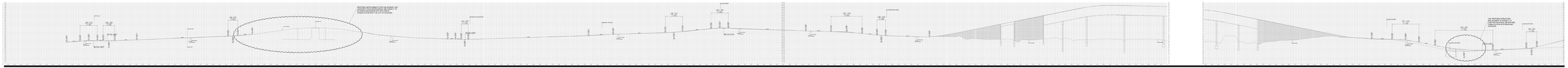
APPENDIX

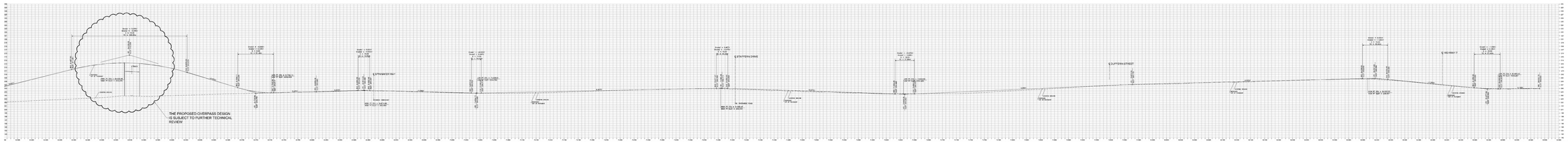
F

WESTON ROAD TO HIGHWAY 7 STUDY CONCEPT PLAN AND PROFILE



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY
LANGSTAFF ROAD - WESTON ROAD TO HIGHWAY 7

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY
LANGSTAFF ROAD - WESTON ROAD TO HIGHWAY 7



York Region

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY
LANGSTAFF ROAD - WESTON ROAD TO HIGHWAY 7

RETAINING WALLS
ASPHALT PAVEMENT
BICYCLE LANE
PLANTING ZONE
EDGE ZONE
MEDIAN
1.5m CONCRETE SIDEWALK
PROPOSED PROPERTY
TEMPORARY EASEMENT
PROPERTY AREA
EASEMENT AREA

SCALE
HORIZONTAL: 1:1000
VERTICAL: 1:200

WSP

APPENDIX

G

DETAILED SUMMARY OF MICROSIMULATION RESULTS SIMULATION 1

MICROSIMULATION RESULTS – SIMULATION 1

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Langstaff Rd at Stan Gate/ Valeria Blvd (Signalized)	**10 s**	**A**		**18 s**	**B**	
Eastbound Left	16 s	B	22 m	36 s	D	53 m
Eastbound Through	8 s	A	55 m	8 s	A	45 m
Eastbound Right	8 s	A	10 m	8 s	A	11 m
Westbound Left	25 s	C	19 m	19 s	B	16 m
Westbound Through	4 s	A	16 m	17 s	B	85 m
Westbound Right	6 s	A	6 m	17 s	B	41 m
Northbound Left	61 s	E	21 m	56 s	E	39 m
Northbound Through/Right	64/16 s	E/B	27 m	55/17 s	E/B	23 m
Southbound Left	57 s	E	16 m	64 s	E	17 m
Southbound Through/Right	65/21 s	E/B	39 m	77/22 s	E/C	29 m
Weston Rd at Langstaff Rd (Signalized)	**40 s**	**D**		**49 s**	**D**	
Eastbound Left	62 s	E	95 m	162 s	F	146 m
Eastbound Through	59 s	E	102 m	17 s	B	32 m
Eastbound Right	54 s	D	79 m	12 s	B	29 m
Westbound Left	79 s	E	153 m	46 s	D	96 m
Westbound Through	24 s	C	81 m	47 s	D	174 m
Westbound Right	8 s	A	24 m	18 s	B	67 m
Northbound Left	93 s	F	31 m	139 s	F	134 m
Northbound Through	55 s	D	28 m	64 s	E	173 m
Northbound Right	17 s	B	49 m	34 s	C	141 m
Southbound Left	39 s	D	47 m	60 s	E	24 m
Southbound Through	26 s	C	98 m	24 s	C	25 m
Southbound Right	20 s	C	73 m	21 s	C	44 m
Langstaff Rd at Silmar Dr/ Terecar Dr (Signalized)	**18 s**	**B**		**30 s**	**C**	
Eastbound Left	25 s	C	18 m	339 s	F	84 m
Eastbound Through	26 s	C	97 m	21 s	C	46 m
Eastbound Right	12 s	B	34 m	6 s	A	13 m
Westbound Left	20 s	C	62 m	28 s	C	33 m
Westbound Through	5 s	A	33 m	23 s	C	116 m
Westbound Right	4 s	A	27 m	15 s	B	55 m
Northbound Left	61 s	E	58 m	56 s	E	309 m
Northbound Through/Right	49/14 s	D/B	32 m	44/24 s	D/C	54 m
Southbound Left	59 s	E	155 m	37 s	D	241 m
Southbound Through/Right	50/25 s	D/C	22 m	26/25 s	C/C	31 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Hwy 400 West Ramp Terminal at Langstaff Rd (Signalized)	**36 s**	**D**		**22 s**	**C**	
Eastbound Through	69 s	E	135 m	22 s	C	66 m
Westbound Through	6 s	A	31 m	16 s	B	84 m
Southbound Left	30 s	C	166 m	35 s	D	151 m
Southbound Right	11 s	B	119 m	25 s	C	111 m
Hwy 400 East Ramp Terminal at Langstaff Rd (Signalized)	**31 s**	**C**		**29 s**	**C**	
Eastbound Through	33 s	C	136 m	38 s	D	132 m
Westbound Through	54 s	D	76 m	24 s	C	92 m
Northbound Left	20 s	B	48 m	34 s	C	109 m
Northbound Right	10 s	B	46 m	17 s	B	58 m
Langstaff Rd at Edgeley Blvd (Signalized)	**16 s**	**B**		**37 s**	**D**	
Eastbound Left	29 s	C	64 m	150 s	F	312 m
Eastbound Through	12 s	B	79 m	29 s	C	214 m
Eastbound Right	12 s	B	56 m	17 s	B	51 m
Westbound Left	28 s	C	17 m	56 s	E	13 m
Westbound Through	11 s	B	29 m	28 s	C	78 m
Westbound Right	4 s	A	0 m	14 s	B	12 m
Northbound Left	53 s	D	51 m	46 s	D	103 m
Northbound Through	51 s	D	11 m	31 s	C	67 m
Northbound Right	26 s	C	10 m	23 s	C	55 m
Southbound Left	47 s	D	26 m	61 s	E	32 m
Southbound Through/Right	48/20 s	D/B	54 m	46/38 s	D/D	159 m
Langstaff Rd at Millway Ave (Signalized)	**8 s**	**A**		**19 s**	**B**	
Eastbound Left	10 s	B	24 m	37 s	D	82 m
Eastbound Through	3 s	A	21 m	8 s	A	40 m
Eastbound Right	5 s	A	22 m	6 s	A	45 m
Westbound Left	33 s	C	45 m	64 s	E	10 m
Westbound Through	3 s	A	14 m	23 s	C	67 m
Westbound Right	4 s	A	15 m	11 s	B	73 m
Northbound Left	64 s	E	33 m	41 s	D	54 m
Northbound Through/Right	53/19 s	D/B	31 m	47/31 s	D/C	63 m
Southbound Left	65 s	E	18 m	56 s	E	34 m
Southbound Through/Right	49/19 s	D/B	26 m	49/17 s	D/B	41 m
Jane St at Langstaff Rd (Signalized)	**38 s**	**D**		**54 s**	**D**	
Eastbound Left	42 s	D	45 m	103 s	F	250 m
Eastbound Through	37 s	D	86 m	68 s	E	215 m
Eastbound Right	22 s	C	100 m	36 s	D	153 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Westbound Left	64 s	E	96 m	68 s	E	127 m
Westbound Through/Right	52/9 s	D/A	68 m	49/15 s	D/B	78 m
Northbound Left	45 s	D	47 m	42 s	D	51 m
Northbound Through	51 s	D	24 m	52 s	D	148 m
Northbound Right	17 s	B	48 m	33 s	C	90 m
Southbound Left	40 s	D	103 m	60 s	E	93 m
Southbound Through	38 s	D	82 m	31 s	C	43 m
Southbound Right	12 s	B	27 m	7 s	A	25 m
Langstaff Rd at Creditstone Rd (Signalized)	**25 s**	**C**		**60 s**	**E**	
Eastbound Left	17 s	B	30 m	161 s	F	189 m
Eastbound Through/Right	8/9 s	A/A	31 m	15/11 s	B/B	126 m
Westbound Left	48 s	D	85 m	513 s	F	220 m
Westbound Through/Right	25/18 s	C/B	80 m	55/37 s	D/D	118 m
Northbound Left	62 s	E	30 m	53 s	D	70 m
Northbound Through/Right	45/22 s	D/C	31 m	91/92 s	F/F	177 m
Southbound Left	62 s	E	48 m	56 s	E	73 m
Southbound Through/Right	73/52 s	E/D	78 m	46/34 s	D/C	56 m
Keele St at Langstaff Rd (Signalized)	**42 s**	**D**		**76 s**	**E**	
Eastbound Left	234 s	F	149 m	198 s	F	329 m
Eastbound Through/Right	23/16 s	C/B	64 m	39/20 s	D/C	127 m
Westbound Left	58 s	E	23 m	71 s	E	86 m
Westbound Through/Right	33/11 s	C/B	77 m	46/23 s	D/C	67 m
Northbound Left	107 s	F	59 m	216 s	F	294 m
Northbound Through	28 s	C	60 m	115 s	F	294 m
Northbound Right	20 s	B	55 m	90 s	F	95 m
Southbound Left	58 s	E	126 m	84 s	F	95 m
Southbound Through	52 s	D	168 m	35 s	C	61 m
Southbound Right	49 s	D	89 m	34 s	C	82 m
Langstaff Rd at Planchet Rd (Signalized)	**8 s**	**A**		**18 s**	**B**	
Eastbound Left	21 s	C	41 m	59 s	E	96 m
Eastbound Through	4 s	A	21 m	9 s	A	49 m
Westbound Through	5 s	A	22 m	10 s	B	38 m
Westbound Right	5 s	A	29 m	6 s	A	42 m
Southbound Left/Right	51/15 s	D/B	49 m	63/18 s	E/B	136 m
Langstaff Rd at Connie Cres/ Spinnaker Way (Signalized)	**10 s**	**B**		**13 s**	**B**	
Eastbound Left	24 s	C	66 m	22 s	C	37 m
Eastbound Through	5 s	A	21 m	6 s	A	34 m
Eastbound Right	5 s	A	24 m	6 s	A	39 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Westbound Left	17 s	B	13 m	19 s	B	3 m
Westbound Through	4 s	A	16 m	8 s	A	38 m
Westbound Right	5 s	A	22 m	3 s	A	42 m
Northbound Left	57 s	E	48 m	55 s	D	54 m
Northbound Through/Right	55/34 s	D/C	28 m	59/28 s	E/C	106 m
Southbound Left	57 s	E	20 m	49 s	D	24 m
Southbound Through/Right	60/17 s	E/B	34 m	0/12 s	A/B	30 m
Langstaff Rd at North Rivermede Rd/ Staffern Dr (Signalized)	**31 s**	**C**		**44 s**	**D**	
Eastbound Left	15 s	B	17 m	36 s	D	46 m
Eastbound Through	18 s	B	35 m	26 s	C	64 m
Eastbound Right	23 s	C	41 m	30 s	C	70 m
Westbound Left	27 s	C	35 m	73 s	E	20 m
Westbound Through	16 s	B	72 m	53 s	D	62 m
Westbound Right	12 s	B	78 m	37 s	D	67 m
Northbound Left	47 s	D	33 m	95 s	F	85 m
Northbound Through/Right	34/16 s	C/B	26 m	88/84 s	F/F	192 m
Southbound Left	86 s	F	226 m	42 s	D	99 m
Southbound Through/Right	65/59 s	E/E	242 m	25/16 s	C/B	49 m
Dufferin St at Langstaff Rd (Signalized)	**98 s**	**F**		**76 s**	**E**	
Eastbound Left	79 s	E	49 m	150 s	F	105 m
Eastbound Through/Right	44/95 s	D/F	349 m	132/75 s	F/E	287 m
Westbound Left	205 s	F	209 m	85 s	F	36 m
Westbound Through/Right	79/71 s	E/E	230 m	28/36 s	C/D	38 m
Northbound Left	90 s	F	241 m	106 s	F	133 m
Northbound Through	27 s	C	86 m	85 s	F	247 m
Northbound Right	29 s	C	109 m	58 s	E	255 m
Southbound Left	185 s	F	41 m	84 s	F	28 m
Southbound Through/Right	150/123 s	F/F	358 m	28/19 s	C/B	73 m
Langstaff Rd at Timberview Dr (Stop-controlled)	**26 s**	**D**		**19 s**	**C**	
Westbound Left	14 s	B	3 m	25 s	C	19 m
Northbound Left	33 s	D	11 m	25 s	D	6 m
Northbound Right	6 s	A	2 m	9 s	A	1 m
Langstaff Rd at Pleasant Ridge Ave (Signalized)	**20 s**	**B**		**9 s**	**A**	
Eastbound Left	12 s	B	10 m	18 s	B	45 m
Eastbound Through	5 s	A	10 m	8 s	A	36 m
Westbound Through	16 s	B	67m	6 s	A	29 m
Westbound Right	10 s	A	23 m	7 s	A	16 m
Southbound Left	54 s	D	94 m	63 s	E	24 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Southbound Right	21 s	C	58 m	10 s	B	11 m
Highway 7 at Langstaff Rd (Signalized)	**11 s**	**B**		**30 s**	**C**	
Eastbound Left	67 s	E	12 m	119 s	F	224 m
Eastbound Through	7 s	A	26 m	34 s	C	236 m
Westbound Through	5 s	A	87 m	19 s	B	122 m
Westbound Right	0 s	A	15 m	1 s	A	18 m
Southbound Left	63 s	E	85 m	19 s	B	74 m
Southbound Right	19 s	B	45 m	25 s	C	15 m

