3	Minor improvement due to crosswalks across K-113 at both ends of the link
N3	-38	-33	5	Minor improvement due to crosswalks across K-113 at both ends of the link, and downhill grade change at Anderson Ave
N4	-38	-36	2	Minor improvement due to crosswalks across K-113 at both ends of the link, but steeper uphill grade change at Anderson Ave
N5	-38	-38	0	No change
N6	-38	-36	2	Minor improvement due to downhill grade change at Kimball Ave
N7	-38	-39	-1	Minor change due to uphill grade change at Kimball Ave
N8	-54	-54	0	No change
S8	-49	39	88	Significant improvement due to separate bike/pedestrian facilities, crossing facilities along link and improved quality of the environment
S7	-35	54	89	Significant improvement due to separate bike/pedestrian facilities, crossing facilities along link and improved quality of the environment
S6	-35	52	87	Significant improvement due to separate bike/pedestrian facilities, crossing facilities along link and improved quality of the environment
S5	-35	53	88	Significant improvement due to separate bike/pedestrian facilities, crossing facilities along link and improved quality of the environment
S4	-35	57	92	Significant improvement due to separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, crossing facilities along link and improved quality of the environment
S3	-35	55	90	Significant improvement due to separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, crossing facilities along link and improved quality of the environment
S2	-35	56	91	Significant improvement due to separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, crossing facilities along link and improved quality of the environment
S1	-35	56	91	Significant improvement due to separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, crossing facilities along link and improved quality of the environment

* N1 to N8 - South to North; S8 to S1 - North to South

Link limits:

N1 and S1 - Southwind Road to Farm Bureau Rd
N2 and S2 - Farm Bureau Rd to Amherst Ave
N3 and S3 - Amherst Ave to Anderson Ave
N4 and S4 - Anderson Ave to Claflin Rd
N5 and S5 - Claflin Rd to Dickens Rd
N6 and S6 - Dickens Rd to Kimball Ave
N7 and S7 - Kimball Ave to Gary Ave
N8 and S8 - Gary Ave to Manhattan City Limits

As shown Table C5, there are minor differences between the existing conditions and the proposed conditions for the northbound links along Seth Child Road since bike and pedestrian facilities are not proposed in the northbound direction. Overall, there are significant improvements for the southbound links with the proposed multi-use trail. The analysis shows that by providing a continuous multi-use trail through the Seth Child Road study corridor separated from the roadway, safety and the quality of environment for pedestrians and cyclists are expected to improve on all southbound links. Also, there is a change in grade resulting from converting the grade separated interchanges at Anderson Avenue and Kimball Avenue to at-grade intersections. In the northbound direction with the uphill grade, the grade is downhill approaching Anderson Avenue and Kimball Avenue. Departing Anderson Avenue and Kimball Avenue is a little steep uphill. In the southbound direction, with the downhill grade, the grade is downhill approaching Anderson Avenue and Kimball Avenue. Departing Anderson Avenue and Kimball Avenue is a little steep uphill.

TABLE C6 | COMPARISON OF CERS LINKS

Link Id.*	Overall Weighted Score		Difference in Weighted Score	Comment
	Existing	Proposed		
N1	-45	-45	0	No change
N2	-45	-45	0	No change
N3	-45	-42	3	Minor change due to downhill grade change at Anderson Ave
N4	-45	-48	-3	Minor change due to steeper uphill grade change at Anderson Ave
N5	-45	-45	0	No change
N6	-45	-42	3	Minor change due to downhill grade change at Kimball Ave
N7	-45	-48	-3	Minor change due to steeper uphill grade change at Kimball Ave
N8	-48	-48	0	No change
S8	-36	54	90	Significant improvement due to continous separate bike/pedestrian facilities, reduced user conflict, steeper downhill grade at Kimball Ave and improved quality of the environment
S7	-39	54	93	Significant improvement due to continous separate bike/pedestrian facilities, reduced user conflict, steeper downhill grade at Kimball Ave and improved quality of the environment
S6	-39	48	87	Significant improvement due to continous separate bike/pedestrian facilities, reduced user conflict and improved quality of the environment
S5	-39	51	90	Significant improvement due to continous separate bike/pedestrian facilities, reduced user conflict and improved quality of the environment
S4	-39	58	97	Significant improvement due to continuous separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, reduced user conflict, steeper downhill grade at Anderson Ave and improved quality of the environment
S3	-39	52	91	Significant improvement due to continuous separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, reduced user conflict and improved quality of the environment
S2	-39	55	94	Significant improvement due to continuous separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, reduced user conflict and improved quality of the environment
S1	-39	51	90	Significant improvement due to continuous separate bike/pedestrian facilities, crosswalks across K-113 at both ends of the link, reduced user conflict and improved quality of the environment

* N1 to N8 - South to North; S8 to S1 - North to South

Link limits:

N1 and S1 - Southwind Road to Farm Bureau Rd
N2 and S2 - Farm Bureau Rd to Amherst Ave
N3 and S3 - Amherst Ave to Anderson Ave
N4 and S4 - Anderson Ave to Claflin Rd
N5 and S5 - Claflin Rd to Dickens Rd
N6 and S6 - Dickens Rd to Kimball Ave
N7 and S7 - Kimball Ave to Gary Ave
N8 and S8 - Gary Ave to Manhattan City Limits

As shown in Table C6, there is no change between the existing conditions and the proposed conditions for the northbound links along Seth Child Road since bike and pedestrian facilities are not proposed in the northbound direction. Overall, there are significant improvements for the southbound links with proposed multi-use trail. The analysis shows that by providing a continuous multi-use trail through the Seth Child Road study corridor separated from the roadway, safety and the quality of environment for pedestrians and cyclists are expected to improve on all southbound links. Also, there is a change in grade resulting from converting the grade separated interchanges at Anderson Avenue and Kimball Avenue to at-grade intersections. In the northbound direction with the uphill grade, the grade is downhill approaching Anderson Avenue and Kimball Avenue. Departing Anderson Avenue and Kimball Avenue is a little steep uphill. In the southbound direction, with the downhill grade, the grade is downhill approaching Anderson Avenue and Kimball Avenue. Departing Anderson Avenue and Kimball Avenue is a little steep uphill.

TABLE C7 | COMPARISON OF PERS ROUTES

Route Id.		Overall Weighted Score		Difference in Weighted Score	Comment
	Direction	Existing	Proposed		
Gary Ave	EB	-15	-15	0	No change
	WB	-15	-15	0	No change
Kimbal Ave	EB	6	4	-2	Minor change due to sidewalk deviation at K-113 intersection and crosswalk added across Kimball Ave
	WB	6	-1	-7	Change due to signiifcant sidewalk deviation at K-113 intersection and crosswalk added across Kimball Ave
Dickens Ave	EB	-11	-11	0	No change
	WB	-11	-11	0	No change
Claflin Rd	EB	-5	-5	0	No change
	WB	0	0	0	No change
Anderson Ave (signal at Wreath Ave)	EB	6	16	10	Improvement due to access management for turning traffic
	WB	6	16	10	Improvement due to access management for turning traffic
Anderson Ave (rbt at Wreath Ave)	EB	6	16	10	Improvement due to access management for turning traffic and some deviation crossing Wreath Ave
	WB	6	16	10	Improvement due to access management for turning traffic and some deviation crossing Wreath Ave
Amhearst Ave	EB	-15	-15	0	No change
	WB	-15	-15	0	No change
Farm Bureau Rd	EB	-15	-15	0	No change
	WB	-15	-10	5	Minor improvement due to crosswalk across K-113 provided
Southwind Rd	EB	-15	-15	0	No change
	WB	-15	12	27	Significant improvement due to sidewalk provided on entire length of link and crosswalk across K-113 provided

Route Limits:

Gary Ave - between Candlewood Dr and Terry Way
Kimball Ave - between Candlewood Dr and Browning Ave
Dickens Ave - between Wreath Ave and Browning Ave
Claflin Rd - between Wreath Ave and Beechwood Ter
Anderson Ave - between Wreath Ave and Garden Way
Amhearst Ave - between Research Dr and Linear Trail
Farm Bureau Rd - between K-113 and Linear Trail
Southwind Rd - between Southwind Rd and frontage road

As shown in Table C7, there are minor differences, or no change, between the existing conditions and the proposed conditions for the routes both the eastbound and westbound directions since improvements are not proposed on the routes, except at Southwind Road, other than modifications at their intersections with Seth Child Road. Along Kimball Avenue, the deviation in the sidewalk at the proposed at-grade intersection at Seth Child Road primarily results in the minor change. Along Anderson Avenue for Scenario 1 (with a traffic signal at Wreath Avenue), the improvements are primarily due to the improved road safety resulting from introducing access management and reducing turning conflicts with pedestrians. Similarly, for Scenario 2 (with roundabout at Wreath Avenue) the improvements are primarily due to reducing conflicts with turning traffic. However, there is some deviation in crossing the roundabout at Wreath Avenue. Southwind Road in the westbound direction improves significantly due to the proposed sidewalks along the entire length of the route and crosswalk at the intersection with Seth Child Road.

TABLE C8 | COMPARISON OF CERS ROUTES

Route Id.		Overall Weighted Score		Difference in Weighted Score	Comment
	Direction	Existing	Proposed		
Gary Ave	EB	-12	-33	-21	Change due to raised median along K-113 restricting the through movement
	WB	-12	-33	-21	Change due to raised median along K-113 restricting the through movement
Kimbal Ave	EB	7	3	-4	Minor change due to raised median restricting movements at Wreath Ave
	WB	7	3	-4	Minor change due to raised median restricting movements at Wreath Ave
Dickens Ave	EB	-12	-33	-21	Change due to raised median along K-113 restricting the through movement
	WB	-12	-33	-21	Change due to raised median along K-113 restricting the through movement
Claflin Rd	EB	-8	-8	0	No change
	WB	-8	-8	0	No change
Anderson Ave (signal at Wreath Ave)	EB	11	11	0	No change
	WB	11	11	0	No change
Amhearst Ave	EB	0	0	0	No change
	WB	0	0	0	No change
Farm Bureau Rd	EB	0	0	0	No change
	WB	0	0	0	No change
Southwind Rd	EB	-8	-8	0	No change
	WB	-8	-8	0	No change

Route Limits:

Gary Ave - between Candlewood Dr and Terry Way
Kimbal Ave - between Candlewood Dr and Browning Ave
Dickens Ave - between Wreath Ave and Browning Ave
Claflin Rd - between Wreath Ave and Beechwood Ter
Anderson Ave - between Wreath Ave and Garden Way
Amhearst Ave - between Research Dr and Linear Trail
Farm Bureau Rd - between K-113 and Linear Trail
Southwind Rd - between Southwind Rd and frontage road

As shown in Table C8, there are mainly minor differences, or no change, between the existing conditions and the proposed conditions for the routes both the eastbound and westbound directions since improvements are not proposed on the routes other than modifications at their intersections with Seth Child Road. However, there are major changes along Gary Avenue and Dickens Avenue where the raised median along Seth Child Road creates R-CUT intersections. The R-CUT intersections act as an obstruction for cyclists causing them to deviate from the route.

PEDESTRIAN LINKS (NORTHBOUND)

PERS: K-113 Corridor Study – Link Assessment Criteria

Applicable Parameters by Checklist Factors – Link Pedestrian Facilities

EFFECTIVE WIDTH	- Width for pedestrian flow - Wheelchair accessibility - Acceptable width over entire length - Separation from traffic - Allowance for obstructions - Pedestrian congestion
DROPPED KERBS (CURB CUTS)	- Located on desire lines - Adequate capacity - Level dropped/flush
GRADIENT	- Severity - Steps/ramps - Rest points - Undulations - Appropriate handrails - Presence of cross slopes
OBSTRUCTIONS	- Presence of obstructions - Location/alignment - Overhead obstructions - Sightline reduction
PERMEABILITY (ACCESSIBILITY)	- Frequency of crossing points - Parked cars/physical barriers - Traffic flow - Sightlines
WAYFINDING	- Signage provision - Signage clarity - Sightlines
LIGHTING	- Internally/frequency - Obstruction/shadows
USER CONFLICT	- Conflicting movements - Encroachment on pedestrian space - Segregation from cyclists - Adequate space provision
QUALITY OF THE ENVIRONMENT	- Traffic/noise - Aesthetics - Soft landscaping

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Links (Northbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N1	Southwind Rd to Farm Bureau Rd	Northbound	N. Jaffar	9:00:00	Tuesday, February 06, 201	Neutral	-35

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts
Gradient	-1	-1	Slight uphill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Southwind Road and Farm Bureau Rd. Raised median along K-113. Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with cars and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N2	Farm Bureau Rd to Amhearst Ave	Northbound	N. Jaffar	9:00:00	Tuesday, February 06, 201	Neutral	-35

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts
Gradient	-1	-1	Slight uphill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Farm Bureau Rd and Amhearst Ave. Raised median along K-113, Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N3	Amhearst Ave to Anderson Ave	Northbound	N. Jaffar	9:00:00	Tuesday, February 06, 201	Neutral	-33

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road.
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities or no curb cuts except at Anderson Ave
Gradient	0	1	Slight uphill grade along most of the link and downhill grade approaching Anderson Ave
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Amhearst Ave and Anderson Ave. Raised median across K-113. Busy, high speed roadway.
Legibility	1	2	Street names at intersections and signage for museum
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N4	Anderson Ave to Claflin Rd	Northbound	N. Jaffar	10:00:00	Tuesday, February 06, 201	Neutral	-36

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities, pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities or no curb cuts except at Anderson Ave
Gradient	-2	-2	Steep uphill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Anderson Ave and Claflin Rd. Raised median across K-113. Busy, high speed roadway
Legibility	1	2	Street names at intersections and signage for museum
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Links (Northbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N5	Claflin Rd to Dickens Ave	Northbound	N. Jaffar	10:00:00	Tuesday, February 06, 201	Neutral	-38

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilies; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts
Gradient	-1	-1	Slight uphill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Claflin Rd. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections and signage for sports complex, vet med ctr and college
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N6	Dickens Ave to Kimball Ave	Northbound	N. Jaffar	10:00:00	Tuesday, February 06, 201	Neutral	-36

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts except at Kimball Ave
Gradient	0	1	Slight uphill grade and downhill grade approaching Kimball Ave
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Kimball Ave. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N7	Kimball Ave to Gary Ave	Northbound	N. Jaffar	11:00:00	Tuesday, February 06, 201	Neutral	-39

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts except at Kimball Ave
Gradient	-2	-2	Steep uphill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Kimball Ave. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N8	Gary Ave to City Limits	Northbound	N. Jaffar	11:00:00	Tuesday, February 06, 201	Neutral	-54

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	-3	-15	No sidewalk facilities; pedestrians walking on shoulder or off-road
Dropped Kerbs (Curb Cuts)	-3	-9	No pedestrian facilities, no curb cuts
Gradient	-2	-2	Steeper uphill grade
Obstructions	1	6	No obstructions, no reductions in sighlines
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113. Raised median. Busy, high speed roadway. Pedestrian underpass just north of Gary Ave, no connection to underpass
Legibility	1	2	Street names at intersections
Lighting	-3	-9	Street lighting stops just north of Gary Ave
User Conflict	-3	-15	No seperation, potential conflicts with car and bikes
Quality of the Environment	-3	-3	Busy roadway reduces quality of the environment. Not suitable for pedestrians

PEDESTRIAN LINKS (SOUTHBOUND)

PERS: K-113 Corridor Study – Link Assessment Criteria

Applicable Parameters by Checklist Factors – Link Pedestrian Facilities

EFFECTIVE WIDTH	- Width for pedestrian flow - Wheelchair accessibility - Acceptable width over entire length - Separation from traffic - Allowance for obstructions - Pedestrian congestion
DROPPED KERBS (CURB CUTS)	- Located on desire lines - Adequate capacity - Level dropped/flush
GRADIENT	- Severity - Steps/ramps - Rest points - Undulations - Appropriate handrails - Presence of cross slopes
OBSTRUCTIONS	- Presence of obstructions - Location/alignment - Overhead obstructions - Sightline reduction
PERMEABILITY (ACCESSIBILITY)	- Frequency of crossing points - Parked cars/physical barriers - Traffic flow - Sightlines
WAYFINDING	- Signage provision - Signage clarity - Sightlines
LIGHTING	- Internally/frequency - Obstruction/shadows
USER CONFLICT	- Conflicting movements - Encroachment on pedestrian space - Segregation from cyclists - Adequate space provision
QUALITY OF THE ENVIRONMENT	- Traffic/noise - Aesthetics - Soft landscaping

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Links (Southbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S8	City Limits to Gary Ave	Southbound	N. Jaffar	11:00:00	Tuesday, February 06, 201	Neutral	39

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	2	3	Steeper downhill grade
Obstructions	1	6	No obstructions, no sightlines reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except underpass just nort of Gary Ave. Raised median. Busy, high speed roadway. Underpass just north of Gary Ave, connection to underpass provided
Legibility	1	2	Street names at intersections and signage for K-State
Lighting	-3	-9	Street lighting starts just north of Gary Ave
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S7	Gary Ave to Kimball Ave	Southbound		11:00:00	Tuesday, February 06, 201	Neutral	54

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	2	3	Slight downhill grade and steeper downhill grade approaching Kimball Ave
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Kimball Ave. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S6	Kimball Ave to Dickens Ave	Southbound	N. Jaffar	13:00:00	Tuesday, February 06, 201	Neutral	52

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	0	1	Slight downhill grade along most of the link and uphill grade leaving Kimball Ave
Obstructions	1	6	No obstructions, no reduction in sightlines
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Kimball Ave. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections and signage for colleges
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S5	Dickens Ave to Claflin Rd	Southbound	N. Jaffar	13:00:00	Tuesday, February 06, 201	Neutral	53

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	1	2	Slight downhill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-3	-9	No formal crossing points across K-113 except at Claflin Rd. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections and signage for museum
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Links (Southbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S4	Claflin Rd to Anderson Ave	Southbound	N. Jaffar	13:00:00	Tuesday, March 06, 2018	Neutral	57

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	2	3	Slight downhill grade and steeper downhill grade approaching Anderson Ave
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	No formal crossing points across K-113 except at Claflin Rd and Anderson Ave. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S3	Anderson to Ave Amhearst Ave	Southbound	N. Jaffar	14:00:00	Tuesday, March 06, 2018	Neutral	55

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	0	1	Slight downhill grade along most of the link and uphill grade leaving Anderson Ave
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Anderson Ave, Amhearst Ave and Linear Trail. Raised median. Busy, high speed roadway. Linear Trail cross
Legibility	1	2	Street names at intersections
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S2	Amhearst Ave to Farm Bureau Rd	Southbound	N. Jaffar	14:00:00	Tuesday, March 06, 2018	Neutral	56

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	1	2	Slight downhill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Amhearst Ave and Farm Bureau Rd. Raised median. Busy, high speed roadway.
Legibility	1	2	Street names at intersections and advance signage for K-18
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S1	Farm Bureau Rd to Southwind Rd	Southbound	N. Jaffar	14:00:00	Tuesday, March 06, 2018	Neutral	56

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Effective Width	3	20	10 ft multi-use trail
Dropped Kerbs (Curb Cuts)	3	12	Curb cuts at intersections
Gradient	1	2	Slight downhill grade
Obstructions	1	6	No obstructions, no sightline reductions
Permeability (Accessibility)	-2	-6	Pedestrian facilities across K-113 at Farm Bureau Rd and Southwind Rd. Raised median. Busy, high speed roadway
Legibility	1	2	Street names at intersections and signage for law enf. ctr
Lighting	1	6	Street lighting along link
User Conflict	2	15	Pedestrians & bikes seperated from cars
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

CYCLE LINKS (NORTHBOUND)

CERS: K-113 Corridor Study – Link Assessment Criteria

Applicable Parameters by Checklist Factors – Link Cyclist Facilities

CONTINUITY	- Facility type(s) - Interruption to continuity - Changes to context - Presence of crossings
LEGIBILITY (WAYFINDING)	- Signage provision - Signage type and clarity - Distances on signs - Cycle specific signage - Sightlines
DIRECTNESS	- Facility follows most direct route - Alternative routes - Evidence of short-cuts
TRAFFIC PROXIMITY/ MIX	- Observed traffic mix - Bus or truck route - Adequate space/comfort for cyclists - Parked vehicles
LINK CONFLICT POINTS	- Nature of conflicts - Frequency of conflicts - Impact on safety - Sightlines
EFFECTIVE WIDTH	- Width available for cyclists - Width available for passing - Minimum dimensions met - Comfort levels
OVERALL EFFORT	- Overall gradient - Gradient on approach to junctions (intersections) - Likelihood of stopping
QUALITY OF THE ENVIRONMENT	- Impact of traffic - Sense of place - Air and noise pollution - Quality of materials - Soft landscaping

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Links (Northbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N1	Southwind Rd to Farm Bureau Rd	Northbound	N. Jaffar	9:00:00	ednesday, February 07, 20	Neutral	-45

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Southwind Rd and Farm Bureau Rd. Cyclists using roadway or shoulder
Legibility	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Southwind Rd & Farm Bureau Rd. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-1	-3	Slight uphill grade. No stopping except at traffic signals at start/end of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N2	Farm Bureau Rd to Amhearst Ave	Northbound	N. Jaffar	9:00:00	ednesday, February 07, 20	Neutral	-45

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Farm Bureau Rd and Amhearst Ave. Cyclists using roadway or shoulder
Legibility	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Farm Bureau Rd and Amhearst Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-1	-3	Slight uphill grade. No stopping except at traffic signals at start/end of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N3	Amhearst Ave to Anderson Ave	Northbound	N. Jaffar	9:00:00	ednesday, February 07, 20	Neutral	-42

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Amhearst Ave and Anderson Ave. Cyclists using roadway or shoulder
Legibility	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane. Linear Trail crosses this link, no connection to Linear Trail
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Amhearst Ave and Anderson Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	0	0	Slight uphill grade and downhill grade approaching Anderson Ave. No stopping except at traffic signal at start/end of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N4	Anderson Ave to Claflin Rd	Northbound	N. Jaffar	10:00:00	ednesday, February 07, 20	Neutral	-48

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Anderson Ave and Claflin Rd. Cyclists using roadway or shoulder
Legibility	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Claflin Rd and Anderson Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-2	-6	Uphill grade leaving Anderson Ave. No stopping except at traffic signal at start/end of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Links (Northbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N5	Claflin Rd to Dickens Ave	Northound	N. Jaffar	10:00:00	Wednesday, February 07,	Neutral	-45

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Claflin Rd. Cyclists using roadway or shoulder
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Claflin Rd and Dickens Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-1	-3	Slight uphill grade. No stopping except at traffic signal at start of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N6	Dickens Ave to Kimball Ave	Northbound	N. Jaffar	10:00:00	Wednesday, February 07,	Neutral	-42

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Kimball Ave. Cyclists using roadway or shoulder
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Dickens Ave and Kimball Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	0	0	Slight uphill grade and downhill grade approaching Kimball Ave. No stopping except at traffic signal at end of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N7	Kimball Ave to Gary Ave	Northbound	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	-48

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. Pedestrian facilities at Kimball Ave. Cyclists using roadway or shoulder
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Gary Ave and Kimball Ave. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-2	-6	Uphill grade leaving Kimball Ave. No stopping except at traffic signal at start of link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
N8	Gary Ave to City Limits	Northbound	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	-48

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	-3	-6	No cycling facilities. Raised median along K-113. No pedestrian facilities crossing K-113 along link. Cyclists using roadway or shoulder
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link, no cycle lane. Underpass just north of Gary Ave, no connection to underpass
Traffic proximity / mix	-3	-15	No cycling facilities. Cyclists riding with traffic flow
Link conflict points	-3	-12	No cycling facilities. Turn lanes provided at Gary Ave, KFB Plaza/Leadership Ln. Potential conflicts with turning trafifc
Effective Width	-3	-15	No cycling facilities. Cyclists using roadway or shoulder
Overall Effort	-2	-6	Steeper uphill grade. No stopping on link
Quality of the Environment	-3	-3	Busy roadway reduces quality of the enviornment; Not conducive for cycling

CYCLE LINKS (SOUTHBOUND)

CERS: K-113 Corridor Study – Link Assessment Criteria

Applicable Parameters by Checklist Factors – Link Cyclist Facilities

CONTINUITY	- Facility type(s) - Interruption to continuity - Changes to context - Presence of crossings
LEGIBILITY (WAYFINDING)	- Signage provision - Signage type and clarity - Distances on signs - Cycle specific signage - Sightlines
DIRECTNESS	- Facility follows most direct route - Alternative routes - Evidence of short-cuts
TRAFFIC PROXIMITY/ MIX	- Observed traffic mix - Bus or truck route - Adequate space/comfort for cyclists - Parked vehicles
LINK CONFLICT POINTS	- Nature of conflicts - Frequency of conflicts - Impact on safety - Sightlines
EFFECTIVE WIDTH	- Width available for cyclists - Width available for passing - Minimum dimensions met - Comfort levels
OVERALL EFFORT	- Overall gradient - Gradient on approach to junctions (intersections) - Likelihood of stopping
QUALITY OF THE ENVIRONMENT	- Impact of traffic - Sense of place - Air and noise pollution - Quality of materials - Soft landscaping

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Links (Southbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S8	City Limits to Gary Ave	Southbound	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	54

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link. Underpass just north of Gary Ave with connection to underpass
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	1	4	Crossing facilities at underpass just north of Gary Ave. No facilities provided to Leadership Ln on eastside
Effective Width	3	15	10 ft multi-use trail
Overall Effort	2	6	Steeper downhill grade. No stopping on link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S7	Gary Ave to Kimball Ave	Southbound	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	54

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	1	4	Crossing facilities at Kimball Ave. No facilities provided to Gary Ave on eastside
Effective Width	3	15	10 ft multi-use trail
Overall Effort	2	6	Slight downhill grade and steeper downhill grade approaching Kimball Ave. No stopping on link except at traffic signal at end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S6	Kimball Ave to Dickens Ave	Southbound	N. Jaffar	13:00:00	Wednesday, February 07,	Neutral	48

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	1	4	Crossing facilities at Kimball Ave. No facilities provided to Dickens Ave on eastside
Effective Width	3	15	10 ft multi-use trail
Overall Effort	0	0	Slight downhill grade and uphill grade leaving Kimball Ave. No stopping on link except at start of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S5	Dickens Ave to Claflin Rd	Southbound	N. Jaffar	13:00:00	Wednesday, February 07,	Neutral	51

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	1	4	Crossing facilities at Claflin Rd. No facilities provided to Dickens Ave on eastside
Effective Width	3	15	10 ft multi-use trail
Overall Effort	1	3	Slight downhill grade. No stopping on link except at traffic signal at end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Links (Southbound)

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S4	Claflin Rd to Anderson Ave	Southbound	N. Jaffar	13:00:00	Wednesday, February 07,	Neutral	58

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	2	8	Crossing facilities at Claflin Rd and Anderson Ave
Effective Width	3	15	10 ft multi-use trail
Overall Effort	2	6	Slight downhill grade and steeper downhill grade approaching Anderson Ave. No stopping on link except at traffic signal at start/end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S3	Anderson Ave to Amhearst Ave	Southbound	N. Jaffar	14:00:00	Wednesday, February 07,	Neutral	52

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link. Linear Trail crosses this link, no connection to Linear Trail
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	2	8	Crossing facilities at Anderson Ave and Amhearst Ave.
Effective Width	3	15	10 ft multi-use trail
Overall Effort	0	0	Light downhill grade and uphill grade leaving Kimball Ave. No stopping on link except at start/end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S2	Amhearst Ave to Farm Bureau Rd	Southbound	N. Jaffar	14:00:00	Wednesday, February 07,	Neutral	55

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	2	8	Crossing facilities at Amhearst Ave and Farm Bureau Rd
Effective Width	3	15	10 ft multi-use trail
Overall Effort	1	3	Slight downhill grade. No stopping on link except at start/end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
S1	Farm Bureau Rd to Southwind Rd	Southbound	N. Jaffar	14:00:00	Wednesday, February 07,	Neutral	51

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Continuity	3	6	10 ft multi-use trai along link with crossing facilities across sidestreets
Legibility (Wayfinding)	1	3	Street names at intersections, no specific cycle signage
Directness	2	6	No deviation along link
Traffic proximity / mix	3	15	Trail seperated from traffic flow
Link conflict points	1	4	Crossing facilities at Farm Bureau Rd and Southwind Rd
Effective Width	3	15	10 ft multi-use trail
Overall Effort	1	3	Slight downhill grade. No stopping on link except at traffic signal at start/end of link
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment. Trail seperated from roadway

PEDESTRIAN ROUTES

PERS: K-113 Corridor Study – Route Assessment Criteria

Applicable Parameters by Checklist Factors – Route Pedestrian Facilities

DIRECTNESS	- Actual distance compared with direct distance - Evidence of short-cuts - Deviation due to barriers
PERMEABILITY (ACCESSIBILITY)	- Frequency of viable crossing points - Access/exit points - Pedestrian barriers/parked cars - Traffic flow - Curb cuts - Road width - Crossing places/refuge points - Sightlines
ROAD SAFETY	- Perceived road safety - Traffic speeds/volumes - Effect of noise, spray and fumes - Potential for conflict
LEGIBILITY (WAYFINDING)	- Signage continuity - Signage clarity - Information boards/maps - Tactile information - Color contrast
REST POINTS	- Frequency (per ¼ mile) - Safe area - Protection from the weather - Quality
QUALITY OF THE ENVIRONMENT	- Cleanliness/maintenance - Pleasantness/aesthetics - Soft landscaping

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R1	Gary Ave Eastbound	Candlewood Dr to Terry Way	N. Jaffar	10:00:00	Monday, February 05, 201	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No sidewalk, no deviation from roadway
Permeability (Accessibility)	-1	-3	No barriers to crossing Gary Ave. No sidewalk, few driveways. Crosswalks at Candlewood Dr (roundabout) and K-113 westside, no curb cuts at sidestreets
Road Safety	-3	-15	Pedestrians have to walk on roaday. Crossing K-113 difficult. Raised median on K-113 across Gary Ave
Legibility (Wayfinding)	-2	-6	Street names at intersections except K-113. No tactile paving
Rest Points	-3	-3	No restpoints
Quality of the Environment	-3	-3	Crossing K-113 across raised median difficult & walking on roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R2	Gary Ave Westbound	Terry Way to Candlewood Dr	N. Jaffar	10:00:00	Monday, February 05, 201	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No sidewalk, no deviation from roadway
Permeability (Accessibility)	-1	-3	No barriers to crossing Gary Ave. No sidewalk, few driveways. Crosswalks at Candlewood Dr (roundabout) and K-113 westside. No curb cuts at sidestreets
Road Safety	-3	-15	Pedestrians have to walk on roadway. Crossing K-113 difficult. Raised median on K-113 across Gary Ave
Legibility (Wayfinding)	-2	-6	Street names at sidestreets except K-113. No tactile paving
Rest Points	-3	-3	No respoints
Quality of the Environment	-3	-3	Crossing K-113 across raided difficult & walking on roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R3	Kimball Ave Eastbound	Candlewood Dr to Browning Ave	N. Jaffar	11:00:00	Monday, February 05, 201	Neutral	4

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	1	10	Deviation on Kimball Ave crossing K-113 south leg using sidewalk
Permeability (Accessibility)	-1	-3	No barriers to crossing Kimball Ave. Fast moving traffic. Crosswalks across Kimball Ave at Candlewood Dr, Wreath Ave, K-113 and Browning Ave
Road Safety	-1	-5	Fast moving traffic on Kimball Ave. Median/crossing refuge along Kimball Ave. Buffer between sidewalk and roadway
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving at intersections except at Browning Ave
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R4	Kimball Ave Westbound	Browning Ave to Candlewood Dr	N. Jaffar	11:00:00	Monday, February 05, 201	Neutral	-1

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	0	5	Significant deviation crossing K-113 north leg using sidewalk
Permeability (Accessibility)	-1	-3	No barriers to Kimball Ave. Fast moving traffic. Crosswalks across Kimball Ave at Candlewood Dr, K-113 and Browning Ave
Road Safety	-1	-5	Fast moving traffic on Kimball Ave. Median/crossing refuge along Kimball Ave. Buffer between sidewalk and roadway
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving only at Seaton Ave, K-113 and Candlewood Dr
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R5	Dickens Ave Eastbound	Wreath Ave to Browning Ave	N. Jaffar	13:00:00	Monday, February 05, 201	Neutral	-11

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. Sidewalk not on both sides. Pedestrains not crossing over to use sidewalks
Permeability (Accessibility)	-1	-3	No barriers to crossing Dickens Ave. Crosswalks across Dickens Ave at Wreath Ave, K-113 west leg and Browning Ave.
Road Safety	-3	-15	Crossing K-113 difficult with raised median on K-113 across Dickens Ave. Buffer between sidewalk and roadway but not sidewalk east of K-113.
Legibility (Wayfinding)	-1	-3	Street names at sidestreets. Tactile paving on one corner of Browning Ave
Rest Points	-3	-3	No rest points
Quality of the Environment	-2	-2	Crossing K-113 across raised median difficult which reduces quality of the environment otherwise a pleasant roadway for walking

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R6	Dickens Ave Westbound	Browning Ave to Wreath Ave	N. Jaffar	13:00:00	Monday, February 05, 201	Neutral	-11

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. Siewalks not on both sides. Pedestrians not crossing over to use sidewalks
Permeability (Accessibility)	-1	-3	No barriers to crossing Dickens Ave. Crosswalks across Dickens Ave at Wreath Ave, K-113 west leg and Browning Ave.
Road Safety	-3	-15	Crossing K-113 difficult with raised median on K-113 across Dickens Ave. Buffer between sidewalk and roadway but no sidewalk west of K-113
Legibility (Wayfinding)	-1	-3	Street names at sidestreets. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-2	-2	Crossing K-113 across raised median difficult which reduces quality of the evironment otherwise a pleasant roadway for walking

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R7	Claflin Rd Eastbound	Wreath Ave to Beechwood Ter	N. Jaffar	14:00:00	Monday, February 05, 201	Neutral	-5

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No sidewalk, no deviation from roadway
Permeability (Accessibility)	-1	-3	No barriers to crossing Claflin Rd. Crosswalks across Claflin Rd at Wreath Ave, K-113 west leg & Beechwood Ter
Road Safety	-2	-10	Pedestrians have to walk on roadway. No pedestrains facilities at K-113 and sidestreets
Legibility (Wayfinding)	-1	-3	Street names at intersections. No crosswalk at Wreath Ave but has tactile paving on one corner
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Crossing K-113 reduces quality of the environment otherwise a pleasant roadway for walking

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R8	Claflin Rd Westbound	Beechwood Ter to Wreath Ave	N. Jaffar	14:00:00	Monday, February 05, 201	Neutral	0

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	Deviation crossing K-113 using sidewalk
Permeability (Accessibility)	-1	-3	No barriers to crossing Claflin Rd. Crosswalks across Claflin Rd at Wreath Ave, K-113 west leg and Beechwood Ter
Road Safety	-1	-5	Crosswalks at Wreath Ave, K-113 and Beechwood Ter
Legibility (Wayfinding)	-1	-3	Street names at intersections. Tactile paving on sidestreets east of K-113, none on west side
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Crossing K-113 reduces quality of the environment otherwise a pleasant roadway for walking

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R9	Anderson Ave Eastbound	Wreath Ave to Garden Way	N. Jaffar	15:00:00	Monday, February 05, 201	Neutral	16

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	Some deviation crossing K-113
Permeability (Accessibility)	-2	-6	Median/crossing refuge along Anderson Ave. Fast moving traffic. Crosswalks across Anderson Ave at Wreath Ave and K-113 (both intersections with traffic signals)
Road Safety	0	5	Fast moving traffic on Anderson Ave. Buffer between sidewalk and roadway. Managed access for left turning traffic
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving by Linear Trl. Signage for Linear Trl
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the enviroement

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R10	Anderson Ave Westbound	Garden Way to Wreath Ave	N. Jaffar	0:00:00	Monday, February 05, 201	Neutral	16

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	Some deviation crossing K-113
Permeability (Accessibility)	-2	-6	Median/crossing refuge along Anderson Ave. Fast moving traffic. Crosswalks across Anderson Ave at Wreath Ave and K-113 (both intersections with traffic signals)
Road Safety	0	5	Fast moving traffic on Anderson Ave. Buffer between sidewalk and roadway. Signage for Linear Trl but no crosswalk for Linear Trl. Managed access for left turning traffic
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving at several intersections
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R11	Amhearst Ave Eastbound	Research Dr to Linear Trail	N. Jaffar	10:00:00	Monday, February 05, 201	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	1	10	Deviation crossing K-113 using sidewalk on K-113. No sidewalk, walk on roadway
Permeability (Accessibility)	-1	-3	No barriers but no crosswalks for crossing Amhearst Ave except at Linear Trail and K-113 west leg. Few curb cuts for driveways.
Road Safety	-2	-10	Pedestrians have to walk on roadway. Crosswalk across K-113 south leg (traffic signal). Crosswalk as Linear Trail
Legibility (Wayfinding)	-2	-6	Street names at sidestreet and K-113. No signage for Linear Trail. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-3	-3	Crossing K-113 & walking on roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R12	Amhearst Ave Westbound	Linear Trail to Research Dr	N. Jaffar	10:00:00	Tuesday, April 11, 2017	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. No sidewalk, walk on roadway
Permeability (Accessibility)	-1	-3	No barriers but no crosswalks for crossing Amhearst Ave except at Linear Trail and K-113 west leg. Few curb cuts for driveways
Road Safety	-3	-15	Pedestrians have to walk on roadway. No pedestrian phase at K-113 north leg. Crosswalk at linear Trail
Legibility (Wayfinding)	-2	-6	Street names at sidestreet and K-113. No signage for Linear Trail. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-3	-3	Crossing K-113 & walking on roadway reduces quality of the environment

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R13	Farm Bureau Rd Eastbound	K-113 to Linear Trail	N. Jaffar	11:00:00	Monday, February 05, 201	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. No sidewalk, walk on roadway
Permeability (Accessibility)	-1	-3	No barriers but no crosswalks for crossing Farm Bureau Rd. Few curb cuts for driveways
Road Safety	-3	-15	Pedestrians have to walk on roadway. No pedestrian facilities at K-113 (traffic signal). Crosswak at Linear Trail
Legibility (Wayfinding)	-2	-6	Street names at K-113. No signage for Linear Trail. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-3	-3	Crossing K-113 & walking on roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R14	Farm Bureau Rd Westbound	Linear Trail to K-113	N. Jaffar	11:00:00	Monday, February 05, 201	Neutral	-10

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. Sidewalk near K-113 intersection, otherwise no sidewalk to Linear Trail, walk on roadway
Permeability (Accessibility)	-1	-3	No barriers to crossing but no crosswalks for crossing Farm Bureau Rd except at Linear Trail. Few curb cuts for driveways
Road Safety	-2	-10	Pedestrians have to walk on roadway. Pedestrian facilities at K-113 (traffic signal). crosswalk at Linear Tsail
Legibility (Wayfinding)	-2	-6	Street names at K-113. No signage at Linear Trail. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-3	-3	Crossing K-113 & walking on roadway reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R15	Southwind Rd Eastbound	Southwind Rd to frontage rd	N. Jaffar	13:00:00	Monday, February 05, 201	Neutral	-15

