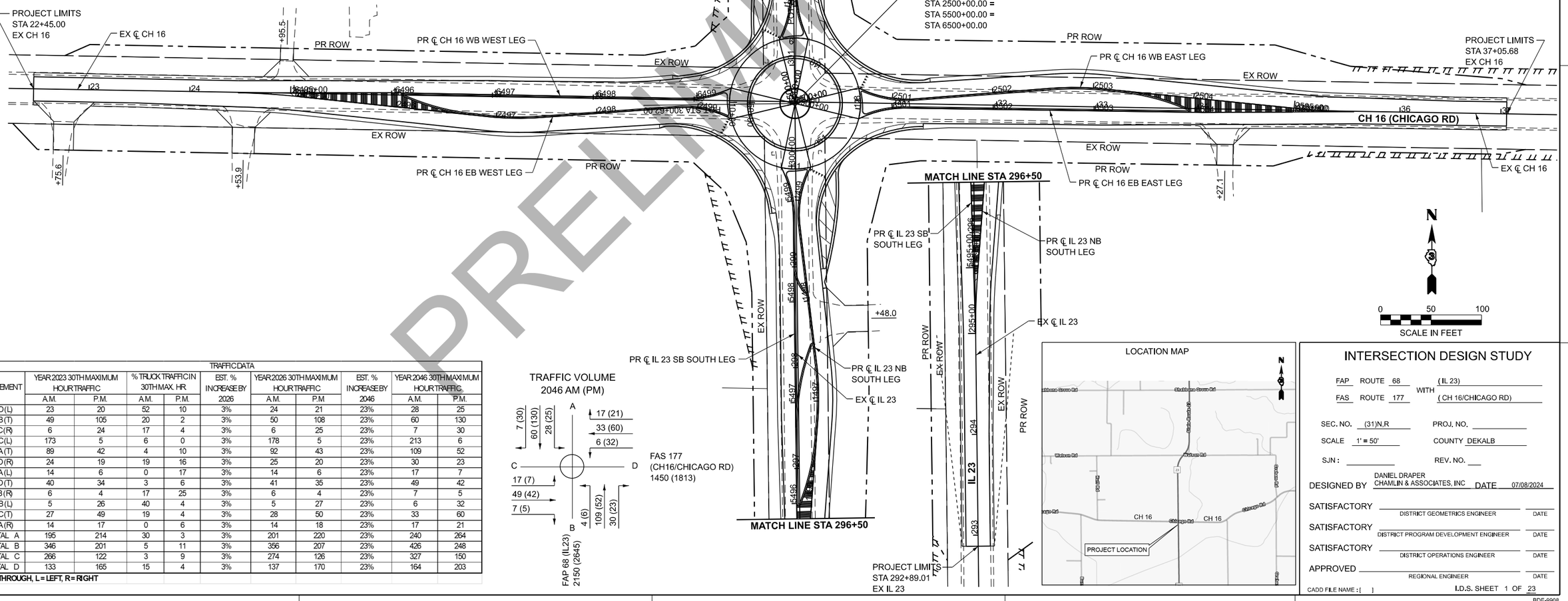
PLOT DATE = 10/15/2024
FILE NAME = G:\Users\56641\2-00\4\DOT-Phase I\Various\Various-District 3\IDOT PROJECTS\D3#3885_6#N64 - IL 23 AT CHICAGO ROAD\D3#6N64\Consultant_Data\Chamlin_2024\Studies\D3#6N64-eIlvIdIs-eIn11.
PLOT SCALE = $SCALE$
USER NAME = nancv

ROUNDABOUT CAPACITY DESIGN ANALYSIS

PROGRAM USED: HCS VERSION: 2024 AREA: RURAL PEAK HOUR FACTOR: 0.88
INTERSECTION CONTROL DELAY: A.M. 4.3 SECONDS P.M. 4.2 SECONDS
INTERSECTION LEVEL OF SERVICE: A.M. A P.M. A

APPROACH		(C) CH 16 (EB)			(D) CH 16 (WB)			(B) IL 23 (NB)			(A) IL 23 (SB)		
LANE GROUP		L	T	R	L	T	R	L	T	R	L	T	R
2046 30TH MAX. HOUR TRAFFIC	A.M.	17	49	7	6	33	17	4	109	30	28	60	7
	P.M.	7	42	5	32	60	21	6	52	23	25	130	30
ENTRY FLOW RATE $V_{i,PCE}$ (PC/H)	A.M.	19	57	9	10	44	19	5	129	41	48	82	9
	P.M.	9	50	7	38	71	25	7	65	30	31	151	36
PED/HOUR CROSSING THE APPROACH	A.M.												
	P.M.												
LANE MOVEMENTS			LTR			LTR			LTR			LTR	
ENTRY FLOW RATE V_i (VPH)	A.M.		82			63			163			107	
	P.M.		61			128			92			211	
LANE CAPACITY C_i (VPH)	A.M.		1159			1023			1132			1004	
	P.M.		1012			1218			1138			1186	
X_i (V_i/C_i RATIO)	A.M.		0.07			0.06			0.14			0.11	
	P.M.		0.06			0.11			0.08			0.18	
STORAGE QUEUE LENGTH (VEHICLES)	A.M.		0.2			0.2			0.5			0.4	
	P.M.		0.2			0.4			0.3			0.6	
LANE DELAY, D (SEC)	A.M.		3.7			4.1			4.4			4.6	
	P.M.		4.1			3.8			3.8			4.6	
LANE LEVEL OF SERVICE	A.M.		A			A			A			A	
	P.M.		A			A			A			A	
APPROACH CONTROL DELAY, D (SEC)	A.M.		3.7			4.1			4.4			4.6	
	P.M.		4.1			3.8			3.8			4.6	
APPROACH LEVEL OF SERVICE	A.M.		A			A			A			A	
	P.M.		A			A			A			A	