RAMP TERMINAL INTERSECTIONS

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Highway 400/Highway 7 Interchange West Ramp Terminal (Signalized)	**29 s**	**C**		**31 s**	**C**	
Eastbound Through	13 s	B	67 m	23 s	C	91 m
Westbound Through	25 s	C	73 m	16 s	B	67 m
Northbound Right	65 s	E	8 m	90 s	F	50 m
Southbound Left/Through/Right	45/52/35 s	D/D/C	114 m	53/59/41 s	D/E/D	112 m
Highway 400/Highway 7 Interchange East Ramp Terminal (Signalized)	**29 s**	**C**		**35 s**	**D**	
Eastbound Through	20 s	B	72 m	32 s	C	89 m
Westbound Through	17 s	B	53 m	28 s	C	136 m
Northbound Left	65 s	E	68 m	53 s	D	63 m
Northbound Right	40 s	D	75 m	24 s	C	52 m
Highway 400/Rutherford Rd Interchange West Ramp Terminal (Signalized)	**14 s**	**B**		**24 s**	**C**	
Eastbound Through	7 s	A	60 m	23 s	C	101 m
Westbound Through	7 s	A	38 m	17 s	B	127 m
Southbound Left	62 s	E	45 m	50 s	D	85 m
Southbound Right	30 s	C	16 m	30 s	C	22 m
Highway 400/Rutherford Rd Interchange East Ramp Terminal (Signalized)	**50 s**	**D**		**57 s**	**E**	
Eastbound Left	89 s	F	36 m	120 s	F	77 m
Eastbound Through	35 s	C	94 m	37 s	D	115 m
Westbound Through	62 s	E	193 m	75 s	E	196 m
Westbound Right	136 s	F	7 m	51 s	D	129 m
Northbound Left/Through/Right	55/56/32 s	E/E/C	70 m	71/60/42 s	E/E/D	188 m
Southbound Left	60 s	E	87 m	27 s	C	0 m
Southbound Right	22 s	C	45 m	19 s	B	32 m

APPENDIX

H

DETAILED SUMMARY OF MICROSIMULATION RESULTS SIMULATION 2

MICROSIMULATION RESULTS – SIMULATION 2

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Langstaff Rd at Stan Gate/ Valeria Blvd (Signalized)	**10 s**	**B**		**14 s**	**B**	
Eastbound Left	16 s	B	21 m	33 s	C	45 m
Eastbound Through	7 s	A	50 m	11 s	B	64 m
Eastbound Right	7 s	A	9 m	9 s	A	11 m
Westbound Left	25 s	C	18 m	20 s	B	17 m
Westbound Through	5 s	A	21 m	10 s	A	66 m
Westbound Right	6 s	A	4 m	14 s	B	35 m
Northbound Left	59 s	E	21 m	56 s	E	36 m
Northbound Through/Right	63/16 s	E/B	26 m	54/17 s	D/B	23 m
Southbound Left	56 s	E	17 m	63 s	E	17 m
Southbound Through/Right	63/19 s	E/B	39 m	75/23 s	E/C	29 m
Weston Rd at Langstaff Rd (Signalized)	**39 s**	**D**		**88 s**	**F**	
Eastbound Left	71 s	E	130 m	217 s	F	277 m
Eastbound Through	48 s	D	80 m	22 s	C	97 m
Eastbound Right	50 s	D	94 m	14 s	B	32 m
Westbound Left	48 s	D	76 m	40 s	D	75 m
Westbound Through	22 s	C	64 m	27 s	C	113 m
Westbound Right	11 s	B	21 m	13 s	B	59 m
Northbound Left	102 s	F	36 m	184 s	F	114 m
Northbound Through	43 s	D	26 m	183 s	F	369 m
Northbound Right	17 s	B	54 m	134 s	F	205 m
Southbound Left	43 s	D	81 m	94 s	F	40 m
Southbound Through	31 s	C	118 m	30 s	C	31 m
Southbound Right	31 s	C	82 m	20 s	C	66 m
Langstaff Rd at Silmar Dr/ Terecar Dr (Signalized)	**19 s**	**B**		**28 s**	**C**	
Eastbound Left	16 s	B	20 m	95 s	F	39 m
Eastbound Through	19 s	B	77 m	16 s	B	49 m
Eastbound Right	17 s	B	89 m	17 s	B	58 m
Westbound Left	13 s	B	43 m	22 s	C	26 m
Westbound Through	9 s	A	55 m	29 s	C	113 m
Westbound Right	6 s	A	47 m	26 s	C	114 m
Northbound Left	62 s	E	221 m	49 s	D	356 m
Northbound Through/Right	52/13 s	D/B	24 m	52/12 s	D/B	58 m
Southbound Left	57 s	E	252 m	46 s	D	380 m
Southbound Through/Right	56/26 s	E/C	27 m	38/26 s	D/C	30 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Hwy 400 East Ramp Terminal at Langstaff Rd (Signalized)	**86 s**	**F**		**13 s**	**B**	
Eastbound Through	148 s	F	260 m	7 s	A	42 m
Westbound Through	97 s	F	147 m	11 s	B	71 m
Northbound Left	13 s	B	30 m	58 s	E	47 m
Northbound Right	16 s	B	97 m	20 s	C	35 m
Langstaff Rd at Edgeley Blvd (Signalized)	**15 s**	**B**		**25 s**	**C**	
Eastbound Left	19 s	B	53 m	78 s	E	68 m
Eastbound Through	9 s	A	50 m	24 s	C	63 m
Eastbound Right	11 s	B	60 m	21 s	C	71 m
Westbound Left	17 s	B	16 m	27 s	C	8 m
Westbound Through	4 s	A	15 m	13 s	B	49 m
Westbound Right	4 s	A	17 m	19 s	B	49 m
Northbound Left	70 s	E	22 m	42 s	D	101 m
Northbound Through	55 s	E	10 m	30 s	C	58 m
Northbound Right	46 s	D	18 m	30 s	C	56 m
Southbound Left	49 s	D	26 m	47 s	D	21 m
Southbound Through/Right	49/33 s	D/C	46 m	48/31 s	D/C	98 m
Langstaff Rd at Millway Ave (Signalized)	**13 s**	**B**		**24 s**	**C**	
Eastbound Left	15 s	B	19 m	22 s	C	26 m
Eastbound Through	10 s	B	62 m	7 s	A	31 m
Eastbound Right	9 s	A	53 m	5 s	A	29 m
Westbound Left	25 s	C	61 m	31 s	C	21 m
Westbound Through	4 s	A	13 m	32 s	C	76 m
Westbound Right	6 s	A	16 m	31 s	C	78 m
Northbound Left	70 s	E	21 m	44 s	D	67 m
Northbound Through/Right	48/16 s	D/B	29 m	42/20 s	D/C	54 m
Southbound Left	58 s	E	15 m	60 s	E	22 m
Southbound Through/Right	56/25 s	E/C	41 m	57/26 s	E/C	54 m
Jane St at Langstaff Rd (Signalized)	**38 s**	**D**		**40 s**	**D**	
Eastbound Left	49 s	D	34 m	49 s	D	78 m
Eastbound Through	35 s	D	72 m	38 s	D	77 m
Eastbound Right	31 s	C	81 m	33 s	C	91 m
Westbound Left	70 s	E	115 m	49 s	D	64 m
Westbound Through/Right	52/9 s	D/A	56 m	52/20 s	D/C	75 m
Northbound Left	48 s	D	27 m	39 s	D	49 m
Northbound Through	53 s	D	26 m	43 s	D	128 m
Northbound Right	16 s	B	39 m	29 s	C	89 m
Southbound Left	43 s	D	127 m	56 s	E	92 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Southbound Through	34 s	C	105 m	27 s	C	46 m
Southbound Right	14 s	B	41 m	6 s	A	26 m
Langstaff Rd at Creditstone Rd (Signalized)	**29 s**	**C**		**39 s**	**D**	
Eastbound Left	18 s	B	34 m	62 s	E	99 m
Eastbound Through/Right	12/11 s	B/B	43 m	9 s	A	45 m
Westbound Left	60 s	E	116 m	122 s	F	72 m
Westbound Through/Right	24/28 s	C/C	92 m	41/45 s	D/D	98 m
Northbound Left	58 s	E	21 m	41 s	D	47 m
Northbound Through/Right	46/21 s	D/C	30 m	62 s	E	114 m
Southbound Left	68 s	E	49 m	57 s	E	54 m
Southbound Through/Right	72/51 s	E/D	81 m	45/31 s	D/C	44 m
Keele St at Langstaff Rd (Signalized)	**54 s**	**D**		**70 s**	**E**	
Eastbound Left	131 s	F	105 m	175 s	F	254 m
Eastbound Through/Right	29/41 s	C/D	117 m	41/31 s	D/C	151 m
Westbound Left	53 s	D	28 m	60 s	E	66 m
Westbound Through/Right	32/12 s	C/B	74 m	44/24 s	D/C	66 m
Northbound Left	96 s	F	51 m	142 s	F	199 m
Northbound Through	27 s	C	56 m	108 s	F	284 m
Northbound Right	20 s	B	57 m	85 s	F	83 m
Southbound Left	80 s	F	156 m	61 s	E	69 m
Southbound Through	82 s	F	269 m	33 s	C	54 m
Southbound Right	83 s	F	122 m	35 s	D	68 m
Langstaff Rd at Planchet Rd (Signalized)	**9 s**	**A**		**15 s**	**B**	
Eastbound Left	23 s	C	41 m	31 s	C	44 m
Eastbound Through	5 s	A	26 m	7 s	A	26 m
Westbound Through	5 s	A	21 m	9 s	A	30 m
Westbound Right	5 s	A	26 m	9 s	A	44 m
Southbound Left/Right	49/14 s	D/B	56 m	60/15 s	E/B	139 m
Langstaff Rd at Connie Cres/ Spinnaker Way (Signalized)	**10 s**	**A**		**14 s**	**B**	
Eastbound Left	27 s	C	69 m	20 s	B	32 m
Eastbound Through	4 s	A	23 m	5 s	A	32 m
Eastbound Right	5 s	A	28 m	7 s	A	40 m
Westbound Left	22 s	C	9 m	12 s	B	2 m
Westbound Through	4 s	A	12 m	8 s	A	27 m
Westbound Right	5 s	A	19 m	9 s	A	33 m
Northbound Left	62 s	E	43 m	53 s	D	52 m
Northbound Through/Right	55/24 s	E/C	20 m	56/30 s	E/C	116 m
Southbound Left	50 s	D	19 m	46 s	D	27 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Southbound Through/Right	71/18 s	E/B	31 m	0/11 s	A/B	30 m
Langstaff Rd at North Rivermede Rd/ Staffern Dr (Signalized)	**44 s**	**D**		**43 s**	**D**	
Eastbound Left	29 s	C	18 m	31 s	C	34 m
Eastbound Through	24 s	C	45 m	25 s	C	67 m
Eastbound Right	23 s	C	59 m	25 s	C	74 m
Westbound Left	33 s	C	47 m	49 s	D	17 m
Westbound Through	18 s	B	73 m	52 s	D	56 m
Westbound Right	15 s	B	84 m	39 s	D	63 m
Northbound Left	50 s	D	43 m	96 s	F	90 m
Northbound Through/Right	34/20 s	C/B	34 m	90/80 s	F/F	196 m
Southbound Left	144 s	F	389 m	42 s	D	99 m
Southbound Through/Right	113/97 s	F/F	459 m	29/15 s	C/B	47 m
Dufferin St at Langstaff Rd (Signalized)	**112 s**	**F**		**83 s**	**F**	
Eastbound Left	85 s	F	75 m	150 s	F	95 m
Eastbound Through/Right	46/104 s	D/F	361 m	147/84 s	F/F	287 m
Westbound Left	260 s	F	264 m	223 s	F	128 m
Westbound Through/Right	84/71 s	F/E	299 m	33/40 s	C/D	51 m
Northbound Left	83 s	F	196 m	104 s	F	129 m
Northbound Through	27 s	C	80 m	88 s	F	271 m
Northbound Right	32 s	C	88 m	63 s	E	201 m
Southbound Left	208 s	F	24 m	96 s	F	28 m
Southbound Through/Right	183/156 s	F/F	417 m	27/15 s	C/B	74 m
Langstaff Rd at Timberview Dr (Stop-controlled)	**95 s**	**F**		**18 s**	**B**	
Westbound Left	22 s	C	4 m	21 s	C	27 m
Northbound Left	140 s	F	23 m	25 s	C	6 m
Northbound Right	20 s	C	4 m	2 s	A	0 m
Langstaff Rd at Pleasant Ridge Ave (Signalized)	**28 s**	**C**		**9 s**	**A**	
Eastbound Left	13 s	B	12 m	20 s	B	43 m
Eastbound Through	6 s	A	15 m	8 s	A	36 m
Westbound Through	28 s	C	108 m	5 s	A	33 m
Westbound Right	16 s	B	24 m	7 s	A	18 m
Southbound Left	56 s	E	94 m	68 s	E	25 m
Southbound Right	29 s	C	74 m	11 s	B	13 m
Highway 7 at Langstaff Rd (Signalized)	**12 s**	**B**		**48 s**	**D**	
Eastbound Left	65 s	E	10 m	183 s	F	294 m
Eastbound Through	8 s	A	24 m	69 s	E	309 m
Westbound Through	6 s	A	116 m	21 s	C	115 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Westbound Right	2 s	A	37 m	1 s	A	16 m
Southbound Left	61 s	E	89 m	17 s	B	71 m
Southbound Right	19 s	B	49 m	21 s	C	15 m