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. No sidewalk, walk on roadway or grass shoulder
Permeability (Accessibility)	-1	-3	No barriers but no crosswalks for crossing Southwind Rd but median available
Road Safety	-3	-15	Pedestrians have to walk on roadway or grass shoulder. No pedestrian facilities at K-113 (traffic signal)
Legibility (Wayfinding)	-2	-6	Street names at K-113. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-3	-3	Crossing K-113 & walking on roadway/shoulder reduces quality of the environment

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R16	Southwind Rd Westbound	frontage rd to Southwind Rd	N. Jaffar	13:00:00	Monday, February 05, 201	Neutral	12

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	15	No deviation. Sidewalk provided from frontage rd to Southwind Rd
Permeability (Accessibility)	-1	-3	No barriers but no crosswalks for crossing Southwind Rd but median availalbe
Road Safety	1	10	Sidewalk available with crosswalk at K-113 (traffic signal)
Legibility (Wayfinding)	-2	-6	Street names at K-113. No tactile paving
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Crossing K-113 reduces quality of the environment

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Pedestrian Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R9	Anderson Ave Eastbound	Wreath Ave to Garden Way	N. Jaffar	15:00:00	Monday, February 05, 201	Neutral	16

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	1	10	Some deviation crossing Wreath Ave (with roundabout) & K-113 (with traffic signal)
Permeability (Accessibility)	-2	-6	Median/crossing refuge along Anderson Ave. Fast moving traffic. Crosswalks across Anderson Ave at Wreath Ave and K-113
Road Safety	1	10	Fast moving traffic on Anderson Ave. Buffer between sidewalk and roadway. Access management with right-in/right-out driveways between Wreath Ave & Anderson Ave
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving by Linear Trl. Signage for Linear Trl
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the enviroement

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R10	Anderson Ave Westbound	Garden Way to Wreath Ave	N. Jaffar	0:00:00	Monday, February 05, 201	Neutral	16

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	1	10	Some deviation crossing Wreath Ave (with roundabout) & K-113 (with traffic signal)
Permeability (Accessibility)	-2	-6	Median/crossing refuge along Anderson Ave. Fast moving traffic. Crosswalks across Anderson Ave at Wreath Ave and K-113
Road Safety	1	10	Fast moving traffic on Anderson Ave. Buffer between sidewalk and roadway. Signage for Linear Trl but no crosswalk for Linear Trl. Access management with right-in/right-out driveways between Wreath Ave & Anderson Ave
Legibility (Wayfinding)	1	6	Street names at intersections. Tactile paving at several intersections
Rest Points	-3	-3	No rest points
Quality of the Environment	-1	-1	Busy roadway reduces quality of the environment

CYCLE ROUTES

CERS: K-113 Corridor Study – Route Assessment Criteria

Applicable Parameters by Checklist Factors – Route Cyclist Facilities

DIRECTNESS	- Actual distance compared with direct distance - Evidence of shortcuts - Deviation due to barriers
PERMEABILITY (ACCESSIBILITY)/ INTERSECTIONS	- Frequency of viable crossing points - Access/exit points - Barriers to accessibility - Traffic flow - Roadway width - Sightlines at intersections
IDENTIFYING WHERE TO GO (WAYFINDING)	- Signage continuity - Signage clarity - Information boards/maps - Surface type - Color contrast
ROAD SAFETY	- Perceived road safety - Traffic speeds/volumes - Effect of noise, spray and fumes - Potential for conflict
REST POINTS/FEELING COMFORTABLE	- Frequency/quality of rest points - Route suitable for all cyclists - Gradient
QUALITY OF THE ENVIRONMENT	- Cleanliness - Aesthetics - Soft landscaping - Impact of traffic
OBSTUCTIONS	- Presence/frequency of obstructions - Ease of movement - Overhead obstructions - Sightline reduction - Causes deviation into traffic

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R1	Gary Ave Eastbound	Candlewood Dr to Terry Way	N. Jaffar	9:00:00	Wednesday, February 07,	Neutral	-33

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	-1	-5	Roundabout at Candlewood Dr causes slight deviation and raised median across K-113 causes significant deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Gary Ave. Crossing K-113 difficult with raised median
Identifying Where To Go (Wayfinding)	0	0	Street names at intersections except K-113. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult with raised median
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 with raised median reduces quality of the environment
Obstructions	-2	-4	Raised median causes obstruction. Curve east of K-113 causes some sightline reduction

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R2	Gary Ave Westbound	Terry Way to Candlewood Dr	N. Jaffar	9:00:00	Wednesday, February 07,	Neutral	-33

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	-1	-5	Roundabout at Candlewood Dr causes slight deviation and raised median across K-113 causes significant deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Gary Ave. Crossing K-113 difficult with raised median
Identifying Where To Go (Wayfinding)	0	0	Street names at intersections. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult with raised median
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 with raised reduces quality of the environment
Obstructions	-2	-4	Raised median causes obstruction. Curve eat of K-113 causes some sightline reduction

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R3	Kimball Ave Eastbound	Candlewood Dr to Browning Ave	N. Jaffar	10:00:00	Wednesday, February 07,	Neutral	3

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	0	0	Raised median barrier to crossing Kimball Ave at Wreath Ave. No turn lanes except at intersections. No left turn lanes at Wreath Ave
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no separate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R4	Kimball Ave Westbound	Browning Ave to Candlewood Dr	N. Jaffar	10:00:00	Wednesday, February 07,	Neutral	3

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	0	0	Raised median barrier to crossing Kimball Ave at Wreath Ave. No turn lanes except at intersections. No left turn lanes at Wreath Ave
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no separate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R5	Dickens Ave Eastbound	Wreath Ave to Browning Ave	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	-33

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	-1	-5	Raised median across K-113 causes significant deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Dickens Ave. Crossing K-113 difficult with raised median
Identifying Where To Go (Wayfinding)	0	0	Street names at interesections. No cycle lane
Road Safety	-3	-15	Cycling on roadway or sidewalk west of K-113. Crossing K-113 difficult with raised median
Rest Points/Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 with raised reduces quality of the environment
Obstructions	-2	-4	Raised median causes obstruction, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R6	Dickens Ave Westbound	Browning Ave to Wreath Ave	N. Jaffar	11:00:00	Wednesday, February 07,	Neutral	-33

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	-1	-5	Raised median across K-113 causes significant deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Dickens Ave. Crossing K-113 difficult with raised median
Identifying Where To Go (Wayfinding)	0	0	Street names at interesections. No cycle lane
Road Safety	-3	-15	Cycling on roadway or sidewalk east of K-113. Crossing K-113 difficult with raised median
Rest Points/Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 with raised reduces quality of the environment
Obstructions	-2	-4	Raised median causes obstruction, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R7	Claflin Rd Eastbound	Wreath Ave to Beechwood Ter	N. Jaffar	13:00:00	Wednesday, February 07,	Neutral	-8

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Claflin Rd. No turn lanes except at K-113 and Beechwood Ter
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No cycle lane
Road Safety	-3	-15	Cycling on roadway
Rest Points/Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No roadway obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R8	Claflin Rd Westbound	Beachwood Ter to Wreath Ave	N. Jaffar	13:00:00	Wednesday, February 07,	Neutral	-8

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	No median/barriers to crossing Claflin Rd. No turn lanes except at K-113 and Beechwood Ter
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No cycle lane
Road Safety	-3	-15	Cycling on roadway or sidewalk
Rest Points/Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No roadway/sidewalk obstructions. No deviations, no sightline reductions

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R9	Anderson Ave Eastbound	Wreath Ave to Garden Way	N. Jaffar	14:00:00	Wednesday, February 07,	Neutral	11

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	2	8	Raided median with access management along Anderson Ave. (Traffic signals at Wreath Ave & Anderson Ave)
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. Signage for Linear Trail. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no seperate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R10	Anderson Ave Westbound	Garden Way to Wreath Ave	N. Jaffar	14:00:00	Wednesday, February 07,	Neutral	11

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	2	8	Raided median with access management along Anderson Ave. (Traffic signals at Wreath Ave & Anderson Ave)
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. Signage for Linear Trail. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no seperate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R11	Amhearst Ave Eastbound	Research Dr to Linear Trail	N. Jaffar	15:00:00	Wednesday, February 07,	Neutral	0

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	1	4	No median/barriers to crossing Amhearst Ave. Turn lanes at K-113
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No signage for Linear Trail. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R12	Amhearst Ave Westbound	Linear Trail to Research Dr	N. Jaffar	15:00:00	Wednesday, February 07,	Neutral	0

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	1	4	No median/barriers to crossing Amhearst Ave. Turn lanes at K-113
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. No signage for Linear Trail. No cycle lane or color contrast
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R13	Farm Bureau Rd Eastbound	K-113 to Linear Trail	N. Jaffar	16:00:00	ednesday, February 07, 20	Neutral	0

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	1	4	No median/barrier to crossing Farm Bureau Rd. No turn lanes
Identifying Where To Go (Wayfinding)	1	4	Street names at K-113 intersection. No signage for Linear Trail. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Stops/ Feeling Comfortable	-3	-3	No rest points. Slight upgrade to K-113 otherwise no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R14	Farm Bureau Rd Westbound	Linear Trail to K-113	N. Jaffar	16:00:00	ednesday, February 07, 20	Neutral	0

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	1	4	No median/barrier to crossing Farm Bureau Rd. No turn lanes
Identifying Where To Go (Wayfinding)	1	4	Street names at K-113 intersection. No signage for Linear Trail. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Stops/ Feeling Comfortable	-3	-3	No rest points. Slight downgrade from K-113 otherwise no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R15	Southwind Rd Eastbound	Southwind Rd to frontage rd	N. Jaffar	17:00:00	ednesday, February 07, 20	Neutral	-8

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	Median reduces crossing Southwind Rd
Identifying Where To Go (Wayfinding)	1	4	Street names at K-113 intersection. No cycle lane or color contrast
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Stops/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R16	Southwind Rd Westbound	frontage rd to Southwind Rd	N. Jaffar	17:00:00	ednesday, February 07, 20	Neutral	-8

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation, no cycle lane
Permeability (Accessibility)/ Intersections	-1	-4	Median reduces crossing Southwind Rd
Identifying Where To Go (Wayfinding)	1	4	Street names at K-113 intersection. No cycle lane
Road Safety	-3	-15	Cycling on roadway, crossing K-113 difficult
Rest Stops/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Crossing K-113 reduces quality of the environment
Obstructions	1	2	No obstructions. No deviations, no sightline reductions

K-113/Seth Child Rd
Manhattan, KS
Street Audit - Cycle Routes

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R9	Anderson Ave Eastbound	Wreath Ave to Garden Way	N. Jaffar	14:00:00	Wednesday, February 07, 2	Neutral	7

Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	1	4	Raised median without breaks Anderson Ave between Wreath Ave & K-113. (Traffic signals at Anderson Ave & roundabout at Wreath Ave)
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. Signage for Linear Trail. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no seperate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

ID	Name	Description	Surveyor	Time	Date	Facility Type	Overall Total Score
R10	Anderson Ave Westbound	Garden Way to Wreath Ave	N. Jaffar	14:00:00	Wednesday, February 07, 2	Neutral	7

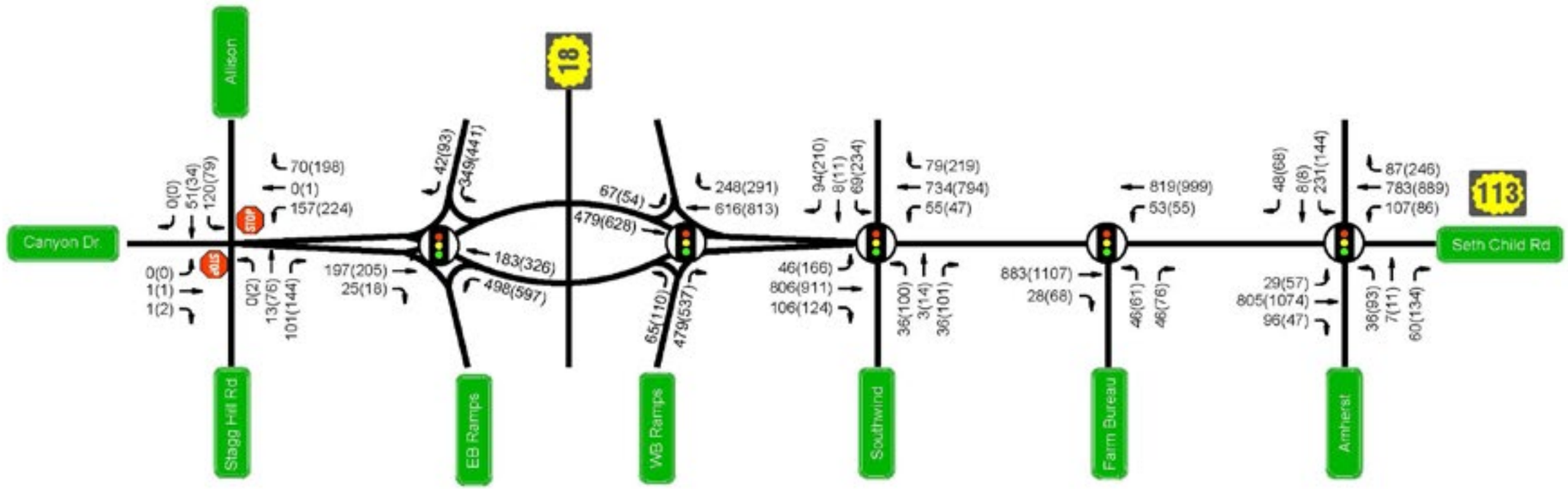
Parameter	Unweighted Score (-3 to +3)	Weighted Score	Design Comments
Directness	2	10	No deviation. No cycle lane
Permeability (Accessibility)/ Intersections	1	4	Raised median without breaks Anderson Ave between Wreath Ave & K-113. (Traffic signals at Anderson Ave & roundabout at Wreath Ave)
Identifying Where To Go (Wayfinding)	1	4	Street names at intersections. Signage for Linear Trail. No cycle lane
Road Safety	-2	-10	Busy roadway. Cycling on roadway or sidewalk, no seperate facilities
Rest Points/ Feeling Comfortable	-3	-3	No rest points, no severe grades
Quality of the Environment	-2	-2	Busy roadway reduces quality of the environment
Obstructions	2	4	No roadway/sidewalk obstructions. No deviations, no sightline reductions

APPENDIX D EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

APPENDIX D | K-18 TO AMHERST AVENUE

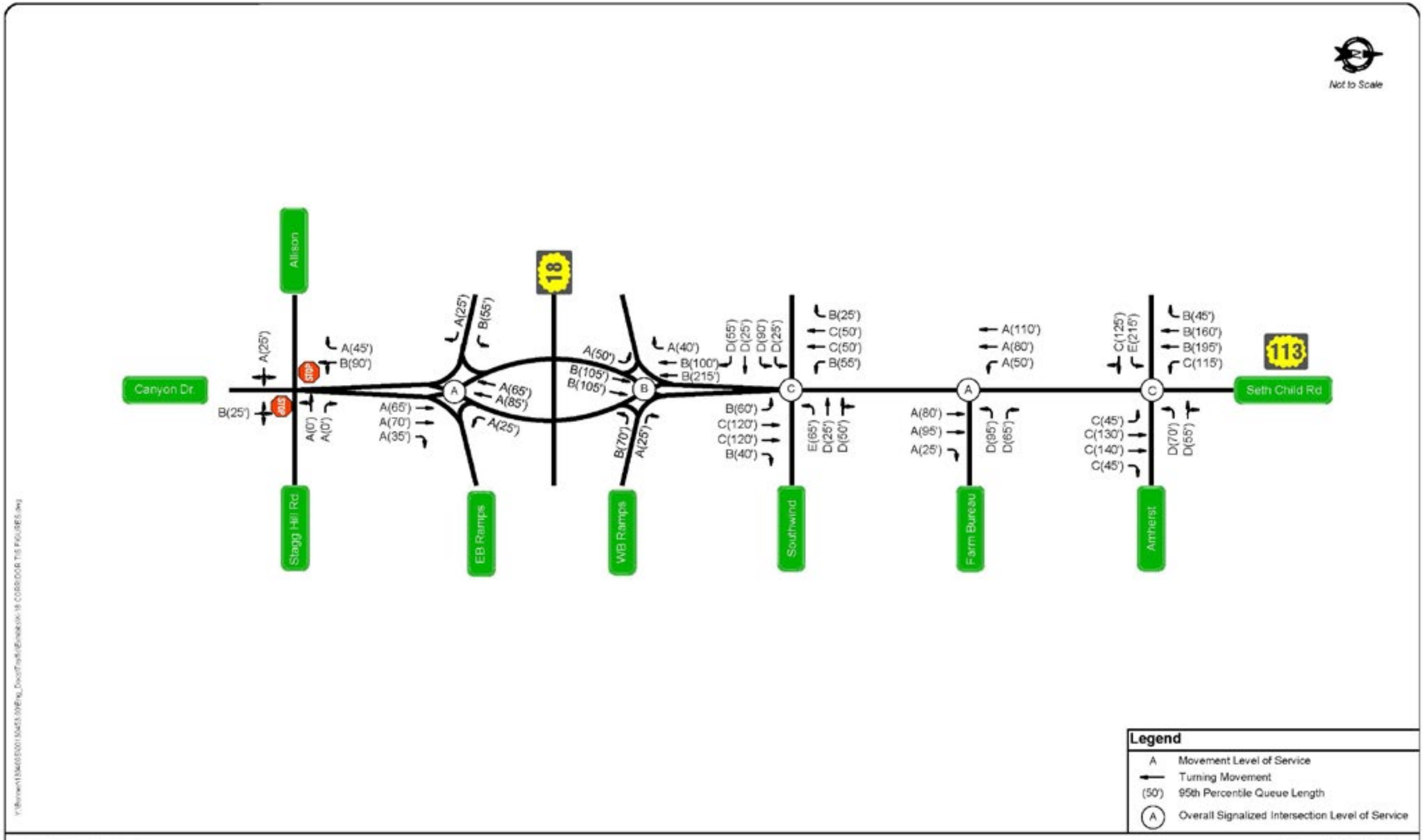
FIGURE D1 – EXISTING PEAK HOURS TRAFFIC VOLUMES
FIGURE D2 – EXISTING AM PEAK HOUR LEVEL OF SERVICE
FIGURE D3 – EXISTING PM PEAK HOUR LEVEL OF SERVICE
FIGURE D4 – 2040 NO BUILD PEAK HOUR TRAFFIC VOLUMES
FIGURE D5 – 2040 NO BUILD AM PEAK HOUR LEVEL OF SERVICE
FIGURE D6 – 2040 NO BUILD PM PEAK HOUR LEVEL OF SERVICE

Not to Scale



K-113 Corridor Study
Manhattan, KS

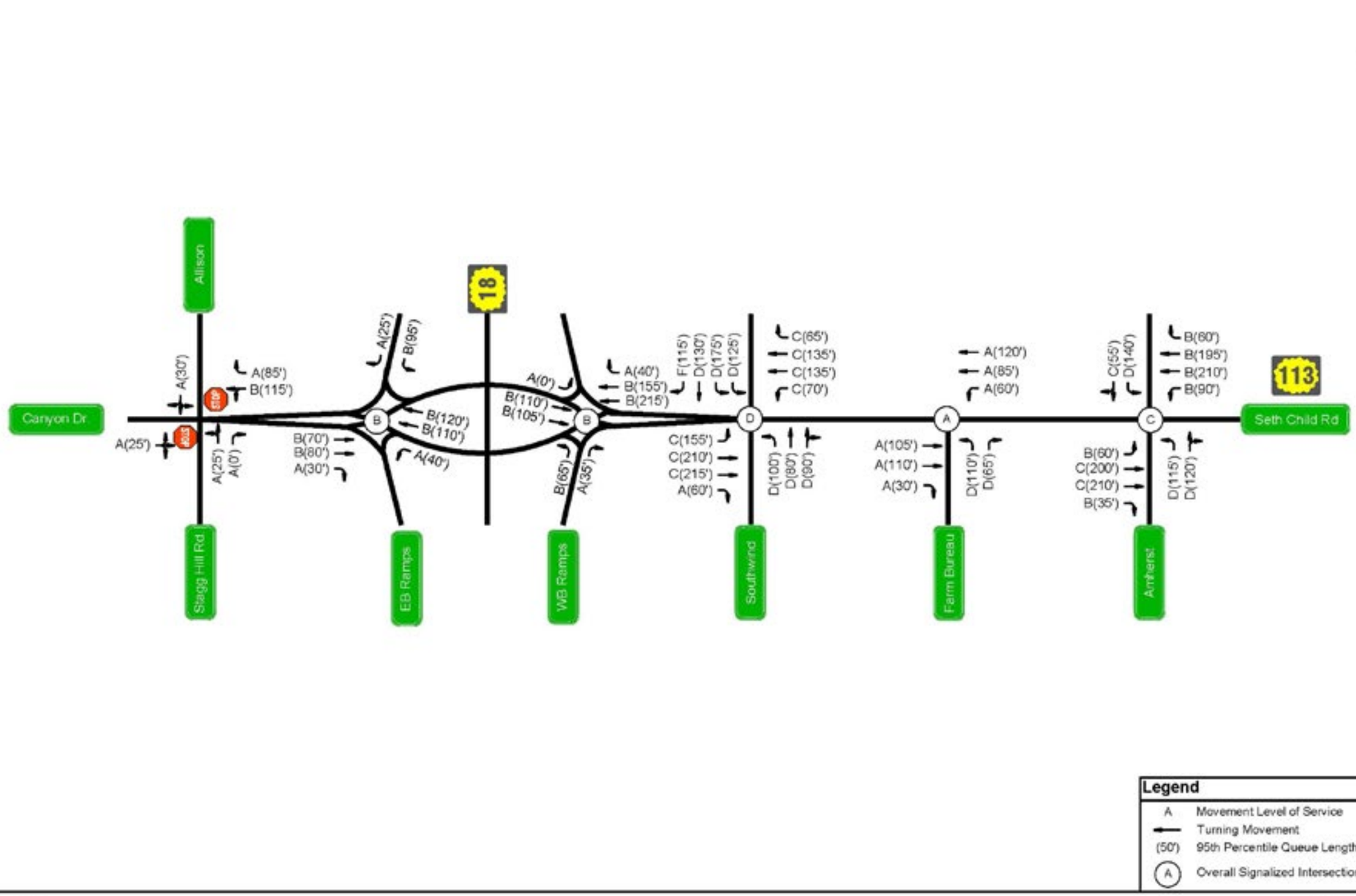
Year 2017 Existing
Amherst to K-18 Corridor Peak Hour Turning Movement Volumes
Figure D1



K-113 Corridor Study
Manhattan, KS

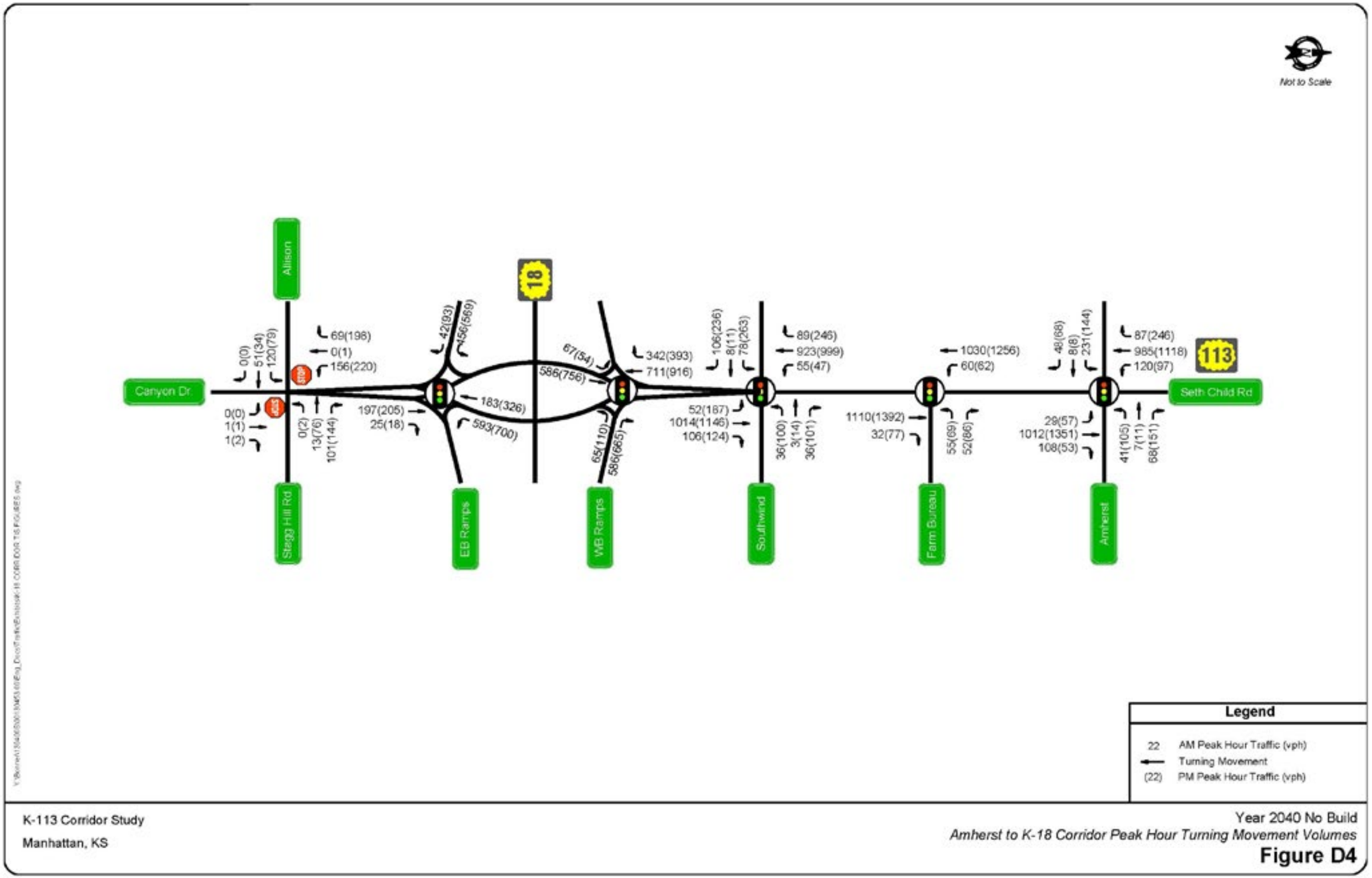
Year 2017 Existing
Amherst to K-18 Corridor AM Peak Hour Level of Service
Figure D2

APPENDIX D EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS



K-113 Corridor Study
Manhattan, KS

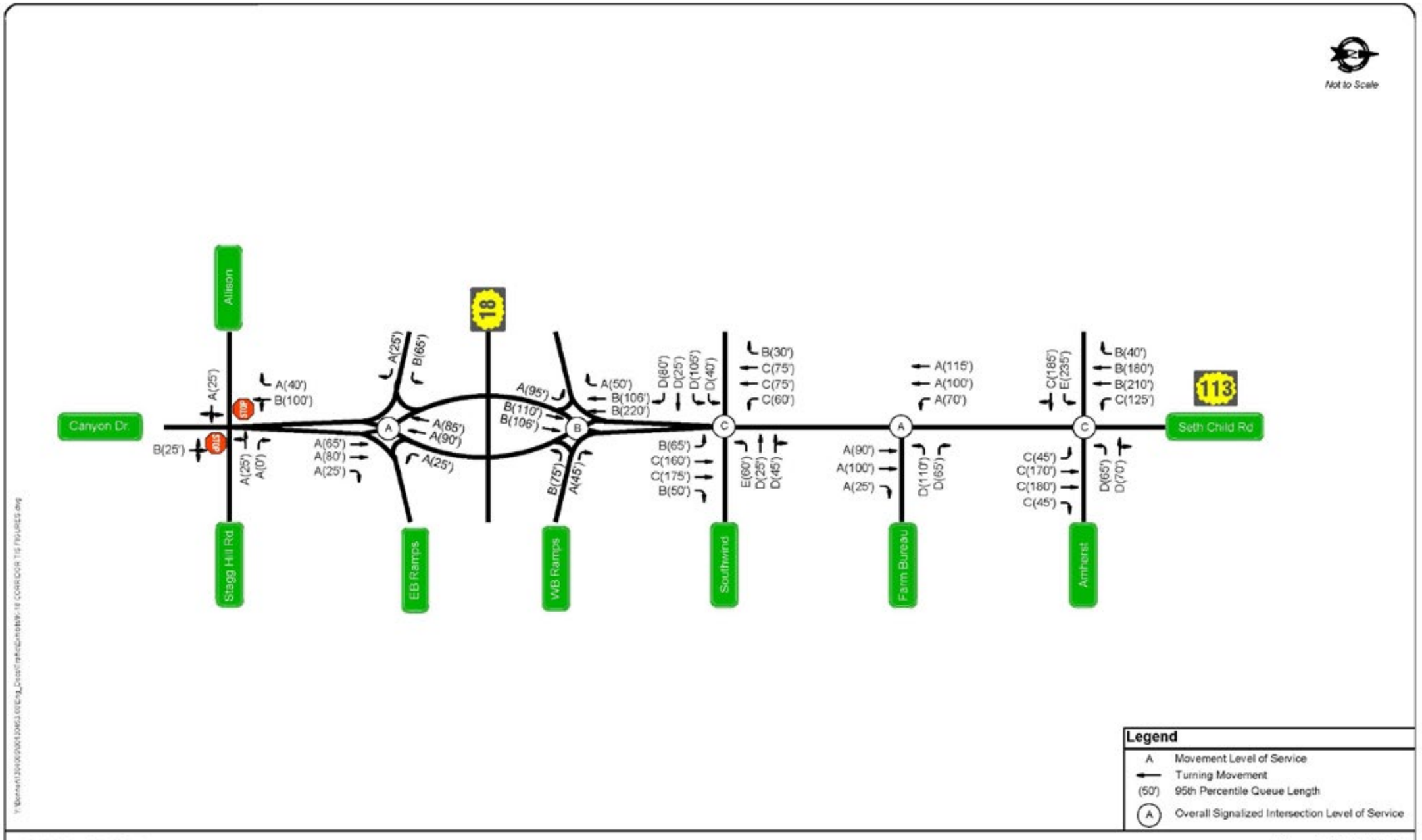
Year 2017 Existing
Amherst to K-18 Corridor PM Peak Hour Level of Service
Figure D3



K-113 Corridor Study
Manhattan, KS

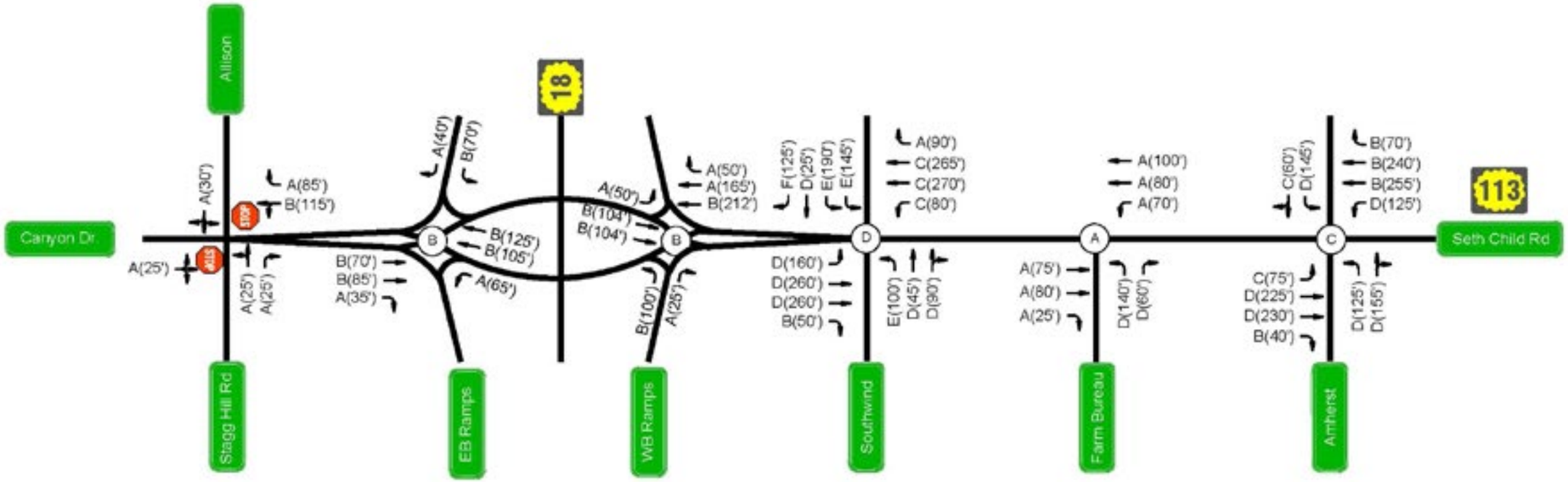
Year 2040 No Build
Amherst to K-18 Corridor Peak Hour Turning Movement Volumes
Figure D4

APPENDIX D EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Amherst to K-18 Corridor AM Peak Hour Level of Service
Figure D5

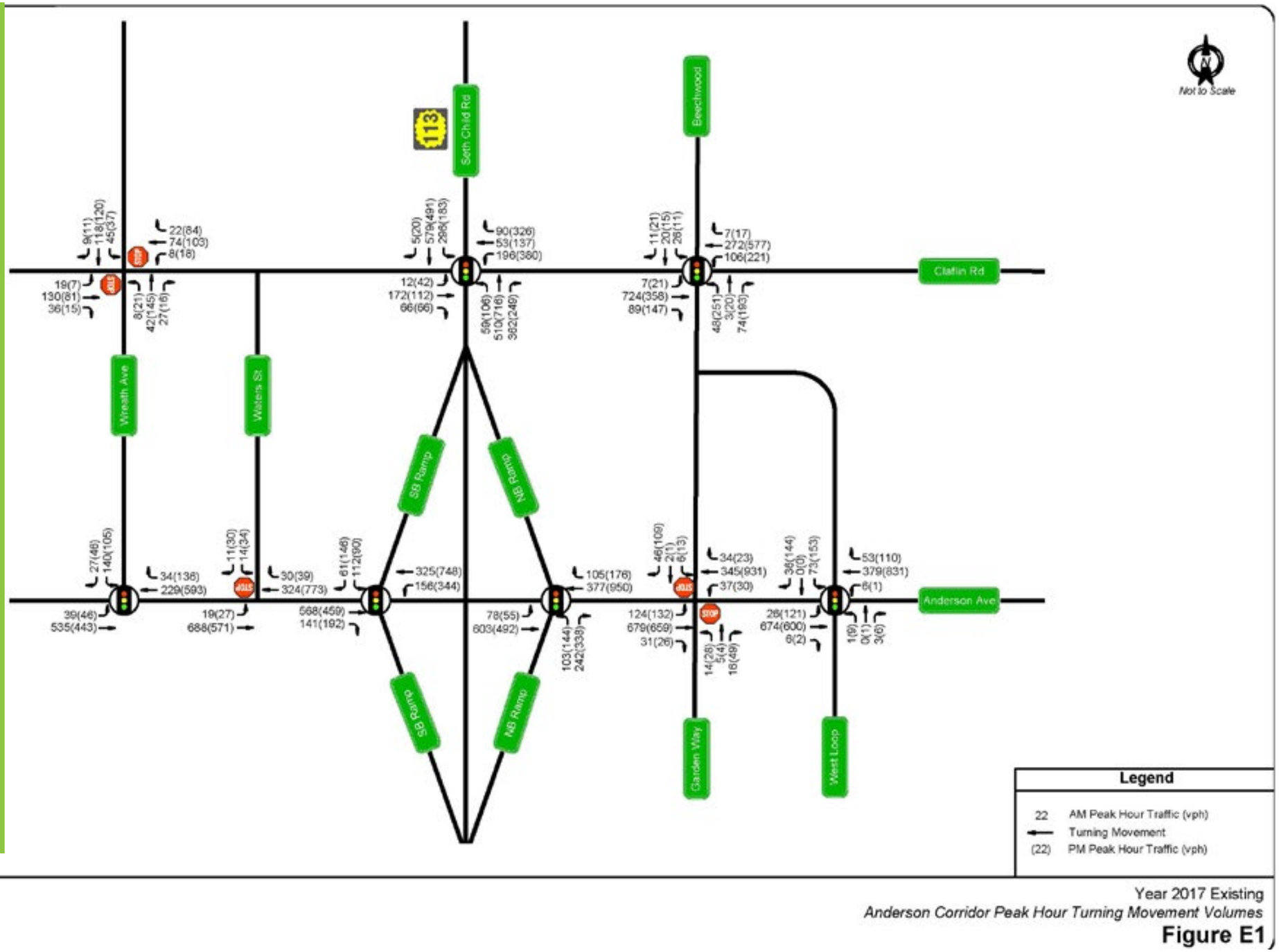


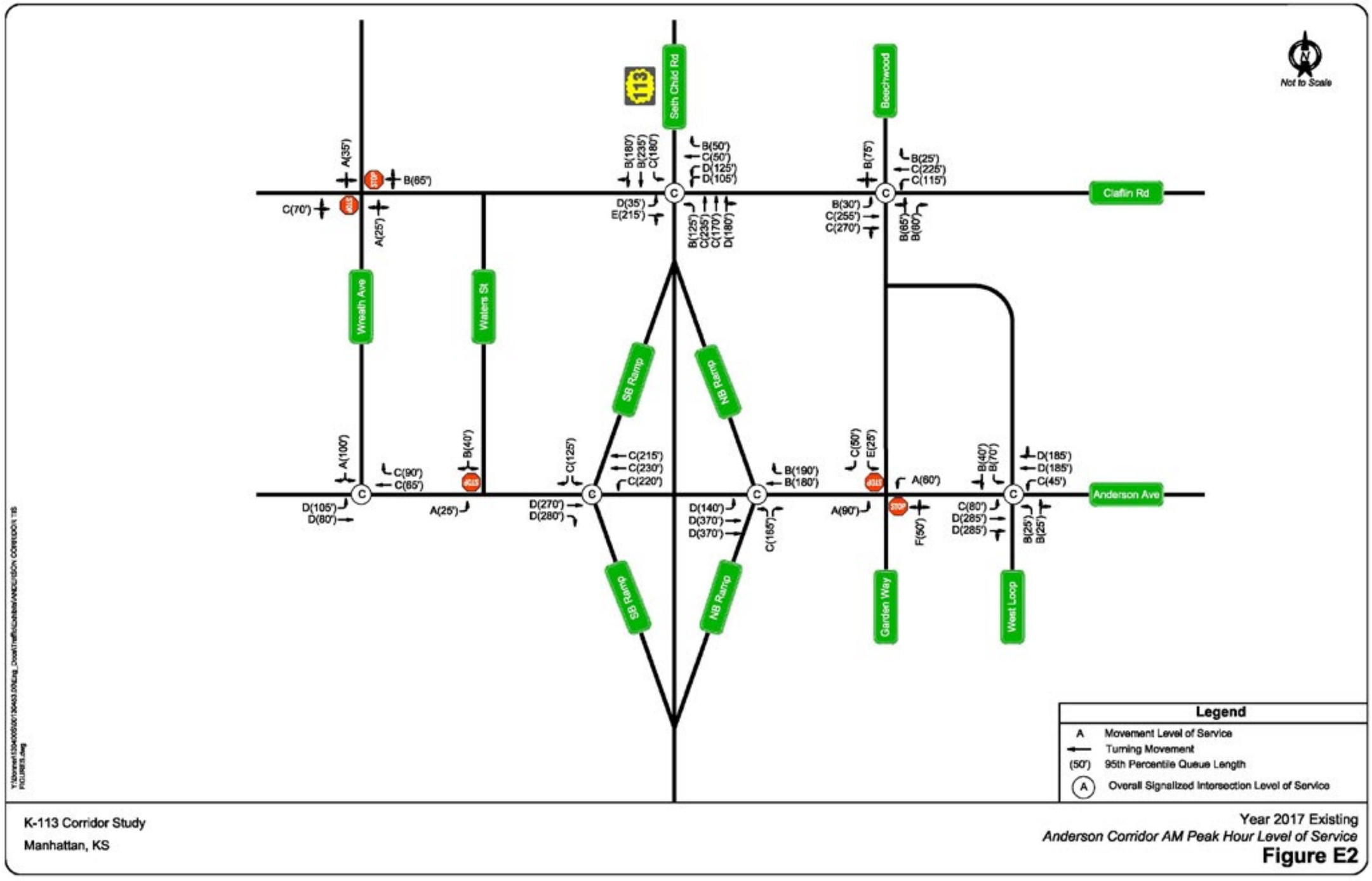
K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Amherst to K-18 Corridor PM Peak Hour Level of Service
Figure D6

