The Municipality of Chester

Traffic Study and Improvement Plan



Open House Presentation, August 25th, 2021

1) Process for the development of the Plan
2) Overview of Traffic Study / Improvement Plan
3) Options

Agenda

- Establish Inventory and Mapping of Existing Conditions
- Community Consultation
- Undertake a Circulation Analysis
- Establish a Curbside Management Plan
- Prepare Draft Traffic Improvement Plan

June 2021
Project Launch

June 2021
Parking Survey #1

July 2021
Curbside Management Plan

August 2021
Parking Survey #2

August 2021
Picnic in the Park Consultation

September 2021
Options Evaluation

September 2021
Refine Recommended Options

June 2021
Traffic Count #1

July 2021
Circulation Analysis

August 2021
Voices & Choices Consultation

August 2021
Traffic Count #2

August 2021
Open House Consultation

September 2021
Traffic Count #3 (Tentative)

September 2021
Traffic Study & Improvement Plan Document

Project Timeline

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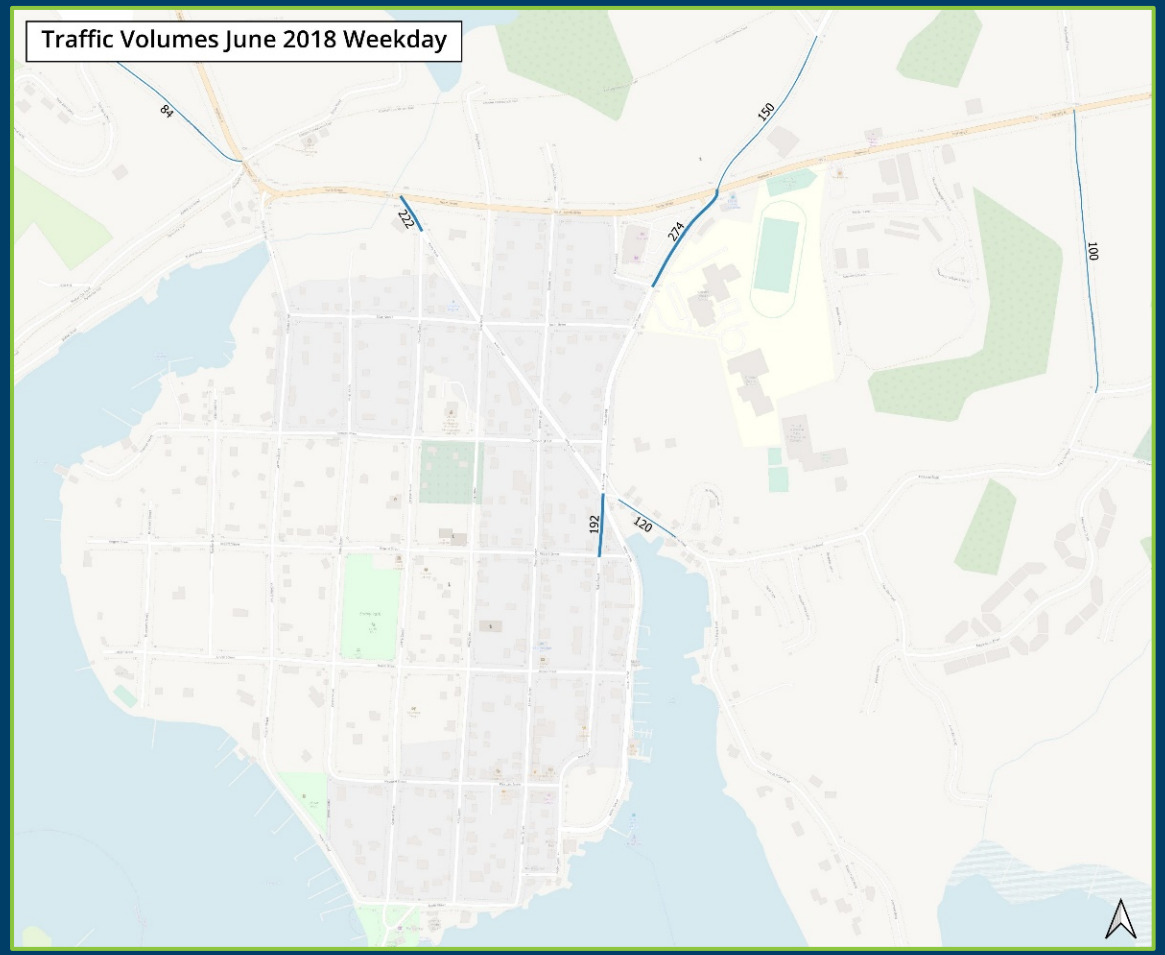
- **Existing Conditions**
- **Community Consultation**
- **Circulation Analysis**
  - Traffic Counts
  - Multimodal Transportation Assessment
  - Traffic Calming
  - Street Prioritization Assessment
  - Safety Evaluation
- **Curbside Management Plan**
  - On-Street Parking Assessment
  - Sidewalk Café Assessment