RAMP TERMINAL INTERSECTIONS

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Highway 400/Highway 7 Interchange West Ramp Terminal (Signalized)	**34 s**	**C**		**31 s**	**C**	
Eastbound Through	15 s	B	75 m	19 s	B	71 m
Westbound Through	29 s	C	77 m	13 s	B	60 m
Northbound Right	77 s	E	11 m	70 s	E	18 m
Southbound Left/Through/Right	48/58/45 s	D/E/D	133 m	60/67/48 s	E/E/D	126 m
Highway 400/Highway 7 Interchange East Ramp Terminal (Signalized)	**30 s**	**C**		**32 s**	**C**	
Eastbound Through	19 s	B	70 m	29 s	C	100 m
Westbound Through	17 s	B	54 m	20 s	B	118 m
Northbound Left	64 s	E	68 m	54 s	D	63 m
Northbound Right	40 s	D	76 m	23 s	C	46 m
Highway 400/Rutherford Rd Interchange West Ramp Terminal (Signalized)	**16 s**	**B**		**27 s**	**C**	
Eastbound Through	11 s	B	84 m	21 s	C	80 m
Westbound Through	6 s	A	30 m	19 s	B	129 m
Southbound Left	57 s	E	69 m	57 s	E	129 m
Southbound Right	23 s	C	28 m	33 s	C	46 m
Highway 400/Rutherford Rd Interchange East Ramp Terminal (Signalized)	**44 s**	**D**		**44 s**	**D**	
Eastbound Left	93 s	F	33 m	96 s	F	59 m
Eastbound Through	34 s	C	101 m	38 s	D	120 m
Westbound Through	36 s	D	125 m	46 s	D	99 m
Westbound Right	108 s	F	6 m	17 s	B	59 m
Northbound Left/Through/Right	53/55/36 s	D/E/D	82 m	61/52/33 s	E/D/C	160 m
Southbound Left	65 s	E	96 m	68 s	E	2 m
Southbound Right	19 s	B	35 m	20 s	B	34 m

APPENDIX

I

DETAILED SUMMARY OF MICROSIMULATION INTERIM RESULTS

MICROSIMULATION INTERIM RESULTS

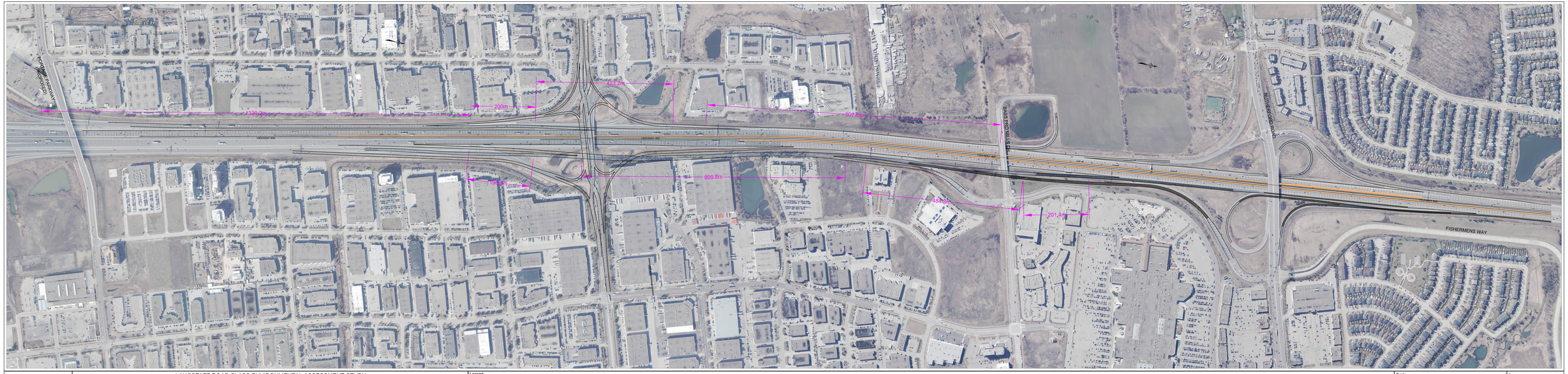
INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Keele St at Langstaff Rd (Signalized)	**22 s**	**C**		**25 s**	**C**	
Eastbound Left	0 s	A	0 m	0 s	A	0 m
Eastbound Through/Right	0/0 s	A/A	0 m	0/0 s	A/A	0 m
Westbound Left	56 s	E	82 m	48 s	D	86 m
Westbound Through/Right	0/17 s	A/B	31 m	0/32 s	A/C	92 m
Northbound Left	0 s	A	0 m	0 s	A	0 m
Northbound Through	11 s	B	40 m	20 s	B	88 m
Northbound Right	13 s	B	46 m	21 s	C	73 m
Southbound Left	56 s	E	169 m	41 s	D	62 m
Southbound Through	14 s	B	127 m	14 s	B	50 m
Southbound Right	0 s	A	28 m	0 s	A	30 m
Langstaff Rd at Planchet Rd (Signalized)	**19 s**	**B**		**16 s**	**B**	
Eastbound Left	19 s	B	47 m	22 s	C	30 m
Eastbound Through	10 s	A	41 m	9 s	A	22 m
Westbound Through	6 s	A	17 m	5 s	A	19 m
Westbound Right	8 s	A	23 m	7 s	A	22 m
Southbound Left/Right	62/14 s	E/B	115 m	58/12 s	E/B	85 m
Langstaff Rd at Connie Cres/ Spinnaker Way (Signalized)	**13 s**	**B**		**27 s**	**C**	
Eastbound Left	17 s	B	47 m	23 s	C	22 m
Eastbound Through	5 s	A	21 m	13 s	B	36 m
Eastbound Right	6 s	A	27 m	11 s	B	38 m
Westbound Left	14 s	B	20 m	38 s	D	5 m
Westbound Through	7 s	A	28 m	39 s	D	37 m
Westbound Right	11 s	B	52 m	28 s	C	44 m
Northbound Left	48 s	D	13 m	34 s	C	48 m
Northbound Through/Right	53/13 s	D/B	7 m	30/19 s	C/B	90/67 m
Southbound Left	54 s	D	58 m	45 s	D	272 m
Southbound Through/Right	37/11 s	D/B	27 m	0/22 s	A/C	92/52 m
Langstaff Rd at North Rivermede Rd/ Staffern Dr (Signalized)	**65 s**	**E**		**49 s**	**D**	
Eastbound Left	33 s	C	21 m	46 s	D	59 m
Eastbound Through	24 s	C	44 m	34 s	C	107 m
Eastbound Right	15 s	B	44 m	45 s	D	106 m
Westbound Left	38 s	D	68 m	44 s	D	24 m
Westbound Through	22 s	C	123 m	21 s	C	48 m
Westbound Right	22 s	C	62 m	15 s	B	29 m