APPENDIX E EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

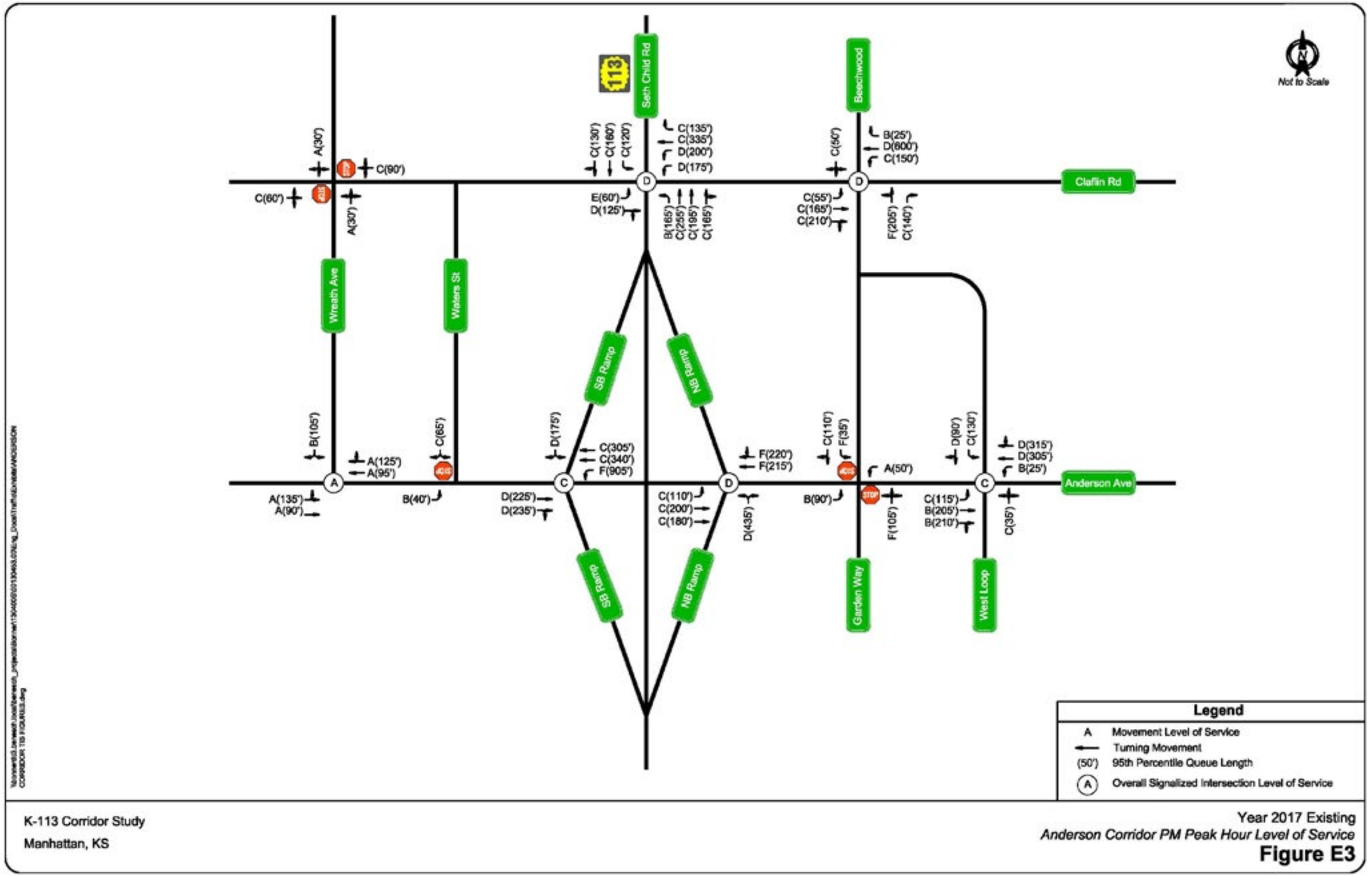
APPENDIX E | ANDERSON CORRIDOR





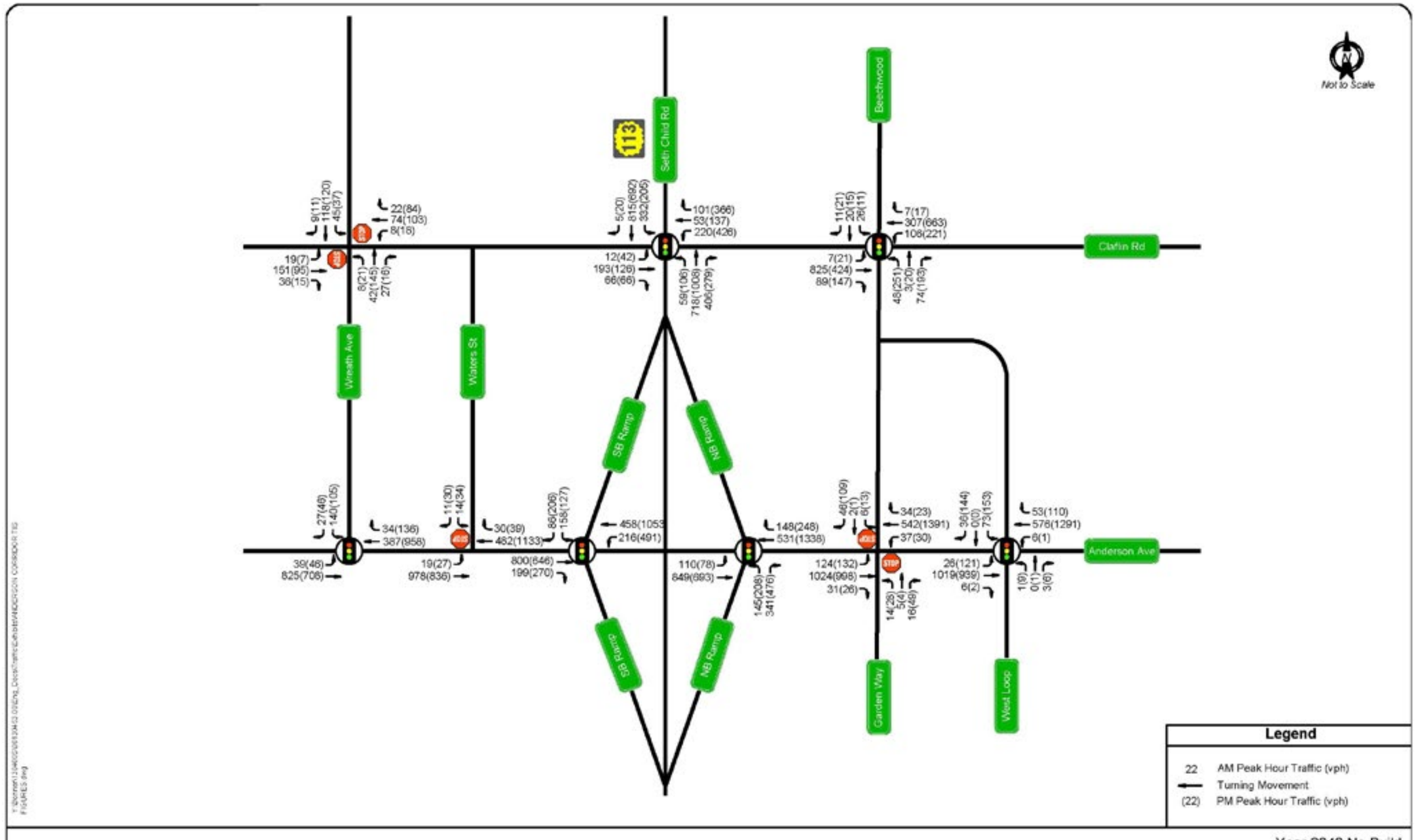
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Anderson Corridor AM Peak Hour Level of Service
Figure E2



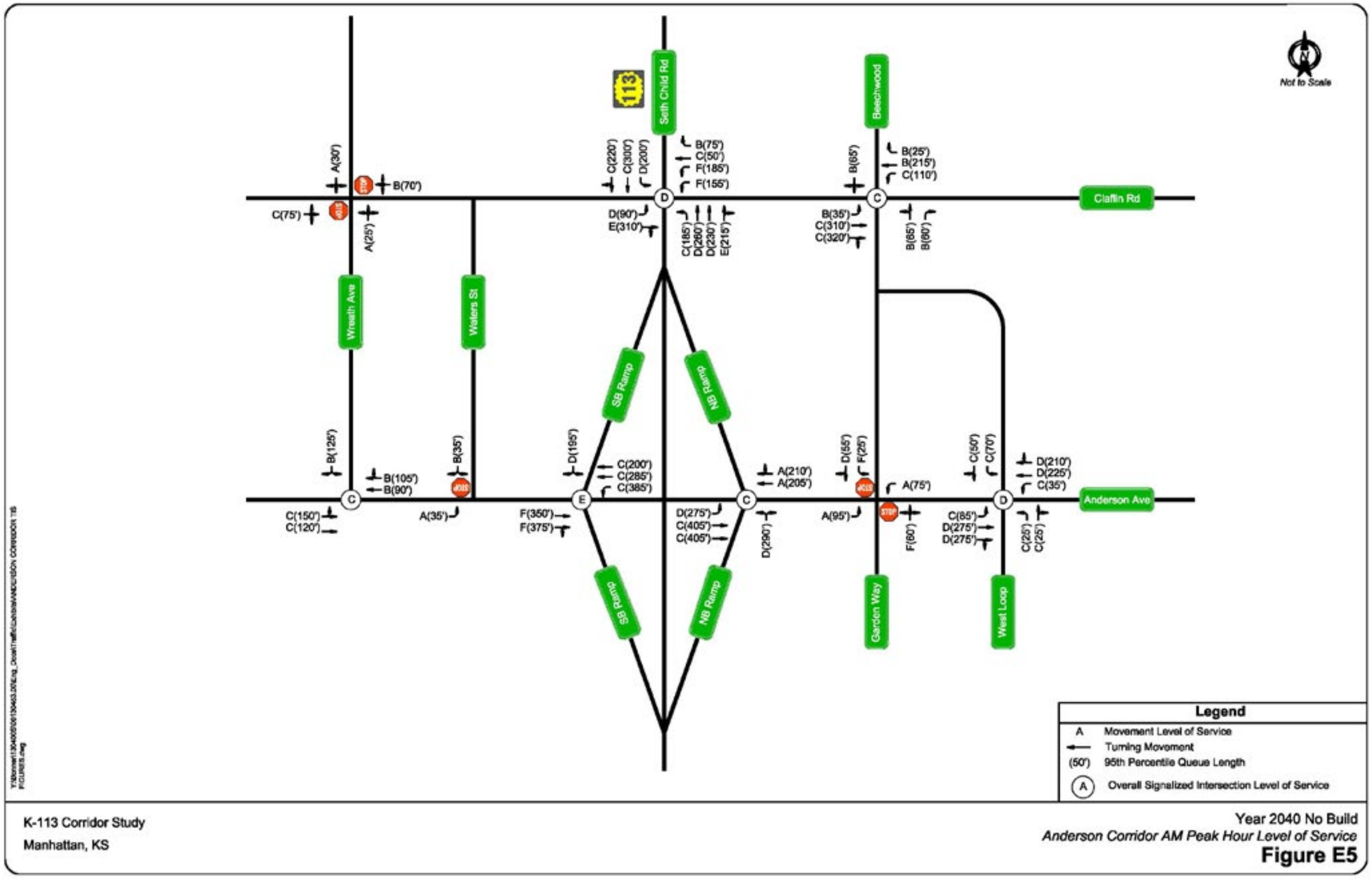
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Anderson Corridor PM Peak Hour Level of Service
Figure E3



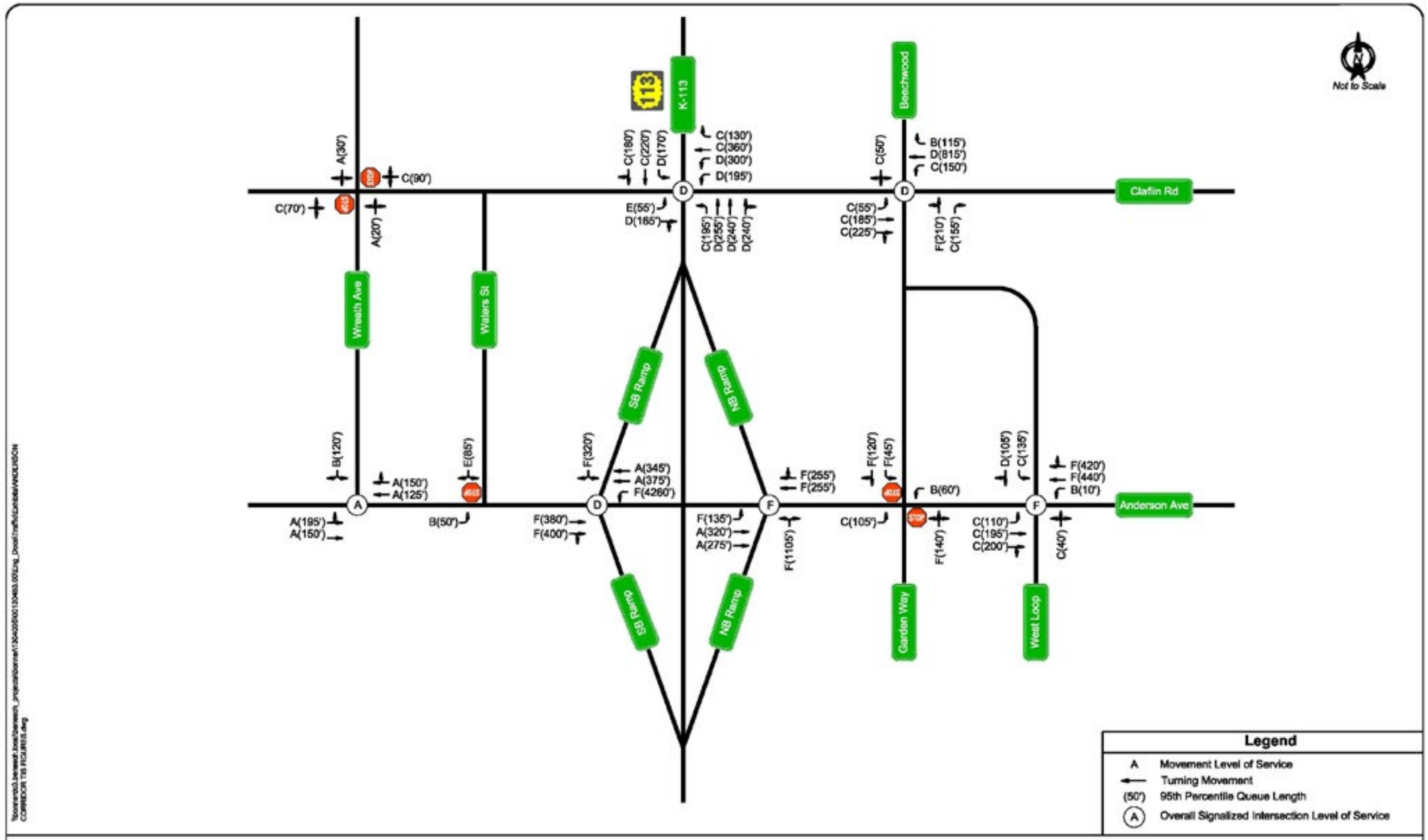
K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Anderson Corridor Peak Hour Turning Movement Volumes
Figure E4



K-113 Corridor Study
Manhattan, KS

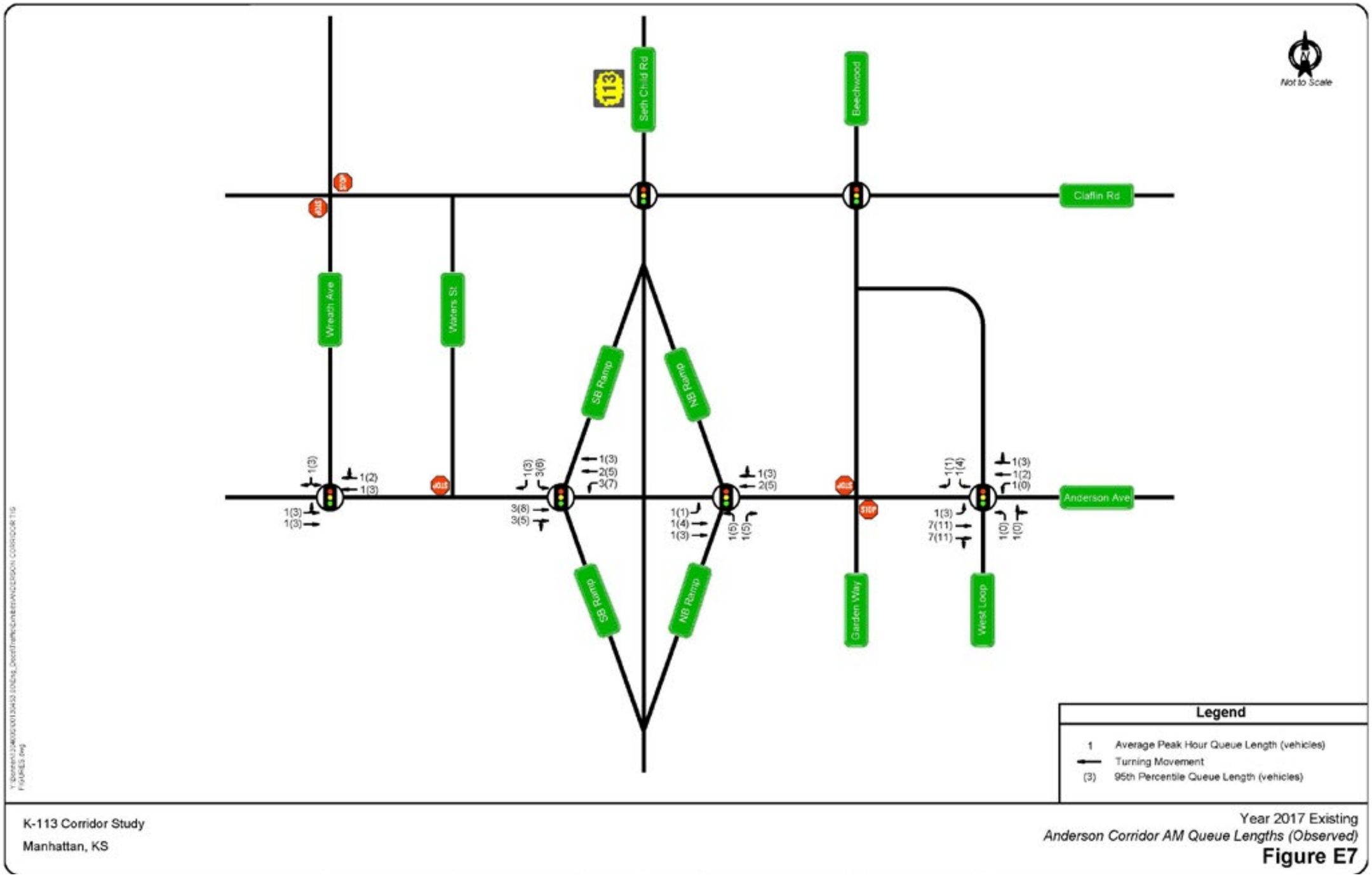
Year 2040 No Build
Anderson Corridor AM Peak Hour Level of Service
Figure E5



K-113 Corridor Study
Manhattan, KS

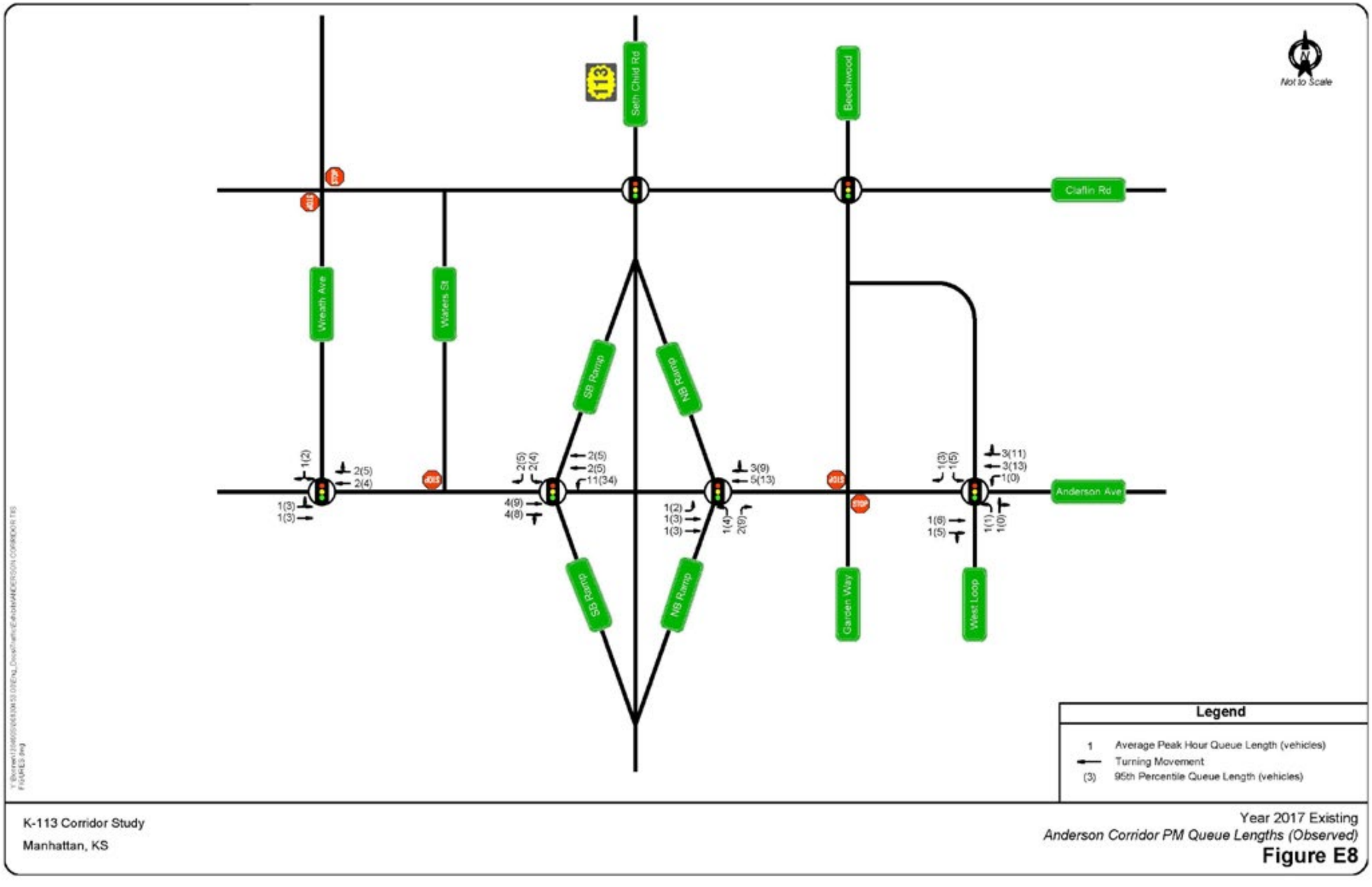
Year 2040 No Build
Anderson Corridor PM Peak Hour Level of Service
Figure E6

APPENDIX E EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS



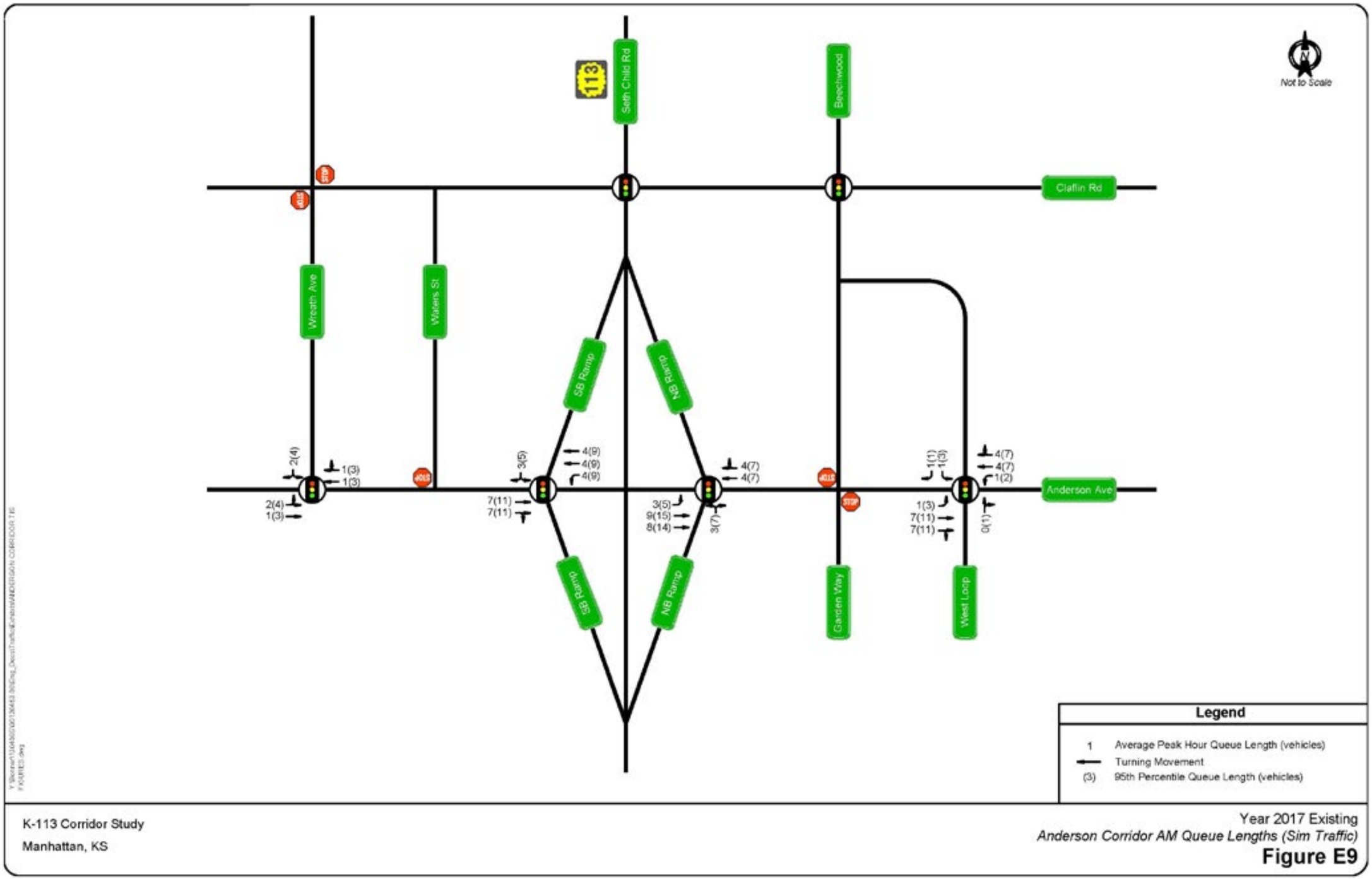
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Anderson Corridor AM Queue Lengths (Observed)
Figure E7



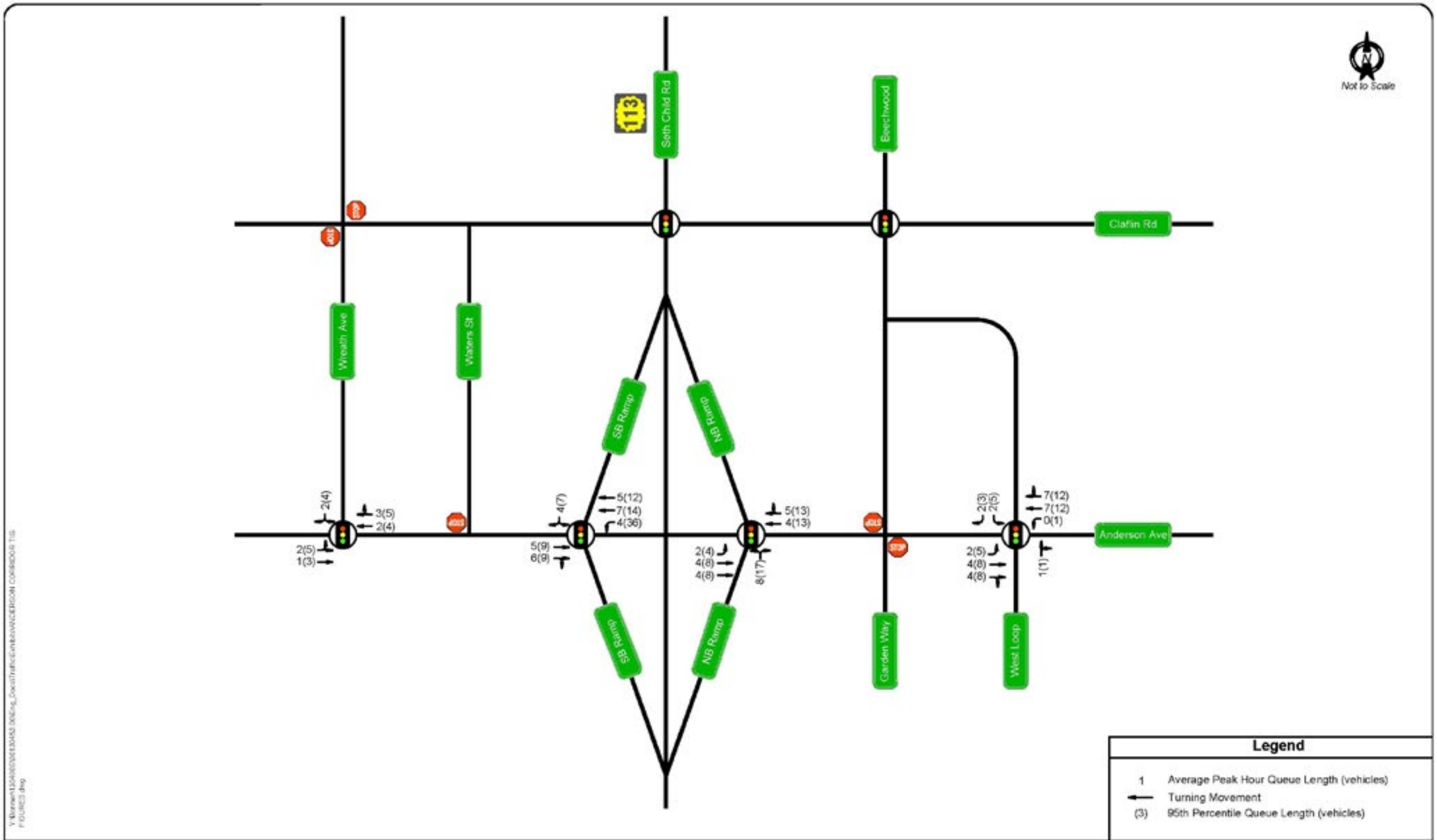
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Anderson Corridor PM Queue Lengths (Observed)
Figure E8



K-113 Corridor Study
Manhattan, KS

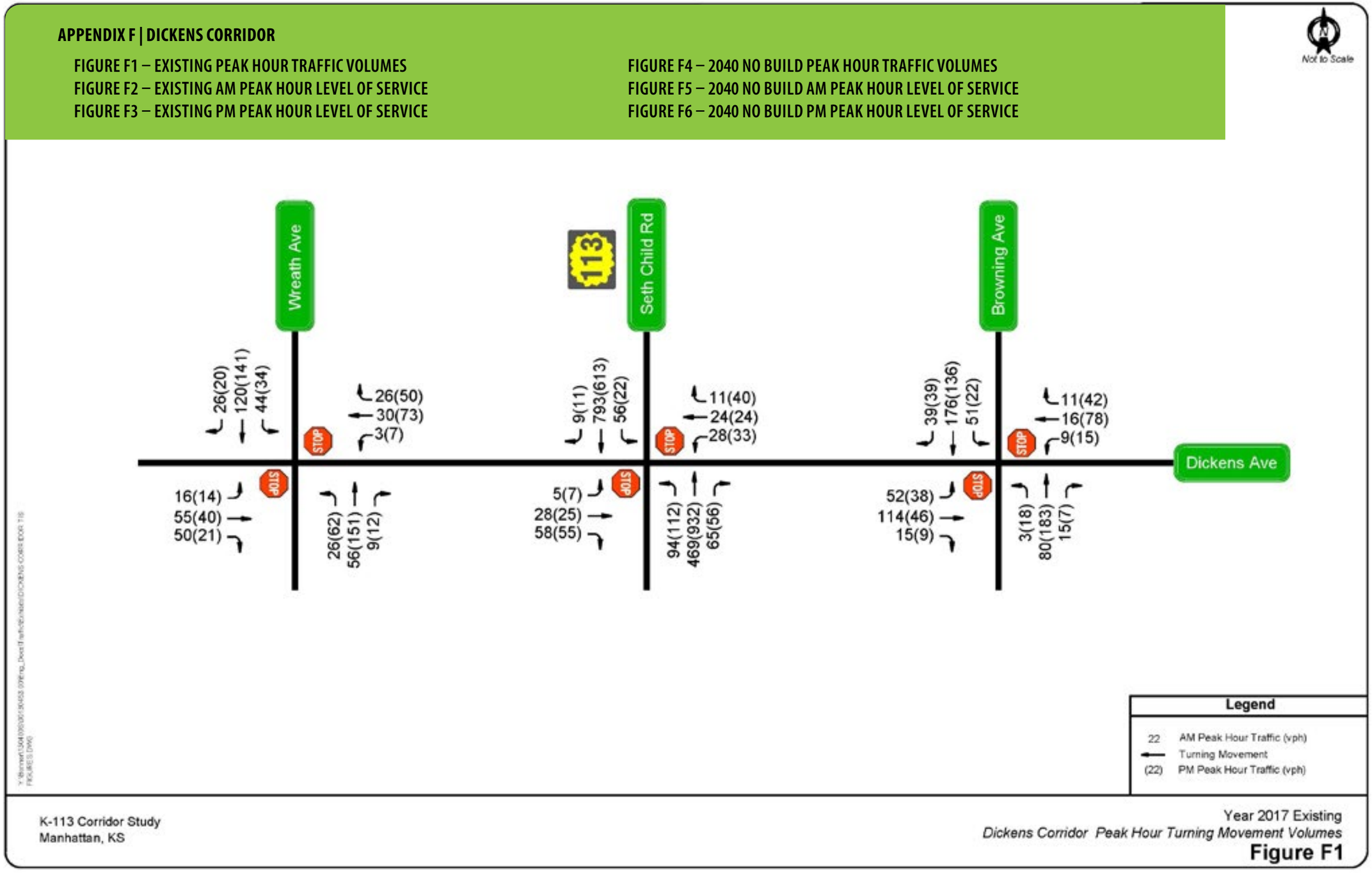
Year 2017 Existing
Anderson Corridor AM Queue Lengths (Sim Traffic)
Figure E9

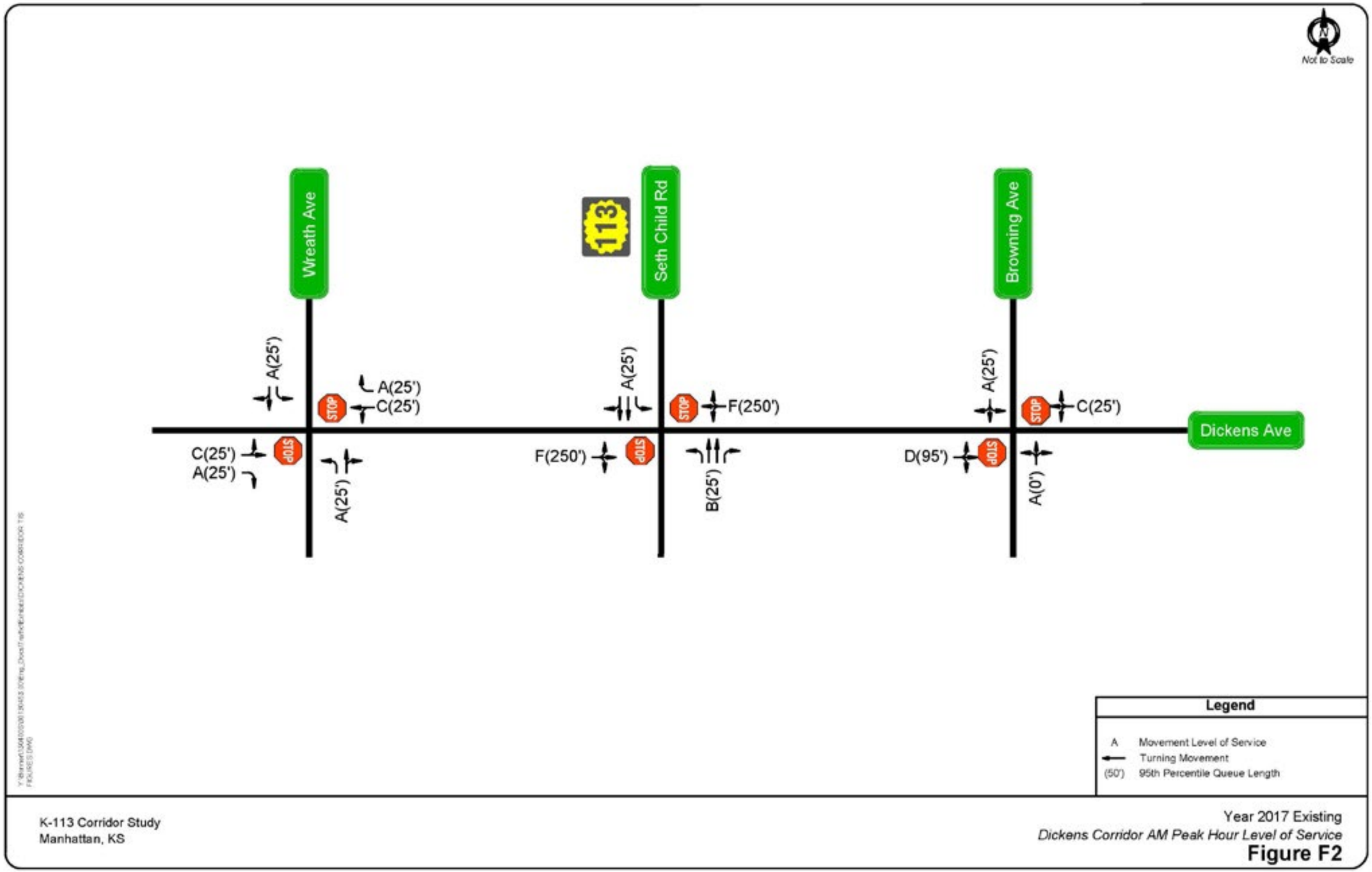


K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Anderson Corridor PM Queue Lengths (Sim Traffic)
Figure E10

