CAPACITY DESIGN STUDY

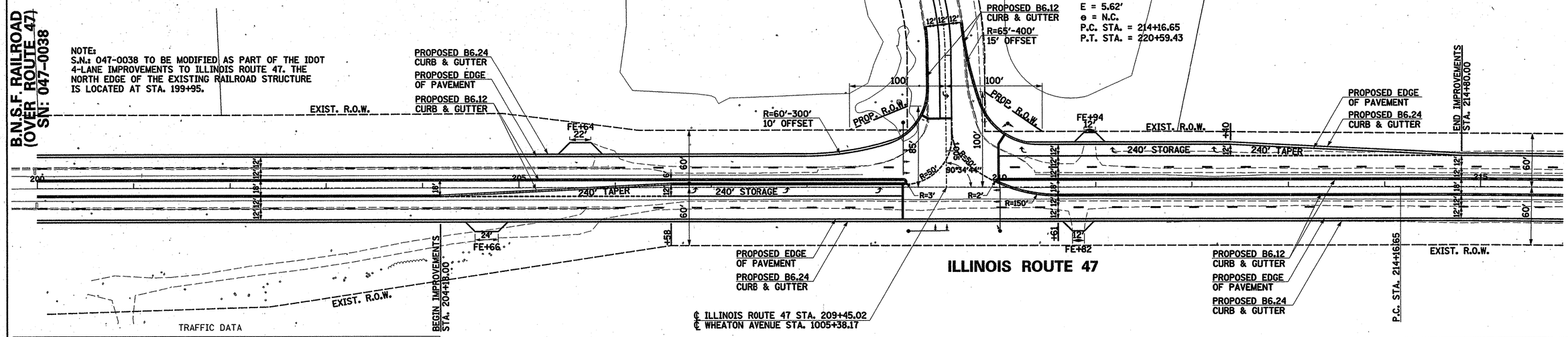
3 PHASE
90 SEC. CYCLE
SIGNAL TYPE ACTUATED

AREA OTHER
AVERAGE INTERSECTION DELAY
PROGRAM USED HCS VERSION 4.1E

PEAK HOUR FACTOR 0.95
A.M. 7.8 SEC. P.M. 21.5 SEC.

INTERSECTION LEVEL OF SERVICE A.M. A P.M. C

APPROACH		A				B		C			D		
BUS STOP CONDITION													
PARKING MANEUVER/HR.													
PEDESTRIANS													
ARRIVAL TYPE		3	3	-	-	3	3	3	-	3	-	-	-
LANE UTILIZATION FACTOR		1.0	1.0	-	-	1.0	1.0	1.0	-	1.0	-	-	-
BASE SATURATION FLOW		1900	2000	-	-	2000	1900	1900	-	1900	-	-	-
D - DISTANCE		104'	263'	-	-	460'	84'	383'	-	249'	-	-	-
LANE GROUP		L	T	-	-	T	R	L	-	R	-	-	-
LANE WIDTHS		12'	2-12'	-	-	2-12'	12'	12'	-	12'	-	-	-
GREEN TIME (SECONDS)	A.M.	65	65	-	-	56	76	15	-	26	-	-	-
	P.M.	52	52	-	-	43	76	28	-	39	-	-	-
G/C RATIO	A.M.	0.72	0.72	-	-	0.62	0.84	0.17	-	0.29	-	-	-
	P.M.	0.58	0.58	-	-	0.48	0.84	0.31	-	0.43	-	-	-
LANE GROUP DELAY (SECONDS)	A.M.	9.6	5.9	-	-	8.6	1.6	34.3	-	23.9	-	-	-
	P.M.	33.9	11.3	-	-	23.4	1.2	40.8	-	18.6	-	-	-
V/C RATIO	A.M.	0.67	0.54	-	-	0.39	0.28	0.38	-	0.14	-	-	-
	P.M.	0.74	0.48	-	-	0.81	0.05	0.83	-	0.46	-	-	-
LEVEL OF SERVICE	A.M.	A	A	-	-	A	A	C	-	C	-	-	-
	P.M.	C	B	-	-	C	A	D	-	B	-	-	-
2025 30TH MAX. HOUR TRAFFIC	A.M.	260	1240	-	-	740	345	90	-	95	-	-	-
	P.M.	105	880	-	-	1245	95	370	-	305	-	-	-
2005 8TH MAX. HOURLY TRAFFIC	A.M.	509				407		91			-		
	P.M.	326				431		331			-		



SHEET NUMBER

ELEMENTS CONTROLLING DESIGN

1. ROUTE: F.A.P. ROUTE 326 (ILLINOIS ROUTE 47) AT WHEATON AVENUE
2. DESIGN DESIGNATION: ILLINOIS ROUTE 47 - STRATEGIC REGIONAL ARTERIAL
   WHEATON AVENUE - LOCAL ROAD
3. AVERAGE DAILY TRAFFIC (ADT) DATA:
   ILLINOIS ROUTE 47 - EXISTING: 12,844 (2005); DESIGN: 25,900 (2025)
   WHEATON AVENUE - EXISTING: 1,105 (2005); DESIGN: 8,750 (2025)
4. ILLINOIS ROUTE 47 IS THE PREFERENCE ROUTE
5. ANTICIPATED YEAR OF CONSTRUCTION: NOT PROGRAMMED DESIGN YEAR: 2025
6. TRAFFIC CONTROL TO BE SIGNALIZED BY WARRANTS 1A, 1B, AND 2 AT 100% IN YEAR 2005. EXISTING SIGNALS LOCATED AT THE ILLINOIS ROUTE 47 INTERSECTIONS WITH CANNONBALL TRAIL (4000' SOUTH) AND GALENA ROAD (7500' NORTH). A TRAFFIC SIGNAL INTERCONNECT IS NOT REQUIRED FOR THIS PROJECT.
7. DESIGN CRITERIA: RECONSTRUCTION.
8. DESIGN VEHICLE: WB-65
9. TRUCK ROUTE DESIGNATION: ILLINOIS ROUTE 47 IS A CLASS II TRUCK ROUTE.