INTERSECTION (TYPE) AND MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DELAY	LOS	95TH QUEUE	DELAY	LOS	95TH QUEUE
Northbound Left	49 s	D	41 m	131 s	F	24 m
Northbound Through/Right	34/22 s	C/C	47 m	117/114 s	F	235 m
Southbound Left	155 s	F	274 m	38 s	D	58 m
Southbound Through/Right	163/128 s	F	384 m	25/12 s	C/B	20 m
Dufferin St at Langstaff Rd (Signalized)	**119 s**	**F**		**76 s**	**E**	
Eastbound Left	71 s	E	39 m	97 s	F	197 m
Eastbound Through/Right	81/103 s	F/F	512 m	104/105 s	F	303 m
Westbound Left	221 s	F	277 m	173 s	F	135 m
Westbound Through/Right	102/68 s	F/E	244 m	52/37 s	D	48 m
Northbound Left	161 s	F	240 m	89 s	F	84 m
Northbound Through	29 s	C	90 m	70 s	E	245 m
Northbound Right	35 s	C	108 m	80 s	E	69 m
Southbound Left	146 s	F	35 m	107 s	F	33 m
Southbound Through/Right	176/132 s	F/F	400 m	50/49 s	D	123 m
Langstaff Rd at Timberview Dr (Stop-controlled)	**62 s**	**F**		**8 s**	**A**	
Westbound Left	7 s	A	1 m	10 s	B	11 m
Northbound Left	91 s	F	17 m	16 s	C	5 m
Northbound Right	9 s	A	4 m	9 s	A	2 m
Langstaff Rd at Pleasant Ridge Ave (Signalized)	**25 s**	**C**		**13 s**	**B**	
Eastbound Left	17 s	B	22 m	20 s	C	33 m
Eastbound Through	15 s	B	61 m	13 s	B	58 m
Westbound Through	19 s	B	52 m	5 s	A	17 m
Westbound Right	7 s	A	15 m	7 s	A	23 m
Southbound Left	60 s	E	110 m	64 s	E	43 m
Southbound Right	20 s	C	60 m	8 s	A	15 m
Highway 7 at Langstaff Rd (Signalized)	**11 s**	**B**		**17 s**	**B**	
Eastbound Left	67 s	E	16 m	87 s	F	131 m
Eastbound Through	8 s	A	30 m	12 s	B	110 m
Westbound Through	6 s	A	158 m	5 s	A	86 m
Westbound Right	0.4 s	A	6 m	0.3	A	1 m
Southbound Left	40 s	D	79 m	47 s	D	90 m
Southbound Right	38 s	D	101 m	14 s	B	28 m