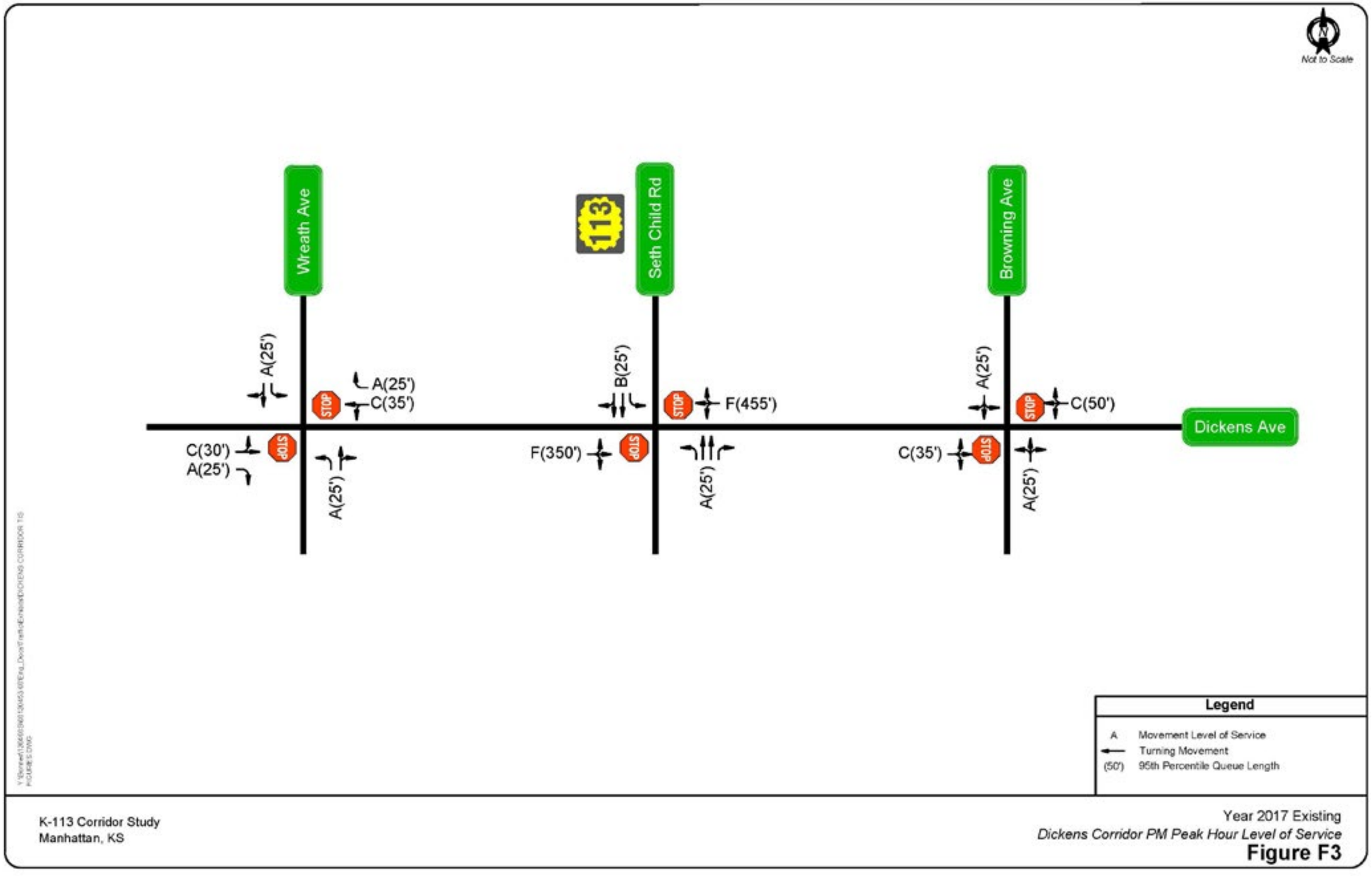
APPENDIX F | DICKENS CORRIDOR

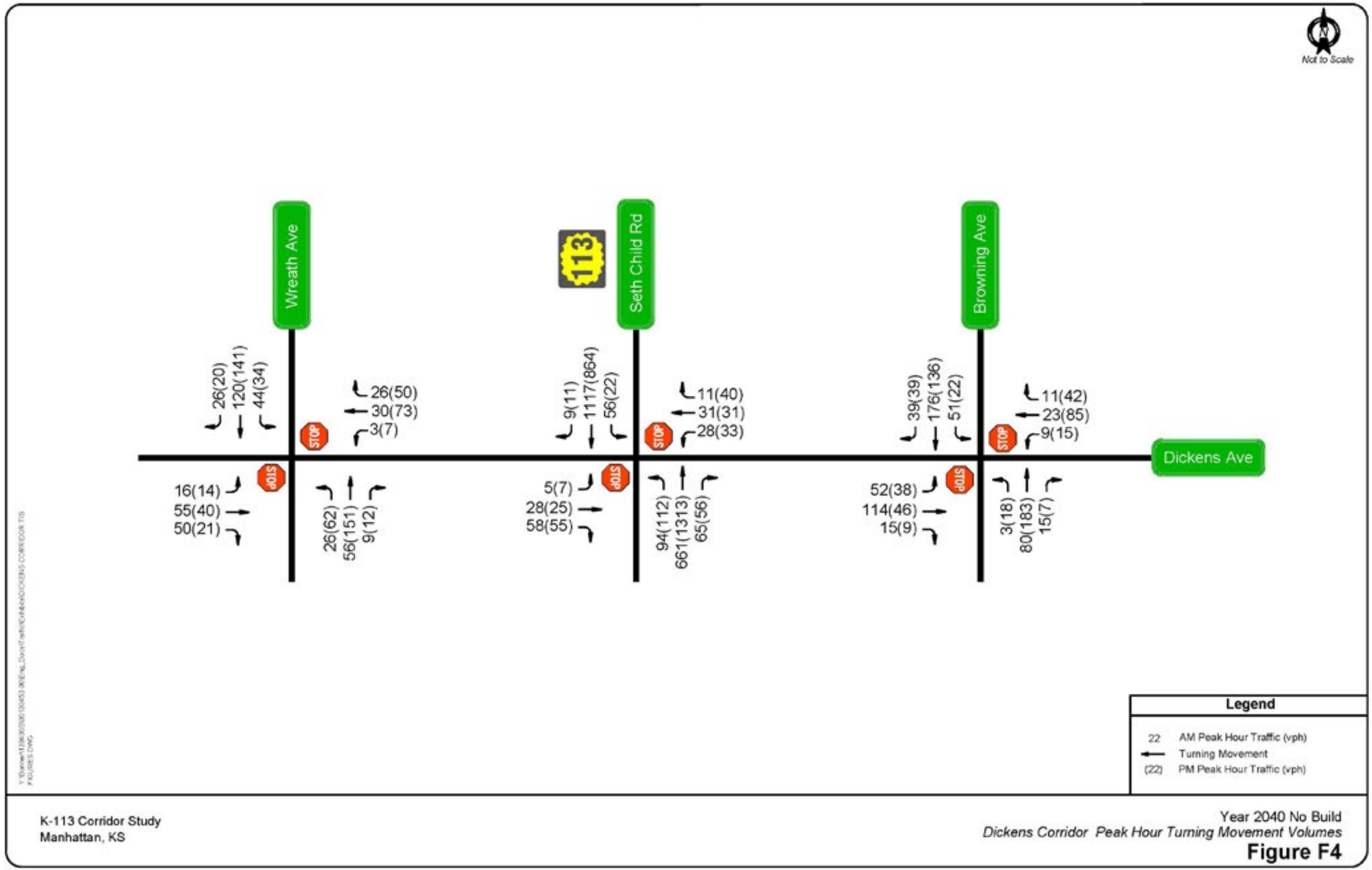




K-113 Corridor Study
Manhattan, KS

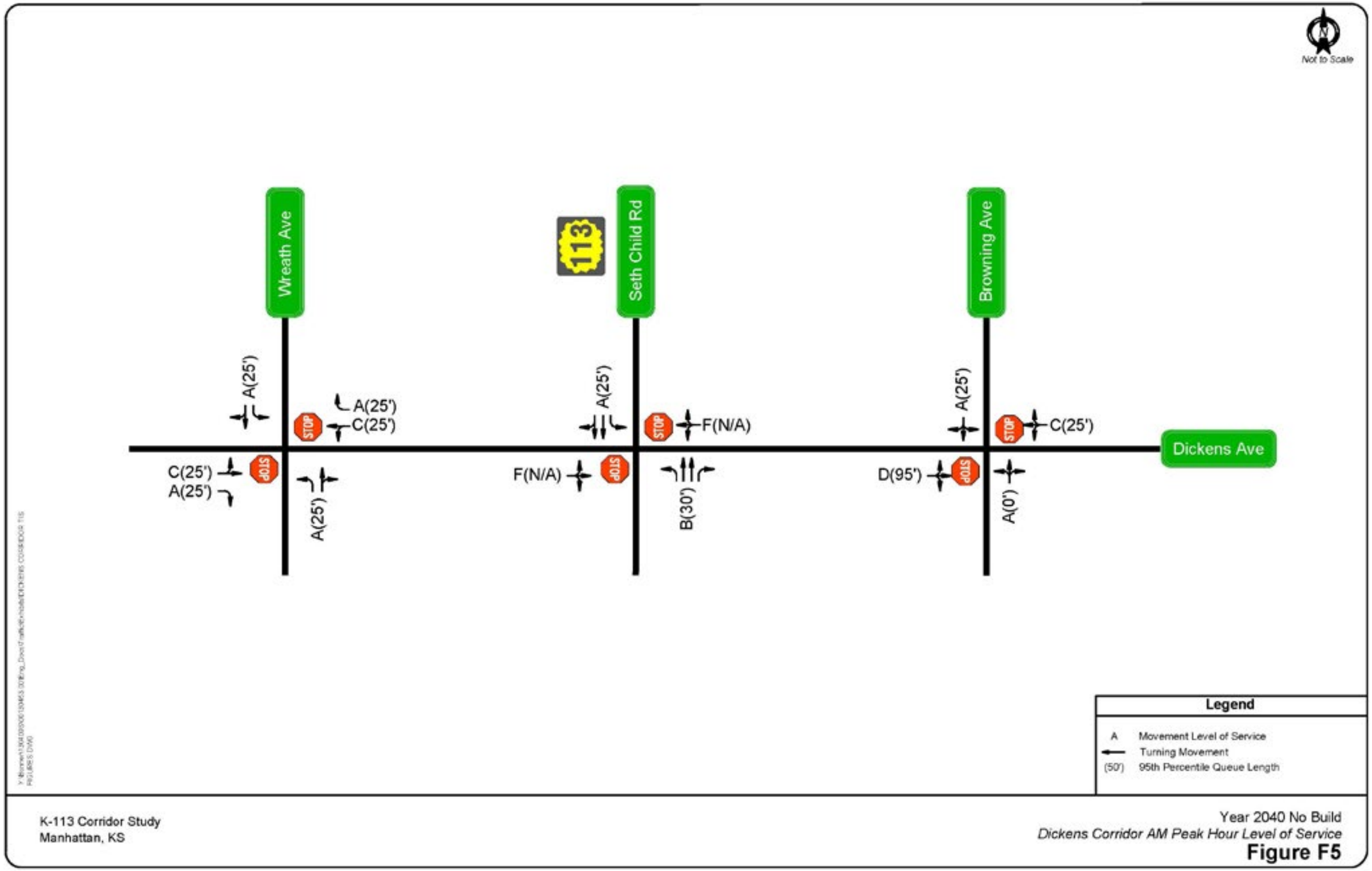
Year 2017 Existing
Dickens Corridor AM Peak Hour Level of Service
Figure F2

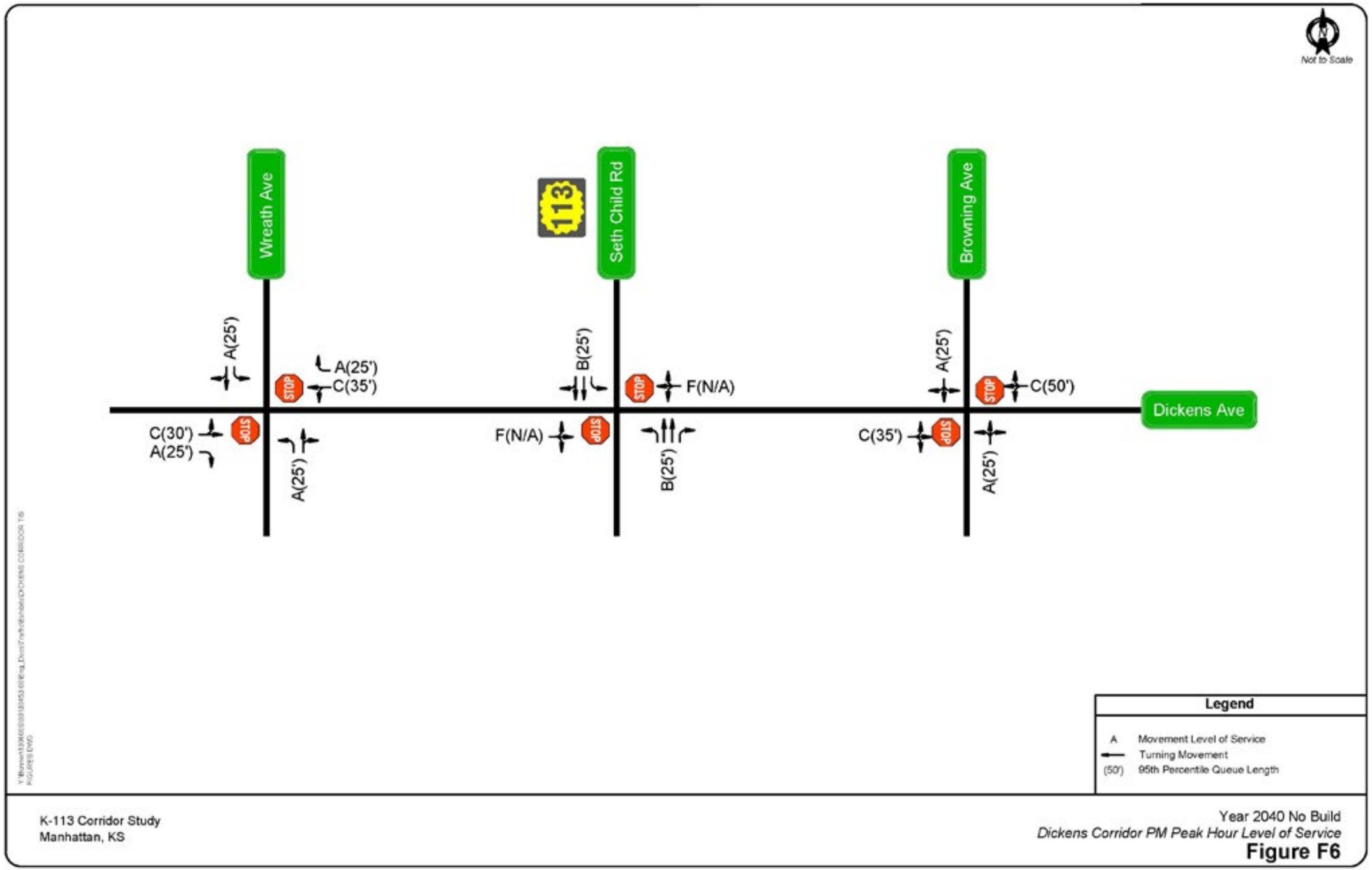

Not to Scale
Wreath Ave
Seth Child Rd
113
Browning Ave
Dickens Ave
A(25')
A(25')
C(35')
B(25')
F(455')
A(25')
C(50')
C(30')
A(25')
A(25')
F(350')
A(25')
C(35')
A(25')
STOP
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
K-113 Corridor Study
Manhattan, KS
Year 2017 Existing
Dickens Corridor PM Peak Hour Level of Service
Figure F3



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Dickens Corridor Peak Hour Turning Movement Volumes
Figure F4

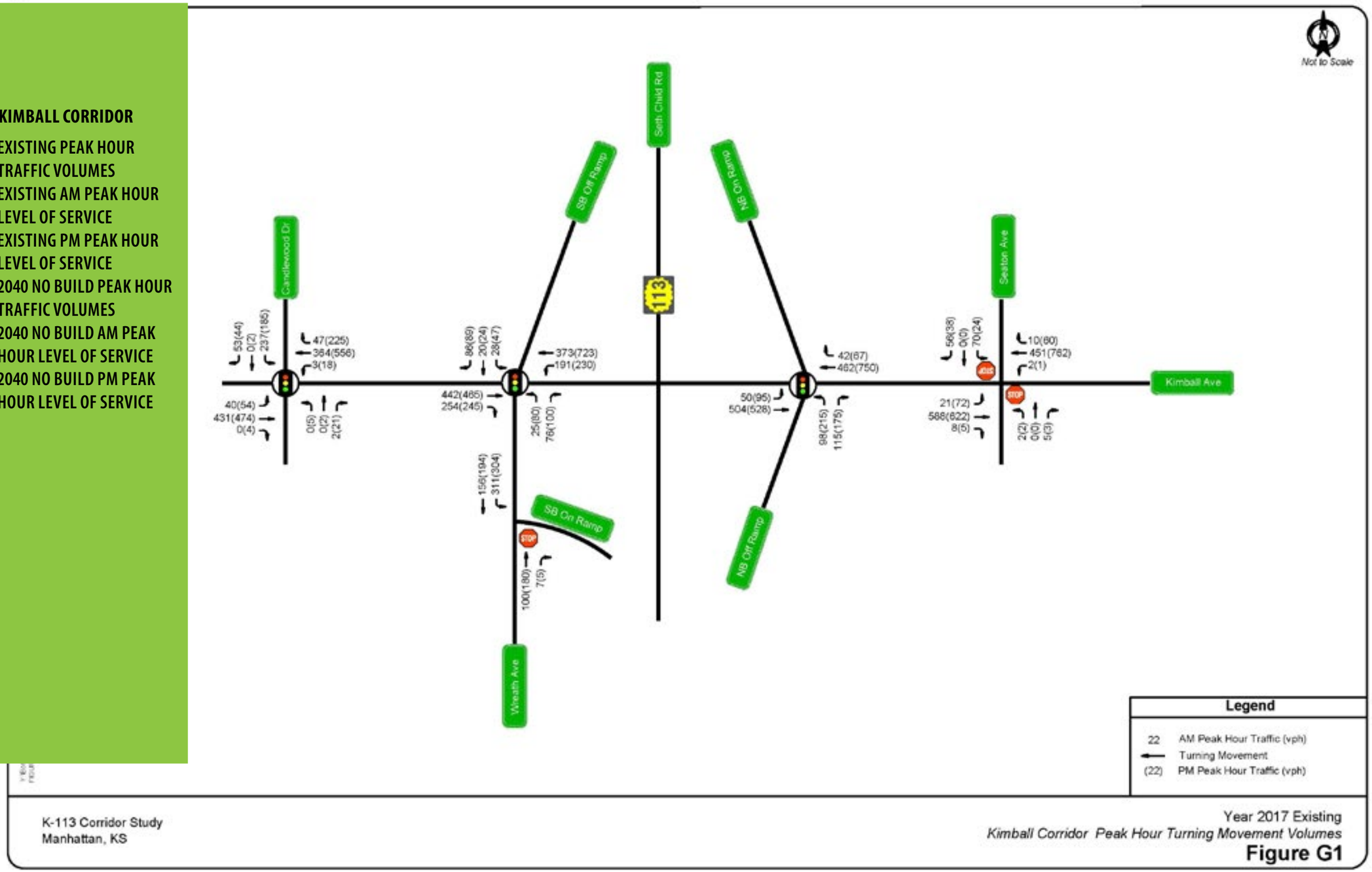

Not to Scale
Wreath Ave
Seth Child Rd
113
Browning Ave
Dickens Ave
A(25')
C(25')
STOP
F(N/A)
B(30')
D(95')
A(0')
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
K-113 Corridor Study
Manhattan, KS
Year 2040 No Build
Dickens Corridor AM Peak Hour Level of Service
Figure F5

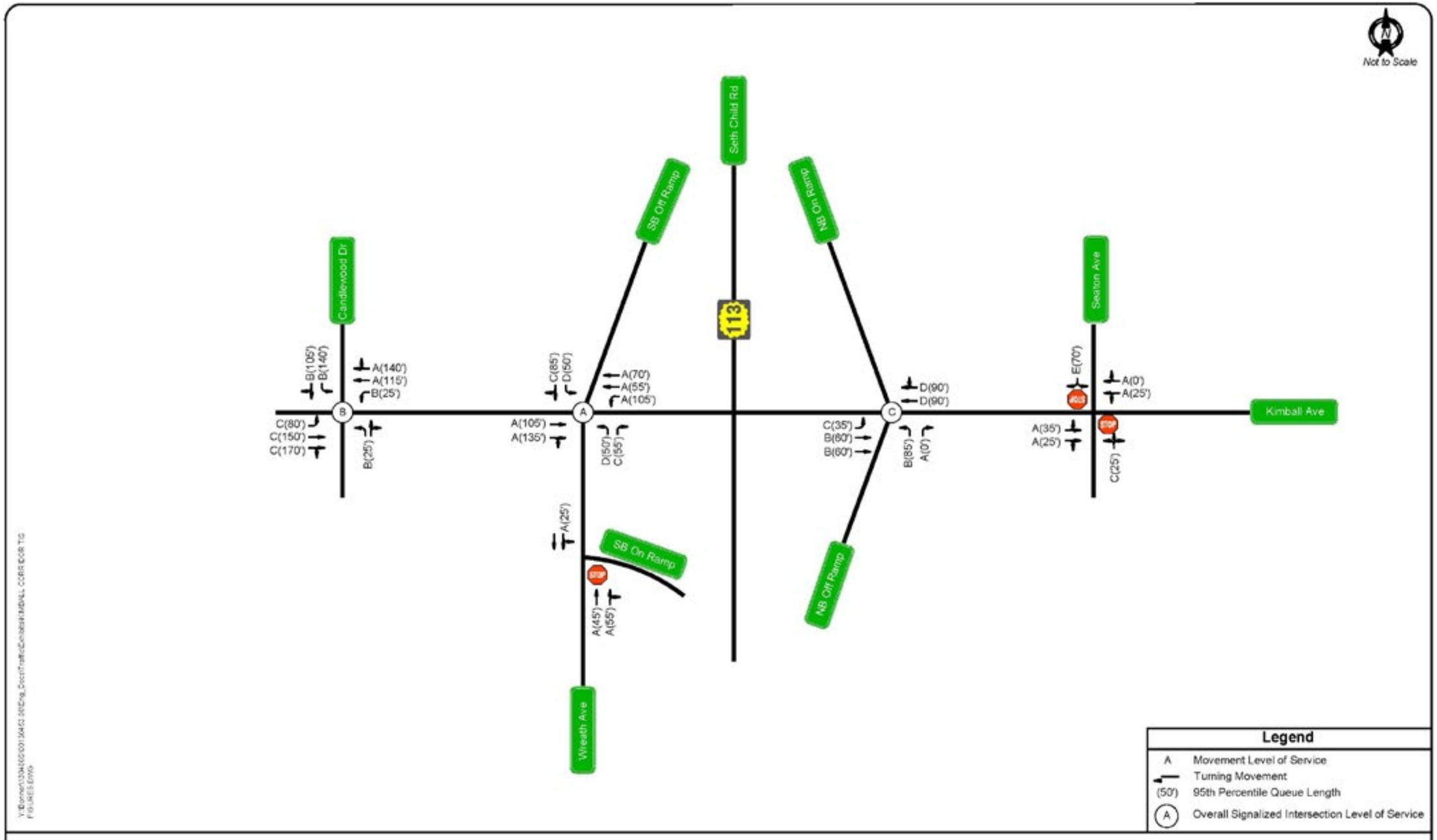


K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Dickens Corridor PM Peak Hour Level of Service
Figure F6

APPENDIX G EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

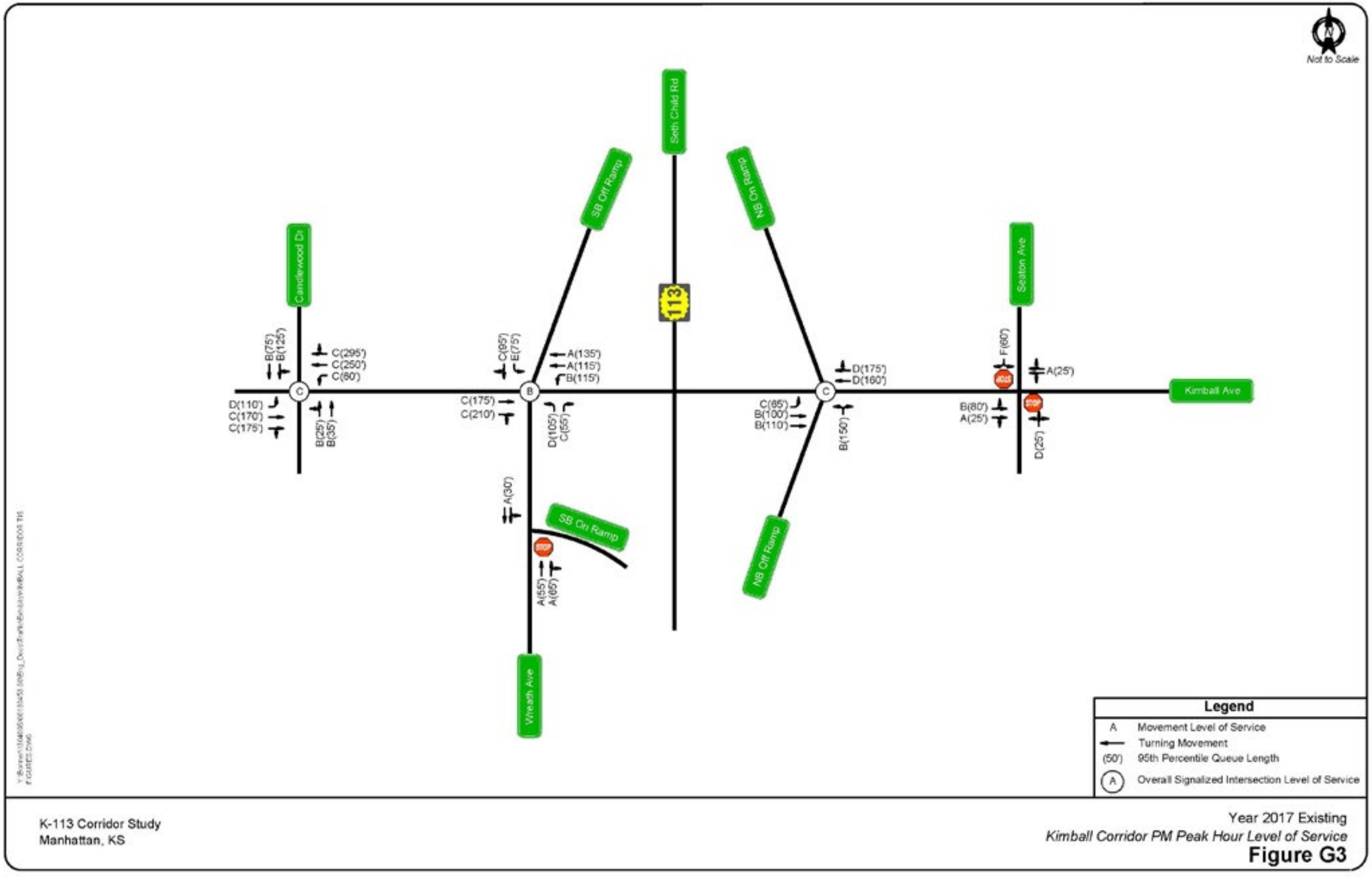


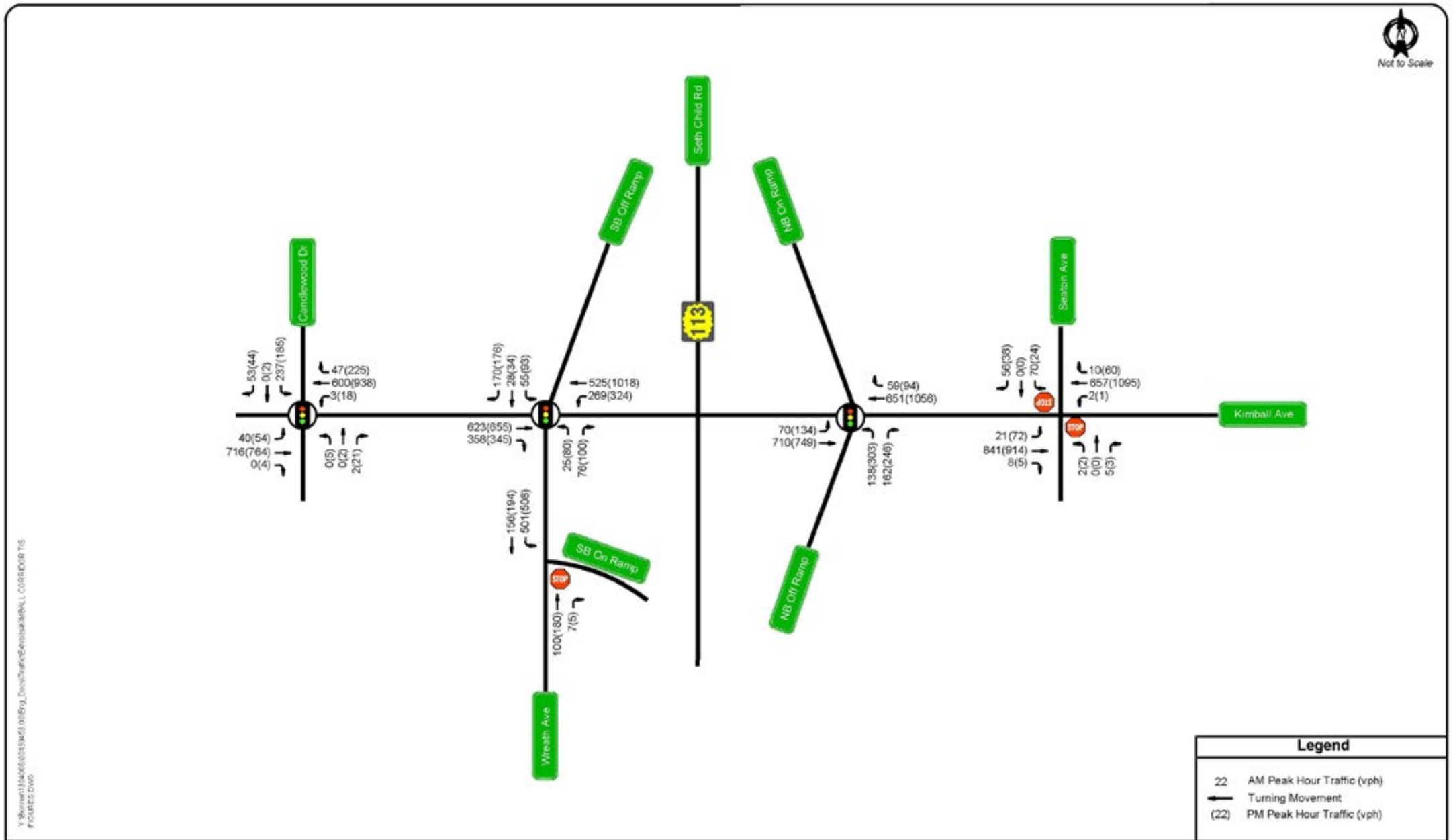


K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Kimball Corridor AM Peak Hour Level of Service
Figure G2

APPENDIX G EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

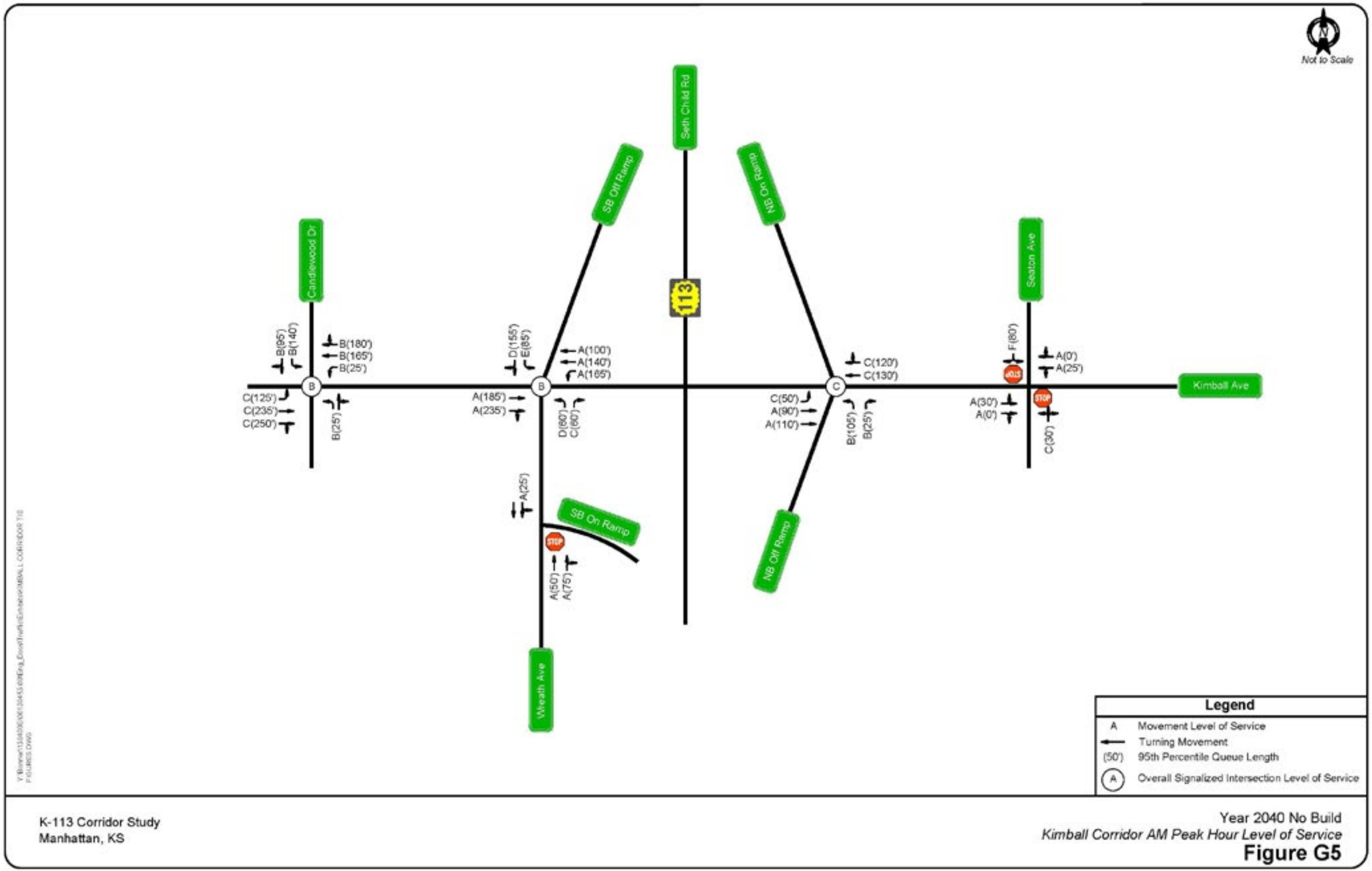


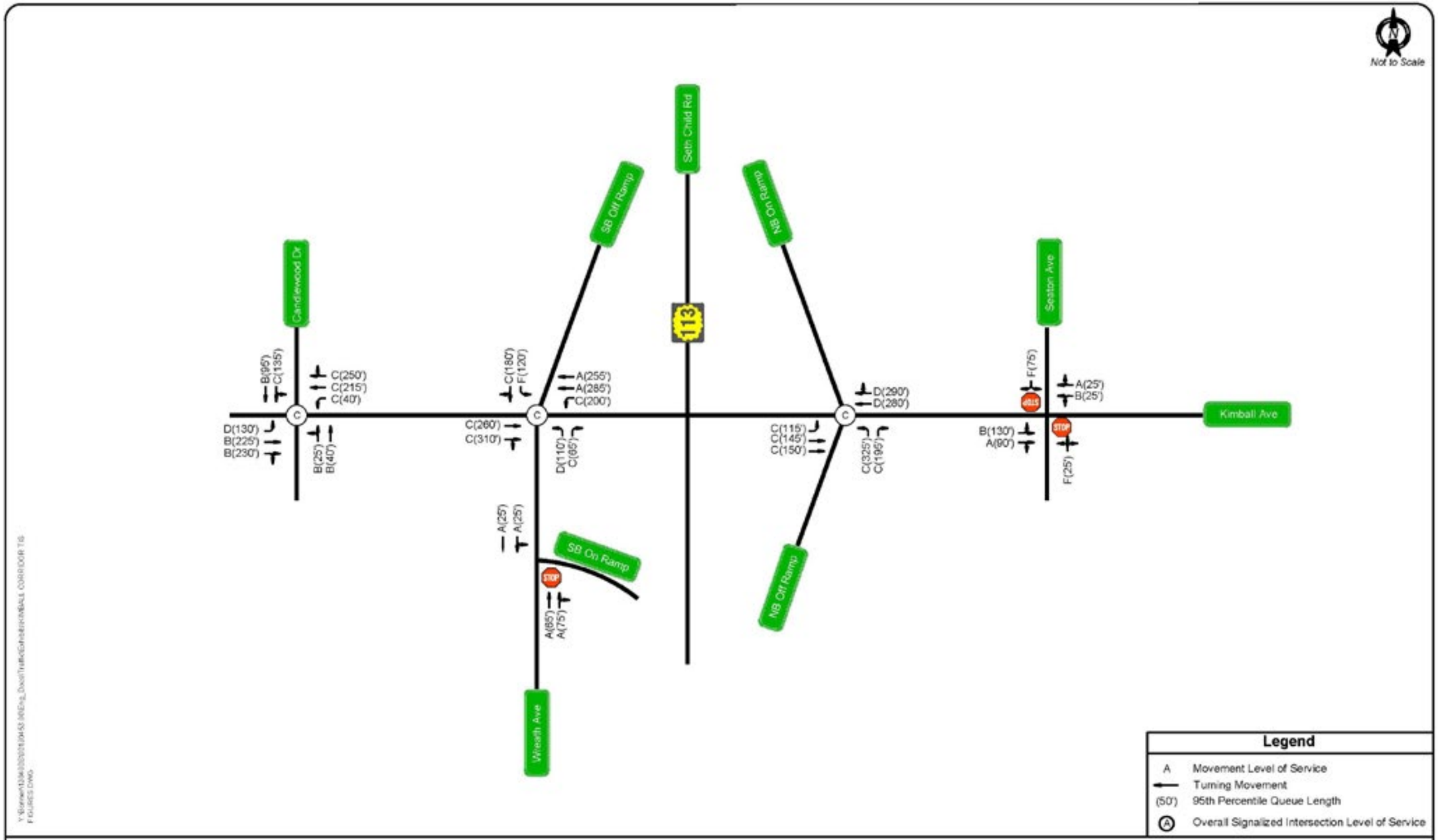


K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Kimball Corridor Peak Hour Turning Movement Volumes
Figure G4