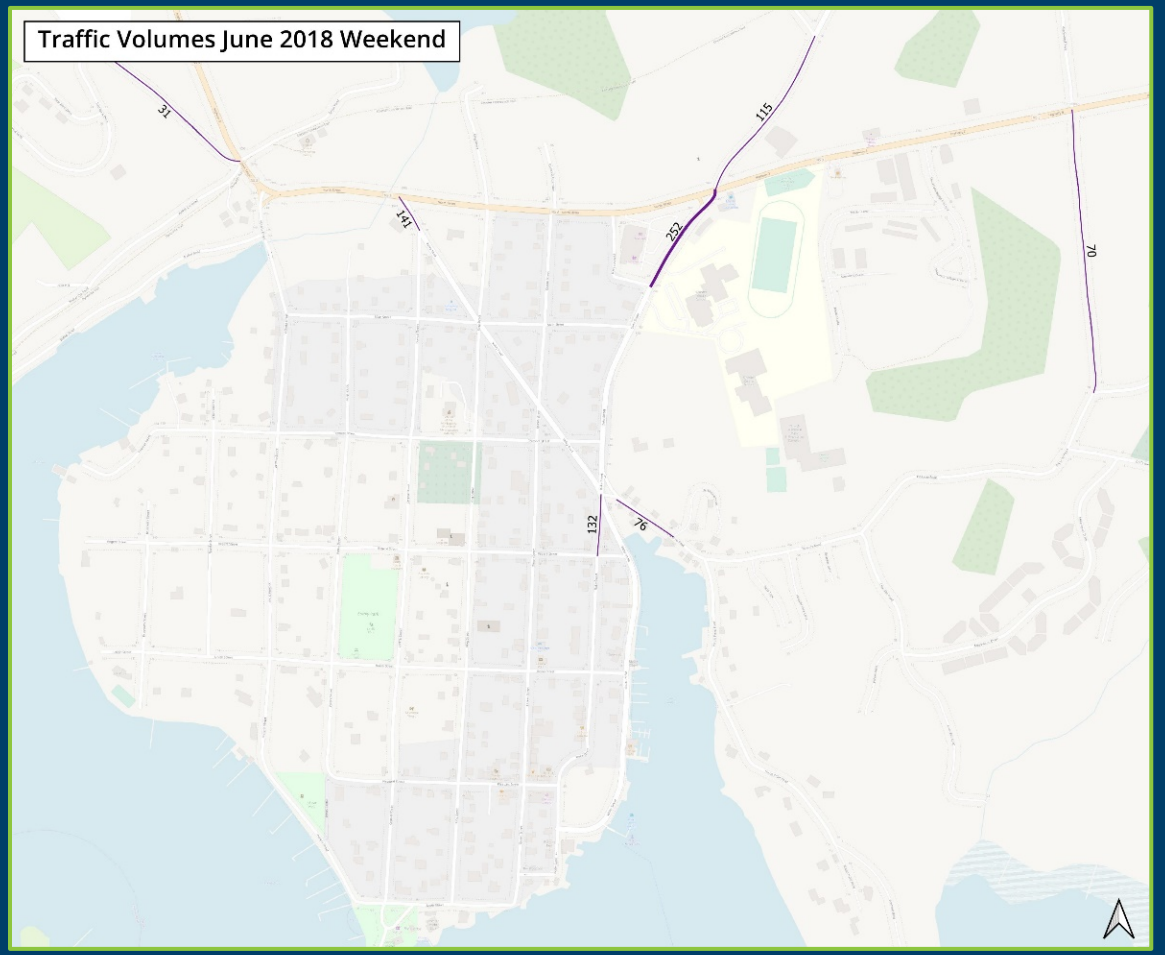
Traffic Study Overview

Study Area

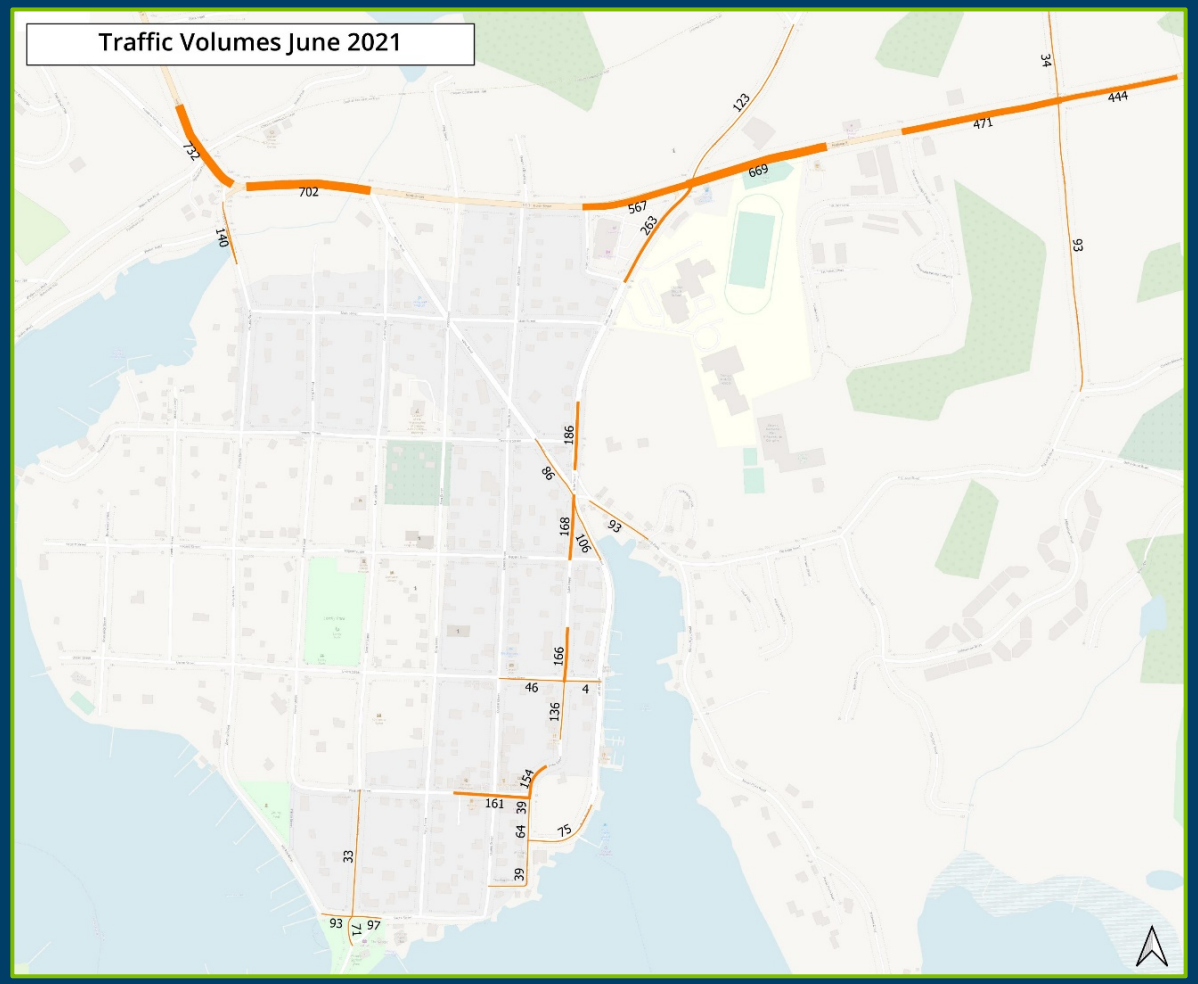


June 2018 Peak Weekday / Weekend Traffic Volumes



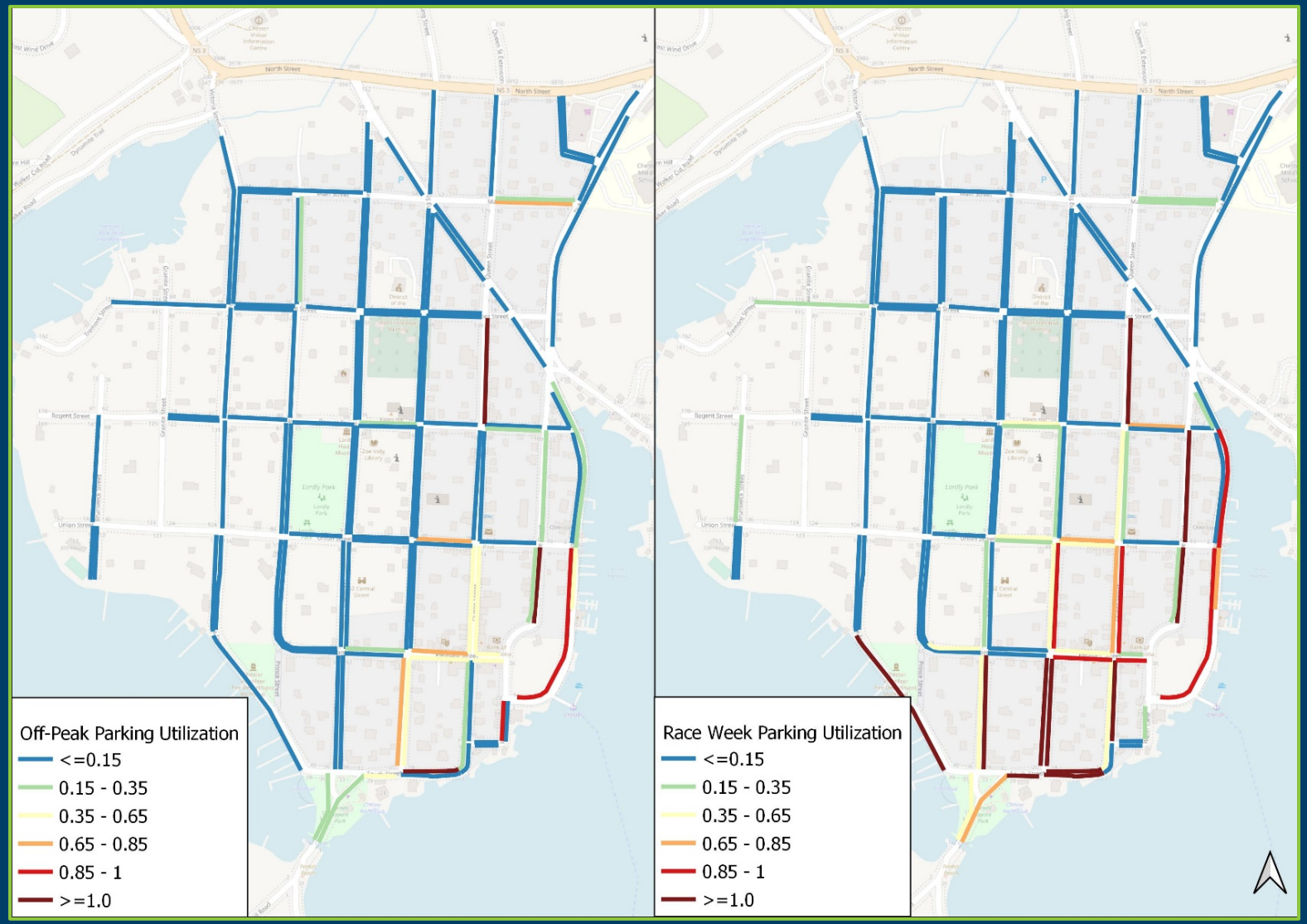


June 2021 Peak Traffic Volumes



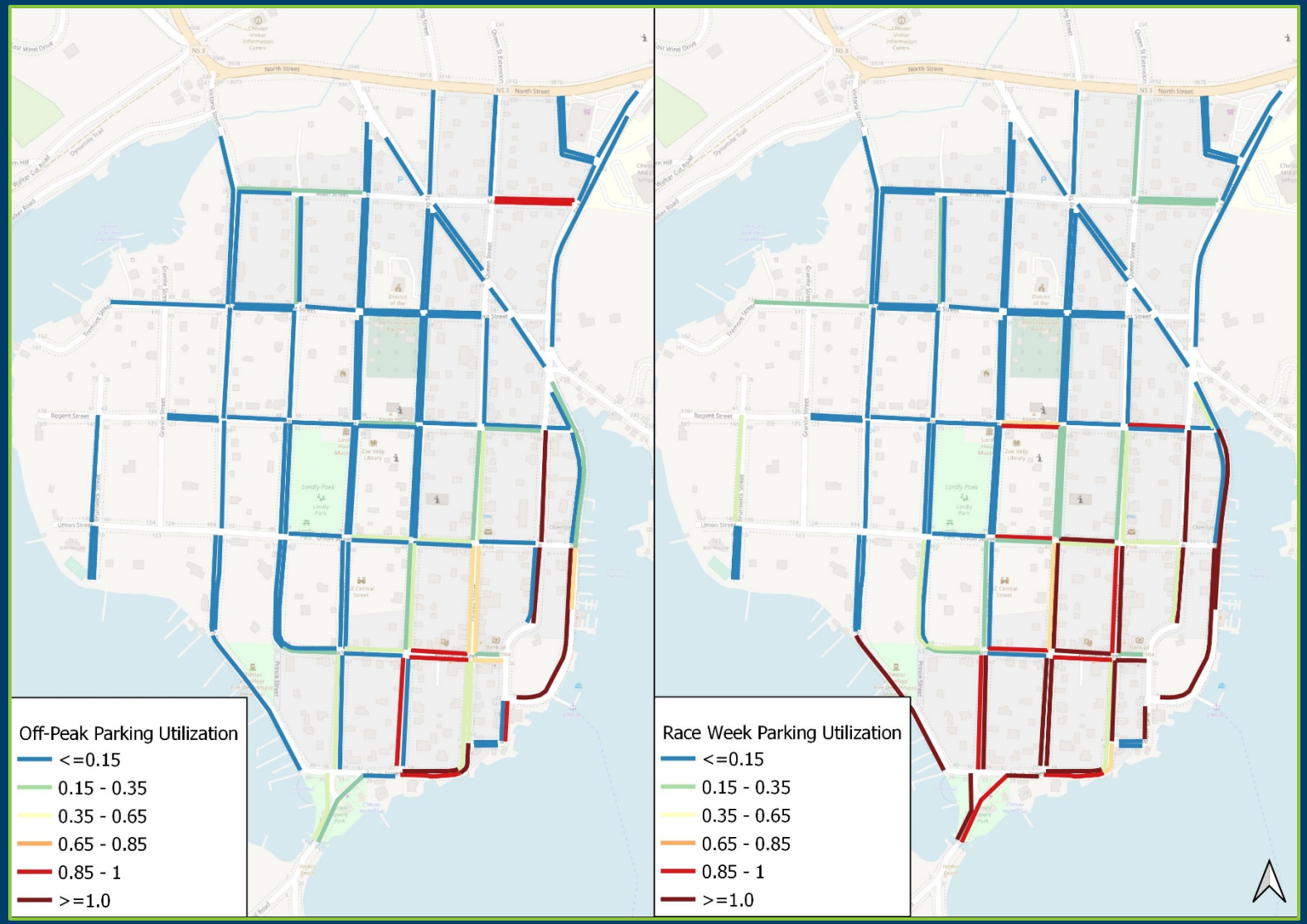
Parking Survey

- June 2021
- August 2021 (Race Week)