APPENDIX

J

HIGHWAY 400 AND LANGSTAFF ROAD INTERCHANGE CONCEPT PLANS



Ontario

wsp

LANGSTAFF ROAD CLASS ENVIRONMENTAL ASSESSMENT STUDY

FROM WESTON ROAD TO HIGHWAY 7

HIGHWAY 400 INTERCHANGE IMPROVEMENT CONCEPT - DIVERGING DIAMOND

Legend

Scale

0 100 200 Meters

1:2000

Date

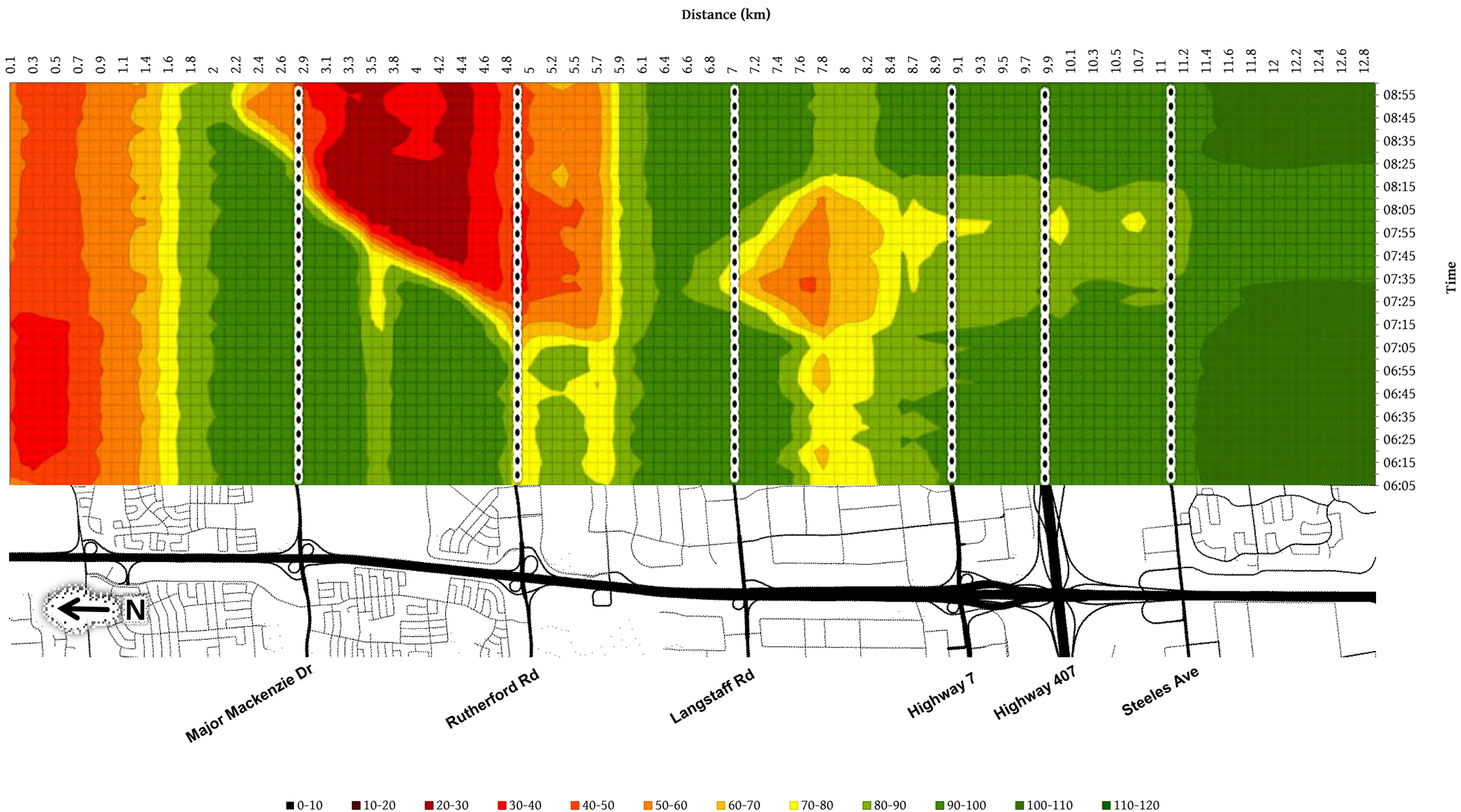
Feb 22, 2019

APPENDIX

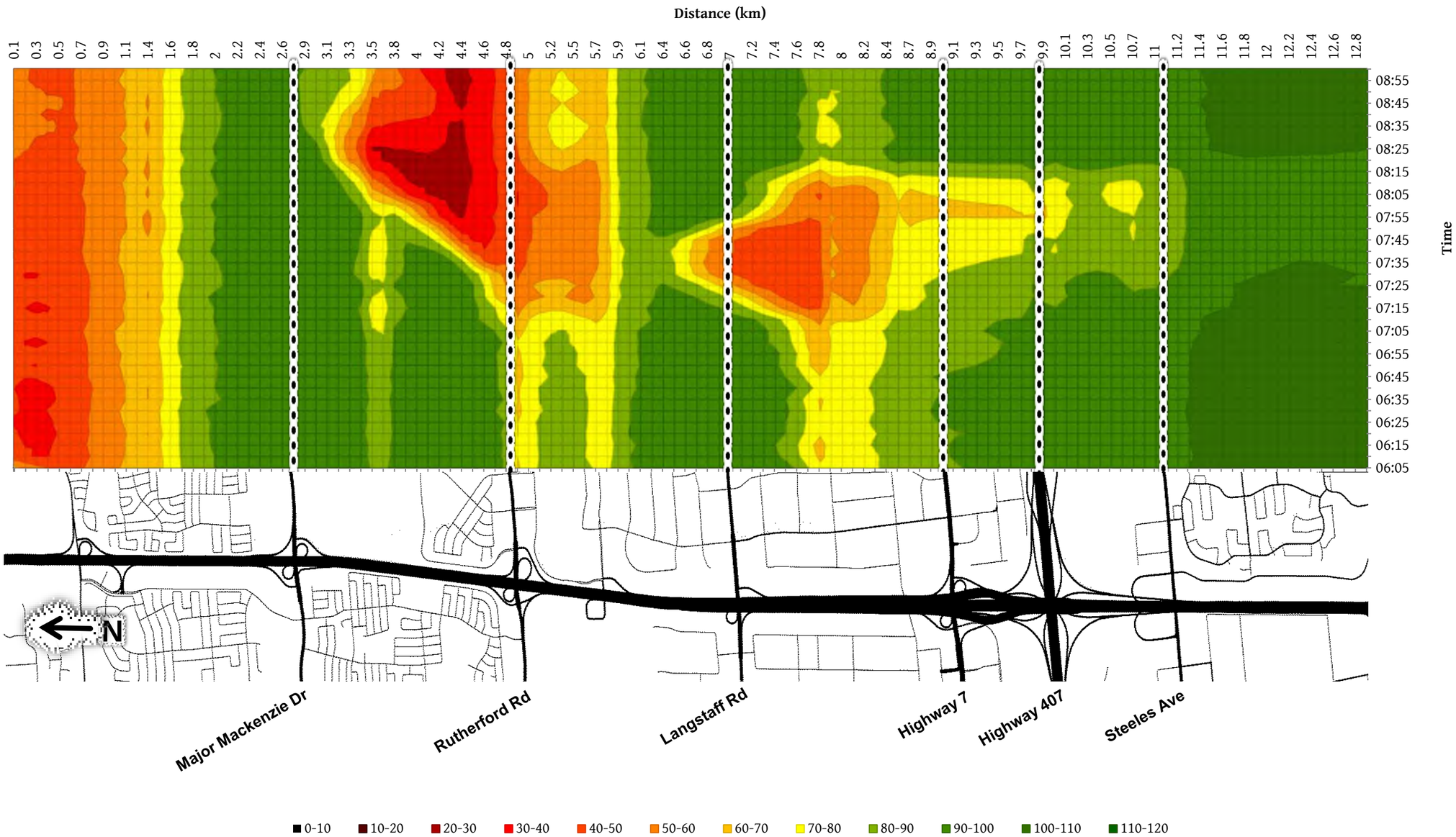
K

HIGHWAY 400 AND LANGSTAFF ROAD INTERCHANGE SPEED CONTOUR PLOT

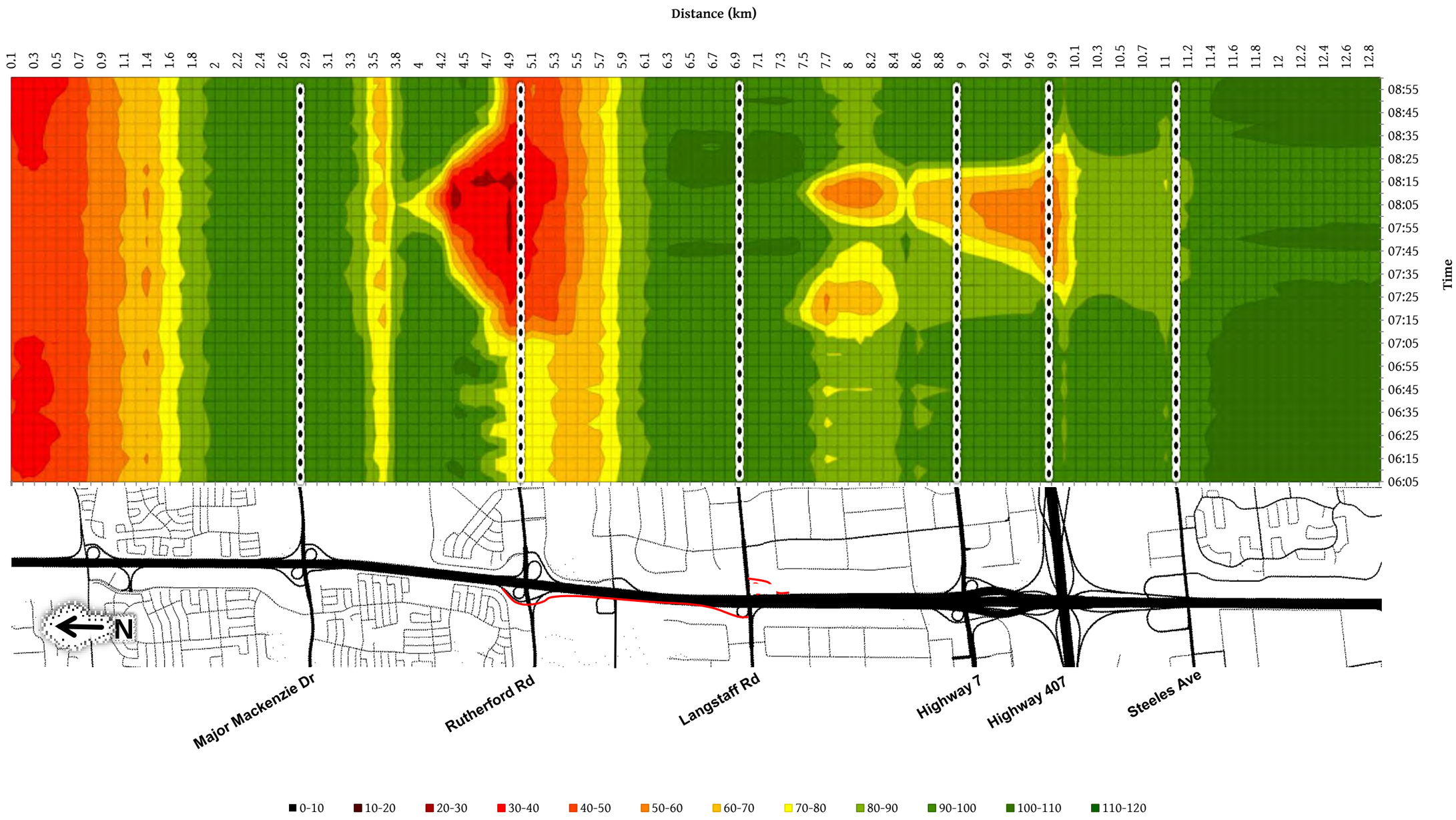
No-Build - AM Peak - Southbound



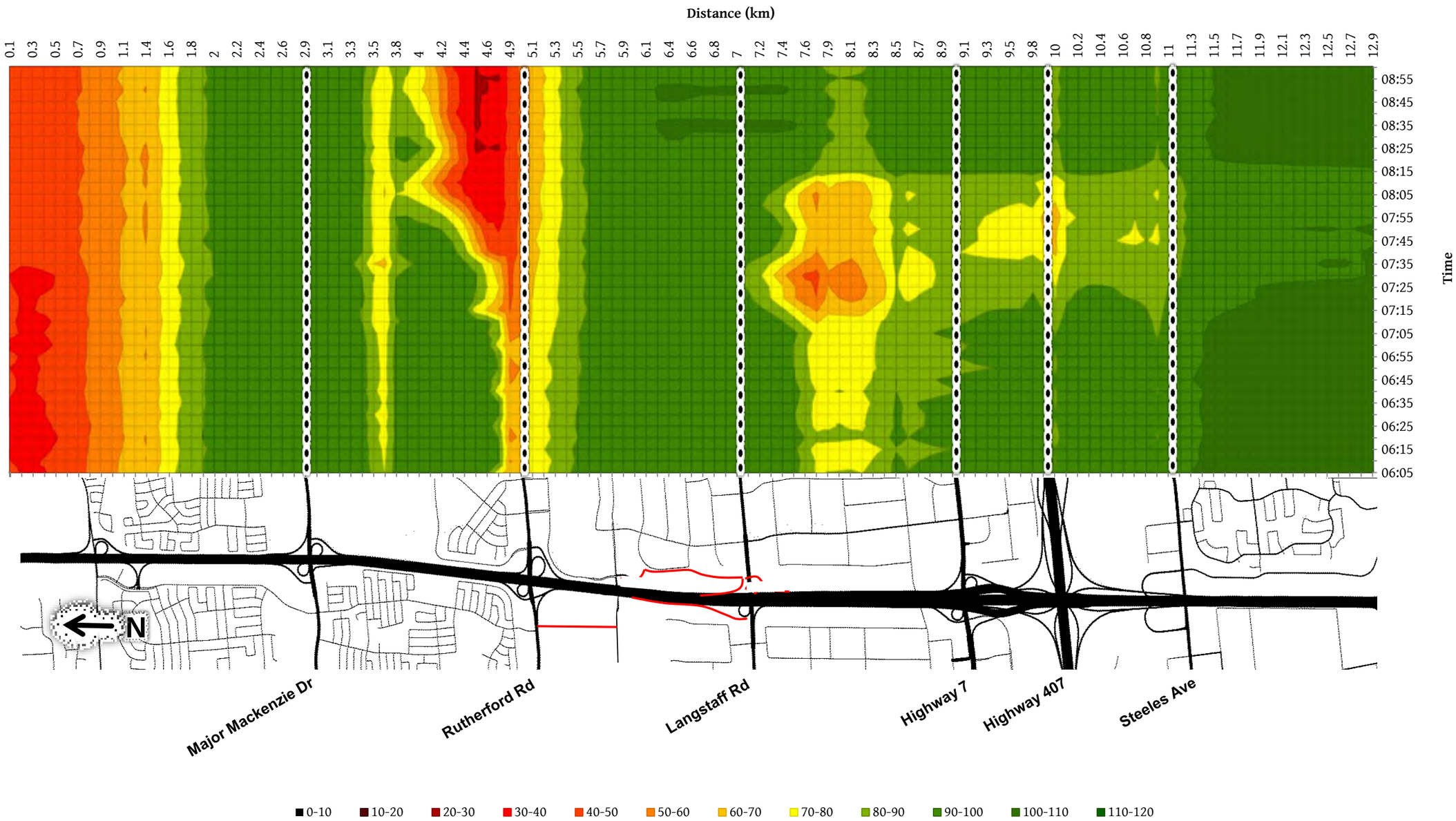
Langstaff Road Improvements Only - AM Peak - Southbound



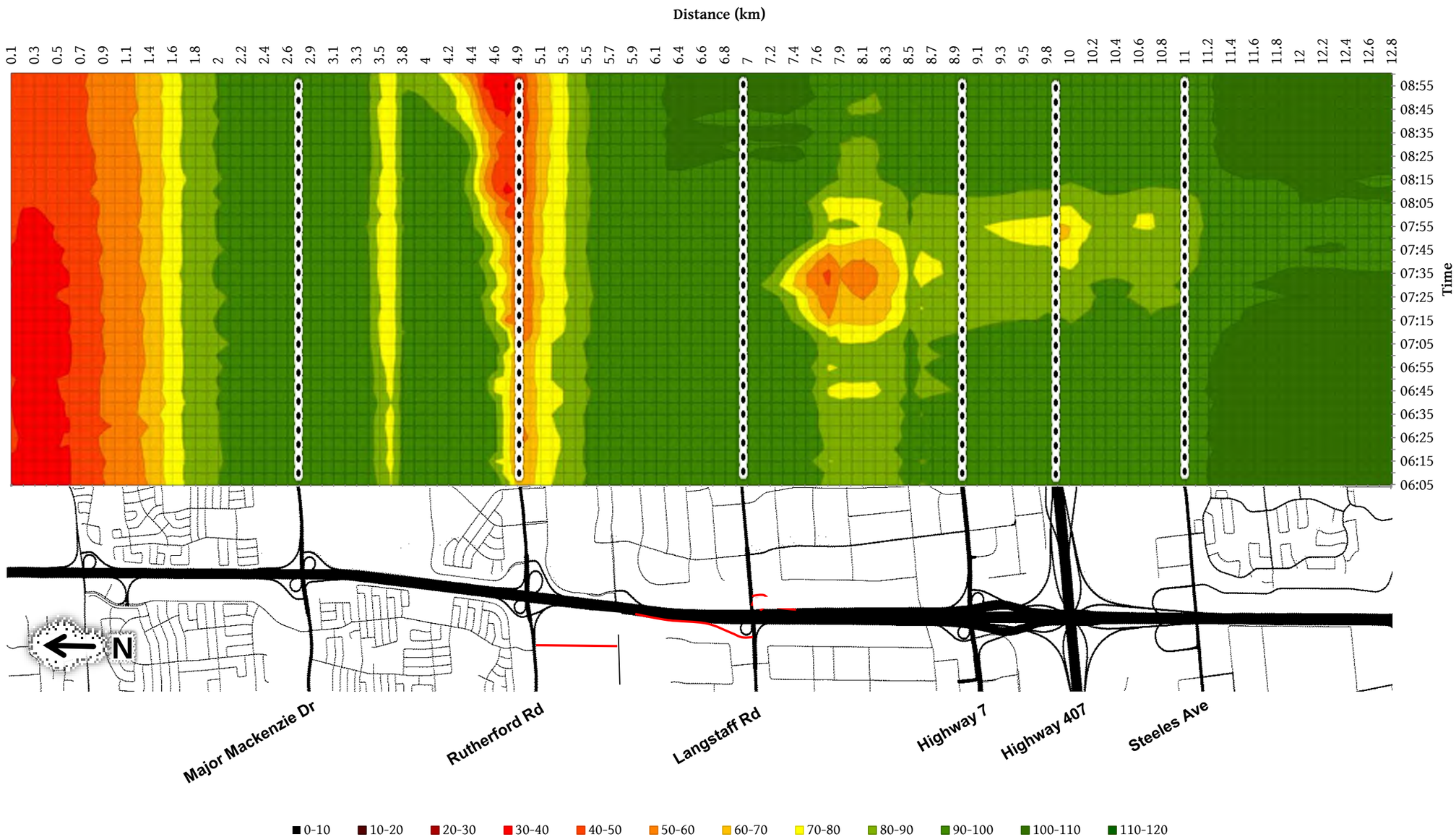
Alternative 1: Ramp-off-Ramp - AM Peak - Southbound