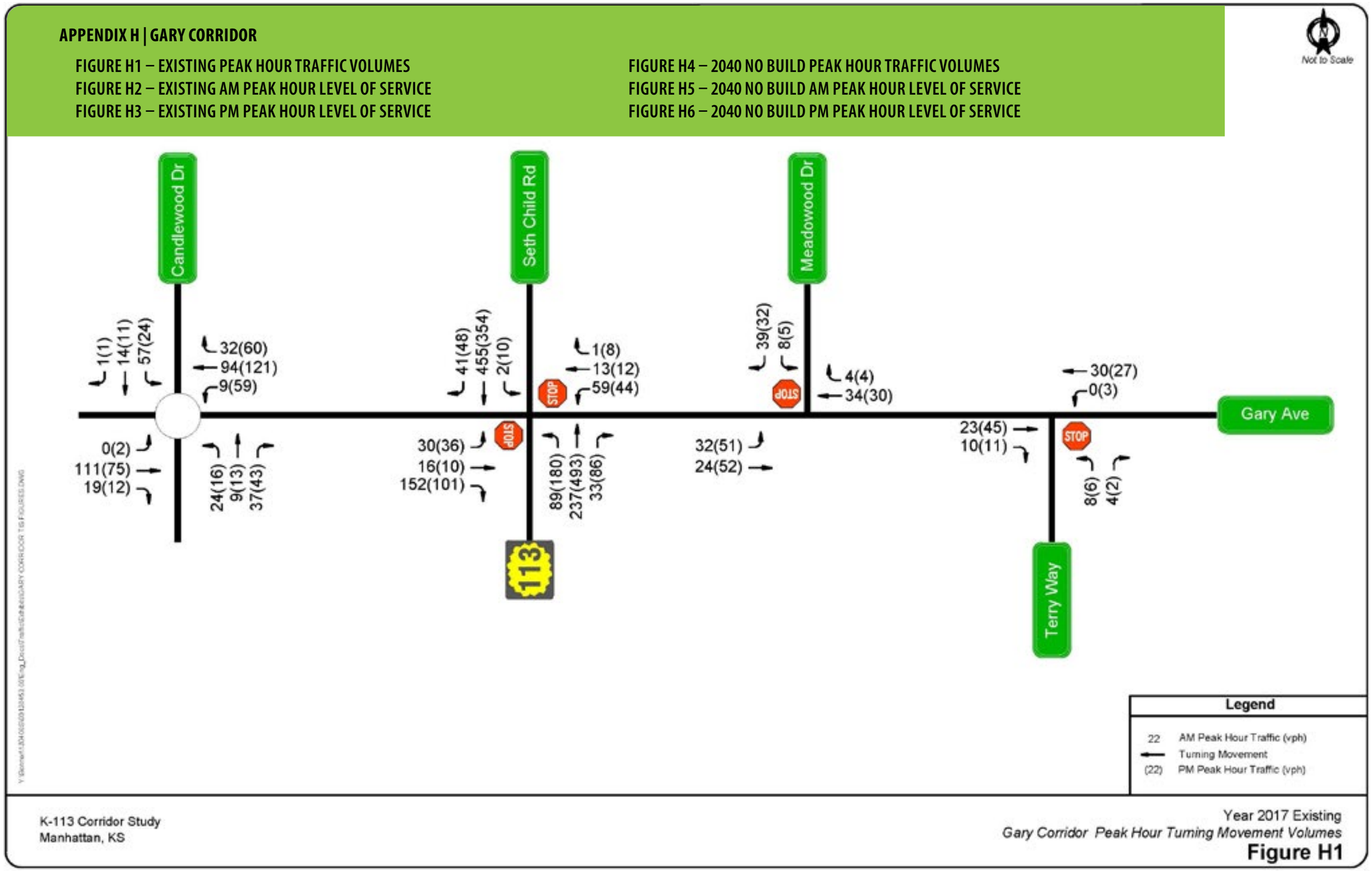
APPENDIX G EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

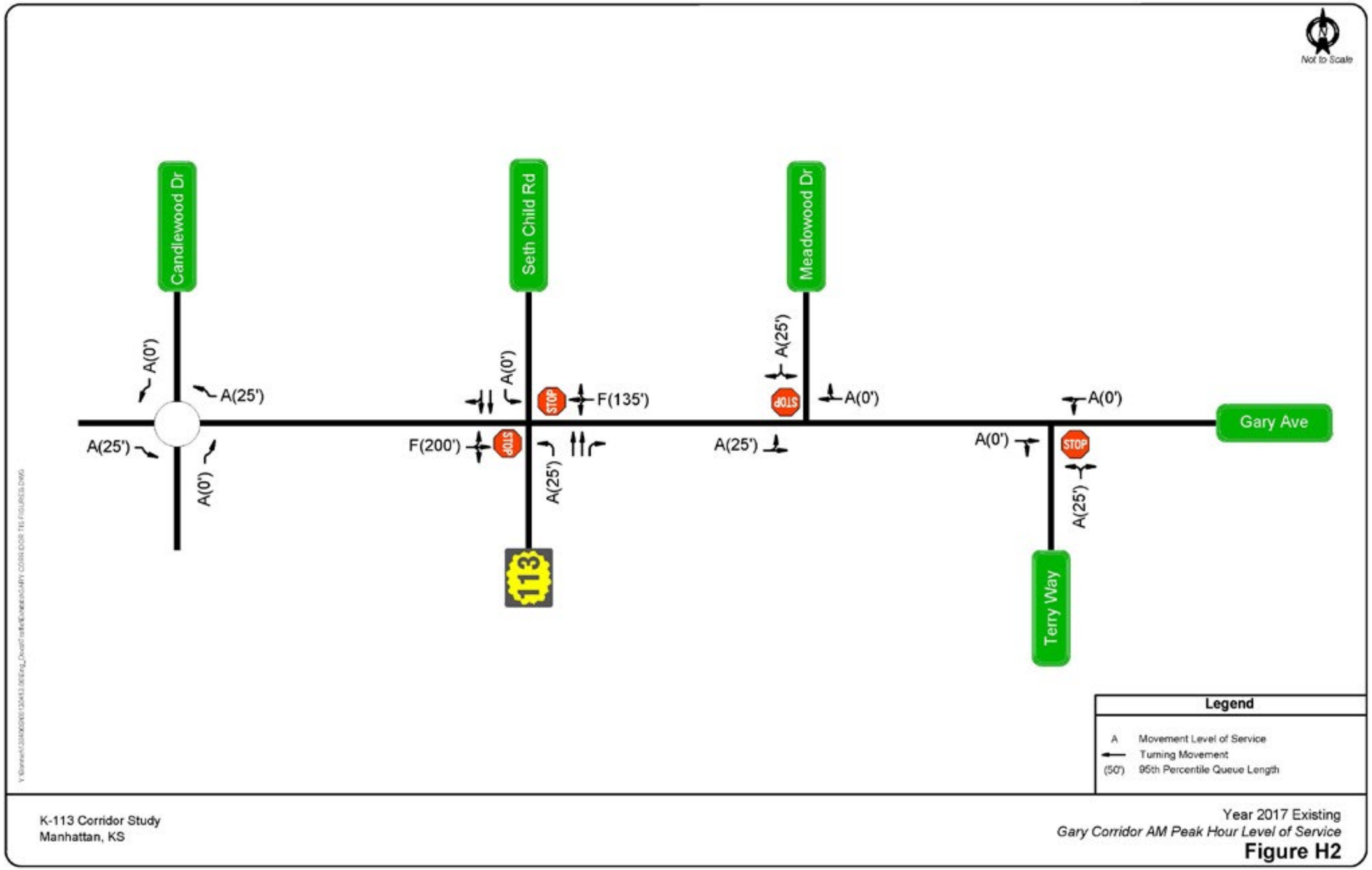



Not to Scale
Candlewood Dr
Seth Child Rd
SB Off Ramp
NB On Ramp
113
Sexton Ave
Kimball Ave
SB On Ramp
NB Off Ramp
Wreath Ave
B(95')
C(135')
C(250')
C(215')
C(40')
D(130')
B(225')
B(230')
B(25')
B(40')
C(180')
F(120')
A(255')
A(285')
C(200')
C(260')
C(310')
D(110')
C(65')
A(25')
A(25')
A(65')
A(75')
D(290')
D(280')
C(115')
C(145')
C(150')
C(325')
C(195')
F(75')
A(25')
B(25')
B(130')
A(90')
F(25')
STOP
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
Overall Signalized Intersection Level of Service
K-113 Corridor Study
Manhattan, KS
Year 2040 No Build
Kimball Corridor PM Peak Hour Level of Service
Figure G6

APPENDIX H EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

APPENDIX H | GARY CORRIDOR

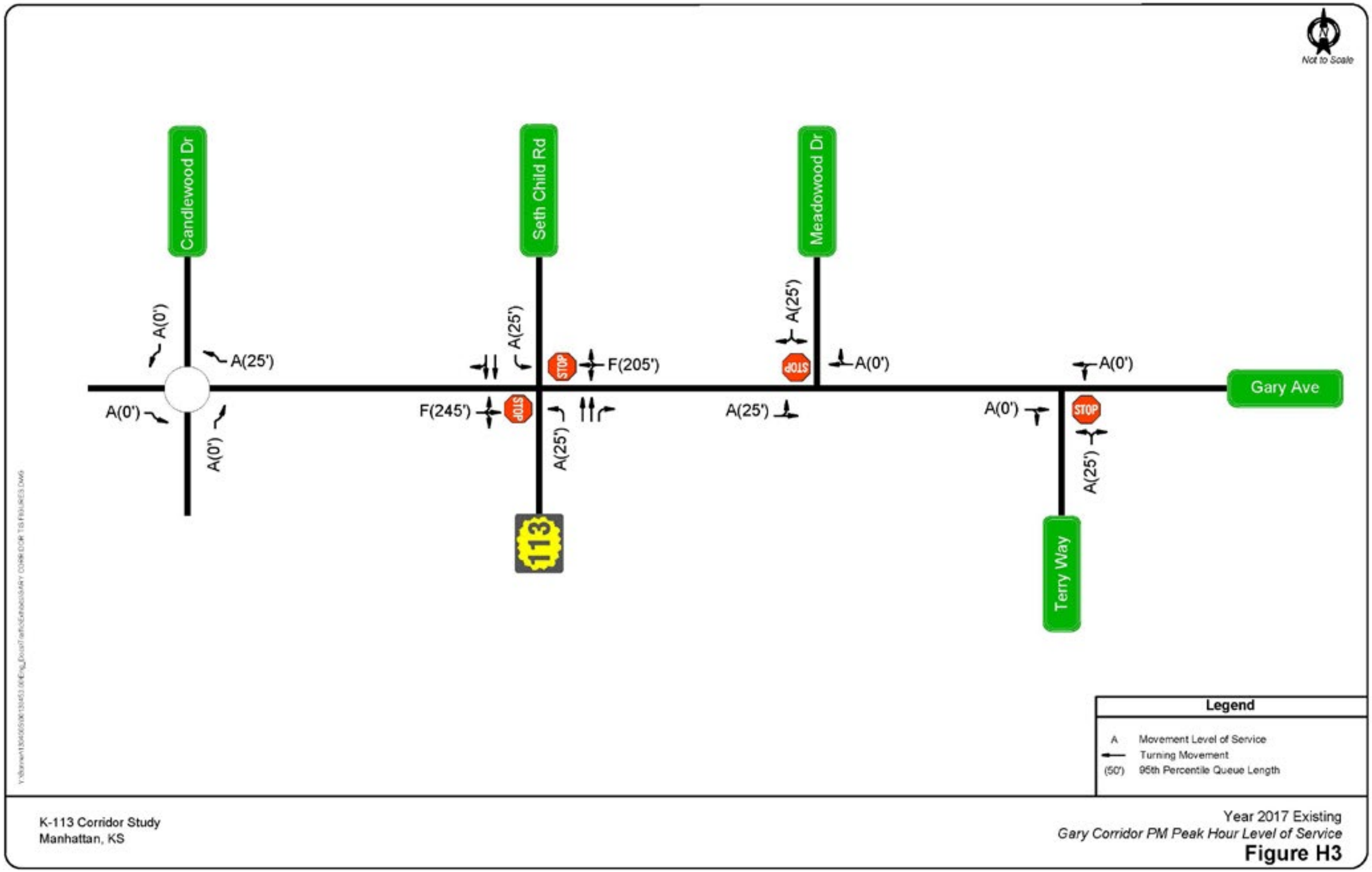


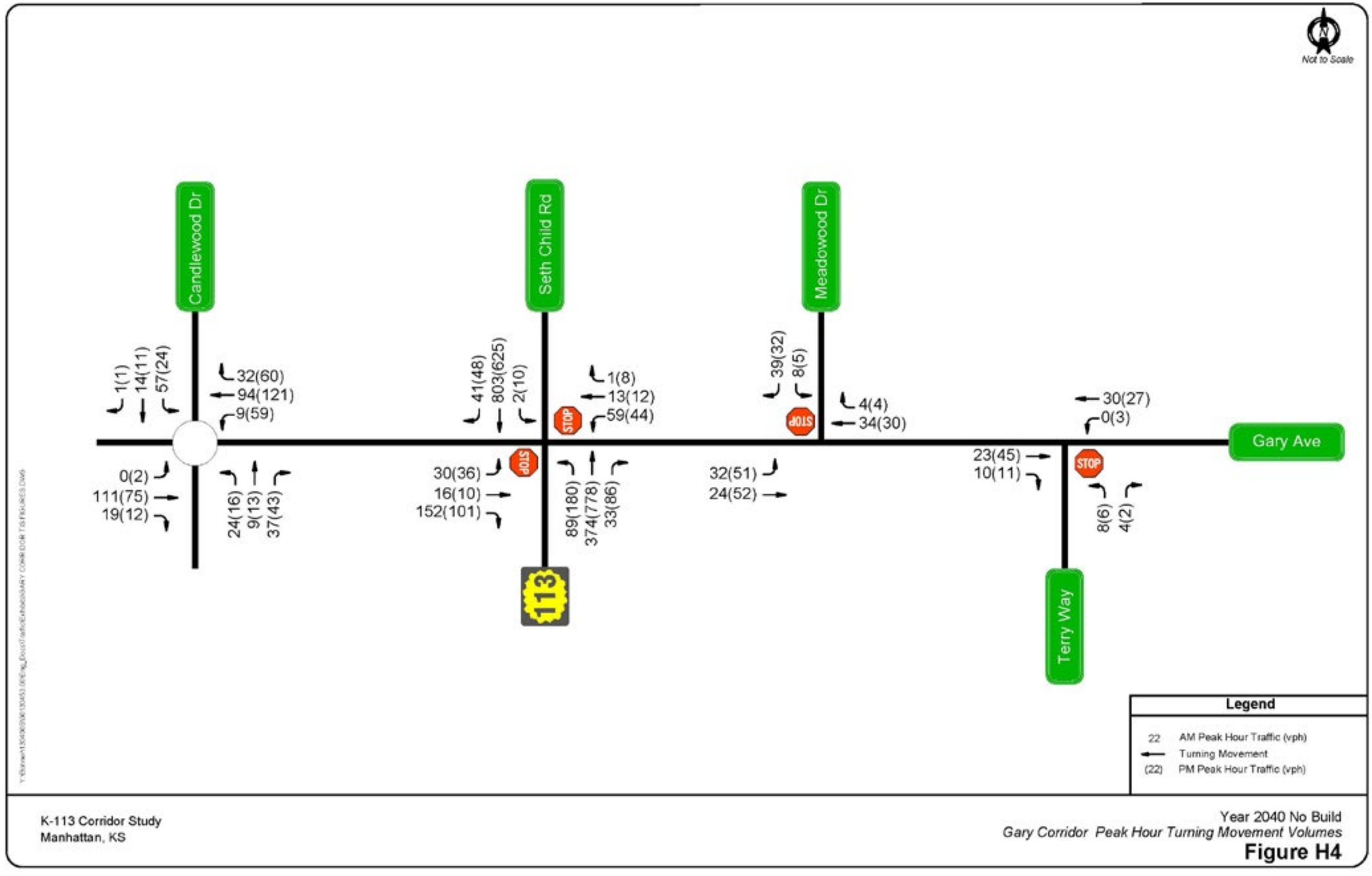


K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
Gary Corridor AM Peak Hour Level of Service
Figure H2

APPENDIX H EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

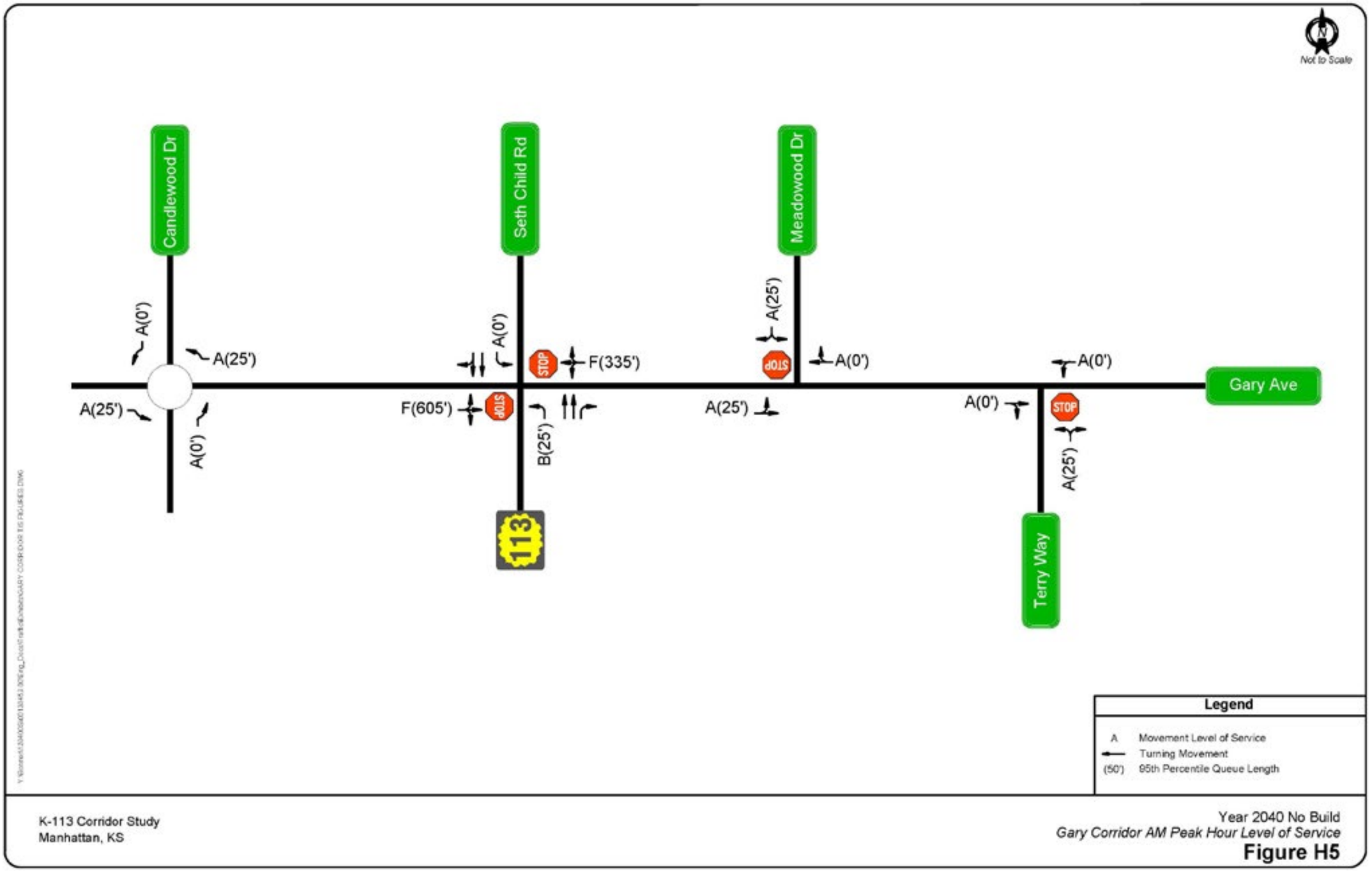




K-113 Corridor Study
Manhattan, KS

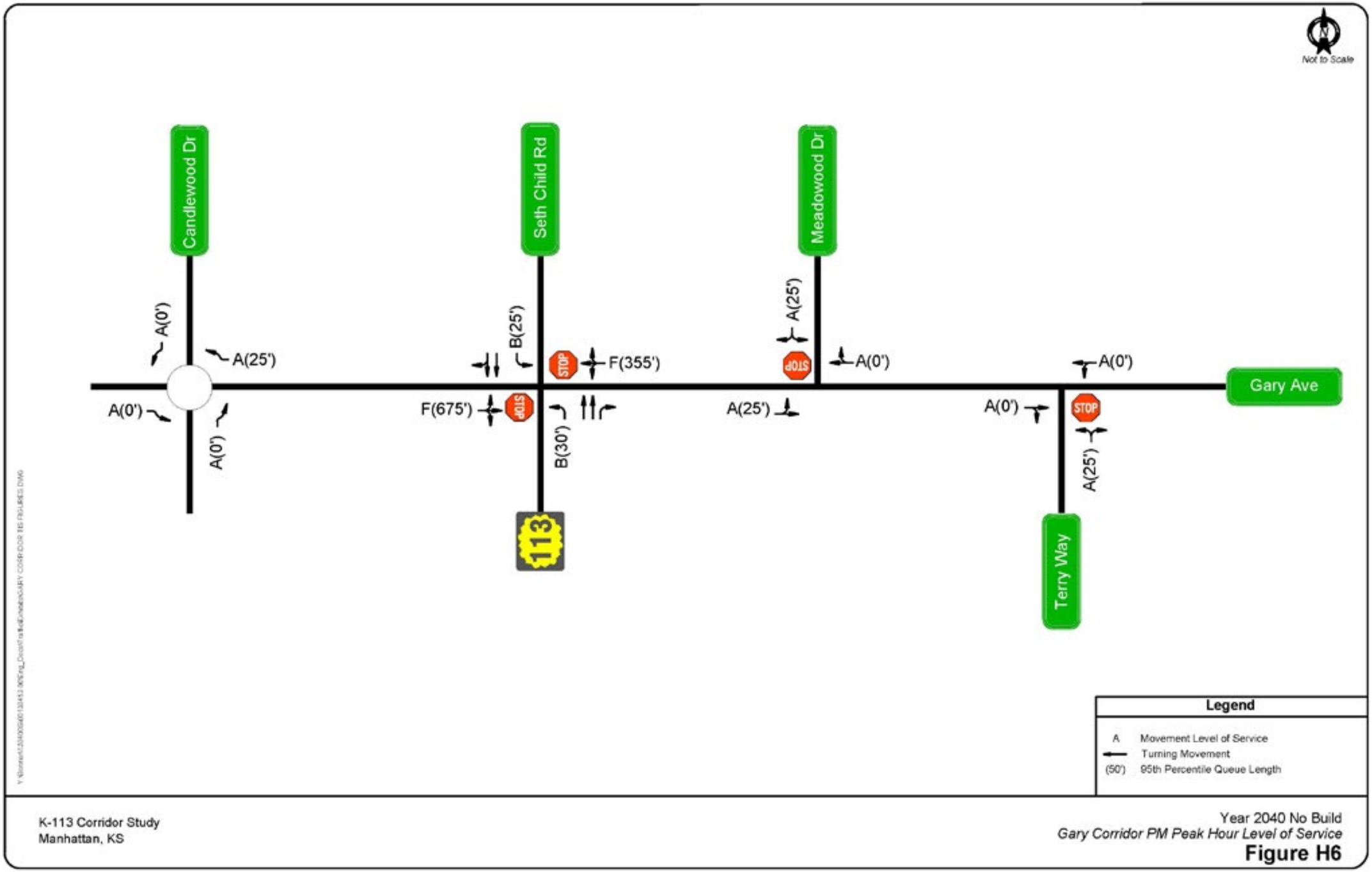
Year 2040 No Build
Gary Corridor Peak Hour Turning Movement Volumes
Figure H4

APPENDIX H EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Gary Corridor AM Peak Hour Level of Service
Figure H5

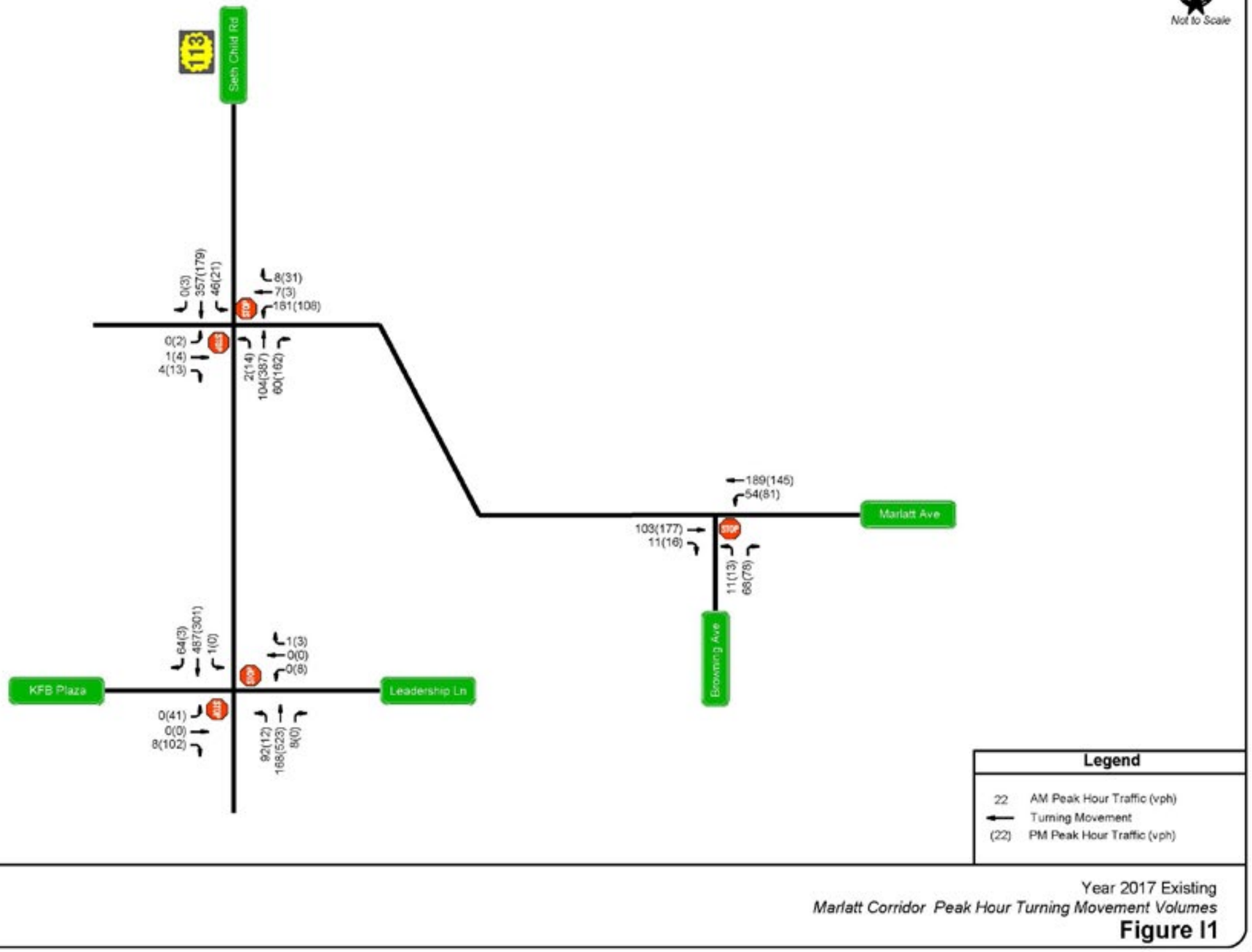


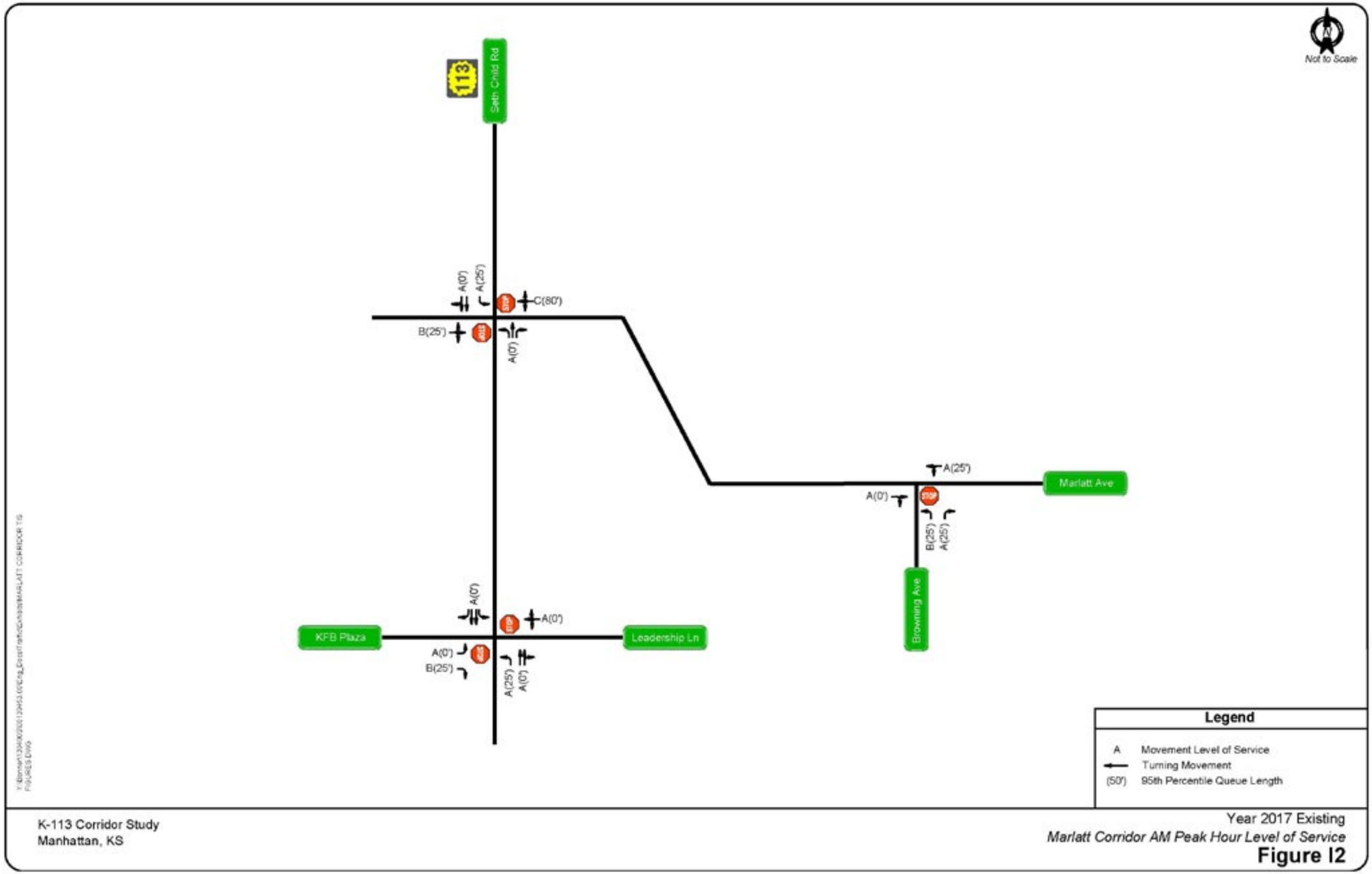
K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Gary Corridor PM Peak Hour Level of Service
Figure H6

APPENDIX H EXISTING & 2040 NO BUILD TRAFFIC OPERATIONS

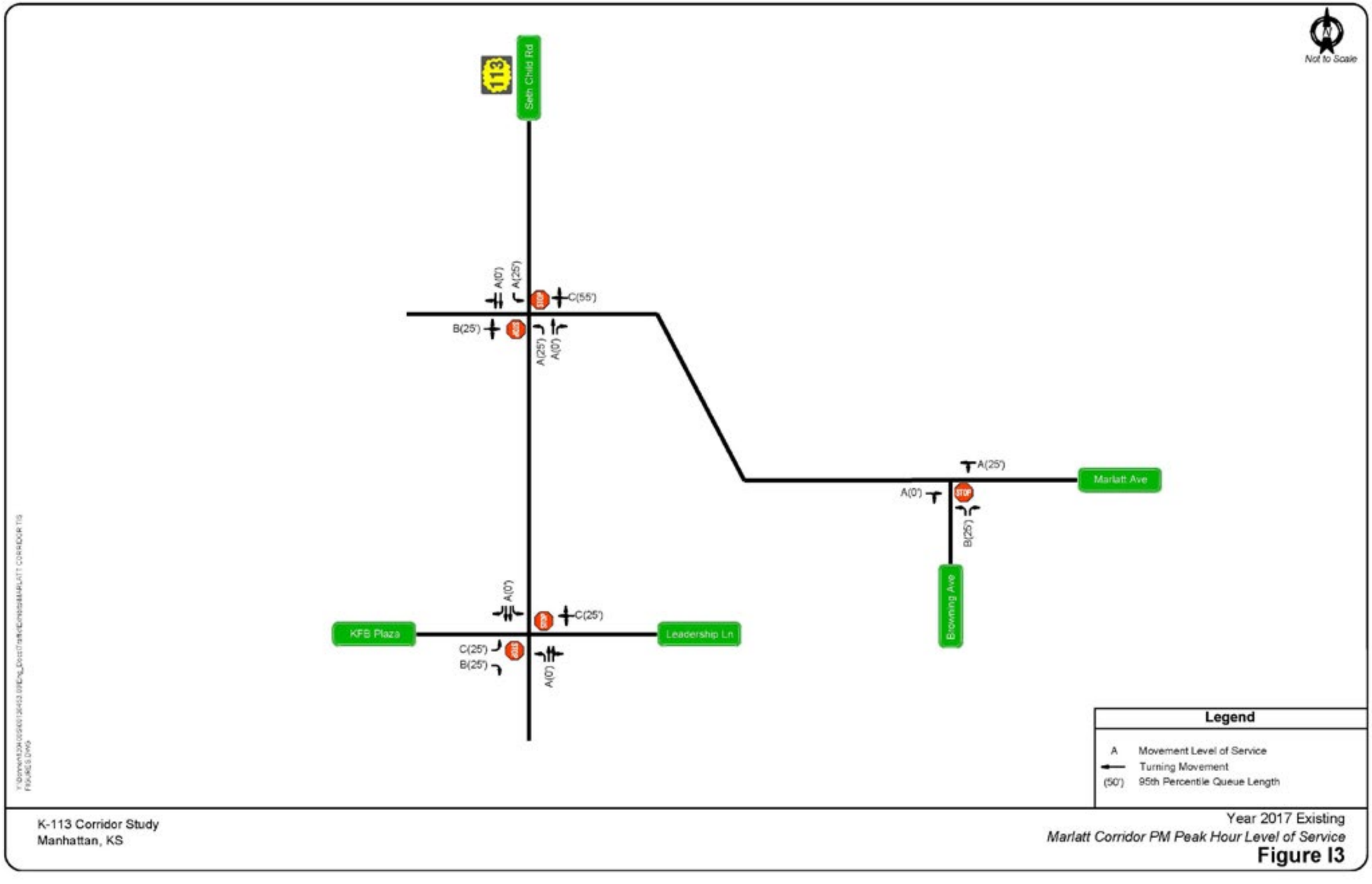
APPENDIX I | MARLATT CORRIDOR

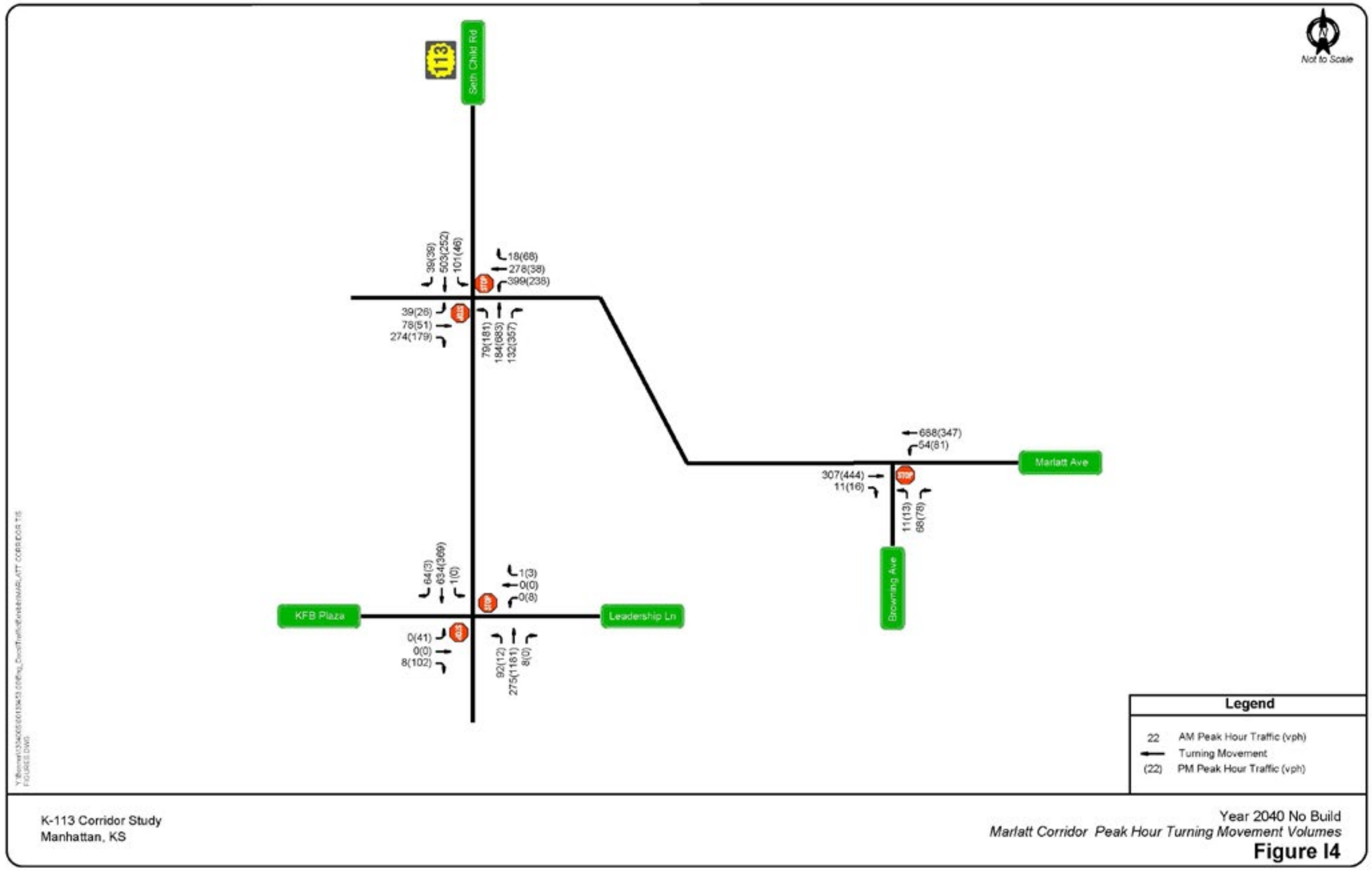




K-113 Corridor Study
Manhattan, KS

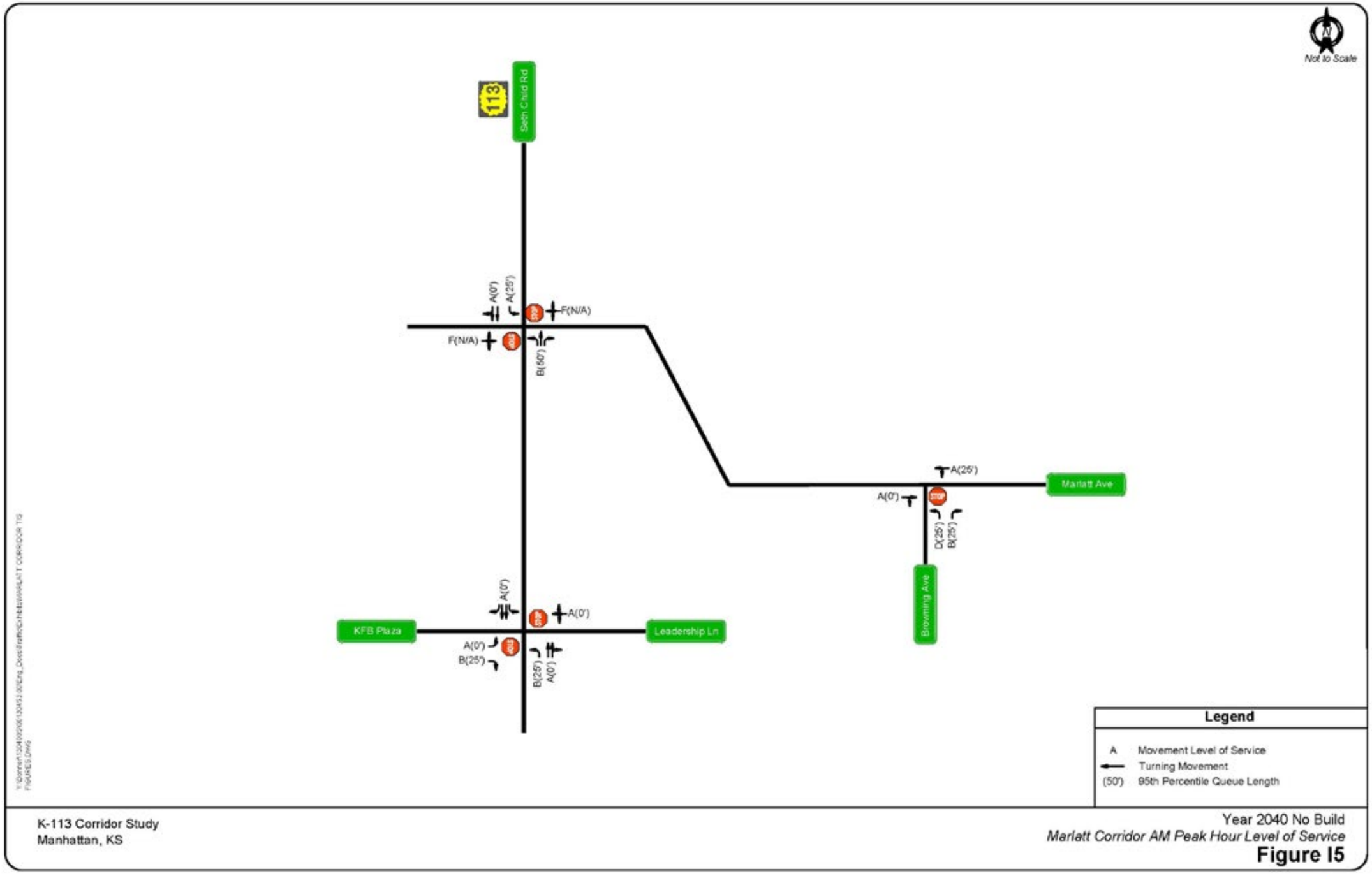
Year 2017 Existing
Marlatt Corridor AM Peak Hour Level of Service
Figure I2