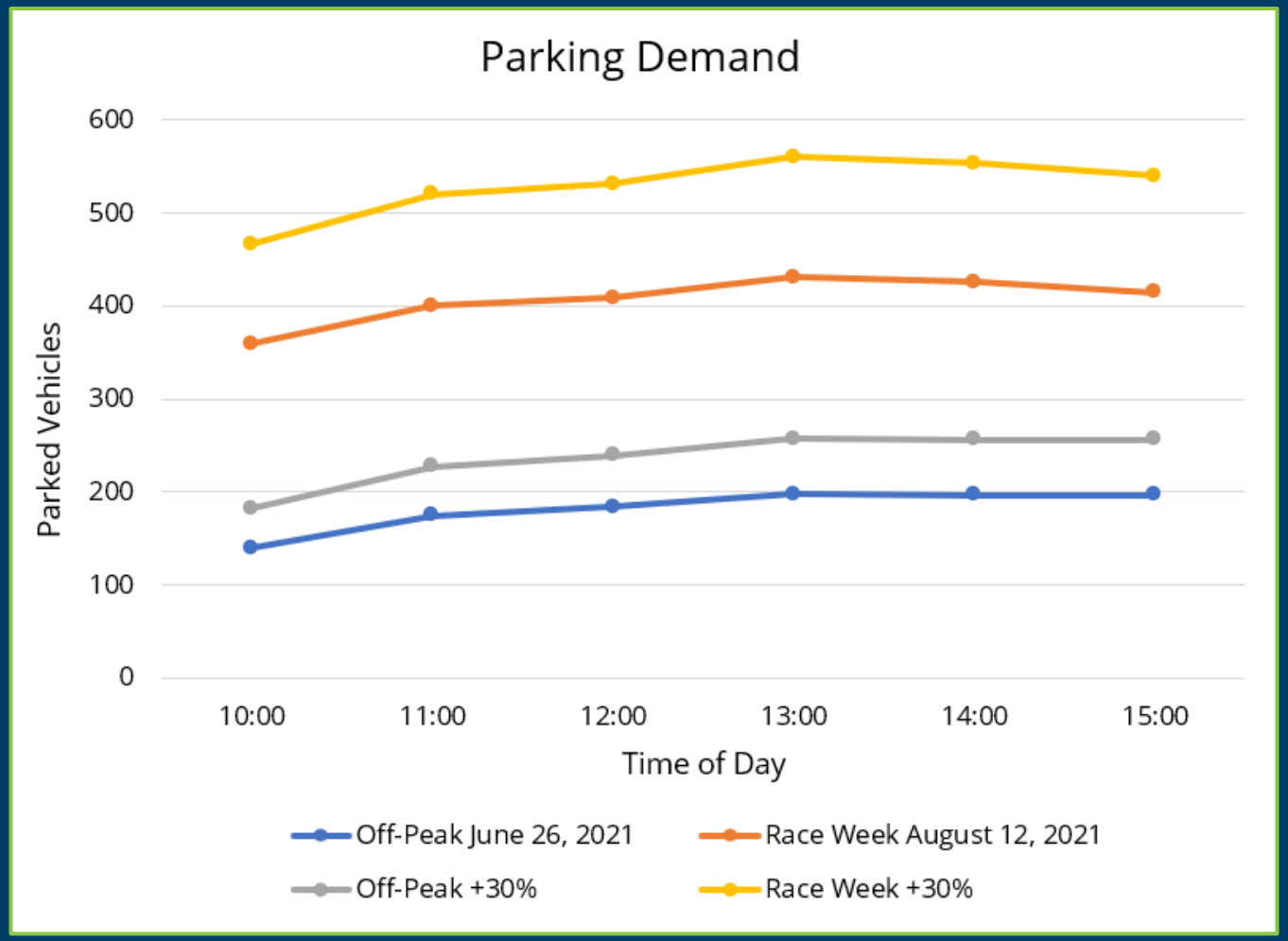


Parking Survey

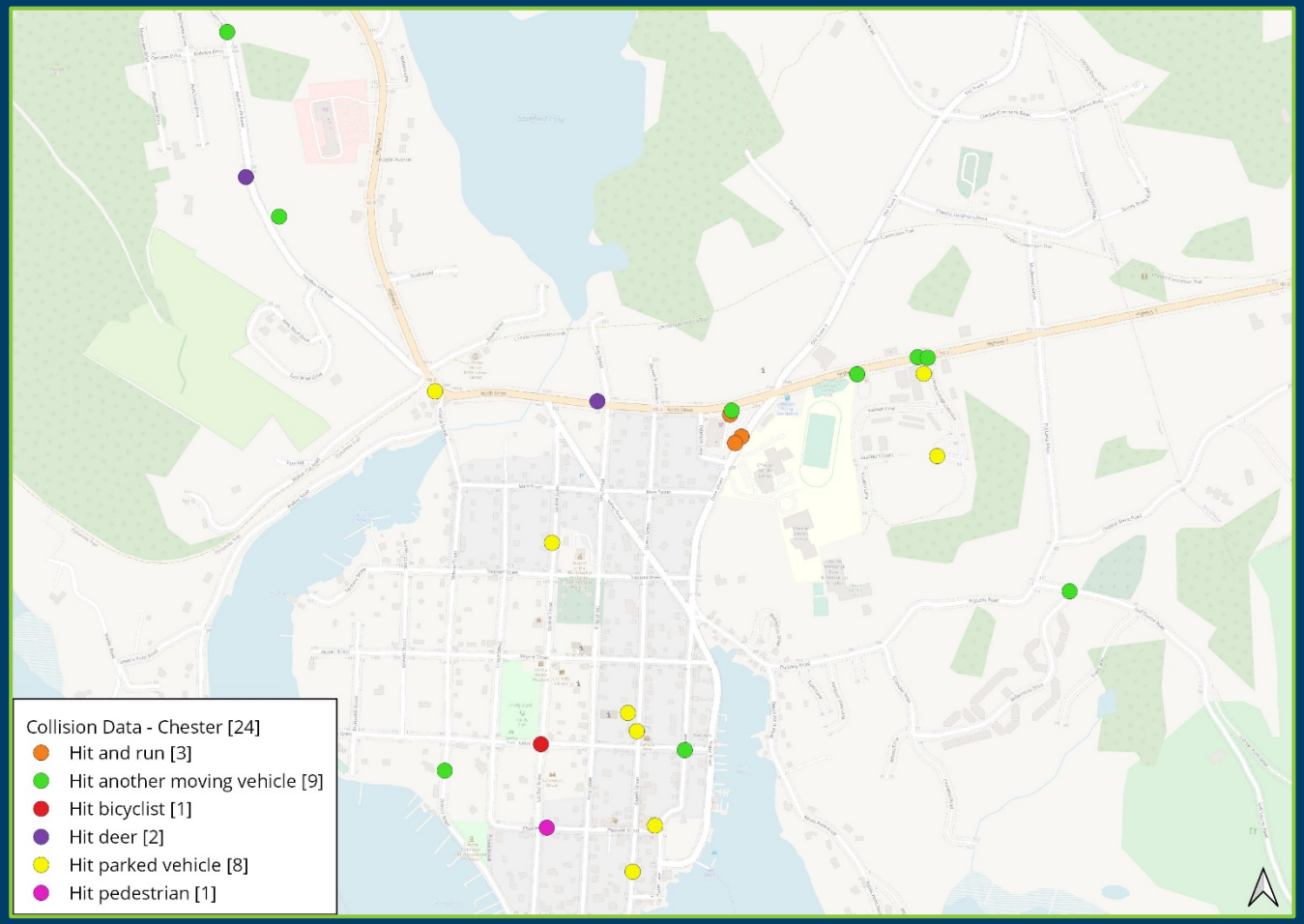
- Considering an increase of 30% to reflect COVID induced restrictions, we might expect parking utilization on a typical year to impact a greater area than that represented in the Race Week parking survey.