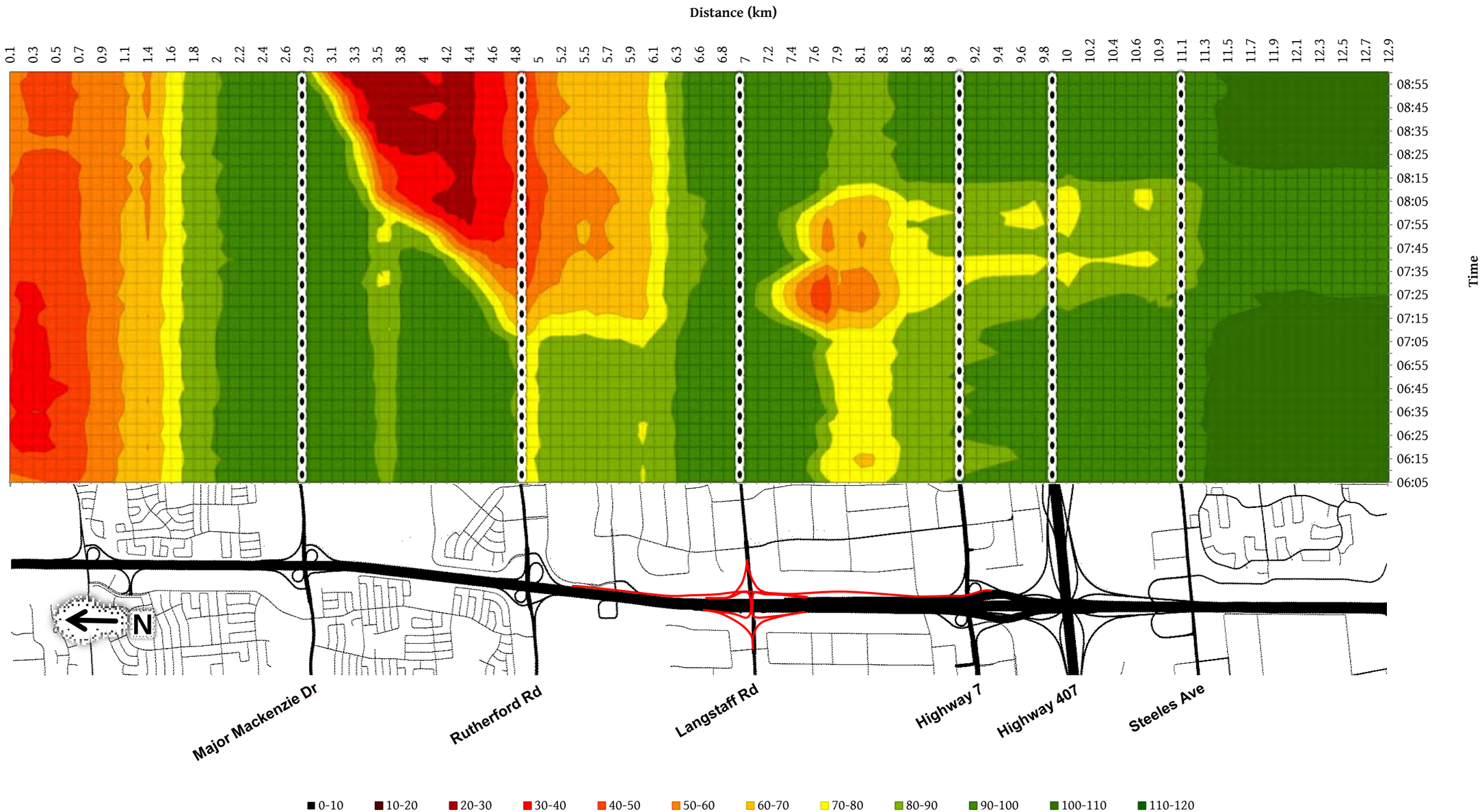
Alternative 2 Re-route Bass Pro Mills - AM Peak - Southbound



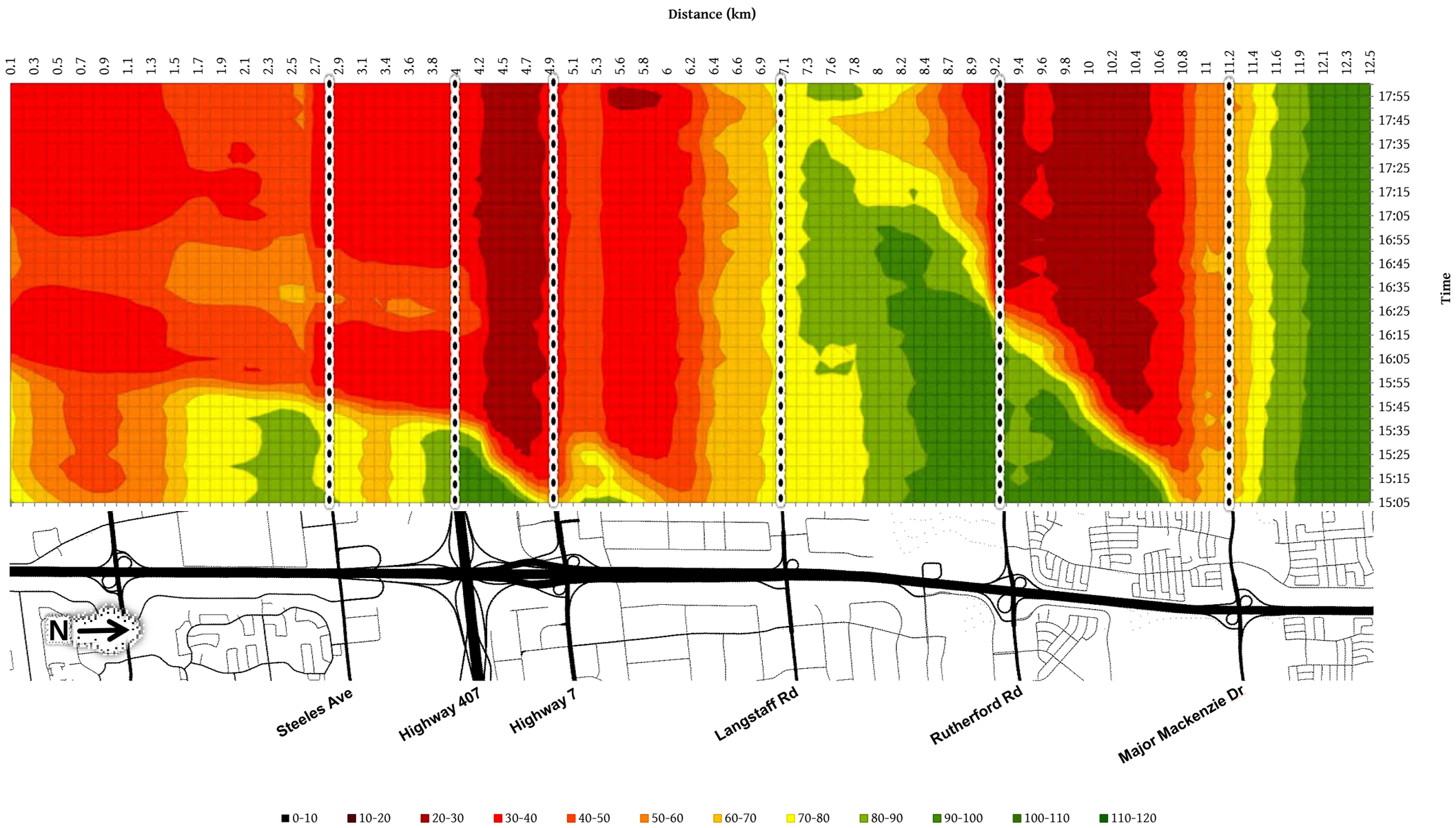
Alternative 3 Hybrid - AM Peak - Southbound



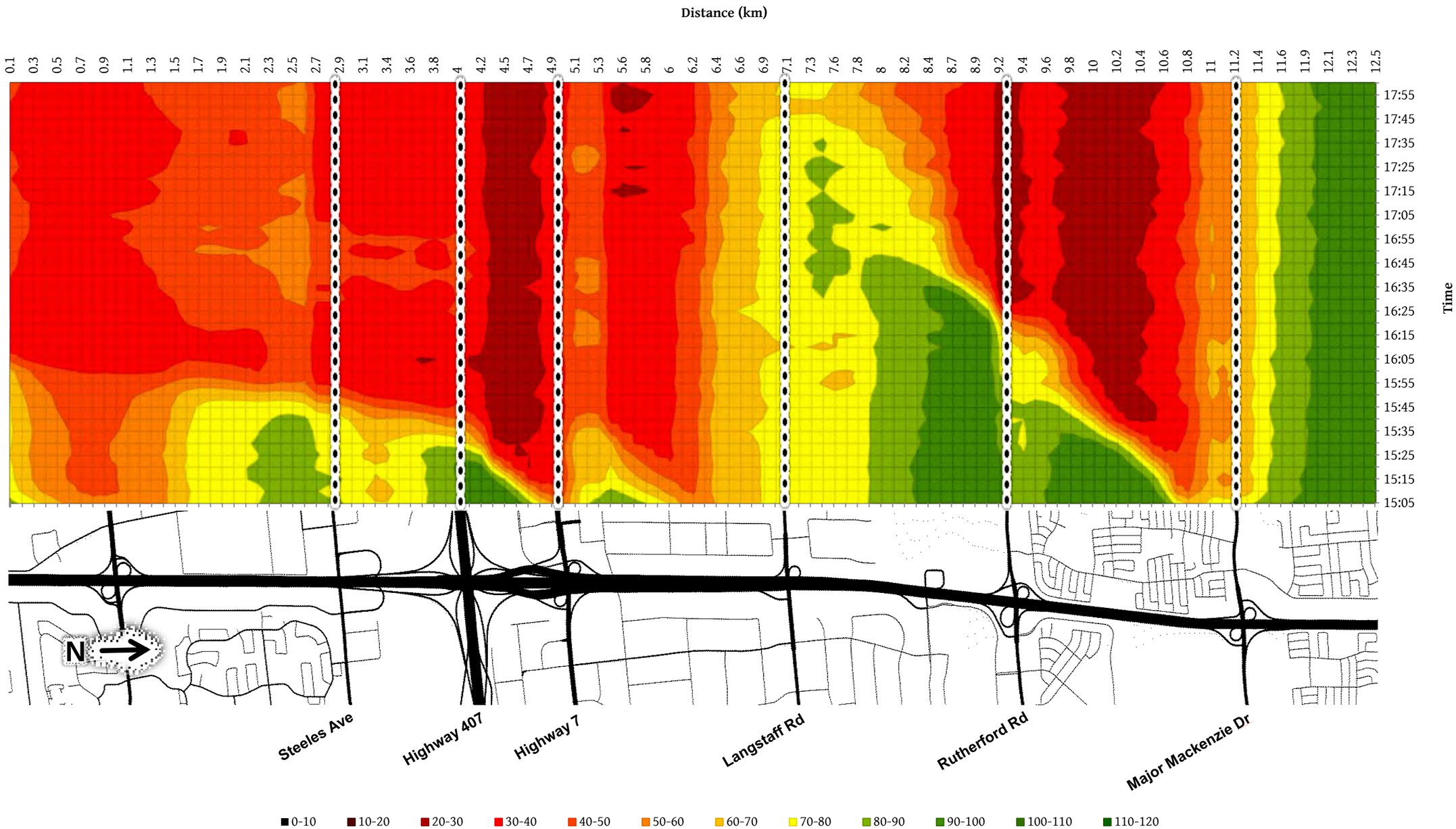
Alternative 4 Diverging Diamond - AM Peak - Southbound