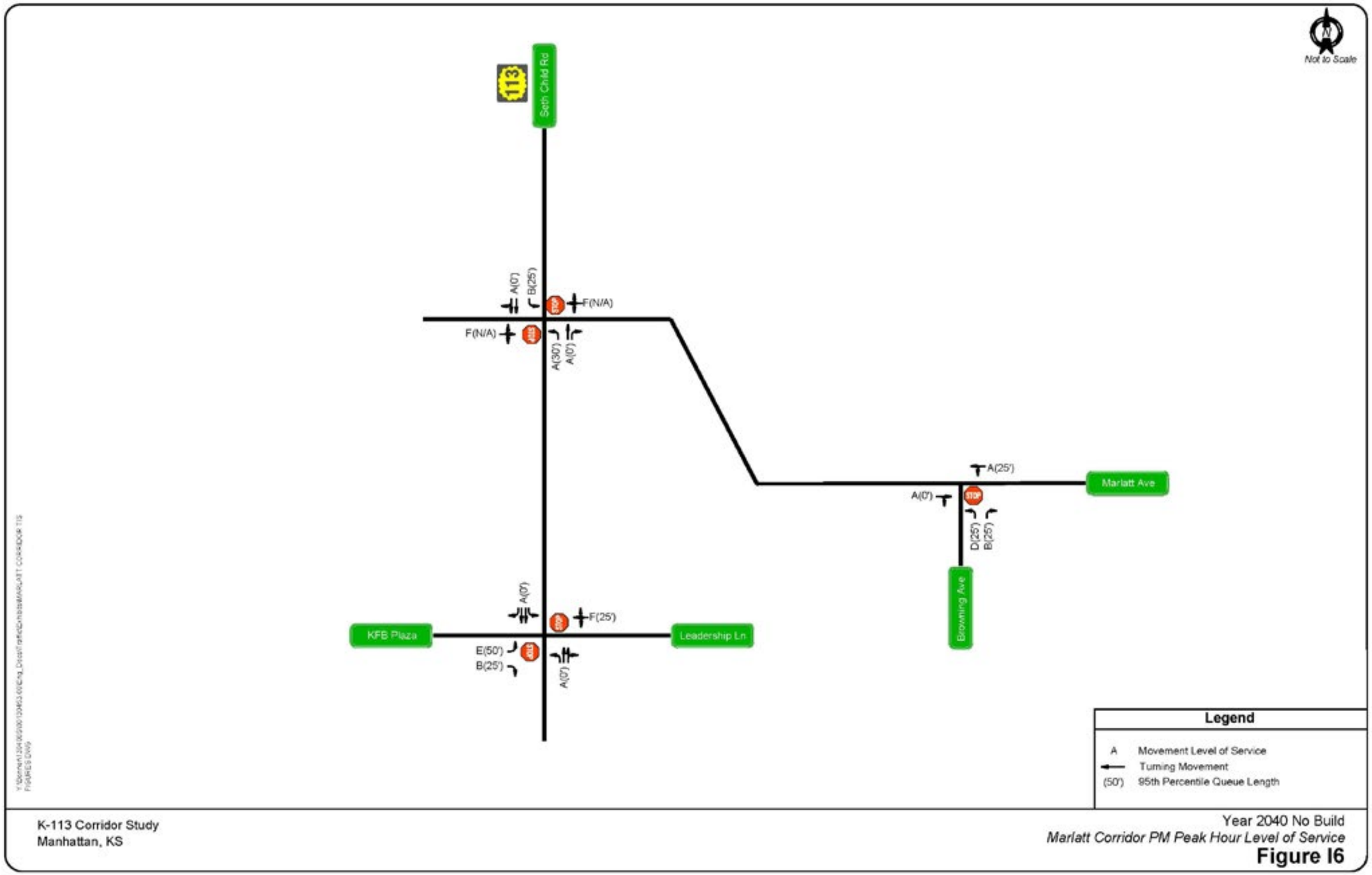

Not to Scale
113
Seth Child Rd
A(0')
A(25')
C(55')
B(25')
A(25')
A(0')
A(25')
Marlatt Ave
A(0')
B(25')
Browning Ave
A(0')
C(25')
KFB Plaza
Leadership Ln
C(25')
B(25')
A(0')
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
K-113 Corridor Study
Manhattan, KS
Year 2017 Existing
Marlatt Corridor PM Peak Hour Level of Service
Figure I3



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Marlatt Corridor Peak Hour Turning Movement Volumes
Figure I4


Not to Scale
113
Seth Child Rd
A(0')
A(25')
F(N/A)
F(N/A)
B(50')
A(25')
A(0')
Marlatt Ave
D(25')
B(25')
Browning Ave
A(0')
A(0')
KFB Plaza
Leadership Ln
A(0')
B(25')
B(25')
A(0')
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
K-113 Corridor Study
Manhattan, KS
Year 2040 No Build
Marlatt Corridor AM Peak Hour Level of Service
Figure I5

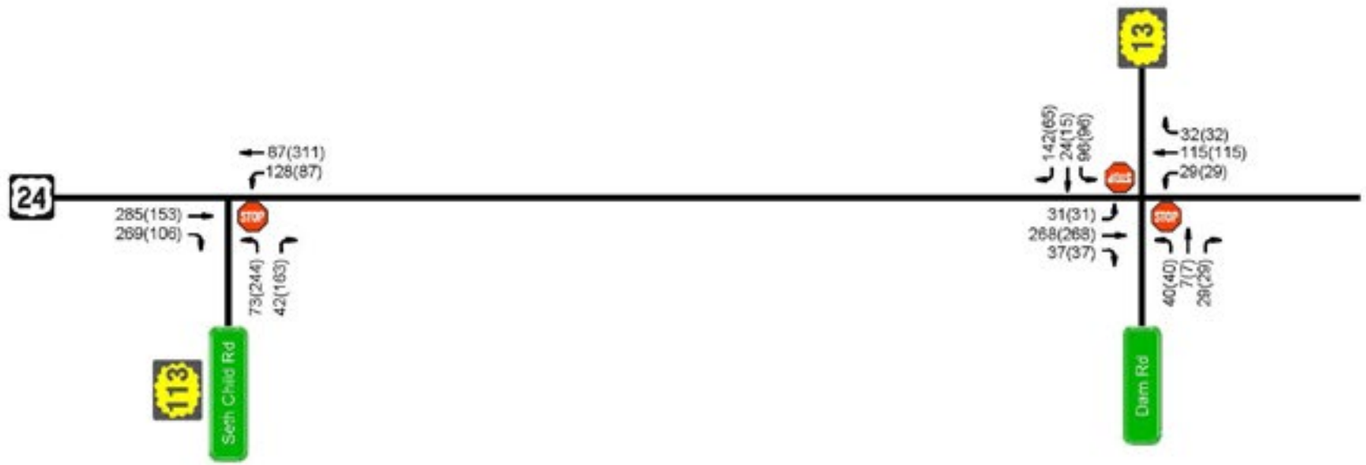


K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
Marlatt Corridor PM Peak Hour Level of Service
Figure I6

APPENDIX J | US-24 INTERSECTIONS

Not to Scale

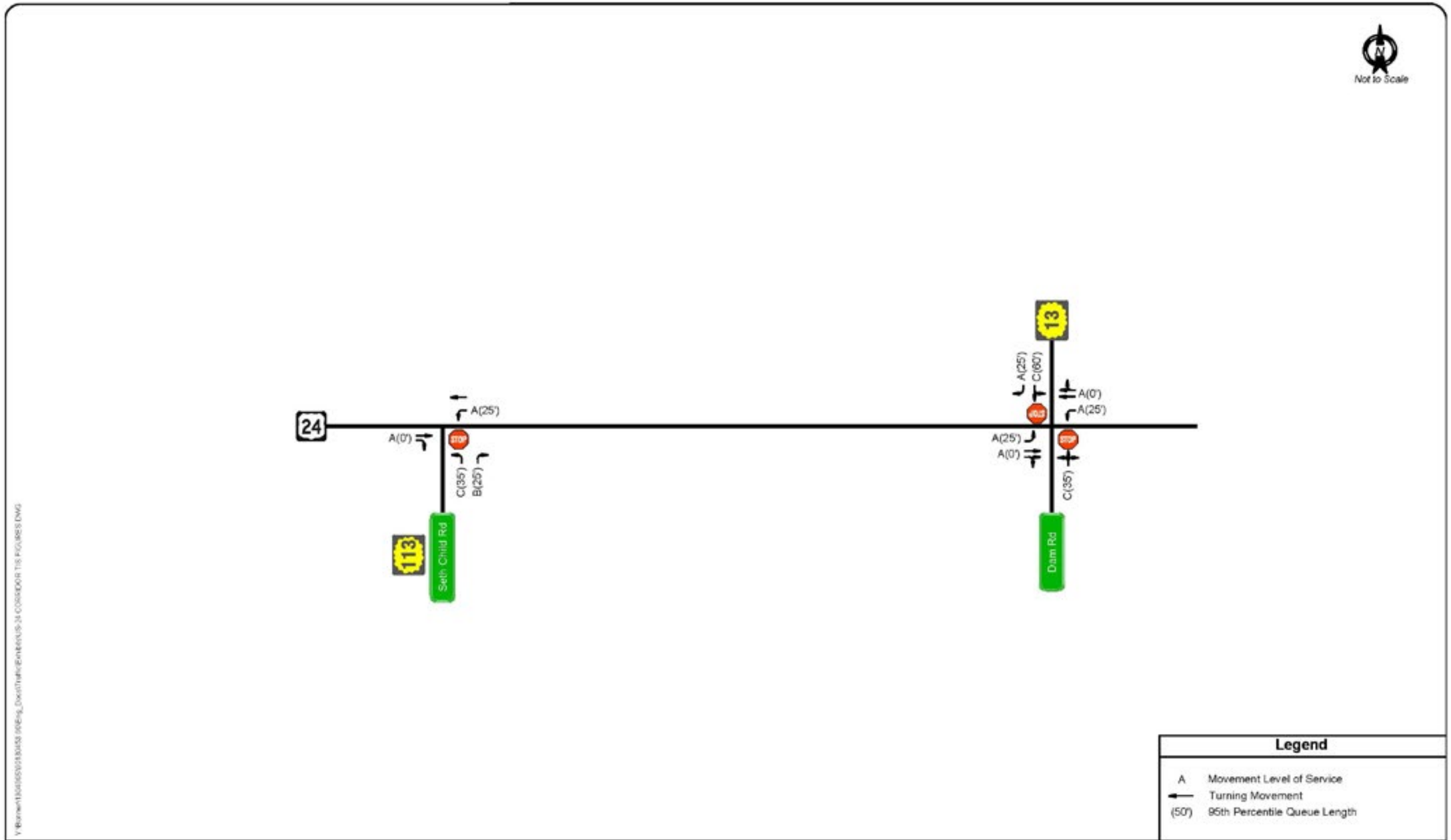


Legend

22	AM Peak Hour Traffic (vph)
←	Turning Movement
(22)	PM Peak Hour Traffic (vph)

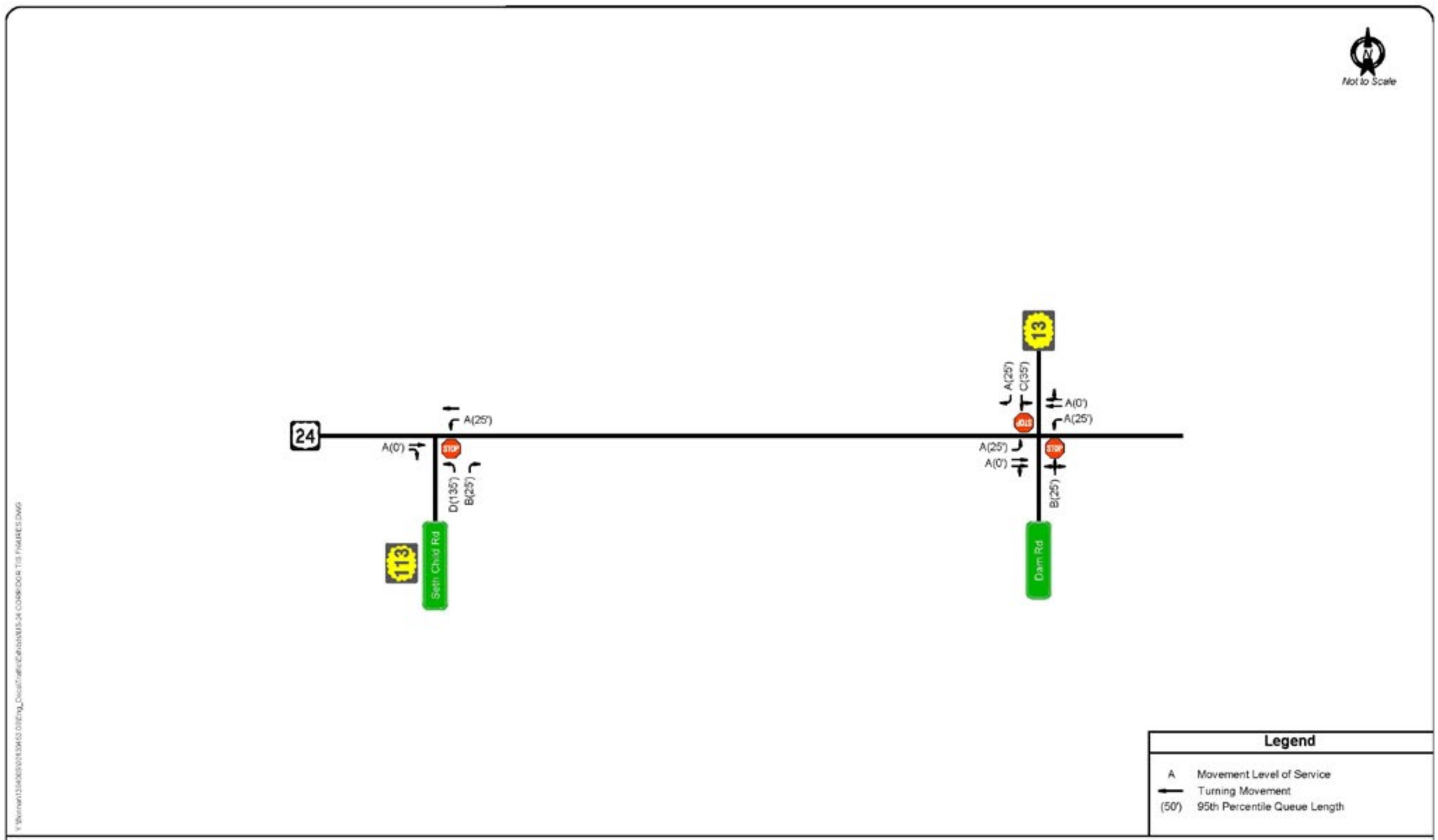
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
US-24 Corridor Peak Hour Turning Movement Volumes
Figure J1



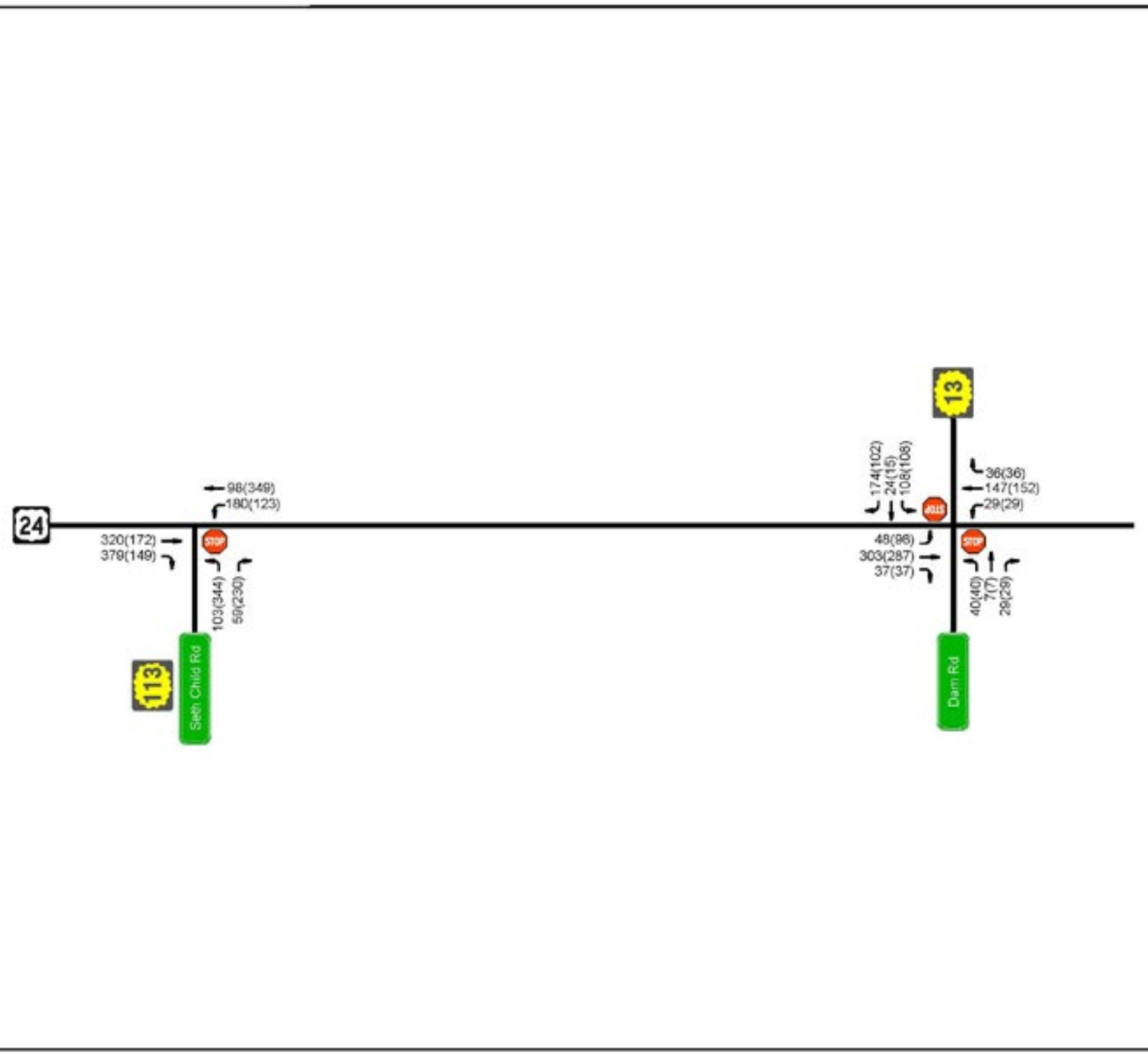
K-113 Corridor Study
Manhattan, KS

Year 2017 Existing
US-24 Corridor AM Peak Hour Level of Service
Figure J2



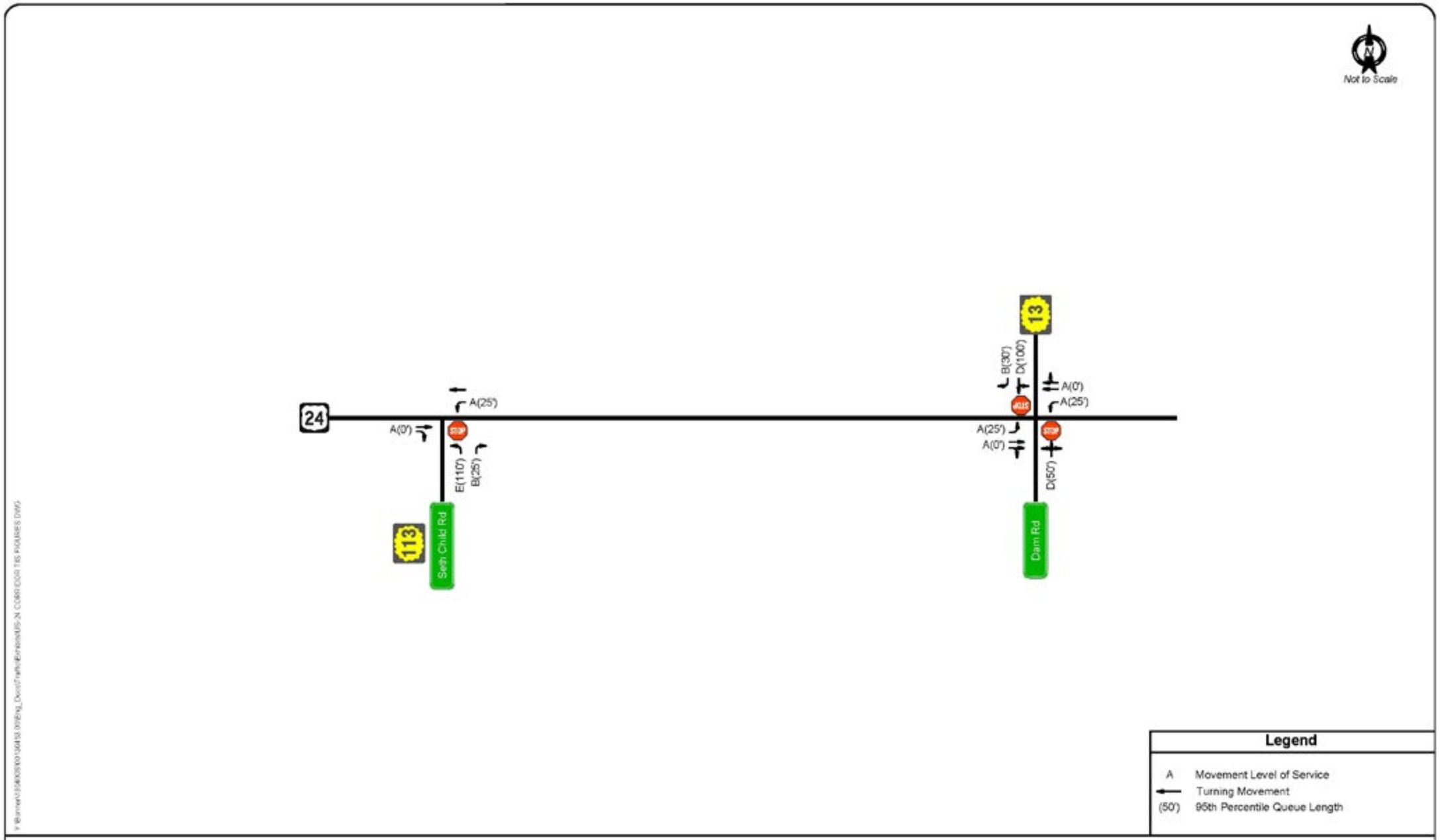
K-113 Corridor Study
Manhattan, KS

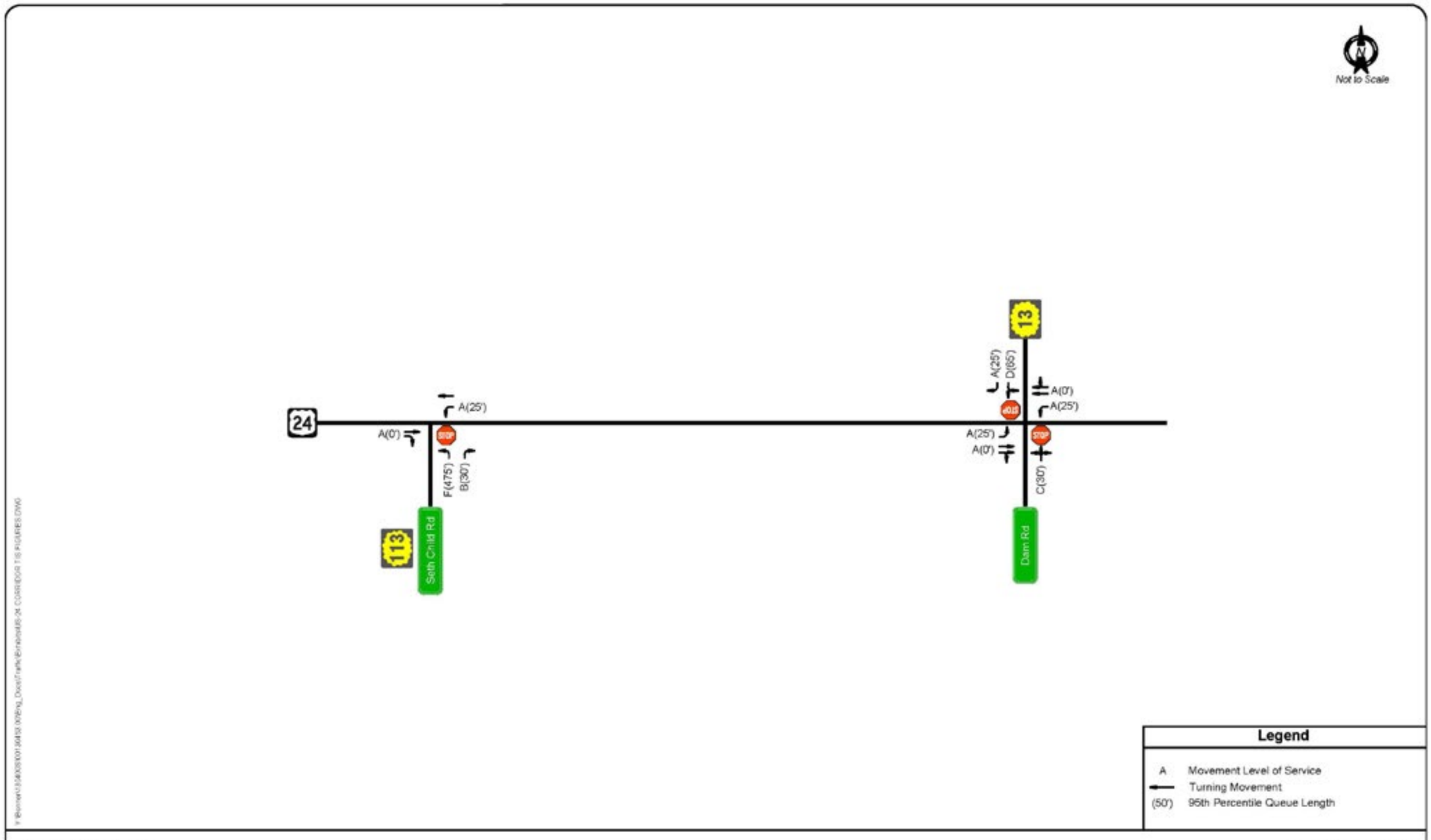
Year 2017 Existing
US-24 Corridor PM Peak Hour Level of Service
Figure J3



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
US-24 Corridor Peak Hour Turning Movement Volumes
Figure J4


Not to Scale
24
13
113
Seth Child Rd
Dam Rd
A(25')
A(0')
E(110')
B(25')
B(30')
D(100')
A(0')
A(25')
A(25')
A(0')
D(50')
Legend
A Movement Level of Service
Turning Movement
(50') 95th Percentile Queue Length
K-113 Corridor Study
Manhattan, KS
Year 2040 No Build
US-24 Corridor AM Peak Hour Level of Service
Figure J5



K-113 Corridor Study
Manhattan, KS

Year 2040 No Build
US-24 Corridor PM Peak Hour Level of Service
Figure J6

Seth Child Road CORRIDOR STUDY
MANHATTAN, KANSAS
STEERING COMMITTEE

APRIL 13, 2017 – 3:00

1. Introductions & Welcome | Chuck Bartlett
2. Traffic Data Collection update | Chuck Bartlett
3. Bike & pedestrian data collection update | Naveed Jaffar
4. Land-use data collection update | Graham Smith
5. Business financial analysis along corridor | Rich Caplan
    a. Property taxes going to City of Manhattan (~$1.6 million) look high. A large percentage of property taxes goes to RCPD and USD 383. Make sure that is accounted for in the City's revenue. | Rob Ott
    b. There was no mention of exempt property along the corridor. Will that be analyzed and could those be relocated in favor of businesses? | Pat Collins
6. Anticipated schedule and closing remarks | Chuck Bartlett
    a. There is an outlot in front of Home Depot that was planned for construction through the City but never began. Make sure that it is included in the analysis. | Chad Bunger
    b. Will percentages of the different types of property along the corridor be analyzed and distributed? | Pat Collins
        - Yes, that will be forthcoming. | Graham Smith
    c. Benesch will send out schedule invites for upcoming meetings. | Brad Waller

Seth Child Road CORRIDOR STUDY
MANHATTAN, KANSAS
PUBLIC ADVISORY COMMITTEE

APRIL 13, 2017 – 3:30

1. Introductions and welcome | Chuck Bartlett
2. Project outline and purpose | Chuck Bartlett and Rob Ott
3. Committee Feedback
   What is most concerning along the Seth Child Road corridor?
   - Seth Child & Gary Intersection
   - Future planning of Marlatt & Seth Child intersection
   - North bound traffic on Seth Child merging conflict @ Anderson on-ramp and Claflin
   - Dickens & Seth Child – buses struggle to cross that intersection
   - Wreath Ave. on-ramp configuration (stop sign is safety issue)
   - Seth Child & US-24 Highway – intersection is dark and dangerous (speed of US-24 traffic and difficulty in judging speed and through vs. turning traffic)
   - Need to plan for changes in adjacent land from Ag use to development in the future
   - South Bound off-ramp at Kimball – if light is green, traffic shoots thru the intersection to the south
   - Anderson Ave. traffic backs up from left turns to on-ramps of Seth Child
   - Southwind has the highest accident rate of all intersection along corridor
   - West bound Fort Riley to north bound Seth Child – why doesn't the right merge lane continue all the way to the right turn lane at Southwind?
   - Southwind – cameras do not pick up vehicles in queue due to sun glare at certain times of the day (Ott – the cameras were recently changed, hopefully this issue is better)
   - K-13 (Dam Road) & US-24 – "dangerous" – people have trouble perceiving speed and difficult to differentiate through vs. turning vehicles
   - Farm Bureau Road only has one entrance. Tough to get in and out at peak times, especially with limited site distance to north and south bound traffic speeds. Farm Bureau building is not full occupancy, but is working back towards that
   - Consider ramifications if CICO Park changes from public to private use and impact to Kimball and Dickens
   - Pedestrian crossings along corridor are important (primarily reference Dickens)
   - Sidewalks are needed along the entire corridor
   - Bike and pedestrian usage along entire corridor is a good thing
   - Pedestrians walking on Seth Child is dangerous at Wildcat Creek bridge
   - Future expansion of linear trail on north end of corridor – need to plan for grade separation
   - USD 383 has reorganized district lines in the past 5 years, and no district lines cross Seth Child unless they are bussed
   - Susan B. Anthony middle school is likely getting new gyms, this will cause more traffic in the evenings at Gary.
   - Plan for development of everything
   - Potential development in the future along the corridor is north of Gary
   - Need to consider sewer/water connections to northern portion of corridor
   - The least expensive land will develop first
   - Need to name frontage roads for emergency response teams
   - Continue to consider access to K-State (education and athletics)
   - Transit currently stops at Target, Redbud Estates, Dillons, & MATC – biggest issue with transit is delays due to traffic congestion. No transit stop is currently foreseen directly on Seth Child
   - Redbud Estates has very poor pedestrian access
   - In all future developments, need to ensure there is more than one access point (Farm Bureau Road)
   - If we slow corridor down, need to consider where we will push traffic to and impacts on those streets
   - Crossing Seth Child is a big deal, but it takes forever to get across town – need to balance both
   - Anderson will get busier once the construction at Anderson and Scenic/Kimball is complete
   - Need to pave Marlatt west of Seth Child for future development
   - Vehicles traveling along the corridor seem to be ok, the wrecks are happening where people cross
4. Anticipated schedule and closing remarks | Chuck Bartlett
   Benesch will send out schedule invites for upcoming meetings | Brad Waller

OVER 40 CITIZENS ATTENDED THE OPEN HOUSE

APPENDIX K PUBLIC INVOLVEMENT

PUBLIC OPEN HOUSE | APRIL 13, 2017 – 5:00-7:00PM | FIRST ASSEMBLY OF GOD

MEETING HANDOUT | FRONT

Seth Child Road Corridor Study

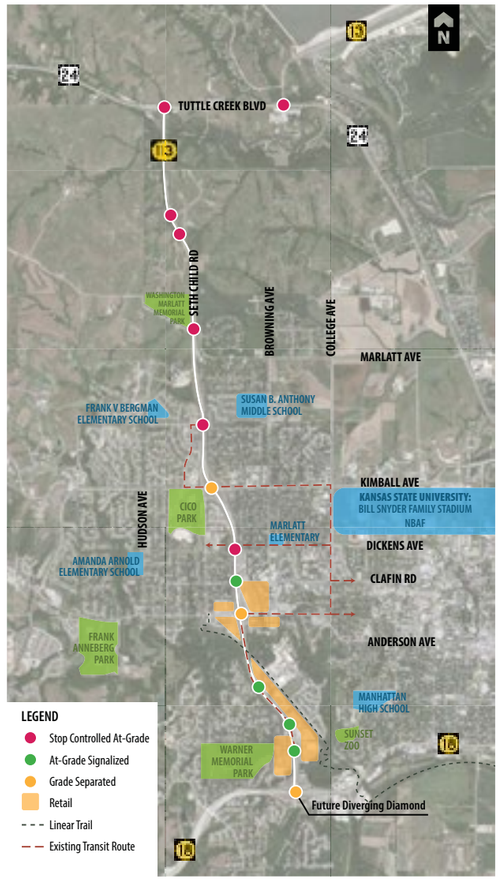
Open House Meeting

Manhattan First Assembly of God
Thursday, April 13, 2017 | 5:00 - 7:00 PM

The City of Manhattan is working with Alfred Benesch & Company to study Seth Child Road to address capacity, operations and safety improvements. Development and growth within the community makes Manhattan's future bright, but impacts to the traffic system, particularly the Seth Child Road corridor, are significant.

The study will evaluate a variety of intersection types on the 5.5 mile stretch of Seth Child Road. Results of the study will be used to help the Kansas Department of Transportation (KDOT), the City, and the County to create a long term vision for the corridor that promotes safety and efficiency. We will study traffic operations, accommodations for pedestrians and bicyclists, intersection geometrics, land use and redevelopment for existing conditions and a 25-year horizon.