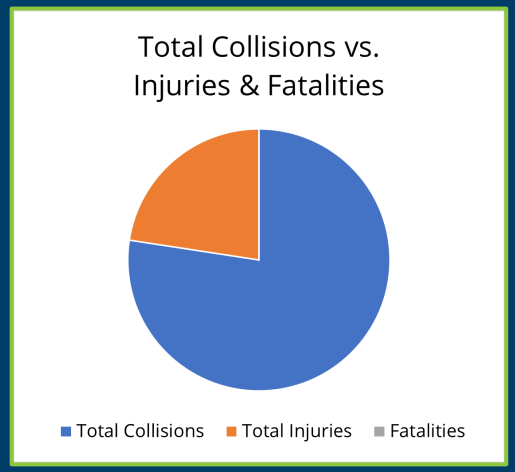


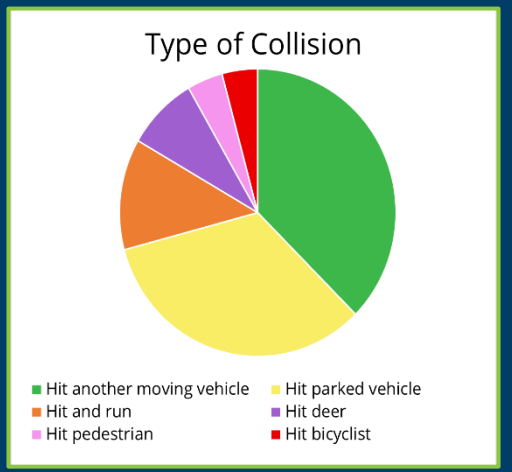
On-Street Parking Assessment

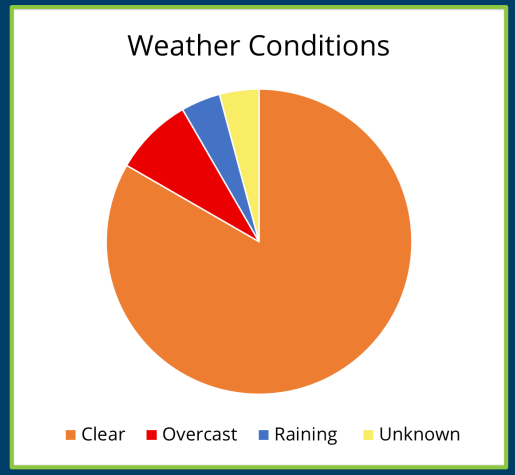


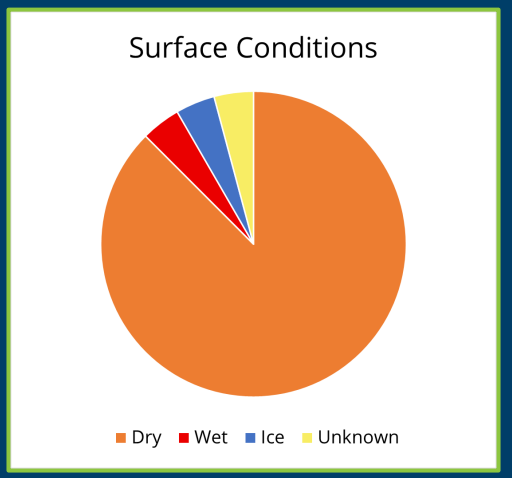
Safety & Accessibility











Safety & Accessibility





Emergency Vehicle Access

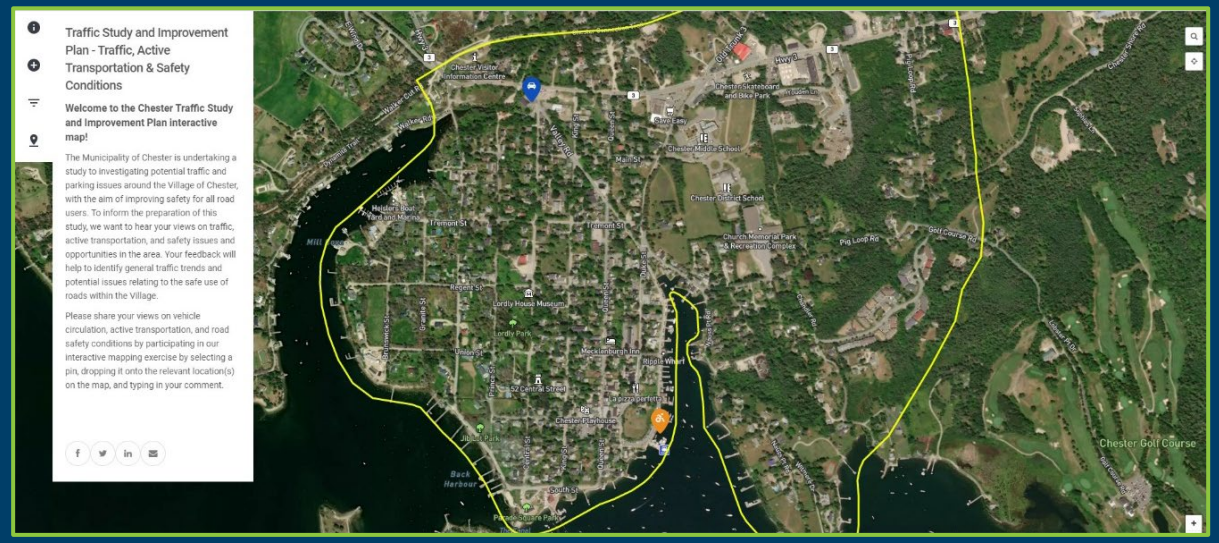
- Limited roadway space for emergency vehicle access as a result of current peak parking conditions poses a risk to public safety

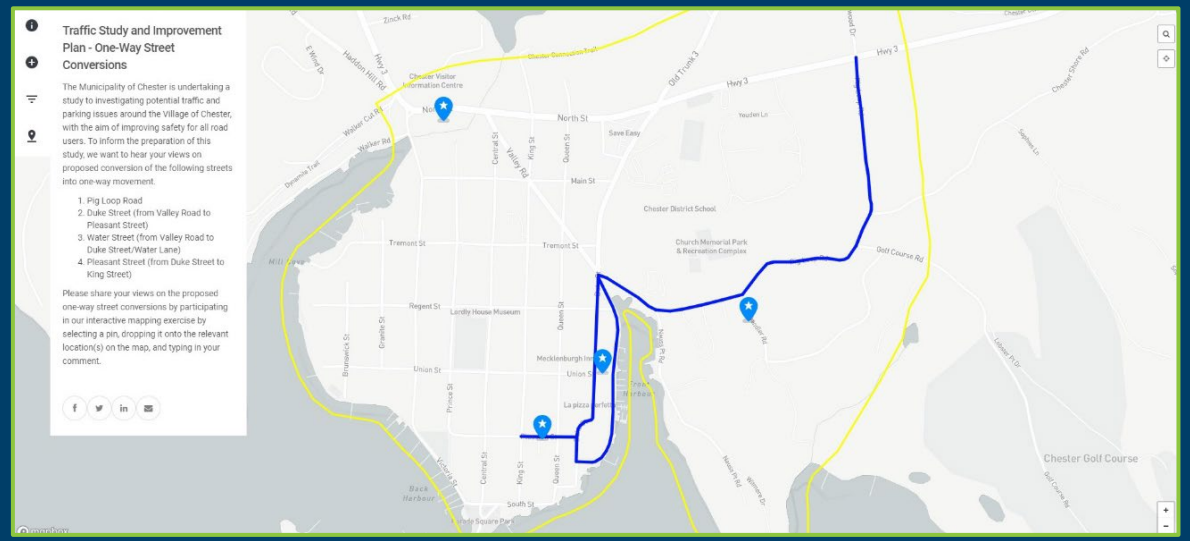


Interactive Mapping

- Traffic, Active Transportation & Safety
- Parking
- One-way Street Conversions



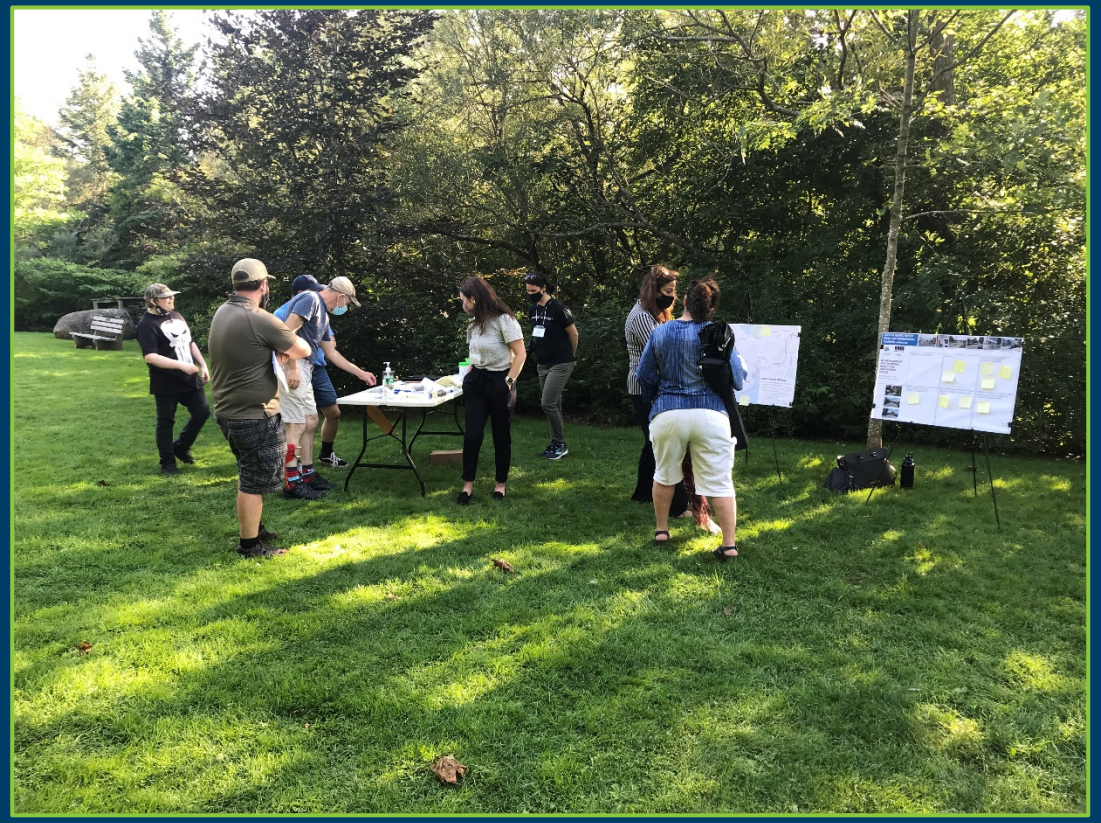




CBCL FBM **Consultation**

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Picnic in the Park





What We've Heard So Far

- Importance of walking and accessibility
- Vehicle speeding is an issue
- Ideas for traffic calming: stop signs, speed bumps or speed tables, intersections improvements
- Numerous parking issues, especially during summer special events
- Challenging during Race Week for emergency vehicles and accessible parking
- Safety issues on Pig Loop Road
- Converting Water Street to one-way may be a good idea - especially if it improves parking, walking, cycling and views to the water

<u>This is where opinion is divided:</u>

- Converting Duke Street and Pleasant Street to one-way
- The sidewalk café initiative

Circulation Analysis

- June 26 - June 30 conditions
- 50% - 75% higher volume could be accommodated

SimTraffic Performance Report
Baseline 08-03-2021

7: Pig Loop Rd & Hwy 3 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	4.2	1.3	3.0	3.1	0.3	0.0	7.6	7.2	4.3	9.8	7.0	3.7

7: Pig Loop Rd & Hwy 3 Performance by movement

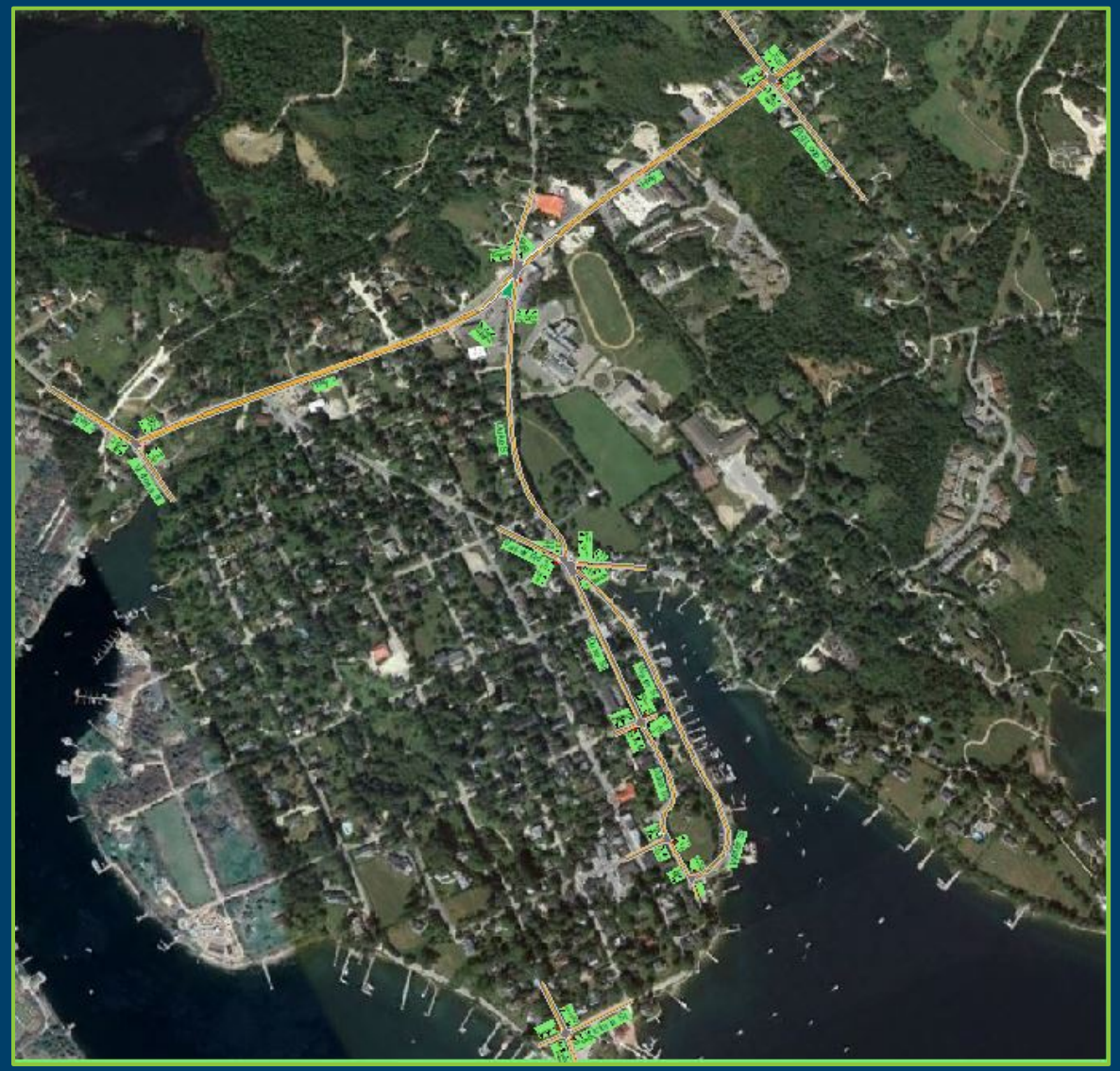
Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.7

