

## IDOT Phase I Intersection Improvements IL-131 (Green Bay Rd.) / IL-132 (Grand Ave.) Region 1 / District 1

CLIENT:

Civiltech Engineering, Inc.

CONTACT:

Sven D. Zimdahl, PE 630-735-3947

## CONTRACT:

Illinois Department of Transportation PTB 203/ Item 25

## PROJECT PURPOSE:

- Conduct environmental and location design studies to develop and refine feasible alternatives for intersection improvements
- Evaluate costs and impacts and start coordination with jurisdictional agencies and start public engagement
- Collect current traffic and turning movement counts at intersection using Miovision cameras, assess signal timings, and evaluate 2040 traffic projections

DAMA worked with Civiltech on the intersection of IL-132 (Grand Ave.) and IL-131 (Green Bay Rd.) in Lake County. Both roadways are classified as arterials and have commercial developments on all four corners of the intersection. Grand Ave. leads west to the Tri-State Tollway/I-294, US-41, and regional destinations in Gurnee. The intersection is located in Waukegan.

DAMA set up and captured existing traffic data using **Miovision** devices including weekday 24hour turning movement traffic counts, peak hour turning movement counts, and classification counts of trucks and other heavy vehicles.

DAMA also used **Synchro** to evaluate 2027 peak hour capacity and potential changes to the length of storage bays at the intersection.



Peak Hour	Mournest	T %	G (ser)	Gu (sec)	G+Gu (sec)	Cycle Length (sec)	6/IC	DHV	# Lanes	Cycles/	Sith % Queue (fave)	Red-Time Queue (foot)	Proposed Storage Bu Length (feet)
100	[ monthest ]		(MC)	(MC)	(MC)	South		[ (rjen)	P Lanca	ricor	Inner	I Ineco	(MAN)
	Left	2	22.1	0	22.1	1	0.177	140	2		94	102.04	155
AM	Thru	2	23.1	0	23.1	125	0.185	910	2	28.8	650	656.83	
	Right	2	13	0	13		0.104	222	1		605	880.60	288
	Left	2	13.7	0	13.7	130	0.105	185	2	27.7	141	152.60	155
PM	Thru	2	47.3	0	47.3		0.364	810	2		426	474.49	
	Right	2	25	0	25		0.192	390	1		262	580.13	885
						Northi	bound						
	Left	2	19	0	19		0.152	150	2	28.8	100	112.63	160
AM	Thru	2	30	0		125			2		301	366.74	
	Right	2	10			7 1			1		45	195.50	340
PM	Left	2	17,4						2	27.7	134	159.52	160
	Thru	2	51			130			2		585	593.16	
	Right	2	18.6	0	18.6	_		215	1		120	339.31	340
						Eastb							
АМ	Left	2	13			125			1	28.8	91	214.20	380
	Thru	2	62.9						2		230	266.12	_
	Right	2	19						1		30	135.15	240
	Left	2	25			I			1		247	379.31	380
PM	Thru	2	46.7			130			2	27.7	455	501.54	_
	Right	2	17.4		17.4			150	1		89	239.28	240
						Wests							
AM	Left	2	10			I			2	28.8	125 230	309.54	310
AM						125							234
	Right	2 2	22.1			-			1 1	-	22	123.91 299.85	225 310
PM	Thru	2	40.3			120			2	27.7	398	454.29	310
Fine	Right	2	13.7	New York   New York	1	21.5	63	222.42	225				
	IDOT Red To							Municipal Storage B	on: IL 131/I ity: Wauke ay Length C entile and I	gan, IL alculation		rulo	

J. GREEN DAT (15	31) & GRAND (132) 04/24/202											
	•	-	*	1	-	1	1	1	-	1	ţ	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
Lane Configurations	٦	**	7	٦	**	ř	44	**	ř	44	**	
Traffic Volume (vph)	255	850	150	190	715	135	200	1060	215	185	810	3
Future Volume (vph)	255	850	150	190	715	135	200	1060	215	185	810	3
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	2000	19
Storage Length (ft)	407		250	325		250	405		217	260		2
Storage Lanes	- 1		- 1	1		- 1	2		- 1	2		
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.
Frt			0.850			0.850			0.850			0.8
Fit Protected	0.950			0.950			0.950			0.950		
Sald. Flow (prot)	1770	3725	1583	1770	3725	1583	3433	3725	1583	3433	3725	15
Fit Permitted	0.147	3725	1583	0.136	3725	1583	0.960	3725	1583	0.960	3725	15
Satd. Flow (perm) Right Turn on Red	2/4	3/25		253	3/25	1583 Yes	3433	3/25	1583 Yes	3433	3/25	15 Y
Said, Flow (RTOR)			Yes 70			113			785 84			1
Link Speed (mph)		35	70		35	113		35	84		35	
Link Speed (mpn) Link Distance (ff)		1192			1717			922			1096	
Travel Time (s)		23.2			33.4			18.0			21.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0
Adi. Flow (vph)	277	924	163	207	777	147	217	1152	234	201	880	4
Shared Lane Traffic (%)	411	04.4	100	201	717	141	417	1106	201	201	000	-
Lane Group Flow (vph)	277	924	163	207	777	147	217	1152	234	201	880	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	_
Lane Alignment	Left	Left	Right	Let	Left	Right	Let	Left	Right	Left	Left	Ric
Median Width(ft)	LUN	12	rogic	LUN	12	rogia	LUN	24	regis	Lun	24	149
Link Offset(ft)		.0			. 0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.
Turning Speed (mph)	15		9	15		9	15		9	15		
Number of Detectors	- 1	2	- 1	- 1	2	- 1	- 1	2	- 1	- 1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Ric
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	.0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- 0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- 0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	- 0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm*
Protected Phases	5	2	3	1	6	7	3	8	- 1	7	4	
Permitted Phases	2		2	6		6			8			