The study will include land use planning and economic analysis. These components are important to tie in infrastructure improvements with long term benefits for the community.



INTERCHANGES & INTERSECTIONS

The team will consider all intersections and interchanges along the corridor. The above map illustrates areas which require careful attention and accommodation for all modes of travel.

MEETING HANDOUT | BACK

SCHEDULE

APRIL 13
PUBLIC OPEN HOUSE
INTRODUCTION OF THE STUDY, GATHER INPUT

MAY - OCTOBER
STUDY UNDERWAY
COMMITTEE MEETINGS, DATA COLLECTION, RECOMMENDATION DEVELOPMENT, COLLECT PUBLIC FEEDBACK AT SETHCHILDROAD.COM

NOVEMBER
PUBLIC OPEN HOUSE
SHARE RECOMMENDATIONS FOR FEEDBACK

JANUARY 2018
FINAL REPORT

HOW CAN I PARTICIPATE?

- Talk One-on-One with Project Representatives
- Complete a Comment Form
- Visit sethchildroad.com
- Attend the next Public Open House

If you have specific questions you may speak with any of our study team members here tonight. We hope that you will share your comments and feedback with us. Comment forms are available for this purpose. By signing in to the meeting tonight, we will add your information to our database of project contacts. Should there be significant changes or a need for another meeting, you will be personally notified. We have also provided the contact information for our project managers below. Please feel free to contact any of them if questions arise in the future.

Chuck Bartlett, P.E.
Alfred Benesch & Company
3226 Kimball Avenue
Manhattan, KS 66503
(785) 539-2202
cbartlett@benesch.com

Rob Ott, PE
City of Manhattan
1101 Poyntz Avenue
Manhattan, KS 66502
(785) 587-2415
ott@cityofmhk.com

Gary Rosewicz, PE
Riley County
110 Courthouse Plaza
Manhattan, KS 66502
(785) 537-6330
grosewicz@rileycountyks.gov

Thank you for taking the time to attend tonight's meeting. We look forward to providing the citizens of Manhattan and the traveling public with innovative solutions that serve the community for years to come.

OVER 150 SURVEYS WERE COMPLETED

15% COLLECTED AT THE OPEN HOUSE

29% MAILED IN

47% THROUGH SHARED WEB LINK

9% SETHCHILDROAD.COM

Seth Child Road CORRIDOR STUDY — SURVEY FORM

MANHATTAN, RILEY COUNTY, KANSAS Project No. ST1507 (CIP No. EN090P)

How often do you travel Seth Child Road?

- ◯ Multiple times a day
- ◯ To/From work or school
- ◯ Couple times a week
- ◯ Once a week
- ◯ Less than once a week

Why do you primarily use the Seth Child Road corridor? [check all that apply]

- ◯ Live along the corridor
- ◯ Work along the corridor
- ◯ Work at Fort Riley
- ◯ Attend KSU
- ◯ Access to shopping
- ◯ Commute to work
- ◯ Other

What entry point along Seth Child Road do you use most often?

- ◯ US-24
- ◯ Marlatt Avenue
- ◯ Kimball Avenue
- ◯ Dickens Avenue
- ◯ Claflin Road
- ◯ Anderson Avenue
- ◯ Amherst Avenue
- ◯ Farm Bureau Road
- ◯ Southwind Road
- ◯ Fort Riley Blvd (K-18)
- ◯ Other

Would you consider the following intersection control measures to be effective?

Traffic Signals?	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Roundabouts?	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Interchange?	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree

Other? _____

Improvements along this corridor provide the community with a variety of enhancements and opportunities as well as impacts. Please rank the following items on a scale from 1 to 8. With 1 being your highest priority and 8 being your least priority.

- ___ Pedestrian connectivity
- ___ Seth Child Road as a freeway with interchanges
- ___ Seth Child Road as an urban arterial with traffic signals
- ___ Improve travel time along the corridor
- ___ Slow down travel speeds
- ___ Aesthetic enhancements (streetscape, landscaping)
- ___ Business redevelopment opportunities
- ___ Street lighting

How do you utilize existing bike trails?

- ◯ Recreation
- ◯ Travel to K-State campus
- ◯ Travel to work
- ◯ Travel to school
- ◯ Travel to shopping
- ◯ I do not utilize the bike trails

Do you use a bus as a mode of travel?

◯ Yes ◯ No

Where do you most often cross Seth Child Road?

Car	Bike	Walk	
◯	◯	◯	US-24
◯	◯	◯	Marlatt Avenue
◯	◯	◯	Kimball Avenue
◯	◯	◯	Dickens Avenue
◯	◯	◯	Claflin Road
◯	◯	◯	Anderson Avenue
◯	◯	◯	Amherst Avenue
◯	◯	◯	Farm Bureau Road
◯	◯	◯	Southwind Road
◯	◯	◯	Fort Riley Blvd (K-18)
◯	◯	◯	Other

What concerns do you have about the Seth Child Road Corridor?

_____

_____

_____

_____

What uses (retail, entertainment, services, housing, etc.) are missing or you would like to see along the corridor?

_____

_____

_____

Do you have any concerns with the Anderson Avenue corridor from Wreath Avenue to West Loop Shopping Center?

_____

_____

_____

Are there any particular areas within the corridor that are in need of redevelopment?

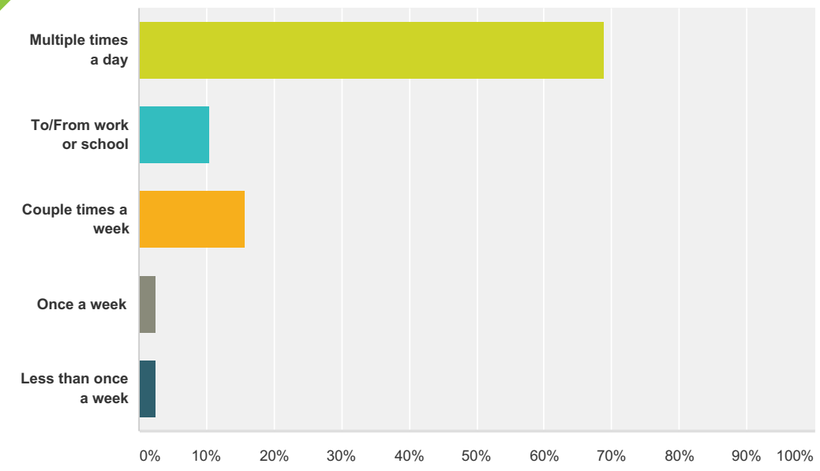
_____

_____

_____

Q1 How often do you travel Seth Child Road?

Answered: 154 Skipped: 2

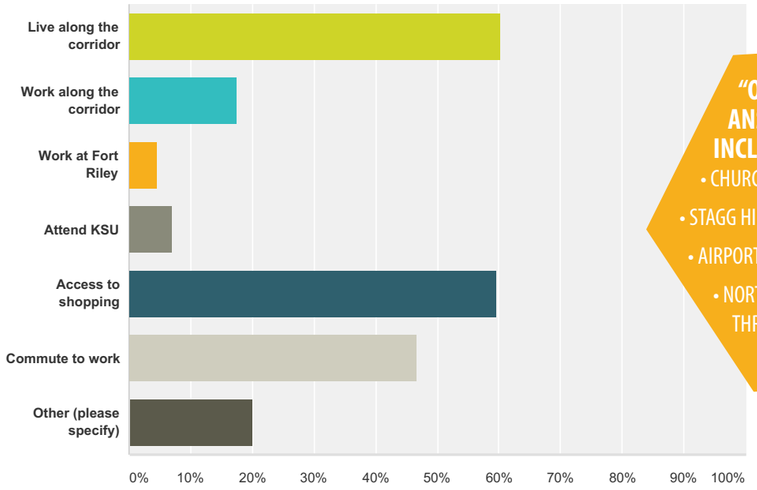


Answer Choices	Responses	
Multiple times a day	**68.83%**	106
To/From work or school	**10.39%**	16
Couple times a week	**15.58%**	24
Once a week	**2.60%**	4
Less than once a week	**2.60%**	4
Total		**154**

APPENDIX K PUBLIC INVOLVEMENT

Q2 Why do you primarily use the Seth Child Road corridor? [check all that apply]

Answered: 154 Skipped: 2



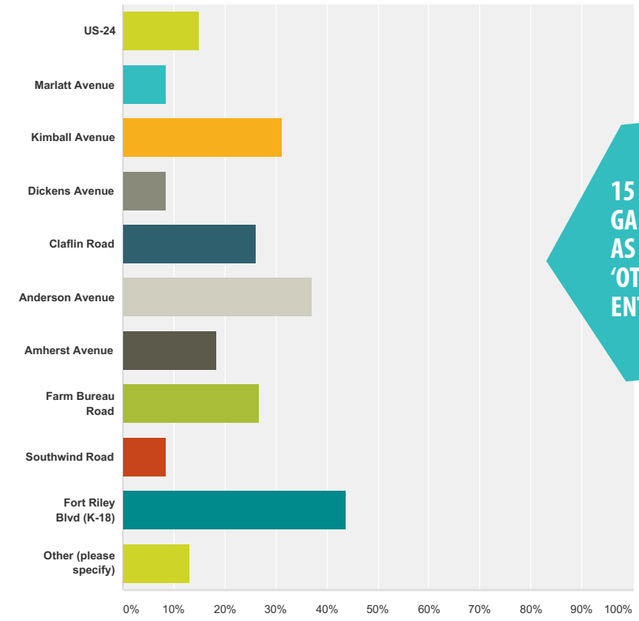
"OTHER" ANSWERS INCLUDED:

- CHURCH
- STAGG HILL GOLF CLUB
- AIRPORT
- NORTH/SOUTH ROUTE THROUGH TOWN

Answer Choices	Responses	
Live along the corridor	**60.39%**	93
Work along the corridor	**17.53%**	27
Work at Fort Riley	**4.55%**	7
Attend KSU	**7.14%**	11
Access to shopping	**59.74%**	92
Commute to work	**46.75%**	72
Other (please specify)	**20.13%**	31
Total Respondents: 154		

Q3 What entry point along Seth Child Road do you use most often? [check all that apply]

Answered: 153 Skipped: 3

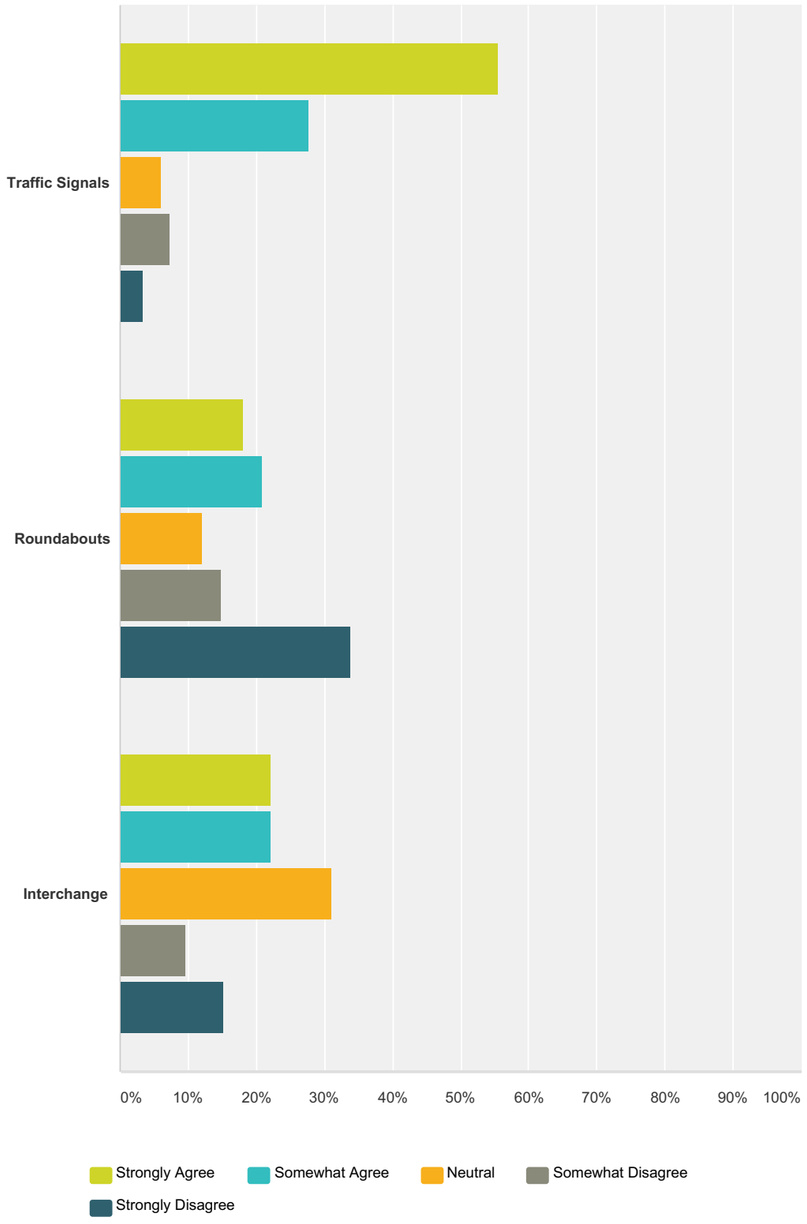


15 SPECIFIED GARY AVENUE AS THEIR 'OTHER' ENTRY POINT

Answer Choices	Responses	
US-24	**15.03%**	23
Marlatt Avenue	**8.50%**	13
Kimball Avenue	**31.37%**	48
Dickens Avenue	**8.50%**	13
Claflin Road	**26.14%**	40
Anderson Avenue	**37.25%**	57
Amherst Avenue	**18.30%**	28
Farm Bureau Road	**26.80%**	41
Southwind Road	**8.50%**	13
Fort Riley Blvd (K-18)	**43.79%**	67
Other (please specify)	**13.07%**	20
Total Respondents: 153		

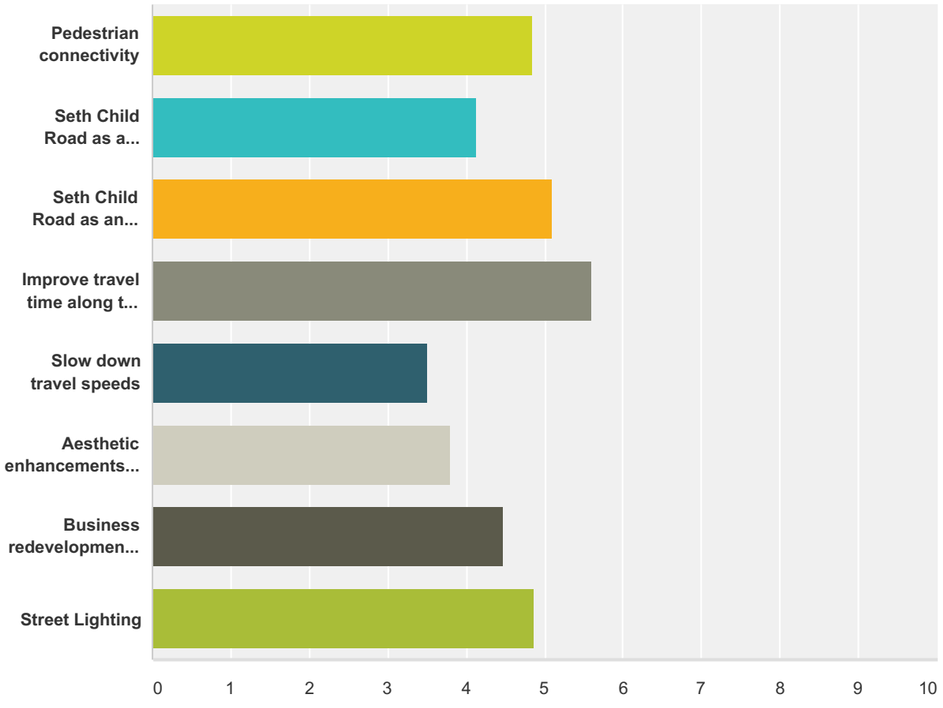
Q4 Would you consider the following intersection control measures to be effective?

Answered: 152 Skipped: 4



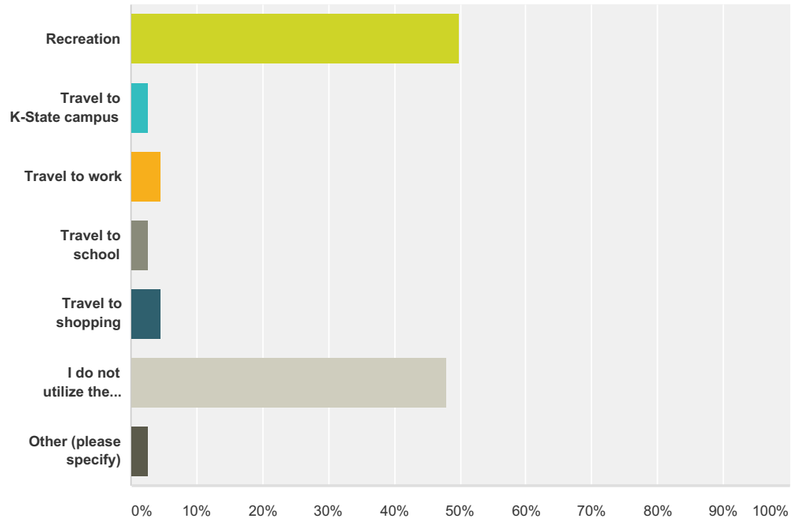
Q5 Improvements along this corridor provide the community with a variety of enhancements and opportunities as well as impacts. Please rank the following items on a scale from 1 to 8. With 1 being your highest priority and 8 being your least priority.

Answered: 147 Skipped: 9



Q6 How do you utilize existing bike trails?

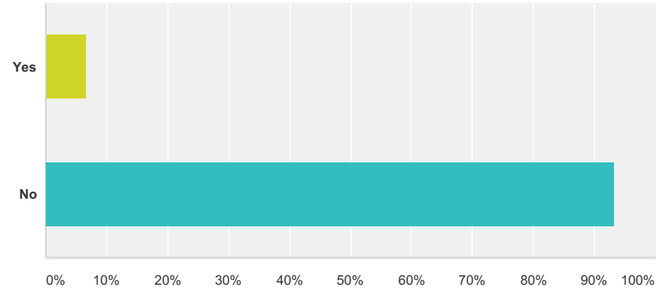
Answered: 150 Skipped: 6



Answer Choices	Responses	
Recreation	**50.00%**	75
Travel to K-State campus	**2.67%**	4
Travel to work	**4.67%**	7
Travel to school	**2.67%**	4
Travel to shopping	**4.67%**	7
I do not utilize the bike trails	**48.00%**	72
Other (please specify)	**2.67%**	4
Total Respondents: 150		

Q7 Do you use a bus as a mode of travel?

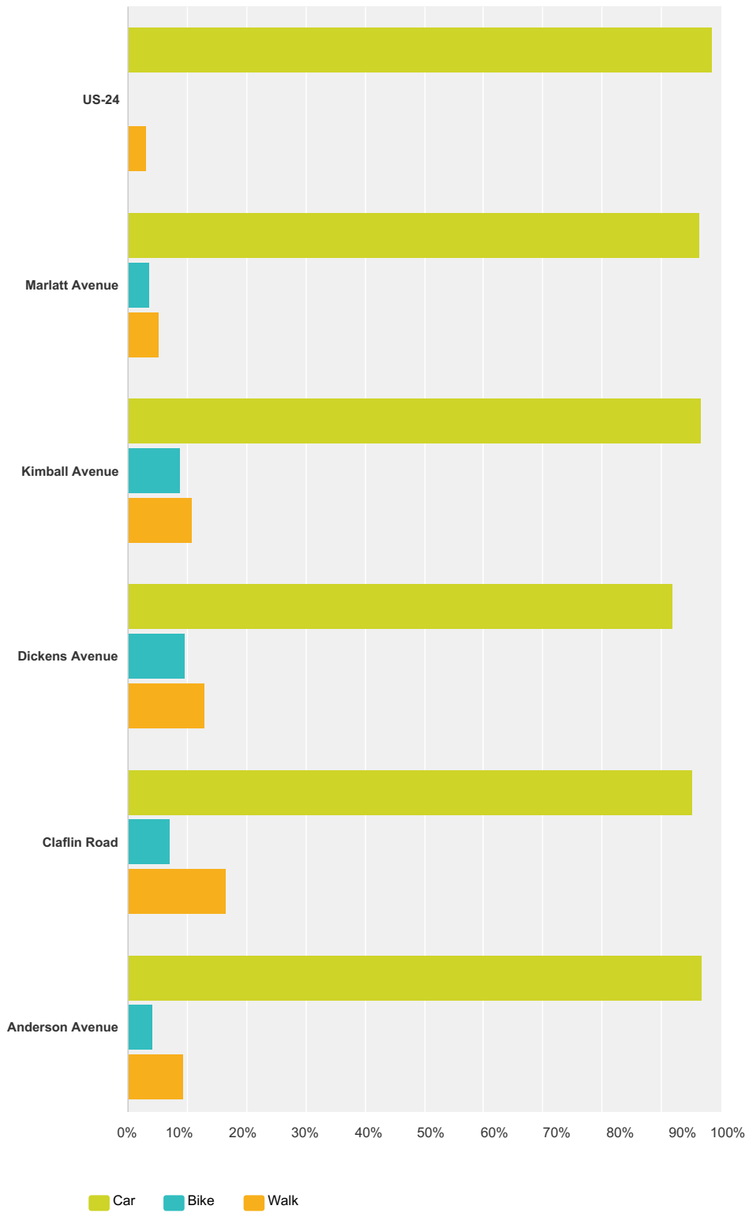
Answered: 149 Skipped: 7

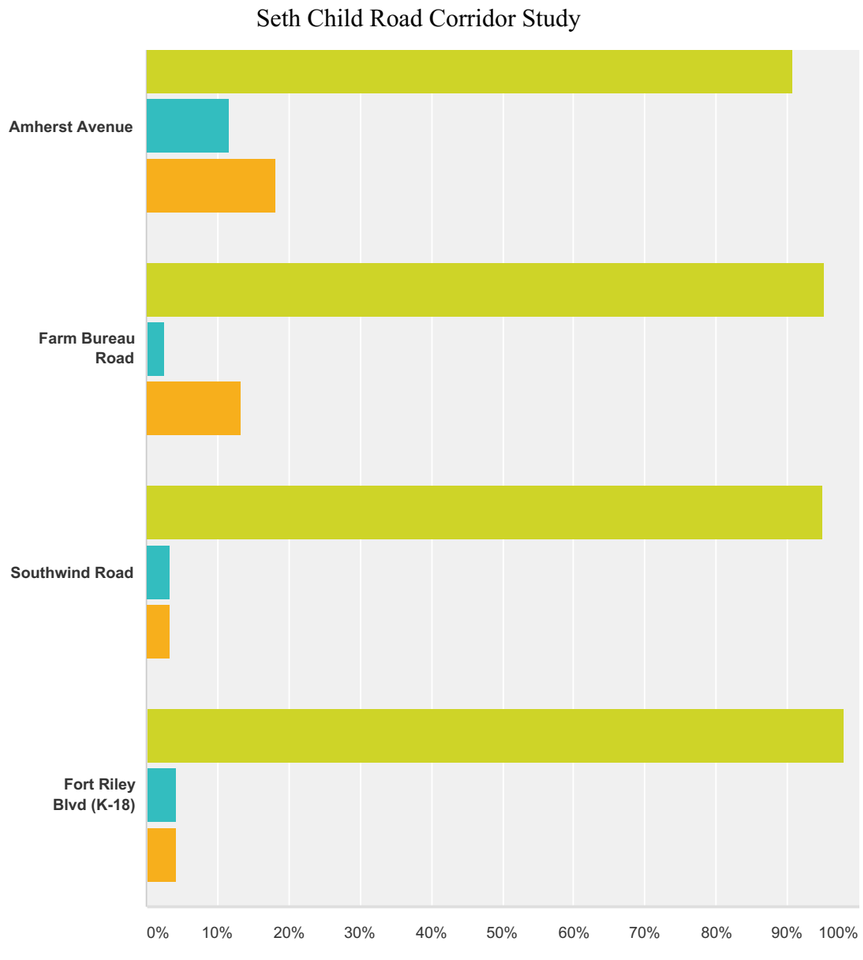


Answer Choices	Responses	
Yes	**6.71%**	10
No	**93.29%**	139
Total		**149**

Q8 Where do you most often cross Seth Child Road?

Answered: 146 Skipped: 10





Q9 What concerns do you have about the Seth Child Road Corridor?

Answered: 114 Skipped: 42

#	Responses
1	NONE
2	None
3	The possible proposed crossover type intersection would be catastrophic for traffic flow.
4	There is no safe way for pedestrians & bicyclists to cross K113. Many people live on the East side of the corridor & work on the west. Especially south of the bridge, there is NO protected way for them to cross.
5	Putting black top on it- hard to see at night & when it rains
6	Frequent Accidents
7	None
8	No sidewalks. People walk along the edge and it's dangerous
9	No sidewalks or bike routes it's dangerous
10	Not pedestrian friendly at all
11	Road Construction blocking all paths to Ft Riley
12	Speeding
13	Congestion & lack of efficiency Lane closures due to construction
14	Too many traffic signals
15	We have a lot of visitors between the fort and college students. Having traffic going on wrong side of road will cause confusion for visitors
16	None if they would have left it alone and just paint the lines - as they are so worn off they can not be seen.
17	n/a
18	needs a pedestrian bridge. It's both difficult and scary to walk across the street
19	None
20	None
21	Travel times during construction
22	None
23	Strongly opposed to the diamond interchange being installed
24	Please no roundabouts
25	Traffic back up during morning commute
26	Rush hour, football game days
27	Hate rush hour when everybody is on the raod. Quick Shop would be nice.
28	Pedestrians biking & walking need sidewalks. need a bus stop by the movie theater
29	No concerns. Well Placed
30	Spending money on improvements that are going to be removed a few years later
31	The excessive amount of stoplights between K-18 and Claflin Road.
32	Too many stoplights slowing things down and the roadsides and interchanges are not well kept. Tall grass, weeds, trash, etc.
33	There are -NO- crosswalks to get across the roadway, say from Redbud to Target Area
34	Quality of pavement on roach and ramps
35	Traffic lights slow travel times, especially during peak hours and it can be frustrating to travel across town. It seems inefficient compared to Kellogg Ave in Wichita for example.
36	Safety for pedestrians and bikes. People drive over the limit regularly and there is no protection/barrier from traffic. People walking/biking to work along Anderson are very vulnerable. Personally, I'd like to be able to walk to Anderson for shopping and to catch the bus to work.
37	We have lived at “Top of the World” since 1983, so have much experience driving “the corridor”. We are retired now, so our entry and exit use has lessened, but for many years it was several times a day. Of course since those years, the traffic along Seth Child has increased to the point that we now have “rush hour” morning and evening. In addition, of course “game day” traffic can be daunting, but less so now that we do not have Nebraska football fans. We have experienced many situations when we signal, slow and stop to turn left onto Top of the World Drive.....from rude gestures, honking, illegal passing on the right shoulder, to being rear-ended during a terrible thunder storm. The concerns we have for Seth Child Rd. are mainly from the Marlatt intersection to highway 24 intersection and include: ¬ll I strongly disagree with any Roundabouts. They take up too much of the surrounding area if they are done properly and so far , in my opinion, none of the ones done in Manhattan have been done properly. I could go on and on….. ¬ll If indeed any traffic control measures are needed, a signal at Marlatt should take care of the early and late “rush hour”. Ballgame traffic is controlled by the police department as needed and works fine. ¬ll I think extending the four lane from Marlatt to Hwy 24 with a 5th turn lane at Top of the World Dr., Eagle Ridge and the “housing addition” to the east would be a safety and travel time benefit. I do not think travel speeds would need to be reduced with these improvements. Biking along Seth Child could be hazardous and this could help that problem. ¬ll Some minimal, noninvasive lighting might be okay at entry/exit points along the highway (113 aka Seth Child Rd). Please refer to the International Dark-Sky Association. We have issues with the Farm Bureau Building below us and their light polluting and light trespassing with improperly shielded lights. ¬ll As far as aesthetic enhancements are concerned: I am sure you are familiar with the most current studies on the benefits of green spaces, green belts and natural areas to the environment of cities and the residents living there. We feel strongly that the flint hills from Marlatt to Hwy 24 should not be developed commercially….it is a naturally beautiful area and should be preserved as such. If you want to connect to the linear park that comes up to Farm Bureau, that might be a possibility for biking and walking trails on the east side. Pedestrian traffic as in to and from shopping areas would be minimally used. Washington Marlatt Park is a beneficial and well used area by walkers, joggers and dog owners who bring their pets, photo ops, weddings and other gatherings. Don’t mess with success.
38	City's let itself become dependent on it instead of creating parallel N/S routes, such as S. Wreath Avenue
39	Speed too high (speeding) on ramp from Anderson to Seth Child with short merging lane to Claflin
40	I'm concerned that the diverging diamond interchange will not improve transit time because there will still be traffic signals.
41	It doesn't need to be changed
42	Ease of Access East & West off of Seth Child onto Highway 24.
43	More side walks
44	Can be difficult to get out of Candlewood subdivision from Gary Ave and turn South from Marlatt Ave at rush hour/ school times.
45	Main concern is that improvements will be made that are not necessary - double diamond at K-18 to improve east bound traffic when the bottle-neck is caused by the Rosencutter/K18 traffic light
46	dickens intersection does not have safe passage for pediestrians
47	Veering from Ft. Riley Blvd onto Seth Childs. Especially trying to get into the far left lane to go to Target or Panera
48	Crossing by foot or bike is very unsafe and difficult when there is traffic. Too many stoplights that seem to all stop you one after the other. It's hard from the movie theater to turn left because of the light taking so long to turn.
49	Danger to pedestrians either walking along Seth Child or trying to cross it
50	Fine now but slow the traffic and make more pedestrian and bike friendly
51	No safe access for pedestrian and bicycles
52	That the public has no say in creating a diamond intersection at Ft. Riley Blvd and Seth Child Rd. NOT NEEDED AT ALL!!
53	See other above. The road is wide enough for future needs. Better access to businesses along corridor by foot or bike should be the focus.

Q9 What concerns do you have about the Seth Child Road Corridor?

54	Not standalone needs to be connected with Fort Riley BLVD and Tuttle Creek
55	A lot more accidents cause people don't care about care about each other such as pulling out and slamming on brakes, speeding and road rage.
56	North end is dangerous getting on and off especially at night. Signage is not easily understandable.
57	The mess and the money spent on roads and the asphalt and concrete needed. The heat from the paving.
58	Getting safely out of my subdivision particularly 6-8-am and 4-6pm. Another area of concern the onramp at Anderson onto North Seth Child - crazy w/ Claflin light right there
59	possible change of speed limit at Gary Ave - move the 55 going north, past Gary or install a light
60	I like traffic speed as is, I don't want to stop anymore than I do now. It's great for traffic flow, getting to one side to the other
61	Traffic will slow down with more lights and be no quick way through Manhattan
62	When entering SC from 18 (West to North) and needing to go to Target it can be hard to get to the left turn lane due to high traffic from South
63	too fast traffic turning into intersection
64	It would become too congested
65	Keeping traffic flowing smoothly North and South & East to West. Consider property timed traffic lights and roundabouts
66	Good changes made several months ago
67	Speeds are way to fast coming South bound down hill to Gary. Many people to extreme chances crossing Seth Child in the mornings especially.
68	Lack of consistency for out-of-town travelers. It's difficult to navigate a new place if there's a different kind of intersection at every street. Alignment. Crossing Seth Child can be confusing at some intersections because of the lane alignment and traffic light alignment.
69	My biggest concern is the intersection with US24 not being controlled in some way.
70	Too much emphasis on new big box businesses.
71	From what Ive seen I think we are going to have a mess. Plus, an increase in traffic accidents.
72	If it's suppose to save time why is the speed limit only 45? The only place people cross are at stop lights and it's not safe for people to walk along anyway due to not having sidewalks. (Other suggestions for this problem below) Also it doesn't go through any residential areas. Sure it goes along the back side of houses but those are far enough away from the road that I think it could handle a speed increase. The increase would mainly be nice after the Claflin intersection especially since there aren't any other stoplights after that and there are turn off spots for any turns along the roadway.
73	I forms an urban edge between the east/west of the corridor; divides city as oppose to unites
74	I want to suggest an interchange be constructed at K-18 and Seth Child
75	I would like to see the diverging diamond interchange project halted immediately and the idea completely scrapped.
76	Lack of crosswalks, sidewalks, speed
77	Congestion Sometimes I will avoid it if in a hurry
78	Wish you'd leave it alone with the possible exception of a streetlight at Gary Ave.
79	It needs to be overpasses all the way through, same with Marlatt or Ft. Riley Blvd. It shouldn't take 20-25 mins to go a couple miles to the east side of town.
80	Anderson and Seth Child
81	I don't to see it lose its current aesthetic natural environment. I don't want to see anymore billboards or oversized signage added. The lack of safe crossings for pedestrians is a major concern. I would also like to see the speed reduced.
82	debris is bad on shoulders
83	I don't turn left off of Gary but for about a year I had to cross Seth Child at Gary. It was terrifying.
84	The eastbound turn when heading north onto kimball off interchange should be a yield. Not a stop light. There's no reason for it and it backs up traffics
85	None - it is fine the way it is
86	I believe there would be more accidents and traffic fatalities. We already have a problem with people darting out in front of people and reckless driving. There is to much confusion now with the young drivers also.
87	Walking/biking access from Amherst to other areas.
88	None, it's a fantastic way to get around town. I've been impressed by it ever since I moved here.
89	safety at intersection of corridor and Amherst. intersection currently lacks adequate signage for vehicle traffic for north/south. unsafe for pedestrian traffic in same north/south pattern. residence can not gain access to foot/bike path safely.
90	other than it shouldn't be a full-fledged highway, none
91	Lack of pedestrian connectivity across the road. Wide lanes make existing crossing locations difficult.
92	The on ramp to north Seth child from Anderson at the Claflin intersection can be congested when switching lanes. Especially turning off Seth child to claflin with on ramp traffic
93	With it being a state highway it needs to be a freeway system. The fewer stops (lights/roudabouts) the better. Having pedestrian crossings for walkers and bikers over or under the freeway system would be an improvement.
94	I'm concerned it will be unusable due to all the stupid ideas for intersections that don't work the left is pushing (roundabouts, DDI,etc)
95	The light at the Southwind Intersection dies not work correctly if the sunlight hits it in a certain way.
96	None
97	Construction disruption.
98	Plan to handle future redevelopment possibilities
99	None. Works fine as it is.
100	I drive a similar one in JC and the signage sucks and would be dangerous at night or with limited visibility.
101	Accidents at Seth child and Claflin
102	The Kimball, Seth Child Rd., and Wreath Ave. connection is awkward. A couple times a year as I'm heading south on Wreath to enter Seth Child Road a vehicle heading north on Wreath will run the stop sign.
103	cars crossing over the center line, especially on the overpasses, cars cutting in on turns, drivers in general not paying attention. It's a driver problem- road is fine.
104	The problems exist on the Anderson interchange (traffic going E-W gets backed up) & going east on Claflin from northbound Seth Child.
105	I would like to be able to safely ride a bike on Seth child road but currently don't feel safe doing it. If that cannot be improved I would like to see the linear trail improved in this area. My only other concern is the use of Seth Child to commute to and from work. I use the Kimball interchange daily and really have no complaints about it.
106	too many lights slow traffic down too much. Congestion of traffic due to housing expansion in this corridor.
107	Timing of lights at Amherst and Farm Bureau
108	Mainly on the north side where there are no stop lights
109	Traffic can get congested a couple times/day.
110	Gary and Seth Child intersection and trying to get on Seth Child from Anderson
111	The traffic pattern being implemented is very confusing. There is little traffic slowdowns/backups with the current system. The priority should have been placed on Mcall to US 24 where there are major traffic backups. Accident potential (as stated why the intersection change is taking place) should not take precidence over actual road pattern issues.
112	There are no sidewalks. I frequently see walkers and bikers on Seth Child (on the shoulder). It is unsafe. There was a recent accident where a biker sharing the road on Seth Child was hit. There needs to be a sidewalk/bike path off to the side of Seth Child with connectivity to the neighborhoods and businesses. I have personally observed at least a dozen near misses of cars hitting pedestrians on the Seth Child shoulder in the Target to Dillons area. This sidewalk needs to be physically separated from the road. I realize the linear trail overlaps part of Seth Child, but its orientation is awkward for use in bypassing Seth Child for bikers and pedestrians. The Amherst intersection is a disaster waiting to happen. Pedestrian and bike connection to the linear trail and/or Seth Child is VERY dangerous. There are no sidewalks at the cross walks. The Amherst neighborhoods are very isolated due to this intersection design. The bike path needs to be continued for the length of Amherst to Seth Child. This needs to then connect to a sidewalk. There needs to be a better cross walk that goes across Seth Child to the businesses and homes on the east side. Because the many like to walk/bike down Amherst to the linear trail, it is dangerous. Second, the left turn lane from Amherst (heading east) onto Seth Child north is dangerous. Cars from the trailer park and businesses have the right of way, but randomly will yield to left turning traffic or worse will barrel through the intersection. Traffic coming down the hill doesn't always yield right of way correctly. I am surprised there are not more accidents.
113	Cross traffic at intersections such as Gary Ave and Dickens Ave
114	too many traffic signals, not enough through lanes, upgrade

Q10 What uses (retail, entertainment, services, housing, etc.) are missing or you would like to see along the corridor?