8: Plesant St & Duke St Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.1	0.1	4.3	5.1	2.9	0.9	1.2

9: Duke St & Union St Performance by movement

Movement	EBL	EBT	EBR	WBT	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	5.1	2.3	4.3	0.5	0.8	0.5	0.9



CBCL FBM Analysis

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Circulation Analysis

Synchro Analysis Results:

Intersection	Lane/Movement	Peak Hour Volume (vph)	Total Delay (s)	Average Queue (m)	95th Queue (m)	LOS
101 Duke_Water	NBL	16	2.5	0.3	1.9	A
	NBT	52	0.6	0.3	1.9	A
	NBR	12	0.5	0.3	1.9	A
	NBR2	8	0.3	0.3	1.9	A
	SBL2	17	4.5	3.5	11.8	A
	SBL	42	6	3.5	11.8	A
	SBT	103	3.4	3.5	11.8	A
	SBR	1	1.3	3.5	11.8	A
	EBL	3	9.3	3.7	8.9	A
	EBT	22	9.5	3.7	8.9	A
	EBR	18	5.9	3.7	8.9	A
	EBR2	12	4.4	3.7	8.9	A
	WBL2	0	0	1.3	3.7	A
	WBL	3	4.7	1.3	3.7	A
	WBT	14	10	1.3	3.7	B
	WBR	12	0	1.3	3.7	A
	NWL2	14	6.9	3.7	8.9	A
	NWL	26	7.5	3.7	8.9	A
	NWR	13	5.9	3.7	8.9	A
	NWR2	17	2.4	3.7	8.9	A
102 FoxPoint_Route329	NBT	116	0.3	0	0	A
	NBR	33	0.1	0	0	A
	SBL	5	1.9	0	0	A
	SBT	112	0.5	0	0	A
	WBL	51	4.7	7.1	12.7	A
	WBR	5	4.4	7.1	12.7	A
103 Hwy3_Duke	NBL	35	23.1	10.4	28.5	C
	NBT	16	29.8	10.4	28.5	D
	NBR	111	12.5	10.4	28.5	B
	SBL	21	18.8	8.6	18.7	C
	SBT	23	20.5	8.6	18.7	C
	SBR	43	7.8	8.6	18.7	A
	EBL	39	5.6	0.8	2.4	A
	EBT	290	3.9	0.6	5.7	A
	EBR	29	4.5	0.6	5.7	A
	WBL	129	4.9	5.3	11.5	A
	WBT	302	1.6	0	0	A
	WBR	18	1.1	0	0	A
104 Hwy3_FoxPoint	NBL	12	8	8.1	12.5	A
	NBR	47	3.1	8.1	12.5	A
	EBT	213	0.7	0	0	A
	EBR	8	0.5	0	0	A
	WBL	36	2.6	1.5	8.7	A
	WBT	203	0.5	1.5	8.7	A
105 Hwy3_Route329	NBL	83	7.4	12.3	20.3	A
	NBR	70	4.7	12.3	20.3	A
	EBT	217	1	0.2	2.3	A
	EBR	91	0.5	0.2	2.3	A
	WBL	87	3.3	5.2	14.4	A
	WBT	181	1	5.2	14.4	A
106 Hwy3_Victoria	NBL	49	13.8	9.1	18.5	B
	NBR	35	2	9.1	18.5	A
	EBT	423	1.1	0	0	A
	EBR	61	0.6	0	0	A
	WBL	36	6.2	9.1	28.4	A
	WBT	419	3.4	9.1	28.4	A
107 PigLoop_Hwy3	NBL	38	7	8.3	14.6	A
	NBT	10	8.8	8.3	14.6	A
	NBR	21	2.9	8.3	14.6	A
	SBL	3	0	7.3	13	A
	SBT	7	9.5	7.3	13	A
	SBR	14	3	7.3	13	A
	EBL	9	5.6	1.2	8.7	A
	EBT	256	1.9	1.2	8.7	A
	EBR	22	2	1.2	8.7	A
	WBL	23	3	1.8	8.3	A
	WBT	273	0.4	1.8	8.3	A
	WBR	1	0	1.8	8.3	A
108 Plesant_Duke	NBL	21	4.2	6.8	13.2	A
	NBT	14	5.1	6.8	13.2	A
	SBT	16	3.4	0	0	A
	SBR	91	1.4	0	0	A
	EBL	79	0.2	0	0	A
	EBR	18	0.1	0	0	A
109 Union_Duke	NBL	3	9.3	0.3	3	A
	NBT	65	0.5	0.3	3	A
	NBR	0	0	0.3	3	A
	SBL	0	0	0	0	A
	SBT	104	1.1	0	0	A
	SBR	31	0.8	0	0	A
	EBL	16	4.3	5.1	11.8	A
	EBT	4	4.8	5.1	11.8	A
	EBR	5	2.2	5.1	11.8	A
	WBL	0	0	0	0	A
	WBT	1	0	0	0	A
	WBR	0	0	0	0	A
110 Victoria_Parade	NBL	13	3.6	4.9	13.2	A
	NBT	8	5.5	4.9	13.2	A
	NBR	7	2.4	4.9	13.2	A
	SBL	5	5	4.2	11.6	A
	SBT	10	5.6	4.2	11.6	A
	SBR	4	2.2	4.2	11.6	A
	EBL	5	2.1	0.3	3	A
	EBT	30	0.4	0.3	3	A
	EBR	25	0.1	0.3	3	A
	WBL	30	2.1	0.6	4.5	A
	WBT	44	0.4	0.6	4.5	A
	WBR	10	0.1	0.6	4.5	A
111 Water_Water	NBT	0	0	0	0	A
	NBR	0	0	0	0	A
	SBL	34	1.5	0	0	A
	SBT	18	0.5	0	0	A
	WBL	33	4.2	9.1	15.5	A
	WBR	31	2.5	9.1	15.5	A

+ 30%

Synchro Analysis Results:

Intersection	Lane/Movement	Peak Hour Volume (vph)	Total Delay (s)	Average Queue (m)	95th Queue (m)	LOS
101 Duke_Water	NBL	18	2.7	0.7	3.5	A
	NBT	60	0.8	0.7	3.5	A
	NBR	14	0.6	0.7	3.5	A
	NBR2	9	0.3	0.7	3.5	A
	SBL2	20	6.1	2.9	10.5	A
	SBL	48	5.4	2.9	10.5	A
	SBT	119	3.1	2.9	10.5	A
	SBR	2	18.3	2.9	10.5	C
	EBL	3	13.1	4.7	9.4	B
	EBT	26	9.1	4.7	9.4	A
	EBR	21	7.4	4.7	9.4	A
	EBR2	14	4	4.7	9.4	A
	WBL2	0	0	1.6	3.9	A
	WBL	3	8	1.6	3.9	A
	WBT	17	8.4	1.6	3.9	A
	WBR	14	0.2	1.6	3.9	A
	NWL2	17	6.5	3.6	7.6	A
	NWL	30	5.4	3.6	7.6	A
	NWR	15	4.9	3.6	7.6	A
	NWR2	20	2.4	3.6	7.6	A
102 FoxPoint_Route329	NBT	134	0.4	0	0	A
	NBR	38	0.2	0	0	A
	SBL	6	2.2	0	0	A
	SBT	129	0.7	0	0	A
	WBL	59	7	9.2	17.5	A
	WBR	6	2.4	9.2	17.5	A
103 Hwy3_Duke	NBL	41	19.2	10.7	27.8	C
	NBT	18	20.2	10.7	27.8	C
	NBR	128	13.1	10.7	27.8	B
	SBL	24	23.6	8.3	18.7	C
	SBT	27	23.4	8.3	18.7	C
	SBR	50	10.4	8.3	18.7	B
	EBL	45	5.9	1	2.4	A
	EBT	335	3.8	2.8	16.9	A
	EBR	33	5.3	2.8	16.9	A
	WBL	149	6.6	7.8	17.4	A
	WBT	348	1.3	0	0	A
	WBR	21	0.7	0	0	A
104 Hwy3_FoxPoint	NBL	14	6.7	8.2	12.5	A
	NBR	54	3.6	8.2	12.5	A
	EBT	246	1	0	0	A
	EBR	9	1.4	0	0	A
	WBL	42	2.8	2.6	9.3	A
	WBT	234	0.5	2.6	9.3	A
105 Hwy3_Route329	NBL	96	12.4	16.9	31.6	B
	NBR	81	8.6	16.9	31.6	A
	EBT	251	1.3	0.2	2.3	A
	EBR	105	0.7	0.2	2.3	A
	WBL	101	4.4	9.6	24	A
	WBT	209	1.8	9.6	24	A
106 Hwy3_Victoria	NBL	57	15.4	11.6	19.3	C
	NBR	41	1.9	11.6	19.3	A
	EBT	488	1.2	0.2	2.3	A
	EBR	71	0.6	0.2	2.3	A
	WBL	42	8.5	11.6	34.6	A
	WBT	483	3.8	11.6	34.6	A
107 PigLoop_Hwy3	NBL	44	6.4	9.7	17.2	A
	NBT	12	9	9.7	17.2	A
	NBR	24	4	9.7	17.2	A
	SBL	3	4.2	6	12.8	A
	SBT	8	11.4	6	12.8	B
	SBR	17	2.8	6	12.8	A
	EBL	11	4	1.9	10.3	A
	EBT	296	2.1	1.9	10.3	A
	EBR	26	1.7	1.9	10.3	A
	WBL	27	3.2	3.2	12.2	A
	WBT	315	0.6	3.2	12.2	A
	WBR	2	0	3.2	12.2	A
108 Plesant_Duke	NBL	24	4.4	7.7	13	A
	NBT	17	4.7	7.7	13	A
	SBT	18	3.3	0.6	4.4	A
	SBR	105	0.8	0.6	4.4	A
	EBL	92	0.1	0	0	A
	EBR	21	0	0	0	A
109 Union_Duke	NBL	3	1.5	0	0	A
	NBT	75	0.6	0	0	A
	NBR	0	0	0	0	A
	SBL	0	0	0	0	A
	SBT	120	0.7	0	0	A
	SBR	36	0.6	0	0	A
	EBL	18	3.5	6.5	12.2	A
	EBT	5	5.9	6.5	12.2	A
	EBR	6	2.5	6.5	12.2	A
	WBL	0	0	0.8	4.7	A
	WBT	2	6.2	0.8	4.7	A
	WBR	0	0	0.8	4.7	A
110 Victoria_Parade	NBL	15	4.3	6.7	14.4	A
	NBT	9	5.2	6.7	14.4	A
	NBR	8	2.4	6.7	14.4	A
	SBL	6	3.8	5.1	12.4	A
	SBT	12	5.7	5.1	12.4	A
	SBR	5	2	5.1	12.4	A
	EBL	6	1.4	0	0	A
	EBT	35	0.6	0	0	A
	EBR	29	0	0	0	A
	WBL	35	2.2	1	5.6	A
	WBT	51	0.3	1	5.6	A
	WBR	12	0.3	1	5.6	A
111 Water_Water	NBT	0	0	0	0	A
	NBR	0	0	0	0	A
	SBL	39	1.8	0	0	A
	SBT	21	1	0	0	A
	WBL	38	4.5	8.4	13.7	A
	WBR	36	0.4	8.4	13.7	A