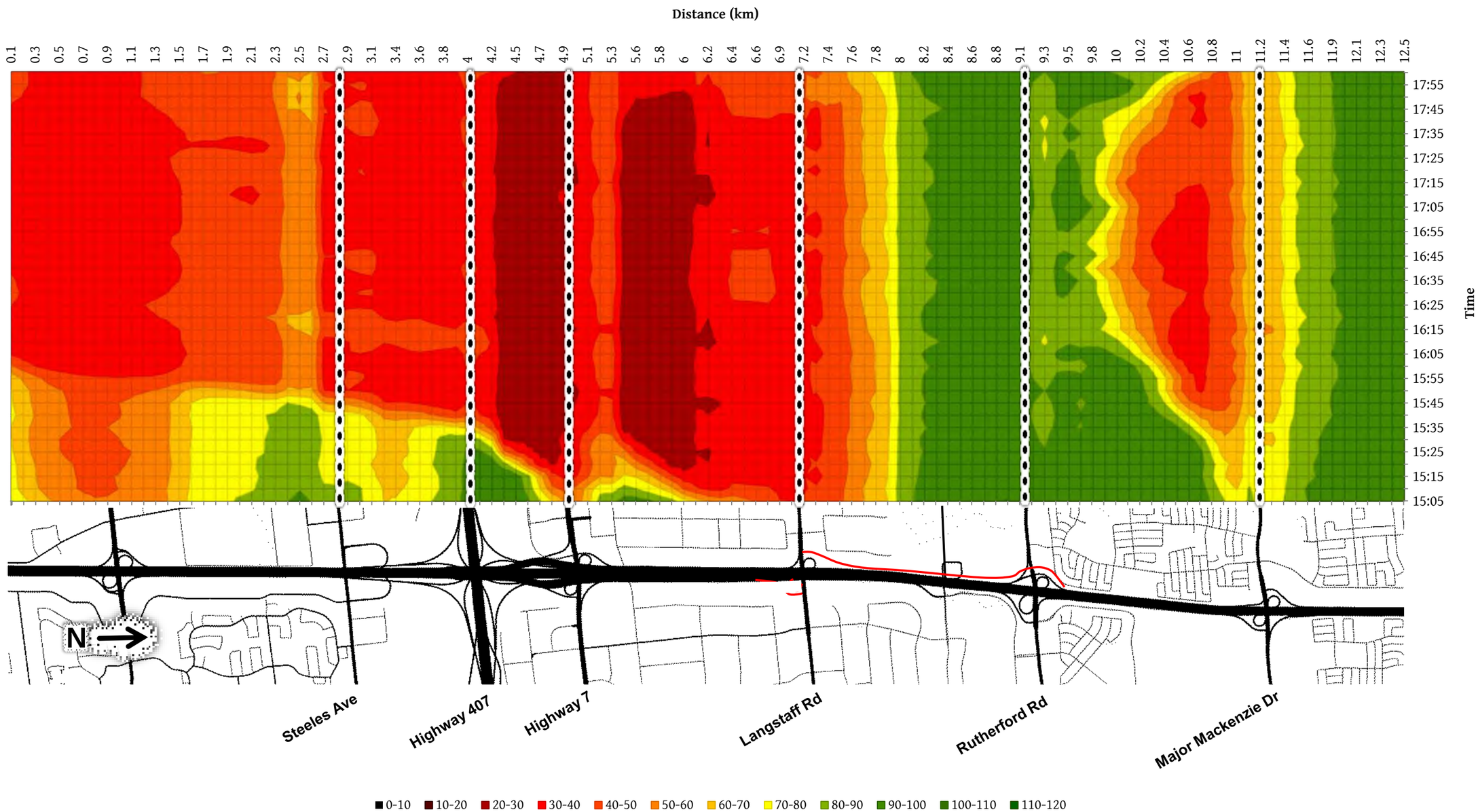
No-Build - PM Peak - Northbound



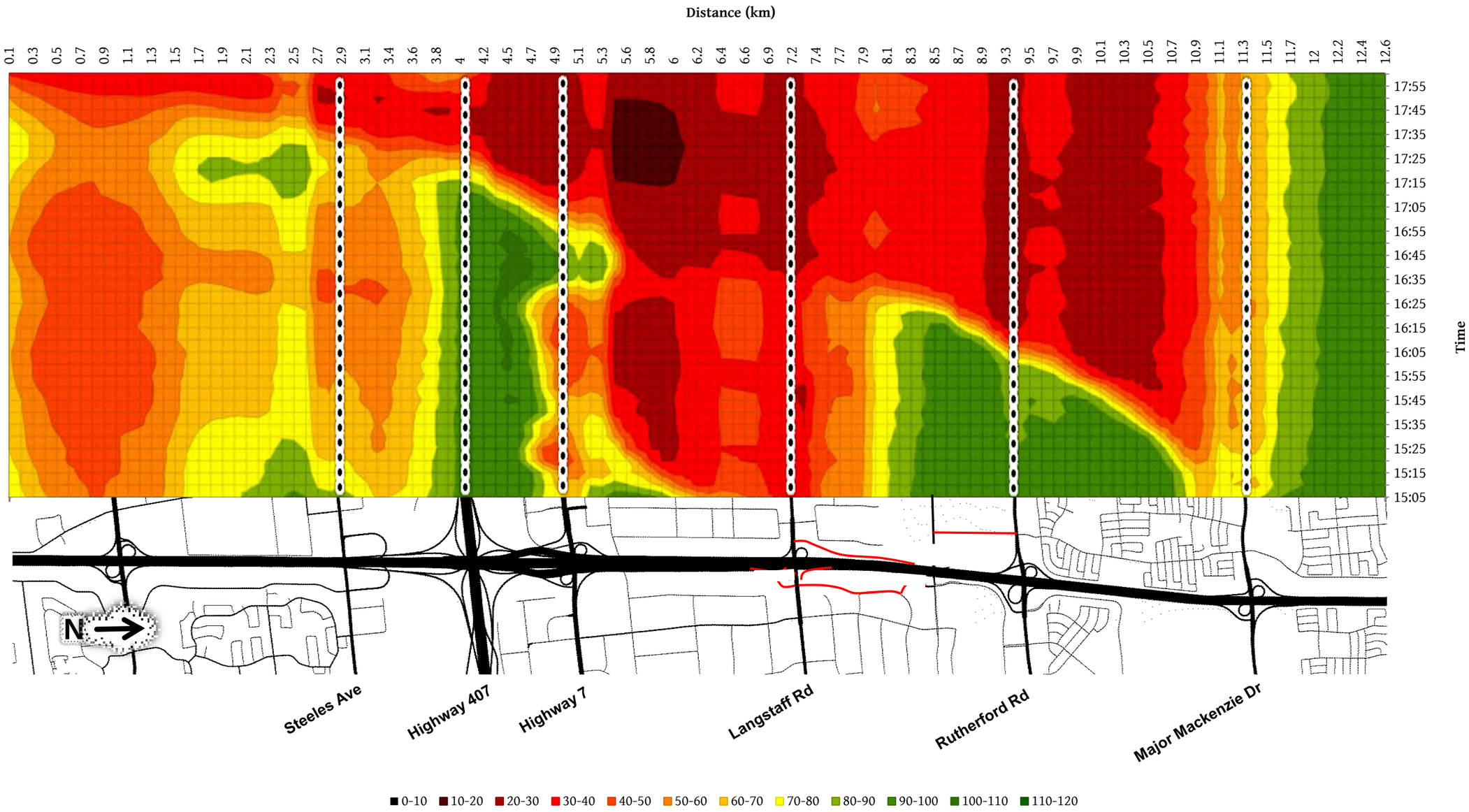
Langstaff Road Improvements Only - PM Peak - Northbound



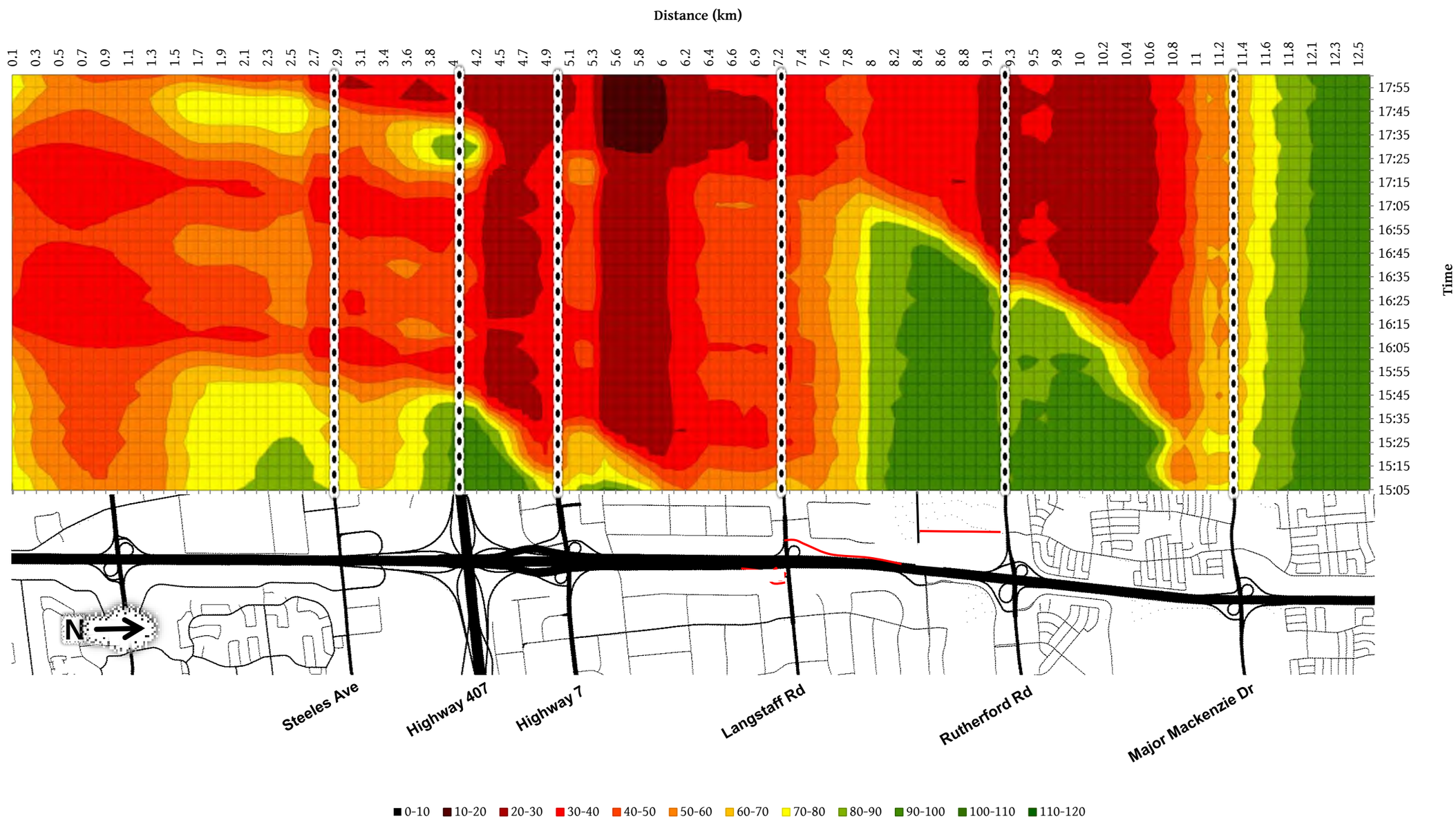
Alternative 1 Ramp-Off-Ramp - PM Peak - Northbound