Answered: 86 Skipped: 70

#	Responses
1	NONE
2	None
3	More retail & restaurants would be ok. Incentives for business owners without exorbitant rental rates
4	Non fast foot eating establishments
5	Restaurants
6	A Carwash
7	I'm assuming this "corridor" IS Seth Child Road.
8	Family oriented & gas station, food - affordable souce, walking - patio estetics pathways for less car travel more on foot & bike travel
9	Wal-mart
10	Roller skating rink in vacant Ray's building
11	Gas Station
12	None
13	Yes
14	restaurants & more entertainment
15	Bus stop @ movie theater
16	None
17	More retail + restaurant options
18	More food places
19	n/a
20	Walmart Neighborhood Market (Small Store)
21	Quick Shop
22	Baskin Robbins, Dollar Tree, more lighting & sidewalks & more trees
23	I would like to see a car wash around commons area
24	None
25	A good convenience store would be nice.
26	More retail business on the west side. We have enough housing.
27	More dining options would be nice.
28	A bus stop somewhere between the one by Walgreens on Anderson and Target.
29	None - we are happy with the flint hills beauty and the park as it is.
30	More dine in restaurants @ Anderson and Seth Child, ie Golden Corral, Chiles, Applebees
31	I would like to see more retail and restaurants - many have moved to the east side (near Walmart and the mall)
32	none
33	More lighting from Marlatt to Hwy turn lanes at top of the world, 24 eagle ridge roads.
34	It's ok
35	retail
36	Some fast food, family fun center
37	Restaurants. Kohls or another department store.
38	No services fully useful without pedestrian accessibility
39	A gas station at Southwind and Amherst would be beneficial to area residences and more family restaurants
40	Retail and Entertainment, Dining
41	Don't need retail
42	None
43	If Seth Child Road Corridor is allowed I will not drive on it, permanent route around it.
44	see wreath to westloop
45	Any business / entertainment geared towards kid & teens. Lacking in Manhattan skating, teen center, skyzone type place, Incredible Pizza ect.
46	A place for walk safely along Seth Childs, put up a barrier between traffic and pedestrians/bicycles
47	Bike trail all the way to Hwy 24
48	retail, services
49	Lack of fast food on west side Miss-desperately Rays Foodmart
50	More nice restaurants ie. Chilies, Texas Roadhouse etc.
51	More gas stations - there is only 1 at Claflin and Seth Child (Dillon's). Easy access to gas station.
52	More Restaurants Sidewalks and safe crossings at south end FRB to Dickins.
53	Additional restaurants and grocery options along this corridor would be beneficial. Redeveloping Anderson from Seth Child to Wreath is an opportunity.
54	What ever is profitable to private investors
55	None
56	None.
57	All but housing
58	Nothing more than what it already has access too. It's a nice drive outside of the main area. Why ruin it?
59	Landscaping. Seth Childs is ugly, looking at the backs of buildings in many cases. Also, very auto dominated and pedestrian unfriendly.
60	Business and housing.
61	Restaurants and bars
62	Not really sure
63	Businesses. Everything is on the east side right now.
64	Restaurants
65	I don't necessarily think anything is missing. I would just like to see the apartment complex at the northeast concern of Seth Child and Claflin renovated or demolished and replaced with something nicer. I would also like to see Plaza West improved as I think it is an eyesore when you travel along Seth Child.
66	Would be nice to have a bike lane the length of it....but not if it means tearing up road and making a mess for months to do so.
67	Good laundry mat, Braums:)
68	There are no gas stations or restaurants on the western side.
69	its fine the way it is
70	Hopefully none of my favorite businesses are along the corridor will be along it, I will have to go to other towns. I already avoid the roundabouts.
71	More housing.
72	corridor is overwhelmingly retail/services to add housing would not make sense.
73	not sure
74	More retail entertainment and food places. Keep housing off the street a ways.
75	Frontage access to these uses should be the first objective. The Westloop area (both east and west of Seth Child) is a great area for retail, restaurant, entertainment and other services.
76	Whatever the free market creates.
77	N/A
78	Mixed use, more oriented towards pedestrians & bikes
79	In general it would be nice to see more vibrant businesses (restaurants) along Anderson between Seth Child and Wreath. Specifically Village Plaza doesn't seem to be doing well. The old Burger King on the NW corner of Seth Child and Anderson Ave has sat vacant for quite a while.
80	no more
81	more retail and entertainment.
82	gas station
83	None if planned on locating in the flood plain of Wildcat Creek.
84	gas station, restaurants
85	Need to find a place for a bigger retail location (e.g. HyVee).
86	more kids stuff, redevelop south west quadrant at West Anderson & K-113

Q11 Do you have any concerns with the Anderson Avenue corridor from Wreath Avenue to West Loop Shopping Center?

Answered: 109 Skipped: 47

#	Responses
1	NONE
2	No
3	Congestion at meal times & start/end of normal work hours traffic
4	No
5	Traffic gets very confested below the overpass
6	5:00 pm traffic backed up in front of West Loop
7	no
8	I don't use that avenue to get to West Loop
9	Yes
10	Bad use of space. No Sorry. Was thinking of Claflin. Not sure on this question.
11	No
12	People not watching when driving
13	Turning lanes are too short or get backed up leading to more congestion
14	Not at this time
15	Needs a light
16	No
17	n/a
18	None
19	None
20	Getting to campus
21	None
22	Traffic gets backed up through the stoplights at 5 o'clock every day
23	n/a
24	People not following speed limits, or looking where they're going
25	Keep pot hole filled in or redo the road
26	no
27	No. Easy Access.
28	High traffic area
29	The properties on either side of the road are very visually unappealing.
30	Very difficult to turn across traffic, outdated and old buildings looks run down.
31	People just need to pay attention
32	If the area to the southwest of Anderson and Seth Child was redeveloped, I could see the need for a single controlled access intersection such as a traffic light, maybe at Waters St.
33	-left turn lane on to Seth Child really backs up with traffic -pedestrians trying to cross Anderson by McDonalds and also on the other side of the interchange (south by gas station or shopping area where Genesis is).
34	no
35	Access Mgmt. as property redevelops
36	Remove Bridge @ Seth Child and Anderson. Remove Entrance and Exit ramps. Remove McDonalds & Balnetts access to Anderson. Install 2 red lights - 1 at Anderson & Seth Child and 1 at Road at Dillons and Anderson
37	I appreciated the addition of the traffic signals at Wreath and Seth Child to improve safe access to Anderson.
38	round -a-bouts cause accidents
39	Yes! Too much traffic, and it is hard to turn left going east on Anderson Under Seth Child without a turn signal light in place.
40	None
41	No
42	No
43	Yes. It's a mess. Hard to make any left turns in that area.
44	High turnover rate of businesses & vacancies, especially west of Seth Child on the south side. Wildcat Creek behind that shopping center tends to flood at times.
45	Only available by car
46	Speed to high in this congested area with people accessing business on both sides of road
47	No-it's working just fine. Leave it alone
48	Not pedestrian friendly
49	Yes - too many cars tying to use 1 lane
50	That light, Inter change on North side or West Loop needs to go.
51	No
52	No Burger King - Dairy Queen need shopping in Village Plaza area need KFC in area and Subway
53	Not really - except sometimes back up going home west and turning south (left)
54	Like using Claflin but not the onramp (see above) tight intersection into Westloop from Clafin - very busy w/Dillon gas station & apartment complex entrance
55	No
56	Hard to make left turns onto Anderson from shopping center, but don't want to be stopping anymore on Anderson it will slow down traffic
57	Number access points from business's make it difficult to get on Anderson especially making a left turn
58	From West loop to Kimball!
59	Sometimes difficult to pull out into traffic
60	When entering or exiting left it can be a long wait and dangerous.
61	none
62	Crossing traffic at certain times of day is very difficult
63	It is too congested with traffic. Need traffic flow improvement when turning left out of business onto Anderson Ave. Very dangerous
64	Need repair on surface of road. Cars parked on side of street makes street too narrow.
65	Yes. Too congested.
66	Too many lights in that small stretch of road. If there's room to widen Anderson to allow right turn lanes into Westloop, McDonald's, onto K-113, that would help the flow of traffic. Or force all Westloop traffic into one location with a double right turn, so you only have to be concerned about that traffic once. Creating a double left onto northbound K-113 or greater stacking distance for cars tuming would eliminate a lot of the backups on Anderson at critical times.
67	No
68	No
69	No
70	No
71	The stop light that is by the old burger King building. People turning left onto Set Child always get backed up which backs up the light before where when people are coming off of Seth Child and turning left onto Anderson.
72	It can be a bit of a traffic mess when people are trying to pull out of retail along that area.
73	No
74	No.
75	Yes it's a mess to get in and out of businesses or change lanes
76	Intersections without lights need to go away. IE behind Marshall's and 5he one beside Walgreens. The cars jumping into traffic slows everything down.
77	Yes! This area so run down for the amount of traffic and residences in the area. In my opinion, the strip malls on either side of Genesis need to be improved and the city should work to get retail or restaurant tenants secured. There also should be something brought into the old Burger King building as it is an eyesore. I think this is where the city needs to put their focus right now.
78	Yes, too many curb curs
79	Yes. Too many points of conflict on Anderson from people trying to enter Anderson from the varius businesses - left turns are virtually impossible.
80	No concerns.
81	Turn lane is very helpful
82	The speed. Those lanes are so narrow & speed is too high.
83	no
84	Along as there is no diamonds roundabouts being put there.
85	Nope.
86	No, I travel it several times per week and think it's perfectly efficient.
87	peak hours leave left turns almost unobtainable. good luck with that project as your landlocked thanks to surrounding businesses.
88	no
89	Not an inviting pedestrian environment. Narrow sidewalks on back of curb for much of this distance. High volume and speed of traffic. No pedestrian scale streetscape.
90	The light changes quickly at wreath. ?? I see lots of people trying to turn left from Anderson by the bank and McDonalds, causes confusion and backup
91	Need more limited entry points (drive ways) to parking lot on the south side and if possible fewer entry points (drive ways) to businesses on the north side. The turn lands for north and south bound Seth Child are too short. Access points to the businesses and parking lots closest to the on and off ramps are congested.
92	No.
93	People drive too fast. The main road through it is too narrow. Just kinda a cluster in there.
94	Chaotic traffic
95	Heavy traffic most times during the day.
96	Too many curb cuts. No long range plan for future redevelopment
97	Hard to turn left onto Anderson no matter what intersection or entrance. Too many driveways.
98	No
99	Congestion on Anderson where it meets Seth Child Rd. During busy times west bound traffic can get backed up on Anderson waiting to get on south bound Seth Child.
100	no
101	All the wasted space. Existing buildings sit vacant while new buildings are being constructed elsewhere
102	traffic congestion. need coordinated stop lights.
103	Not presently. If a significant traffic generator were to locate in the old Ray's building there could be some issues west of Seth Childs. Likewise with whatever might fill the old Burger King.
104	Hard to get onto Seth Child from Anderson...traffic getting onto Seth Child both ways.
105	No
106	Sort of. It is a weird intersection. When the county fair is in town the stop sign is missed quite a bit. Otherwise locals seem to get it.
107	Getting in and out of businesses
108	Left turns from the old Burger King and Wendy's headed east onto Anderson
109	yes too many entrances

Q12 Are there any particular areas within the corridor that are in need of redevelopment?

Answered: 79 Skipped: 77

#	Responses
1	NONE
2	No
3	Bike Trail
4	1) Add protected bike/ped crossing @ farm bureau or Southwind & sidewalks 2) The area to get on 113 at Anderson Ave
5	no
6	Street lights. Clear speed limit postings. And very clear lane markings. (I have issues seeing them when it rains)
7	Trails need lighting, not safe at night.
8	Yes. Parking Lots - need to go. Used by crime related people. Replace with some of above for older hard working but self-reliant ones. Practical shops & pretty esthetics - landscapes.
9	no
10	West Loop Shopping Center
11	None
12	None
13	I think you need emergency points along the trail where people can call for help if needed.
14	No
15	Just leave it alone. The system is just fine how it is.
16	Sunset & Denison need to be off a timer
17	Pot holes and underground spring by Toyota
18	no
19	Things look good.
20	no
21	Shop Kiki center, plaza west area along Seth child and behind Ray's old store.
22	Yes. Traffic lights at Dickens and Seth. Crosswalks around Allen St Redbud - No way for children to get across to Target area.
23	The Claflin traffic light area entering from Anderson is sometimes dangerous trying to get into middle lane to continue on SC past Dickens
24	It seems like the shopping and dining areas west of Anderson have fallen out of use.
25	not past Marlatt Ave - leave is as green space!
26	SW Corner Anderson &SCR E swath btw. Anderson & FRB
27	Old Burger King at Anderson, U-Haul & Car Wash at Anderson
28	There is nothing in Westloop, other than Dillon's worth going to . Same for Village Plaza, add Kohl's Red Lobster, and an Italian Restaurant.
29	No
30	From Marlatt Ave. North to highway 24.
31	No
32	Consider turn/merge lanes instead of more traffic lights and/or roundabouts.
33	Intersection at Dickens is heavy and hard to turn across traffic when getting into Seth Child turning left from Dickens.
34	Feel that a left hand turn signal off of Anderson onto Seth Child headed north should strongly be considered.
35	We see lots of pedestrians cross at Dickens Ave, just waiting for a break in traffic. A friend was badly injured in a car accident at Seth Child and Marlatt.
36	All in town more pedestrian/bike facilities
37	The area (commercial) fronting Seth Child that includes the area behind Alco where Valentines used to be where La Hacienda is If it's a flood plain - was not a park instead
38	How about putting Kohl's in the Ray's Apple Market by Ed Schram Dodge?
39	Personally would like to have rec. path (wide) all along Seth Child and sidewalk up Amherst to connect with sidewalks in Miller Ranch.
40	SC/Anderson
41	The whole thing
42	Cut the idea completely
43	Village Plaza
44	Ray's Apple Market Area former Burger King
45	NO
46	Anderson & Claflin areas
47	The street from Manhattan Ave to US 24 should be redeveloped. Street repaired, lanes wider and turning lane for Meadow Lark
48	Amhearst: Frontage road to car dealer, etc. too close Farm Bureau Road
49	No
50	No. The only time traffic is ever backed up on the road is if an accident occurs or during the football season but that doesn't justify spending how much money for a once in a while occurrence or for a 13 Saturdays in a year.
51	Anderson avenue to sethchild
52	No.
53	Southwind rd
54	Anderson Marlatt
55	Amherst, Farm Bureau rd, and Seth Child commons stoplights need to go away.
56	Rays Apple/Genisus shopping center
57	Plaza West, obviously.
58	I feel city is bored and looking for something to do for the sake of doing.
59	Unrelated to Seth child, but that kimball curve west of Manhattan word is a death trap.
60	no
61	I feel that crossing traffic puts drivers at risk of injury.
62	Nope.
63	I'm surprised that old Ray's Apple Market hasn't been taken over by something.
64	not sure
65	Plaza West shopping/Burger King corner. Apartments north of Claflin are unsightly.
66	Not in particular. Westloop looks nice since it was redone. Additional restaurants would be nice in the area
67	Limiting access points on the southern half of Seth Child would be an improvement. Doing so would allow for frontage road access and redeveloping businesses from the Southwind Drive to Anderson Drive. Closing of access from Clafln Road and directing it through Anderson would be an improvement.
68	No.
69	N/A
70	Anderson & Seth Child
71	Amherst Ave. Farm Bureau Rd. Anderson Ave.
72	I use them infrequently but the intersections like Martlatt and Dickens that don't have traffic lights seem dangerous.
73	no
74	Pedestrian/bike friendly access would be fantastic.
75	North exit from West Loop to Claflin is bad, especially with Park Place apartments and Dillon's gas station. West Loop owner does not have lanes properly marked, either.
76	Gary and Anderson
77	Focus on East Manhattan where the traffic corridors are horrible.
78	The apartment complex at Clafflin and Seth Child needs to go. Its entrance to Anderson is awkward and dangerous. It is a blight. Redevelop it into a HyVee or a Trader Joe's, or Whole Foods, or other high end grocer. The old Ray's Apple Market storefront is ugly. Redevelop it too. In general the entire Anderson/Clafflin/Seth Child outside of Dillon's and Westloop need redeveopment.
79	south west quadrant at Anderson and K-113

Q13 Is there anything else that you would like to share or any unique considerations about the project area that our team should be aware of?

Answered: 47 Skipped: 109

#	Responses
1	The only entrances (2) to Redbud estates are to Seth Child Rd. When there is road construction across both intersections at the same time is makes it nearly impossible for those residents to get out or back into the community
2	Only on Observation: The linear trail connects to Andesron not in the direction I'd need to go if I wanted to go into town. Overall, living in Redbud estates feels like I'm living outside of town, IE Aggieville, Downtown, City Park, Library. I woud LOVE to see efficient connection roads, bike paths, walk paths, streets, and all of them well lighted. This may be asking too much. A guy can hope.
3	More productive venues, less crime allowed to fester. People would enjoy children may be safer for lower income families. there's not enough affordable resources for wlaking family members.
4	no
5	lit sidewalks
6	They needs crosswalks on Seth Child at stop light because a lot of people walk across that road. They also need a a bigger shoulder for biking and walking on the side of seth childs
7	No
8	No
9	I think the money for this project could be better spent by resurfacing the roads and maintaining the infrastructure we already have. Manhattan is not a big city, please stop trying to make it look like one.
10	no
11	The whole Seth Child Road corridor needs cleaned up and better kept.
12	ATA bus coming to the movie theatre is a plus. Cross walks needed in area of Redbud to allow crossing to Target. An easier access to Seth. for the RLPD. Have city of RLPD prioners pick up the trash along the roadway. Looks terrible!!!
13	I realize it would be a big project, but I believe redoing Seth Child as a freeway style road with interchanges and frontage roads would make it very quick and easy to travel from the one side of town to the other, as well as make it easier to get on and off Seth Child.
14	Strengthening connections between the surrounding residential areas and Anderson/Seth Child businesses would be wonderful. I'd walk to Target, Dillons, etc. if it were a bit safer.
15	Mailed letter to the study team
16	The trail is nice, but a trail along a new parallel street from FRB to Anderson would serve the community better.
17	Safety First Business Minded (we need taxes) East of flow of traffic
18	Too many restaurants - Old Chicago, Carlos O Kelly's, etc. - are turning into sports bars with numerous big s screen TV's and hard surfaces so it is very loud and makes carrying on a normal conversation harder. Improve the drainage / grading in Village Plaza so the business there don't flood. Also, it's hard to see what business are actually there other than Genesis health club.
19	There are sooo many better ways to improve the town than this. The only reason you're redoing the road is because the high income housing to the west of the road.
20	Areas adjacent to Seth Child should also be taken into consideration - an example is the traffic flow at the intersection with K-18; the intersection is not the problem, the traffic light at Rosencutter/K18 is overly "sensitive" to traffic on Rosencutter and causes traffic to back up on K18, affecting the Seth Child/K18 interchange. Re-evaluating the Rosencutter intersection (or making the light less quick to change) would help the problem greatly.
21	Westar Energy is putting in a large substation on the northwest corner of Seth Child and Dickens Ave.
22	Focus on repair of existing roadway and bridges. The amount of roadways are sufficient for future needs. Safe access for pedestrians, bikes, etc. will provide for less auto traffic and better recreational environment. IMPROVE THE WALK SCORE
23	At US-24 and K-113 people pull out almost causing accident. Once someone pulled out and stopped in the middle of US-24 and started to laugh causing people to drive caution around the intersection
24	Like the idea of community center at Anthony Middle School. However concerned about the increase of traffic at Gary & Seth Child
25	Don't slow down traffic!!
26	The exit off Kimball at Seth Child corridor onto Wreath should be changed to make the entrance to Seth Child or to Wreath a safer experience for all drivers
27	No
28	If anything is done along the road either sidewalks and crosswalks would be nice at less busy stop lights such as Amherst Ave or an overpass would be nice for pedestrian's wanting to cross Seth Child at the busier areas like Southwind Rd. This would prevent the lights changing just for pedestriana and it would also keep them off the roadway.
29	Be conservative with the street lighting. More and more streets are becoming so bright it is hard to see when driving at night; and makes living near any main street attractive/undesirable which discourages mixed use.
30	Nope
31	It's not broken. Nothing needs to be fixed. Leave well enough alone.
32	NO MORE STOPLIGHTS IN MANHATTAN. Lights are a short term solution to long term problem.
33	no
34	When I come to Manhattan I avoid roundabouts, I may start going to other towns.
35	understand detour traffic patterns and adventurous motorists habits as they encounter detours. do this in an effort to create safe streets/neighborhoods surrounding the construction
36	no
37	Pedestrians/cyclists should be able to cross at every intersection in a safe manner. Provide refuge islands where crossings are long.
38	Move traffic quickly. At the off ramp from north bound Seth child to Anderson gets so busy, be nice to reroute the west bound Anderson traffic elsewhere
39	Creating a freeway system for north-south travelers on the west side of Manhattan is important. With the growth of the community traffic is becoming congested. Freeway access points and frontage roads would open up further development along the corridor while also limiting congestion.
40	It's a waste of money. Use that money to lower the tax rates for the Aggieville and Downtown districts.
41	There needs to be more bike and pedestrian friendly ways to deal with the Seth Child Rd at major intersections, such as the Kimball/Wreath interchange, and the intersections with Claflin and Anderson. In general it would be nice if the west side of town was more bike accessible.
42	I do not feel that travel time going N-S on Seth Child Rd is a problem.
43	Leave speed at 45 from K-18 to Farm Bureau Rd. From Farm Bureau Rd., north, increase to 50 mph.
44	Don't know if you consider Kimball as part of this project. Has any thought been given to widening Kimball from Hudson west to Anderson?
45	This project is seen by a majority in Miller Ranch as a waste of money.
46	A sidewalk is desperately needed as described above. Just outside of Manhattan there needs to be a left turn lane onto the road for "Top of the World" to prevent rear-endings. The off-ramps on Seth Child are crumbling (except Kimball north). They need to all be re-paved and marked with two lanes for left and right turns. The Kimball north design is correct for all.

From: Virginia Benkelman [mailto:2benks@sbcglobal.net]
Sent: Monday, April 17, 2017 2:50 PM
To: Bartlett, Chuck ; ott@cityofmhk.com; grosewicz@rileycountyks.gov
Subject: Seth Child Road Corridor Study

Seth Child Road Corridor Study April 17, 2017
Brent and Virginia Benkelman
3202 Willowpond Ln.
Manhattan, KS 66503
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Emily Molloy

We were out of town and unable to attend the Public Meeting last week, our neighbor kindly brought us the Survey Form.

We have lived at "Top of the World" since 1983, so have much experience driving "the corridor". We are retired now, so our entry and exit use has lessened, but for many years it was several times a day. Of course since those years, the traffic along Seth Child has increased to the point that we now have "rush hour" morning and evening. In addition, of course "game day" traffic can be daunting, but less so now that we do not have Nebraska football fans.

We have experienced many situations when we signal, slow and stop to turn left onto Top of the World Drive.....from rude gestures, honking, illegal passing on the right shoulder, to being rear-ended during a terrible thunder storm.

The concerns we have for Seth Child Rd. are mainly from the Marlatt intersection to highway 24 intersection and include:

- I strongly disagree with any Roundabouts. They take up too much of the surrounding area if they are done properly and so far , in my opinion, none of the ones done in Manhattan have been done properly. I could go on and on…..
- If indeed any traffic control measures are needed, a signal at Marlatt should take care of the early and late "rush hour". Ballgame traffic is controlled by the police department as needed and works fine.
- I think extending the four lane from Marlatt to Hwy 24 with a 5th turn lane at Top of the World Dr., Eagle Ridge and the "housing addition" to the east would be a safety and travel time benefit. I do not think travel speeds would need to be reduced with these improvements. Biking along Seth Child could be hazardous and this could help that problem.
- Some minimal, noninvasive lighting might be okay at entry/exit points along the highway (113 aka Seth Child Rd). Please refer to the International Dark-Sky Association. We have issues with the Farm Bureau Building below us and their light polluting and light trespassing with improperly shielded lights.
- As far as aesthetic enhancements are concerned: I am sure you are familiar with the most current studies on the benefits of green spaces, green belts and natural areas to the environment of cities and the residents living there. We feel strongly that the flint hills from Marlatt to Hwy 24 should not be developed commercially….it is a naturally beautiful area and should be preserved as such. If you want to connect to the linear park that comes up to Farm Bureau, that might be a possibility for biking and walking trails on the east side. Pedestrian traffic as in to and from shopping areas would be minimally used. Washington Marlatt Park is a beneficial and well used area by walkers, joggers and dog owners who bring their pets, photo ops, weddings and other gatherings. Don't mess with success.

We are very interested in this project and would appreciated being kept informed on the process as you progress.

Sincerely,

Virginia Benkelman

From: Jared Tremblay [mailto:tremblay@flinthillsregion.org]
Sent: Friday, April 14, 2017 2:48 PM
To: Bartlett, Chuck
Cc: Ed Klimek
Subject: Seth Child ideas

Chuck,

Mr. Klimek and I (cc'ed) were discussing our ideas for Seth Child Rd yesterday. You had asked the question of whether Seth Child needs to remain a highway. What Mr. Klimek and I envision is what you would call a parkway. Something that places a high value on aesthetics and landscaping to produce an enjoyable environment that is an asset to the community.

Merritt Parkway (Connecticut HWY 15) is one very nice example of a combination highway and parkway.
https://en.wikipedia.org/wiki/Merritt_Parkway#/media/File:Merritt3.jpg
http://www.merrittparkway.org/images/merrittfallphoto2014.jpg

Another example I'm sure you are familiar with is Ward Parkway in KC. This is a beautiful street. In addition it carries quite a lot of traffic as well (12,000 vehicles in 5 hours, albeit with 6 lanes). Attached are traffic counts for 5 hour peaks on the roadway, if those are of any help.

Last, similar to Ward Parkway, here is the Eastern Parkway, in Louisville, KY.
https://louisvillemetroparks.files.wordpress.com/2009/12/eastern-parkway1.jpg

Mr. Klimek, please feel free to add any thoughts as well.

Thank you
--
JARED TREMBLAY | TRANSPORTATION PLANNING ANALYST | FLINT HILLS METROPOLITAN PLANNING ORGANIZATION
PO BOX 514, OGDEN, KS 66517-0514 | 1801 BUFFALO SOLDIER, FORT RILEY, KS 66442
(P)855.785.3472 | (F)855.FAX.3472 | www.FlintHillsMPO.org

https://en.wikipedia.org/wiki/Merritt_Parkway#/media/File:Merritt3.jpg

http://www.merrittparkway.org/images/merrittfallphoto2014.jpg

https://louisvillemetroparks.files.wordpress.com/2009/12/eastern-parkway1.jpg

Committee Meeting - Scroll Map Markings 1

April 13, 2017

1. New marking is problematic
2. Run stop sign
3. Fire Station Needs Access

APPENDIX K PUBLIC INVOLVEMENT

Committee Meeting - Scroll Map Markings 2

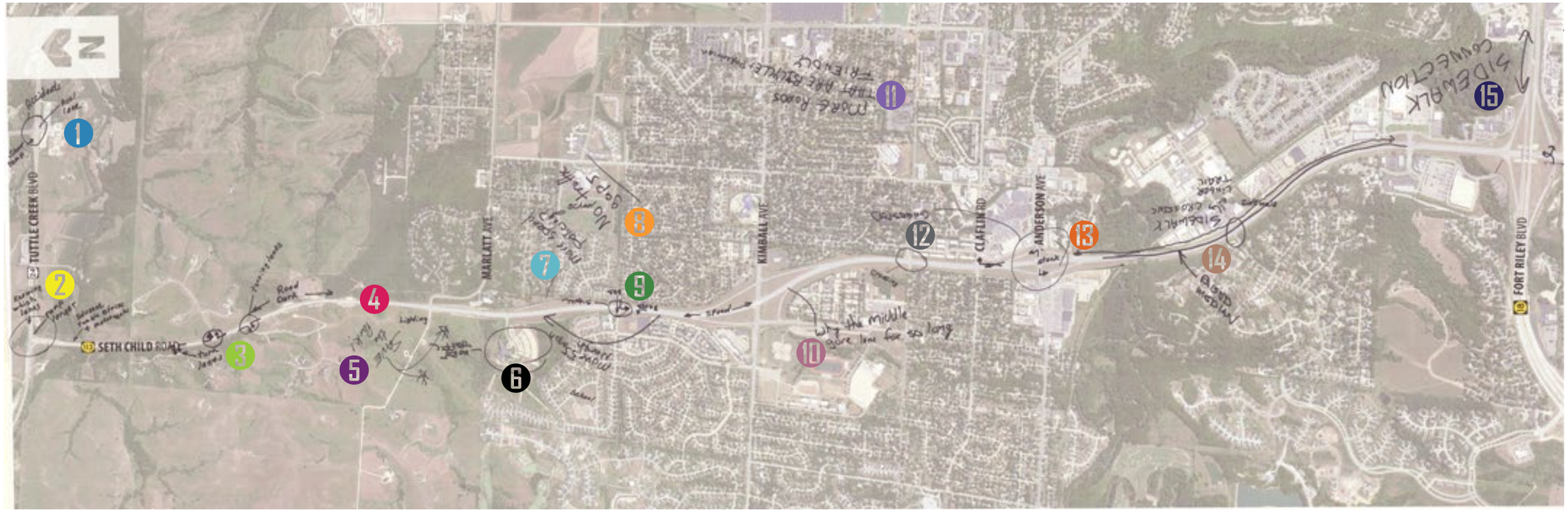
April 13, 2017

1 Lighting & Control

2 Extend (Continue) Turning Lane

Public Meeting - Scroll Map Markings 1

April 13, 2017



1
- Accidents
- Accel lane
- Short ramp

2
- Knowing which lanes
- Ramp longer
- Advance rumble strips and motor

3
- Turn lanes

4
- Dark road
- Lighting

5
- Save the Park!

6
- More traffic
- School

7
- More speed policing?
- Move 55 mph north
- Speed

8
- School
- No traffic gaps

9
- Signal
- Buses through
- Buses turn sb

10
- The the middle gore lane for so long

11
- More ramps that are bicycle and pedestrian friendly

12
- Crossing at Dickens Ave
- Crossing at Anderson Ave

13
- Anderson Avenue On-ramps stack

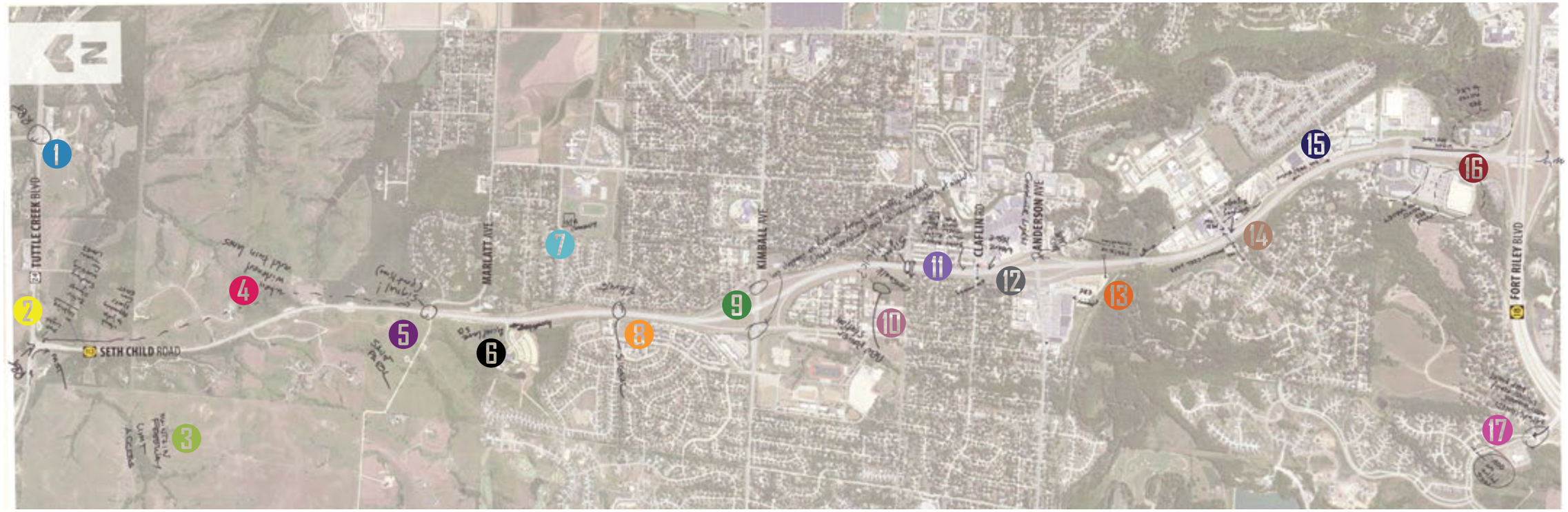
14
- Raised Median
- Sidewalk crossing
- Linear Trail
- Sidewalks

15
- Sidewalk Connection

APPENDIX K PUBLIC INVOLVEMENT

Public Meeting - Scroll Map Markings 2

April 13, 2017



1
- RBT

2
- RBT
- Fast right-turn onto K113
- Stop light or lighting
- Better signage and roadway markings for turn lanes
- Tough to judge approaching speeds from east

3
- Maintain freeway
- Limit access

4
- When widened, add turn lanes

5
- Save park
- Marlatt Ave - Signal! (part time)

6
- Accel lane SB

7
- Gym Community

8
- Elevate
- Signal at Gary Ave

9
- Less stoppage on Kimball during low traffic needed (light coordination) (blinking lights at night)

10
- New power station

11
- Signal Hawk?
- Crosswalk

12
- Bike Crossing on Claflin Rd
- Weave Issue from Anderson Ave
- Better signal that right turn lane only ahead for NB
- Bad light on Anderson Ave
- Coordinate Lights

13
- Ped Connect?
- Ped/bike connection

14
- Ped
- Doesn't feel safe
- Striping
- Signage
- Ped SW

15
- See ped/strollers

16
- Need ped access to Target
- Ped access to LEC
- Widen Add Lane

17
- Misaligned
- Needs signage: Divided Road/Keep Right
- Add 'No Outlet' Sign

K-113 SETH CHILD ROAD CORRIDOR STUDY
MANHATTAN, KANSAS
CITIZEN'S ADVISORY COMMITTEE

June 7, 2017

1. Introductions and Welcome | Brad Waller
2. Summary of Meeting Agenda and Next Steps | Brad Waller
3. Committee Presentation - full presentation attached

   Summary of Public Involvement To Date | Brad Waller
   Economic Analysis| Rich Caplan
   Land Use Analysis | Graham Smith
   Level of Service, Traffic Analysis| Jim Jussel
   Safety Analysis | Doug Harwood
   Pedestrian and Cycling Connectivity and Analysis | Naveed Jaffar
4. Summary of Steering Committee Value Planning Workshop scheduled for the following day. Alternatives will be developed to be presented at the next committee meeting. | Brad Waller
5. Open Discussion

   - Where are 77 acres of vacant commercial property?
     Rich Caplan presented the locations of vacant ground. The City responded that much of the vacant ground is located in the flood plain.
   - How is game day traffic accounted for in the study or incidents along the corridor?
     Brad Waller answered that there's no way to account for game day traffic in the study.
   - Commissioner Dodson said this corridor has the potential to be the commercial corridor similar to corridors in Wichita. (Kellogg) Planning the access will be essential to redevelopment opportunities along the corridor.
6. Adjournment

APPENDIX L ALTERNATIVE TRAFFIC ANALYSIS

TABLE L1

SEGMENT A - ALTERNATIVE ANALYSIS SUMMARY

Intersection	Option	Overall LOS	Lane Group LOS											
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
K-13	2040 No Build	-	A	A	A	A	A	A	C	C	C	D	D	A
	Offset Left-Turn	-	A	A	A	A	A	A	C	C	C	D	D	A
	Roundabout (HCS)	A		B			A			A			A	
K-113	2040 No Build	-		A	A	A	A		F		B			
	Signal	B		B	B	B	A		B		B			
	Roundabout (HCS)	C		A			C		C					
	Roundabout w/Bypass (HCS)	A		A	A	A	A		A		A			
	Flyover	A		A	A		A				B			

TABLE L2																
SEGMENT B - ALTERNATIVE ANALYSIS SUMMARY																
Intersection	Option	Part of Interchange	Overall LOS	Lane Group LOS												
				EBL	EBT	EBR	WBL	WBT	WBR	NWL	NBL	NBT	NBR	SEL	SBL	SBT
Anderson	2040 No Build	Southbound Ramp	D		F	F	F	A							F	
		Northbound Ramp	F	F	A			F	F		F		F			
	Ellipitical Roundabout		C	B	B	A	D	D	A		B		E		C	
	Roundabout Terminals	Southbound Ramp	C		C	C	C	C							C	
		Northbound Ramp	D	F	A			F	F		B		E			
	Signal		D	A	A			D	B		C	D	D		C	C
	Modified Diamond	Southbound Ramp	C		B	B	E	A							D	
		Northbound Ramp	C	E	B			C	C		E		D			
	DDI	Southbound Ramp	C		B			C								
		Northbound Ramp	C		C			C								
	SPUI		C	B	C		C	B		D				C		
Clafflin	2040 No Build		D	E	D	D	D	C	C		C	D	D		D	C
	Signal		C	D	D	D	D	B	C		B	D	D		C	C
Kimball	2040 No Build	Southbound Ramp	C		C	C	C	A			D		C		F	
		Northbound Ramp	C	C	C			D	D		C		C			
	Signal		C	D	C	C	D	D	D		D	C	C		D	C
	Roundabouts (HCS)	Southbound Ramp	C		D	E	B	C			A		A		C	
		Northbound Ramp	C	A	A			E	A		C		C			
	Modified Diamond	Southbound Ramp	C		C	C	D	A			D		C		E	
		Northbound Ramp	C	C	C			D	D		C		C			
	DDI	Southbound Ramp	B		B			B								
		Northbound Ramp	B		A			C								
	SPUI		B	B	A		C	A		C				B		
Marlatt	2040 No Build		-	F	F	F	F	F	F		A	A	A		B	A
	Signal		C	D	C	C	D	C			D	C	B		E	C
	Single Roundabout (HCS)		C		B			C			C	D			A	B
	2 Small Roundabouts (HCS)	Southbound Ramp	B		B	B	A	A							A	
		Northbound Ramp	B	A	A			B	B		B		B			
	Diamond	Southbound Ramp	D		C	C	E	C							B	
		Northbound Ramp	C	D	D			C	C		B		B			
	DDI	Southbound Ramp	A		B			A								
		Northbound Ramp	B		C			A								
	SPUI		B	C	B		B	B		C				B		

TABLE L3															
SEGMENT C - ALTERNATIVE ANALYSIS SUMMARY															
Intersection	Option	Part of Interchange	Overall LOS	Lane Group LOS											
				EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Amherst	2040 No Build		C	D	C	C	D	D	D	C	D	B	D	B	B
Farm Bureau	2040 No Build		A				D		D		A	A	A	A	
Southwind	2040 No Build		D	E	D	F	E	D	D	D	D	B	C	C	A
K-18	2040 No Build	Westbound Ramp	B				B		A	A	B			B	A
		Eastbound Ramp	B	B		A					B	A	A	B	
Allison	2040 No Build		-	A	A	A	A	A	A	A	A	A	B	B	A
Alternative 1 - 3 Thru Lanes on K-113															
Amherst	Alternative 1		C	D	C	C	D	D	D	E	C	B	C	B	B
Farm Bureau	Alternative 1		A				D		D		A	A	D	A	
Southwind	Alternative 1		C	D	C	A	D	D	D	C	C	A	C	C	C
Alternative 2 - Farm Bureau - Move WBL volume to Southwind and SBL volume to Amherst															
Amherst	Alternative 2		C	D	C	C	D	D	D	C	D	B	D	B	B
Farm Bureau	Alternative 2		C						C						
Southwind	Alternative 2		C	D	D	C	E	D	D	E	D	B	D	C	A
Alternative 3 - Farm Bureau - 3/4 Access															
Amherst	Alternative 3		C	D	C	C	D	D	D	C	D	B	D	B	B
Farm Bureau	Alternative 3		C						C				C		
Southwind	Alternative 3		D	D	D	B	F	D	D	C	D	A	C	D	A
Alternative 4 - NB Dual Lefts															
Southwind	Alternative 4		D	D	D	B	D	D	D	C	D	A	C	D	A

TABLE L4													
SEGMENT D - ALTERNATIVE ANALYSIS SUMMARY													
Intersection	Option	Overall LOS	Lane Group LOS										
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Wreath	2040 No Build	A	A	A			A	A				B		B
	Signal	B	C	B			B	B				C		C
	Roundabout	B	A	A			B	B				C		C
Waters	2040 No Build	-	B									C		C
Garden	2040 No Build	-	B			A			F	F	F	F	C	C
West Loop	2040 No Build	C	C	B	B	B		D	C	C	C	C	D	D