+ 50%

Synchro Analysis Results:

Intersection	Lane/Movement	Peak Hour Volume (vph)	Total Delay (s)	Average Queue (m)	95th Queue (m)	LOS
101 Duke_Water	NBL	24	2.9	0.5	3.1	A
	NBT	80	1	0.5	3.1	A
	NBR	18	0.2	0.5	3.1	A
	NBR2	12	0.6	0.5	3.1	A
	SBL2	26	5.9	4.5	12.7	A
	SBL	64	6.8	4.5	12.7	A
	SBT	158	3.5	4.5	12.7	A
	SBR	2	3.8	4.5	12.7	A
	EBL	4	5.1	4.1	8.1	A
	EBT	34	10	4.1	8.1	B
	EBR	28	7.1	4.1	8.1	A
	EBR2	18	5.3	4.1	8.1	A
	WBL2	0	7.2	1.7	4	A
	WBL	4	10.4	1.7	4	B
	WBT	22	9.7	1.7	4	A
	WBR	18	0	1.7	4	A
	NWL2	22	6.9	4.8	12.4	A
	NWL	40	12	4.8	12.4	B
	NWR	20	4.4	4.8	12.4	A
	NWR2	26	2.7	4.8	12.4	A
102 FoxPoint_Route329	NBT	178	0.3	0	0	A
	NBR	50	0.2	0	0	A
	SBL	8	2.9	0.6	4.3	A
	SBT	172	0.6	0.6	4.3	A
	WBL	78	5.9	9.2	15.6	A
	WBR	8	7.1	9.2	15.6	A
103 Hwy3_Duke	NBL	54	121.7	56.9	115.8	F
	NBT	24	109.5	56.9	115.8	F
	NBR	170	82.5	56.9	115.8	F
	SBL	32	61.6	17.2	36.5	F
	SBT	36	50.9	17.2	36.5	F
	SBR	66	27.6	17.2	36.5	D
	EBL	60	9.4	1.6	5	A
	EBT	446	5.8	7.1	37.2	A
	EBR	44	6.5	7.1	37.2	A
	WBL	198	8.4	10.3	18.2	A
	WBT	464	2	0.2	1.7	A
	WBR	28	2.2	0.2	1.7	A
104 Hwy3_FoxPoint	NBL	18	10.1	9.8	17.2	B
	NBR	72	4.7	9.8	17.2	A
	EBT	328	1.1	0	0	A
	EBR	12	1.9	0	0	A
	WBL	56	3.1	4.3	13.6	A
	WBT	312	0.8	4.3	13.6	A
105 Hwy3_Route329	NBL	128	23.6	26.3	52.4	C
	NBR	108	21.8	26.3	52.4	C
	EBT	334	1.9	1	4.8	A
	EBR	140	0.9	1	4.8	A
	WBL	134	8.1	22.8	54.4	A
	WBT	278	3.7	22.8	54.4	A
106 Hwy3_Victoria	NBL	76	38.5	18.1	37.6	E
	NBR	54	6.1	18.1	37.6	A
	EBT	650	1.6	0.2	2.3	A
	EBR	94	0.7	0.2	2.3	A
	WBL	56	7.9	11.5	30.7	A
	WBT	644	4.2	11.5	30.7	A
107 PigLoop_Hwy3	NBL	58	13.5	11.3	19	B
	NBT	16	11.8	11.3	19	B
	NBR	32	4.4	11.3	19	A
	SBL	4	17.7	7.2	13.7	C
	SBT	10	9	7.2	13.7	A
	SBR	22	3.5	7.2	13.7	A
	EBL	14	8.2	2	11.6	A
	EBT	394	2.6	2	11.6	A
	EBR	34	2.5	2	11.6	A
	WBL	36	2.8	2.6	11.2	A
	WBT	420	0.6	2.6	11.2	A
	WBR	2	0	2.6	11.2	A
108 Plesant_Duke	NBL	32	5.2	7.6	14.9	A
	NBT	22	5	7.6	14.9	A
	SBT	24	3.4	0.6	4.4	A
	SBR	140	1.4	0.6	4.4	A
	EBL	122	0.3	0	0	A
	EBR	28	0.2	0	0	A
109 Union_Duke	NBL	4	2.6	0	0	A
	NBT	100	0.5	0	0	A
	NBR	0	1.2	0	0	A
	SBL	0	0	0	0	A
	SBT	160	1.2	0	0	A
	SBR	48	0.8	0	0	A
	EBL	24	4.9	9.5	16	A
	EBT	6	6.4	9.5	16	A
	EBR	8	2.9	9.5	16	A
	WBL	0	0	0	0	A
	WBT	2	0	0	0	A
	WBR	0	0	0	0	A
110 Victoria_Parade	NBL	20	4.1	5.6	12.6	A
	NBT	12	7.3	5.6	12.6	A
	NBR	10	2.7	5.6	12.6	A
	SBL	8	5.9	6.3	13.8	A
	SBT	16	6.8	6.3	13.8	A
	SBR	6	2.4	6.3	13.8	A
	EBL	8	1.7	0	0	A
	EBT	46	0.7	0	0	A
	EBR	38	0	0	0	A
	WBL	46	2.2	0.7	4.5	A
	WBT	68	0.4	0.7	4.5	A
	WBR	16	0.2	0.7	4.5	A
111 Water_Water	NBT	0	0	0	0	A
	NBR	0	0	0	0	A
	SBL	52	1.6	0	0	A
	SBT	28	0.6	0	0	A
	WBL	50	4.5	9.4	15.2	A
	WBR	48	2.5	9.4	15.2	A

+ 200%

CBCL FBM **Analysis**

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Signal Warrant Analysis

- Highway 3 & Duke Street
- June 2021 volumes do not warrant signalization
- Increase of 50% would warrant signal

NS TAT - Traffic Signal Warrant Analysis

Main Street (name)	Highway 3	Direction (EW or NS)	EW	Road Authority:	NS TAT
Side Street (name)	Duke Street	Direction (EW or NS)	NS	City:	Municipality of Chester
Quadrant / Int #		Comments	TMC data collected at the end fo June, 2021. Anecdotally, the seasonal population of Chester was not back up to historical trend. Analysis should consider	Analysis Date:	2021 Aug 17, Tue
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2021 Jun 30, Wed
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Highway 3	WB	1				1			1
Highway 3	EB	1				1			1
Duke Street	NB				1				
Duke Street	SB				1				
Are the Duke Street NB right turns significantly impeded by through movements? (y/n)							n		
Are the Duke Street SB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	y
Senior's Complex	(y/n)	y
Pathway to School	(y/n)	y
Metro Area Population	(#)	2,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Highway 3	EW	50	3.0%	n	
Duke Street	NS		1.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
10:00 - 11:00	18	12	97.5	24	24	36	106.5	259.5	25.5	40.5	306	16.5	5	5	5	5
11:00 - 12:00	27	15	82.5	25.5	16.5	39	139.5	297	15	30	306	30	5	5	5	5
12:00 - 13:00	40.5	18	127.5	24	27	51	148.5	348	21	40.5	18	127.5	5	5	5	5
13:00 - 14:00	28.5	13.5	96	15	25.5	30	130.5	280.5	19.5	42	301.5	27	5	5	5	5
14:00 - 15:00	27	22.5	132	13.5	13.5	31.5	124.5	276	18	42	333	21	5	5	5	5
15:00 - 16:00	31.5	19.5	93	19.5	27	64.5	145.5	313.5	16.5	40.5	354	9	5	5	5	5
Total (6-hour peak)	**173**	**101**	**629**	**122**	**134**	**252**	**795**	**1,775**	**116**	**236**	**1,619**	**231**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**29**	**17**	**105**	**20**	**22**	**42**	**133**	**296**	**19**	**39**	**270**	**39**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