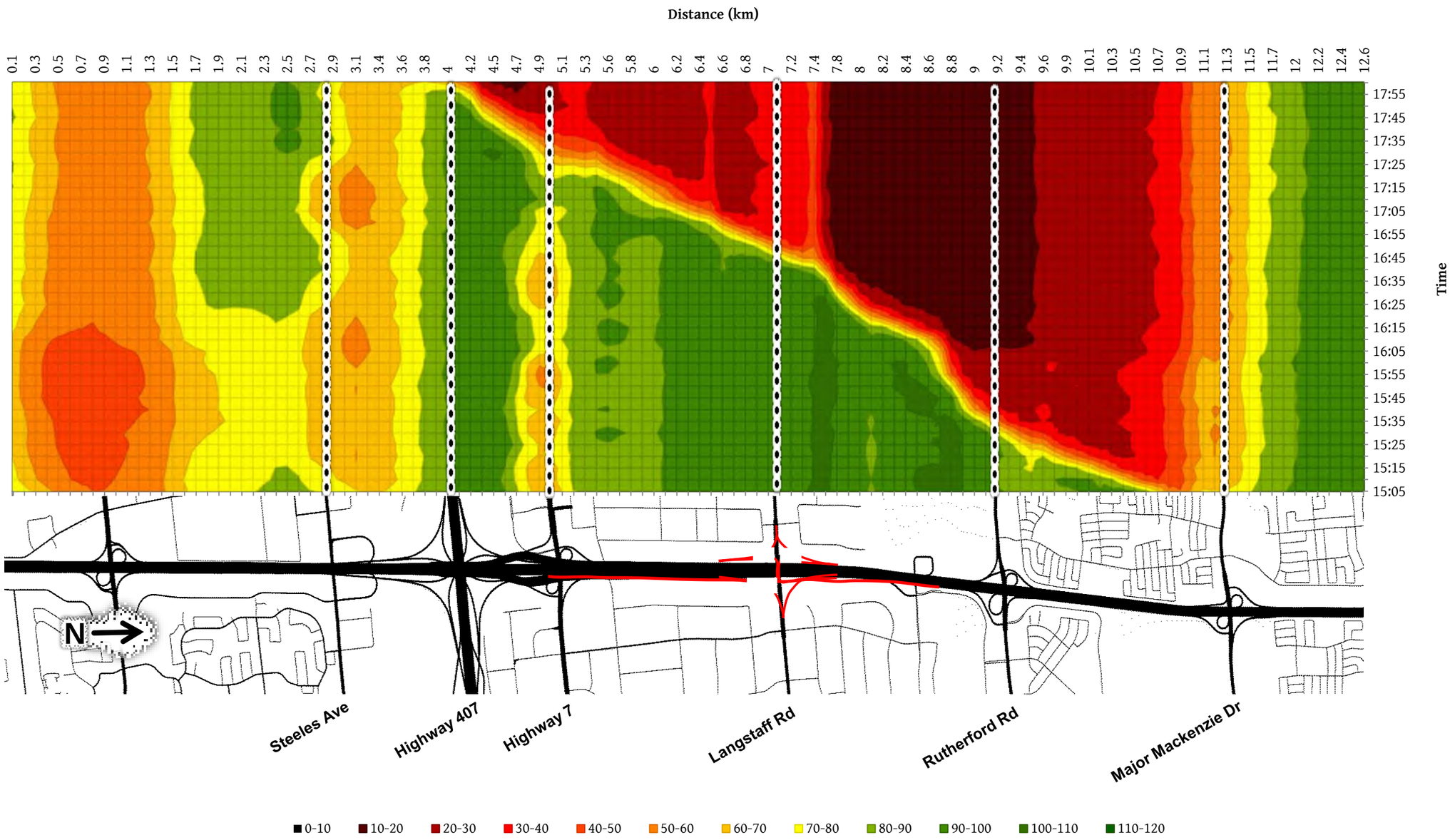
Alternative 2 Re-route Bass Pro Mills - PM Peak - Northbound



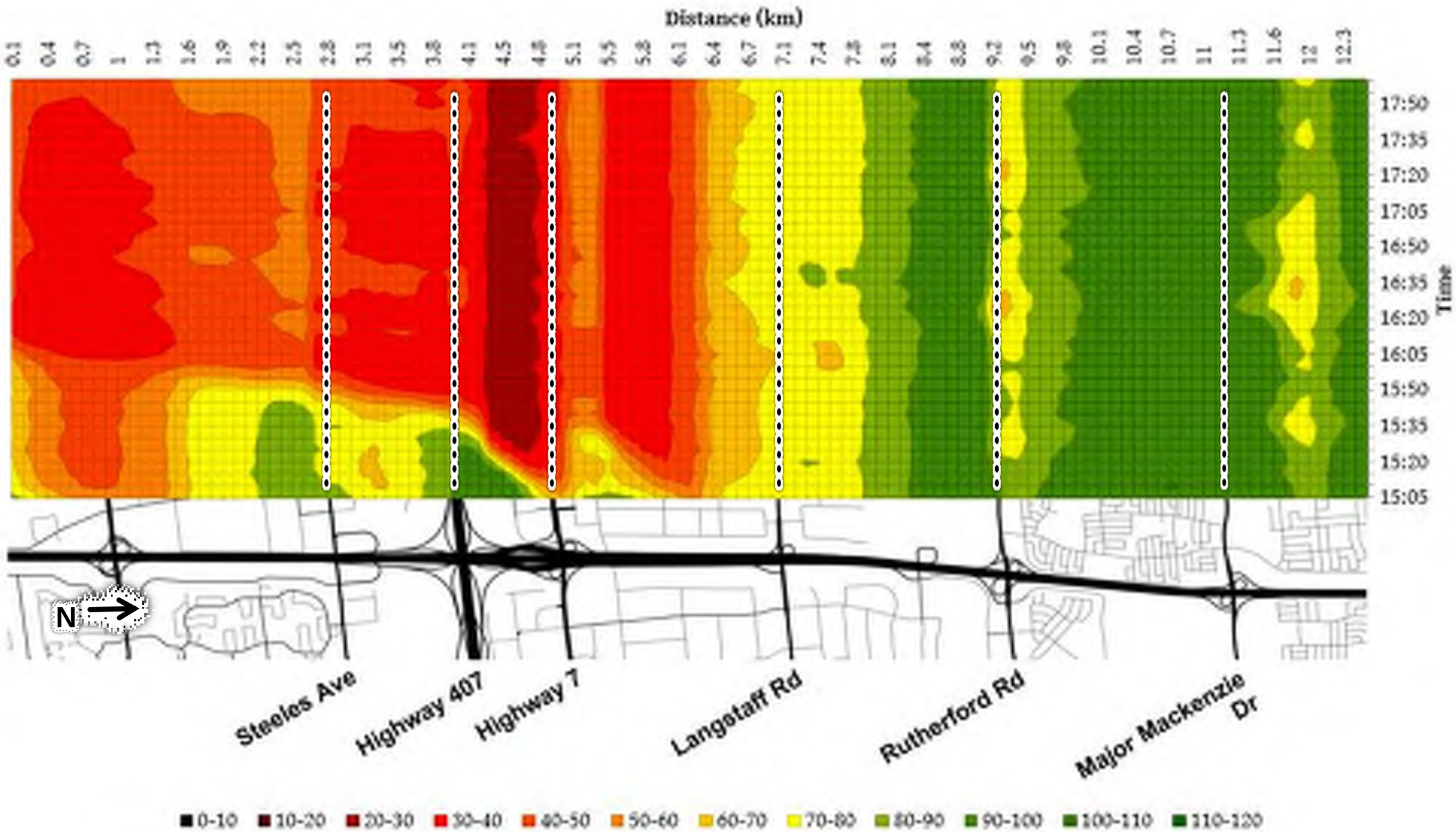
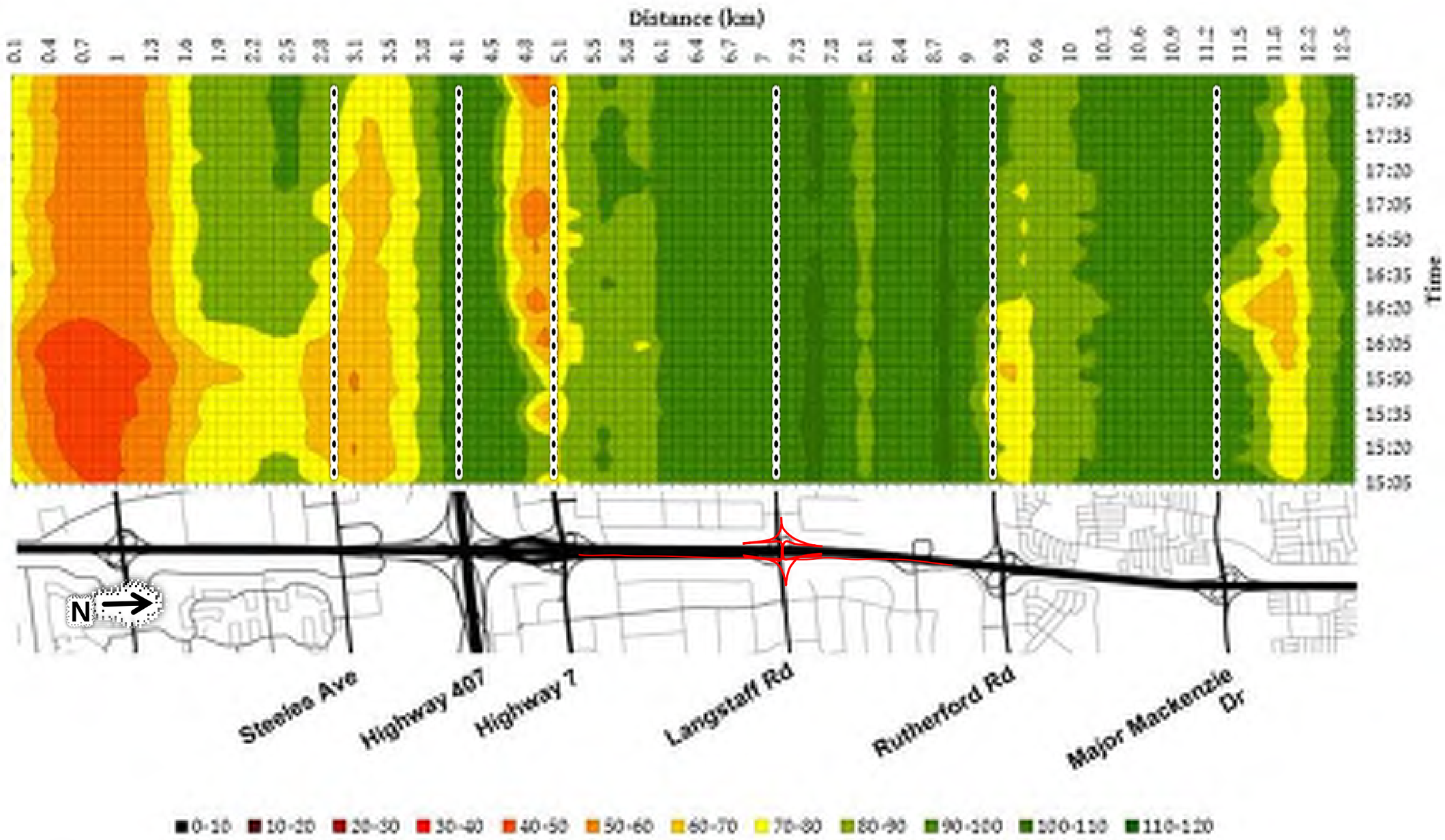
Alternative 3 Hybrid - PM Peak - Northbound



Alternative 4 Diverging Diamond - PM Peak - Northbound



Highway 400 Ultimate Widening & Langstaff Improvements Only - PM Peak - Northbound



Highway 400 Ultimate Widening & Diverging Diamond - PM Peak - Northbound