	IL ROUTE 47	WHEATON AVENUE
10. DESIGN SPEED:	55 MPH	30 MPH
11. POSTED SPEED:	55 MPH	N/A

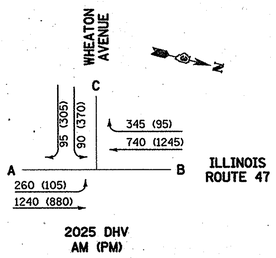
12. PEDESTRIAN USAGE: N/A BICYCLE USAGE: N/A

GENERAL NOTES

1. PROFILES ~~ARE~~ NOT PROVIDED. ULTIMATE ILLINOIS ROUTE 47 PROFILE TO BE DESIGNED AS PART OF THE IDOT 4-LANE IMPROVEMENTS. SEE INTERIM IDS FOR EXISTING PROFILES FOR ILLINOIS ROUTE 47 AND WHEATON AVENUE.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT AND TYPE B-6.12 CURB AND GUTTER TO BE USED ON INNER EDGES OF PAVEMENT OF ILLINOIS ROUTE 47.
3. TYPE B-6.12 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT OF WHEATON AVENUE.
4. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ENTRANCE TO BE IN ACCORDANCE WITH IDOT'S POLICY ON "ACCESS TO STATE HIGHWAYS."
6. PAVEMENT MARKINGS AND SIGNING TO BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
7. TURNING MOVEMENTS VERIFIED USING AUTOTURN.
8. DESIGN EXCEPTIONS: NONE.
9. INTERSECTION IS NOT A HIGH ACCIDENT LOCATION.
10. RIGHT-OF-WAY IS PRELIMINARY AND IS SUBJECT TO REVISION.

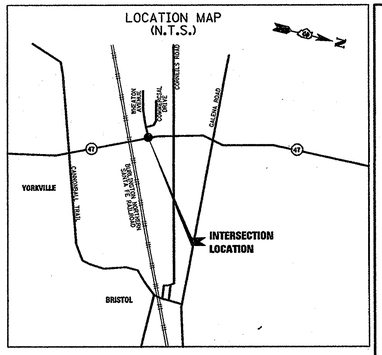
TRAFFIC DATA

MOVEMENT	YEAR 2005 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2005 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30th MAX HOUR	ESTIMATED PERCENT INCREASE BY 2015	YEAR 2015 30th MAXIMUM HOUR TRAFFIC A.M.	YEAR 2015 30th MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY 2025	YEAR 2025 30th MAXIMUM HOUR TRAFFIC A.M.	YEAR 2025 30th MAXIMUM HOUR TRAFFIC P.M.
AB	689	492	13.3	40	965	687	79	1240	880
AD	-	-	-	-	-	-	-	-	-
AC	235	99	14.8	4	247	103	6	260	105
BA	413	692	12.7	40	577	969	80	740	1245
BC	326	91	24.5	4	337	94	4	345	95
BD	-	-	-	-	-	-	-	-	-
CD	-	-	-	-	-	-	-	-	-
CA	84	265	15.0	8	90	285	15	95	305
CB	80	336	19.6	5	84	353	10	90	370
DC	-	-	-	-	-	-	-	-	-
DB	-	-	-	-	-	-	-	-	-
DA	-	-	-	-	-	-	-	-	-
TOTAL A	1421	1548			1879	2044		2335	2535
TOTAL B	1508	1611			1963	2103		2415	2590
TOTAL C	725	791			758	835		790	875
TOTAL D	-	-			-	-		-	-



	PHASE I	AMBER	ALL RED	PHASE II	AMBER	ALL RED	PHASE III	AMBER	ALL RED
P.M.	GREEN= 15.0 Sec	3 Sec.	2 Sec.	GREEN= 6.0 Sec	3 Sec.	0 Sec.	GREEN= 56.0 Sec	3 Sec.	2 Sec.
SAT.	GREEN= 28.0 Sec	3 Sec.	2 Sec.	GREEN= 6.0 Sec	3 Sec.	0 Sec.	GREEN= 43.0 Sec	3 Sec.	2 Sec.

LOCATION MAP
(N.T.S.)



INTERSECTION DESIGN STUDY (ULTIMATE)

FAP ROUTE 326 (ILLINOIS ROUTE 47)
ROUTE ____ WITH WHEATON AVENUE

SEC. NO. ____ PERMIT NO. L-9926
SCALE 1" = 50' COUNTY KENDALL
SJN : ____ REV. NO. ____

DESIGNED BY SMITH ENGINEERING CONSULTANTS, INC. DATE OCTOBER 2005

SATISFACTORY ____ DISTRICT GEOMETRICS ENGINEER DATE 12-21-05
SATISFACTORY ____ DISTRICT STUDIES & PLANS ENGINEER DATE 12-21-05
SATISFACTORY ____ DISTRICT OPERATIONS ENGINEER DATE 12-21-05
APPROVED ____ REGIONAL ENGINEER DATE 12-21-05

CADD FILE NAME : (_____)_____ I.D.S. SHEET 1 OF 1

BDE-9908

•DGN=SPEC•
•DATE=TIME•
•REF=
•REF=
•REF=