SB

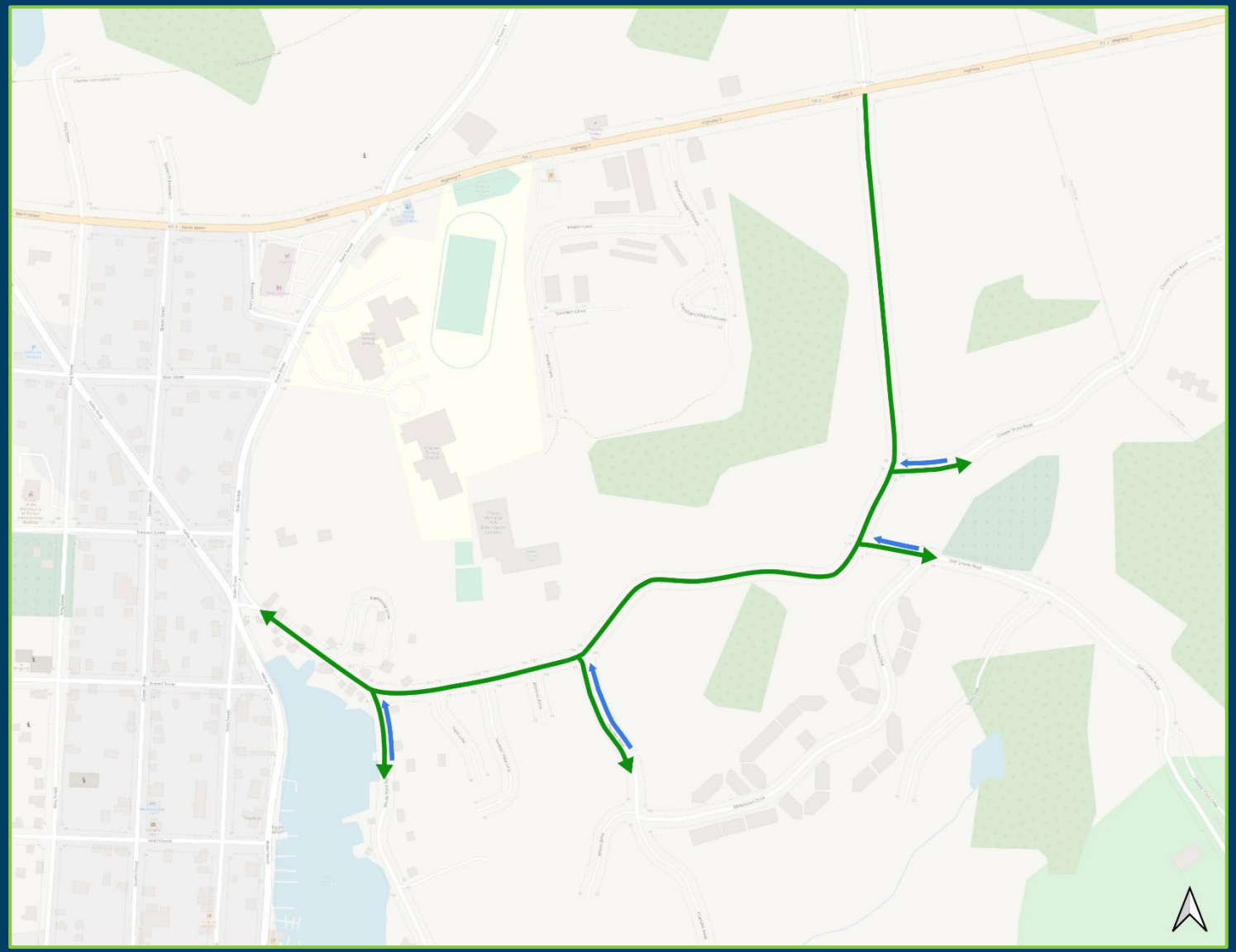
Duke Street

North -->

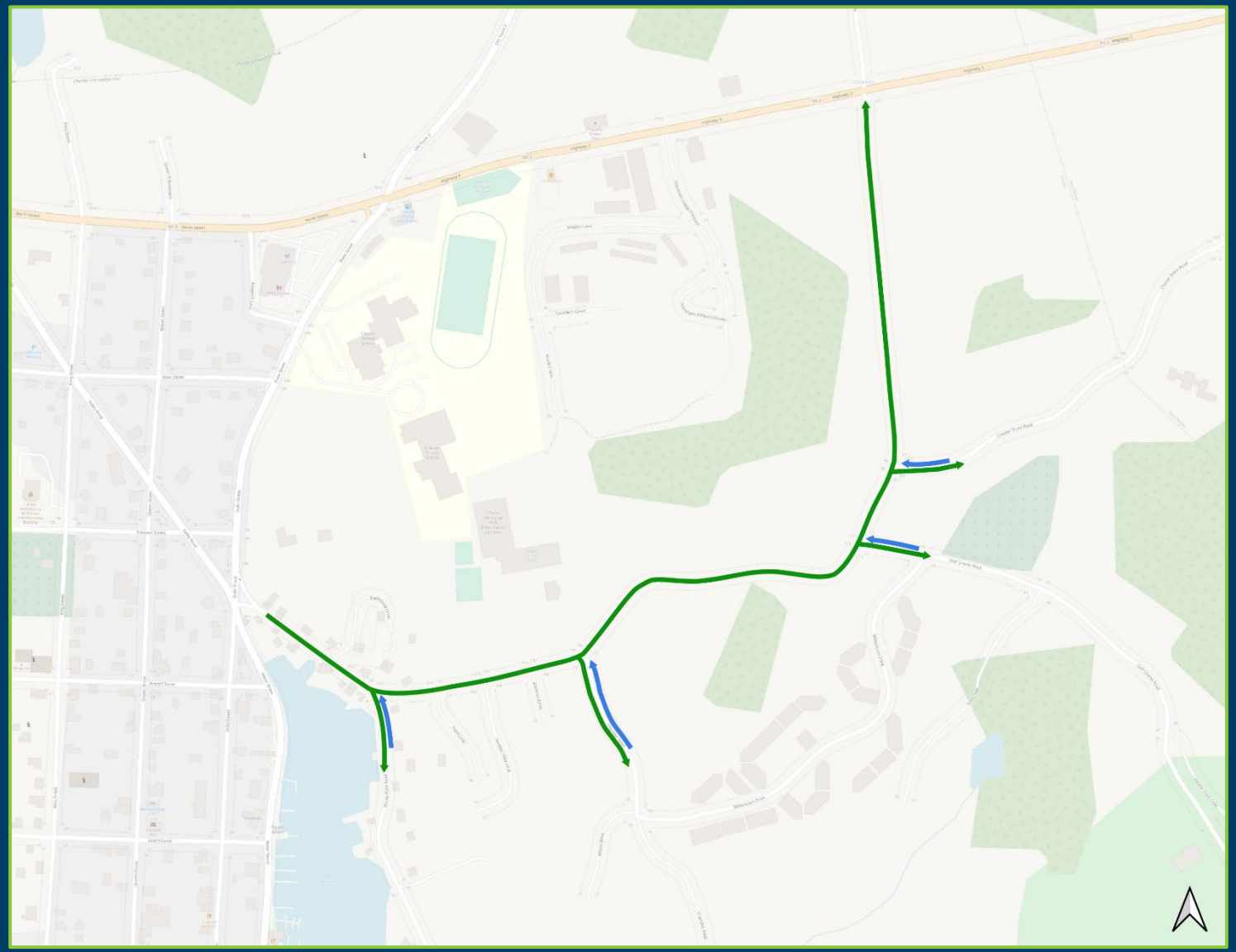
$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

CBCL FBM Analysis

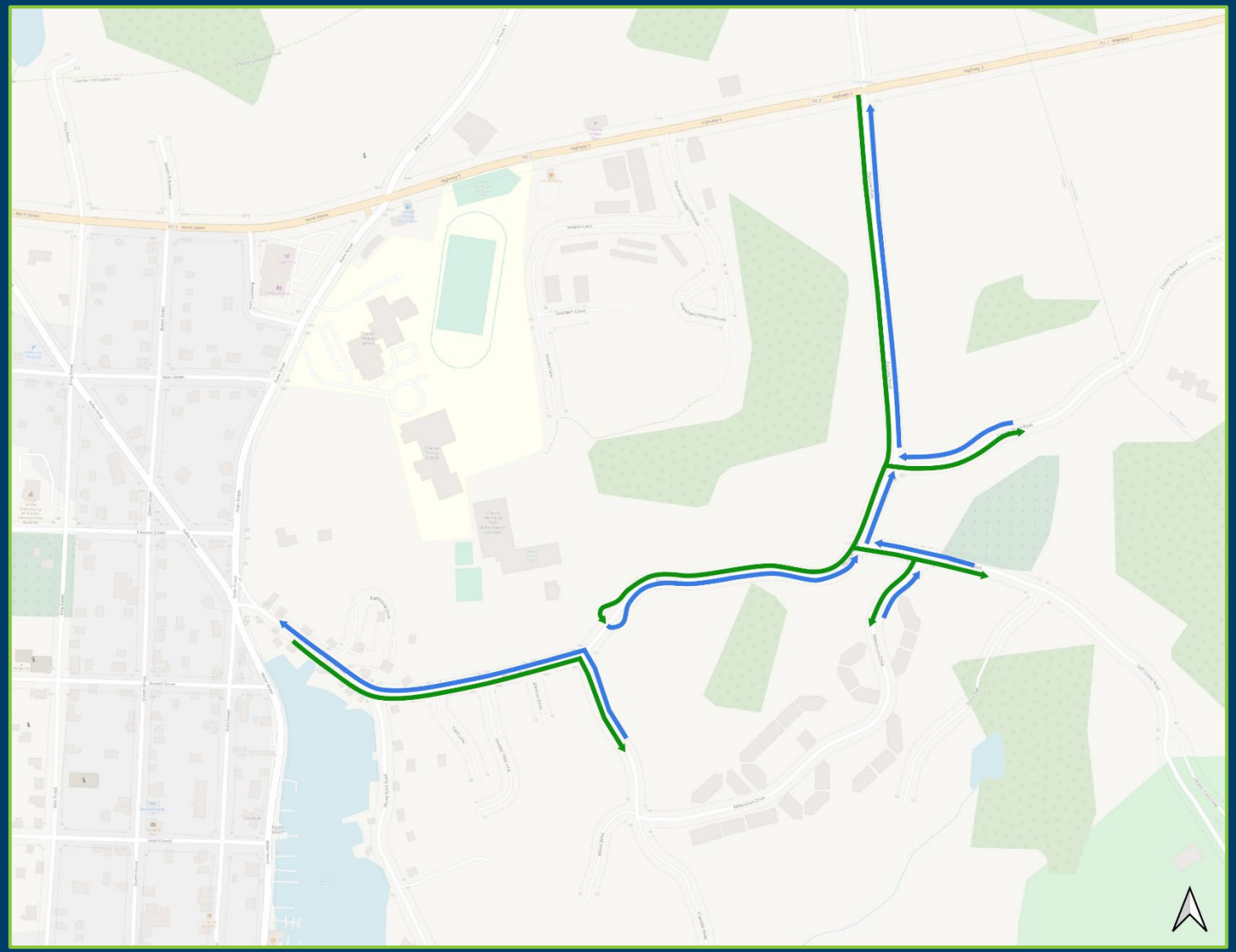
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Options – Pig Loop Rd – Option 1