TRAFFIC DATA

MOVEMENT	YEAR 2023 30TH MAXIMUM HOUR TRAFFIC		% TRUCK TRAFFIC IN 30TH MAX. HR		EST. % INCREASE BY 2026	YEAR 2026 30TH MAXIMUM HOUR TRAFFIC		EST. % INCREASE BY 2046	YEAR 2046 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.
AD (L)	23	20	52	10	3%	24	21	23%	28	25
AB (T)	49	105	20	2	3%	50	108	23%	60	130
AC (R)	6	24	17	4	3%	6	25	23%	7	30
BC (L)	173	5	6	0	3%	178	5	23%	213	6
BA (T)	89	42	4	10	3%	92	43	23%	109	52
BD (R)	24	19	19	16	3%	25	20	23%	30	23
CA (L)	14	6	0	17	3%	14	6	23%	17	7
CD (T)	40	34	3	6	3%	41	35	23%	49	42
CB (R)	6	4	17	25	3%	6	4	23%	7	5
DB (L)	5	26	40	4	3%	5	27	23%	6	32
DC (T)	27	49	19	4	3%	28	50	23%	33	60
DA (R)	14	17	0	6	3%	14	18	23%	17	21
TOTAL A	195	214	30	3	3%	201	220	23%	240	264
TOTAL B	346	201	5	11	3%	356	207	23%	426	248
TOTAL C	266	122	3	9	3%	274	126	23%	327	150
TOTAL D	133	165	15	4	3%	137	170	23%	164	203

T= THROUGH, L = LEFT, R = RIGHT

TRAFFIC VOLUME
2046 AM (PM)

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:
F.A. ROUTE NUMBER: FAP 68 MARKED ROUTE NUMBER: IL 23
STREET NAME: SRA ROUTE: NO
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL OSOW DESIGN: YES
EXISTING ADT: 2150 (2023) VPD DESIGN YEAR ADT: 2645 (2046) VPD
PROPOSED DESIGN SPEED: 55 MPH PROPOSED POSTED SPEED: 55 MPH

SECONDARY ROUTE:
F.A. ROUTE NUMBER: FAS 177 MARKED ROUTE NUMBER: CH 16
STREET NAME: CHICAGO ROAD SRA ROUTE: NO
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR OSOW DESIGN: NO
EXISTING ADT: 1450 (2021) VPD DESIGN YEAR ADT: 1813 (2046) VPD
PROPOSED DESIGN SPEED: 55 MPH PROPOSED POSTED SPEED: 55 MPH

IMPROVEMENT TYPE: HSIP & 3R ANTICIPATED YEAR OF CONSTRUCTION: FY 2026
EXISTING METHOD OF TRAFFIC CONTROL: TWSC PROPOSED METHOD: ROUNDABOUT
DESIGN VEHICLE: CIRCULATORY: SBUS-40
INTERSECTION: WB-55

DESIGN YEAR: 2046
TRUCK ROUTE DESIGNATION: IL 23 CLASS II
CH 16 N/A
DESIGN CRITERIA: BDE CH 36 AND CH 49

GENERAL NOTES

ARE PROFILES PROVIDED: YES IF NOT, STATE REASON WHY: N/A

TYPE B-6.24 CURB & GUTTER ON THE OUTSIDE OF THE ROADWAY SHOULDER/TRUCK APRONS
TYPE M-4.24 CURB & GUTTER SPECIAL ON INNER SIDE OF TRUCK APRONS
TYPE M-4.12 CURB AND GUTTER ON THE INSIDE SPLITTER ISLANDS
TYPE B-6 CURB ON INNER SIDE OF TRUCK APRON

ALL DIMENTIONS ARE E-E OF PAVEMENT, UNLESS OTERWISE NOTED
RIGHT OF WAY LIMITS ARE PRELIMINARY
DESIGN VEHICLE TURNING MOVEMENTS ARE PER AUTOTURN SOFTWARE VERSION 11
SCOPE OF IMPROVEMENT: RECONSTRUCTION OF 4 LEG INTERSECTION INTO ROUNDABOUT
INTERSECTION DESIGN EXCEPTIONS: NONE

ADDDITIONAL NOTES:

N

0 50 100
SCALE IN FEET

LOCATION MAP

INTERSECTION DESIGN STUDY

FAP ROUTE 68 (IL 23)
FAS ROUTE 177 WITH (CH 16/CHICAGO RD)

SEC. NO. (31)N,R PROJ. NO.
SCALE 1" = 50' COUNTY DEKALB
SJN: REV. NO.

DESIGNED BY DANIEL DRAPER, CHAMLIN & ASSOCIATES, INC DATE 07/08/2024

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE
APPROVED _____ REGIONAL ENGINEER DATE

CADD FILE NAME: [ ]

I.D.S. SHEET 1 OF 23

BDE-9908

SHEET NUMBER

PRELIMINARY