Options – Pig Loop Rd – Option 2



Options – Pig Loop Rd – Option 3

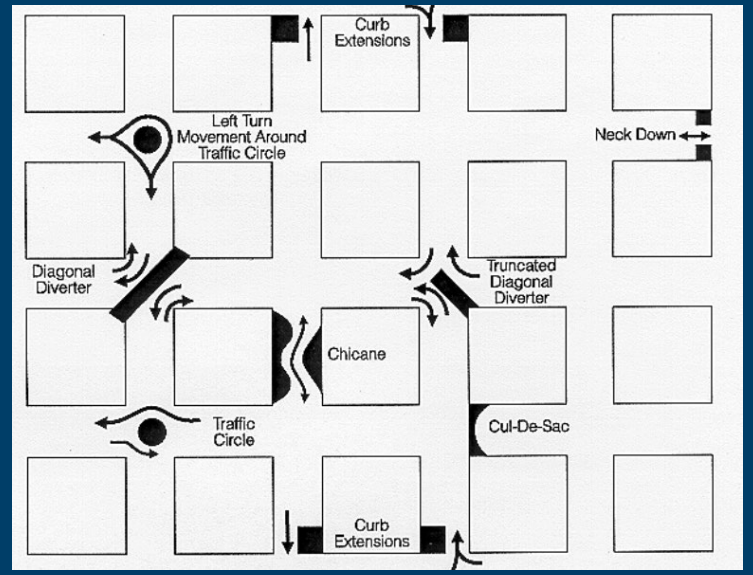


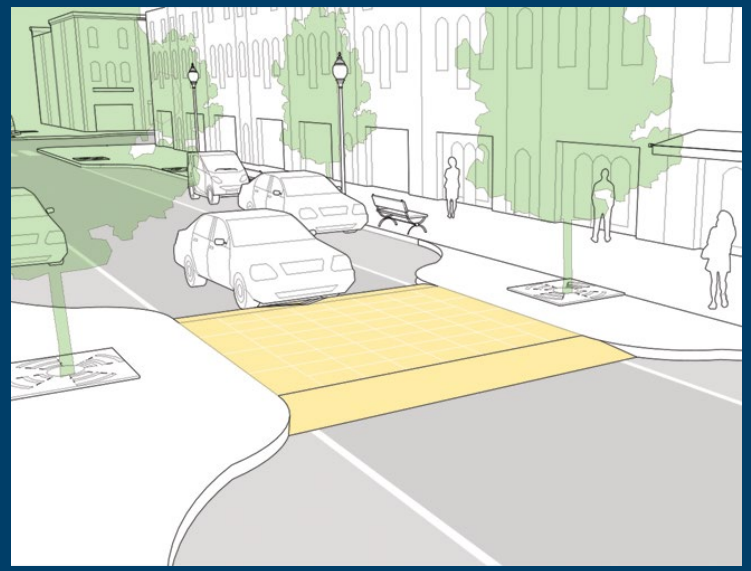
Options – Pig Loop Rd – Option 4



Options – Water St











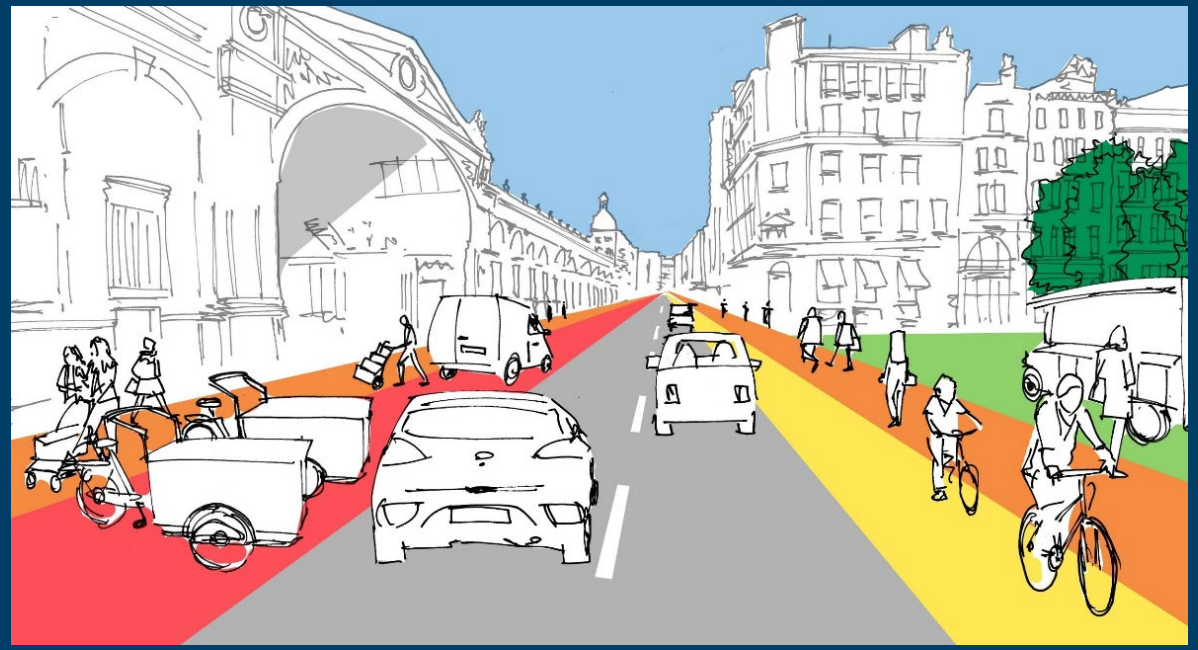
CBCL FBM Options – Traffic Calming

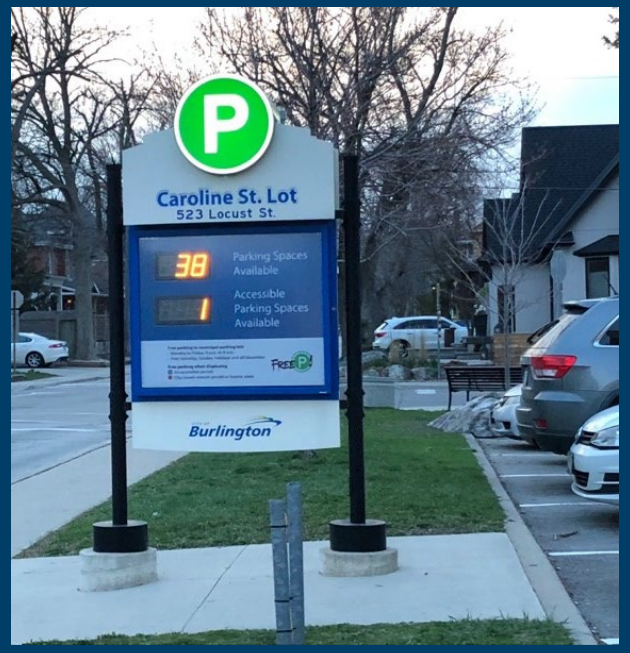
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Typical vs. Seasonal Traffic Demand

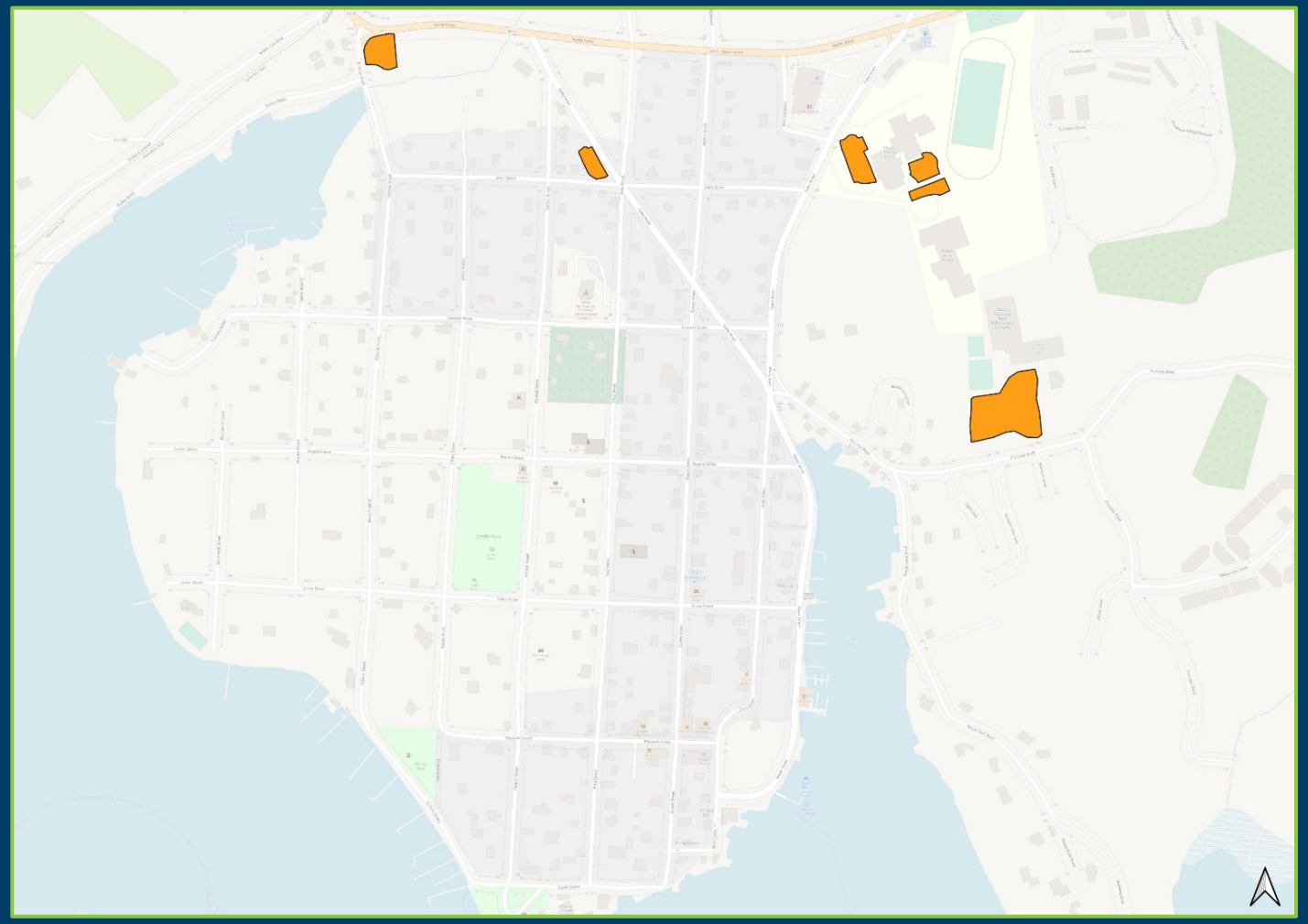
One size does not fit all. Consider seasonal policies

CBCL FBM Options – Curbside Management

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Seasonal Parking

- Utilize existing parking lots within the Village for event parking and/or seasonal overflow parking
- Implement event drop-off / pick-up zones throughout the Village core
- Such interventions require active management and enforcement
- Consider enacting empowering by-laws and compliance officers



Thank You!

Please remember to check out the project website at www.voicesandchoices.ca

CBCL FBM

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