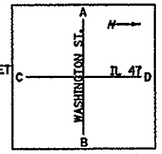
SIGNALIZED INTERSECTION

CAPACITY ANALYSIS

PROJECT FA ROUTE 326 (ILLINOIS ROUTE 47)
INTERSECTION ILLINOIS ROUTE 47 WITH WASHINGTON STREET



BASIC CONDITIONS

AREA: (CBD) OTHER PHF 0.95 (CIRCLE ONE)

SIGNAL TYPE ACTUATED ARRIVAL TYPE 3

C = SIGNAL CYCLE = 120 SEC. ΣA/C 12 / 120 = 0.10

	PHASE 1		PHASE 2		PHASE 3		PHASE 4		PHASE 5	
(AM)	G/C=0.083 G =10.0 Sec.	3.0 Sec.	G/C=0.042 G =5.0 Sec.	0.0 Sec.	G/C=0.167 G =20.0 Sec.	3.0 Sec.	G/C=0.083 G =10.0 Sec.	3.0 Sec.	G/C=0.525 G =63.0 Sec.	3.0 Sec.
(PM)	G/C=0.083 G =10.0 Sec.	AMBER 3.0 Sec.	G/C=0.042 G =5.0 Sec.	AMBER 0.0 Sec.	G/C=0.167 G =20.0 Sec.	AMBER 3.0 Sec.	G/C=0.083 G =10.0 Sec.	AMBER 3.0 Sec.	G/C=0.525 G =63.0 Sec.	AMBER 3.0 Sec.

APPR. A (EB) GR= 0 % A.M. T= 43 % R= 57 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0
P.M. T= 37 % R= 63 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0

	MOVEMENT	L/W	DHV	ADJ. FLOW V	ADJ. SAT S	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	MAX QUEUE
A.M.	AD	163.4m	160	168	1468	0.114	0.317	344	0.488	21.4	C	26.6	D	60
	AR	163.4m	95	200	1510	0.132	0.208	315	0.636	30.9	D			89
	AC		125	-	-	-	-	-	-	-	-			-
P.M.	AD	163.4m	180	189	1468	0.129	0.317	270	0.700	26.5	D	34.2	D	67
	AR	163.4m	100	252	1480	0.170	0.208	308	0.817	40.0	D			111
	AC		170	-	-	-	-	-	-	-	-			-

APPR. B (WB) GR= 0 % A.M. T= 55 % R= 45 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0
P.M. T= 76 % R= 24 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0

	MOVEMENT	L/W	DHV	ADJ. FLOW V	ADJ. SAT S	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	MAX QUEUE
A.M.	BC	163.6m	30	32	1425	0.022	0.275	248	0.129	22.4	C	27.3	D	13
	BA	163.6m	55	94	1577	0.060	0.167	263	0.358	29.0	D			43
	BD		45	-	-	-	-	-	-	-	-			-
P.M.	BC	163.6m	25	68	1425	0.048	0.275	201	0.338	23.5	C	31.5	D	28
	BA	163.6m	140	183	1642	0.111	0.167	274	0.669	34.5	D			79
	BD		45	-	-	-	-	-	-	-	-			-

APPR. C (NB) GR= 0 % A.M. T= 98 % R= 2 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0
P.M. T= 98 % R= 2 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0

	MOVEMENT	L/W	DHV	ADJ. FLOW V	ADJ. SAT S	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	MAX QUEUE
A.M.	CA	163.6m	80	84	1624	0.052	0.633	236	0.356	6.2	B	12.4	B	15
	CD	263.6m	850	862	3185	0.302	0.525	1672	0.515	12.9	B			113
	CB		20	-	-	-	-	-	-	-	-			-
P.M.	CA	163.6m	85	89	1624	0.055	0.633	212	0.420	8.5	B	13.8	B	16
	CD	263.6m	990	1116	3187	0.350	0.525	1673	0.667	14.2	B			131
	CB		20	-	-	-	-	-	-	-	-			-

APPR. D (SB) GR= 0 % A.M. T= 85 % R= 15 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0
P.M. T= 83 % R= 17 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PEDS/HR 0

	MOVEMENT	L/W	DHV	ADJ. FLOW V	ADJ. SAT S	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	MAX QUEUE
A.M.	DB	163.6m	40	42	1633	0.027	0.633	206	0.204	6.9	B	13.1	B	126
	DC	263.6m	825	1032	3138	0.329	0.525	1647	0.626	13.3	B			
	DA		140	-	-	-	-	-	-	-	-			-
P.M.	DB	163.6m	80	84	1533	0.055	0.633	194	0.433	9.1	B	20.8	C	16
	DC	263.6m	1180	1530	3119	0.491	0.525	1637	0.934	21.5	C			185
	DA		235	-	-	-	-	-	-	-	-			-

INTERSECTION DELAY 15.4 (A.M.), 20.9 (P.M.)
INTERSECTION LOS C (A.M.), C (P.M.)

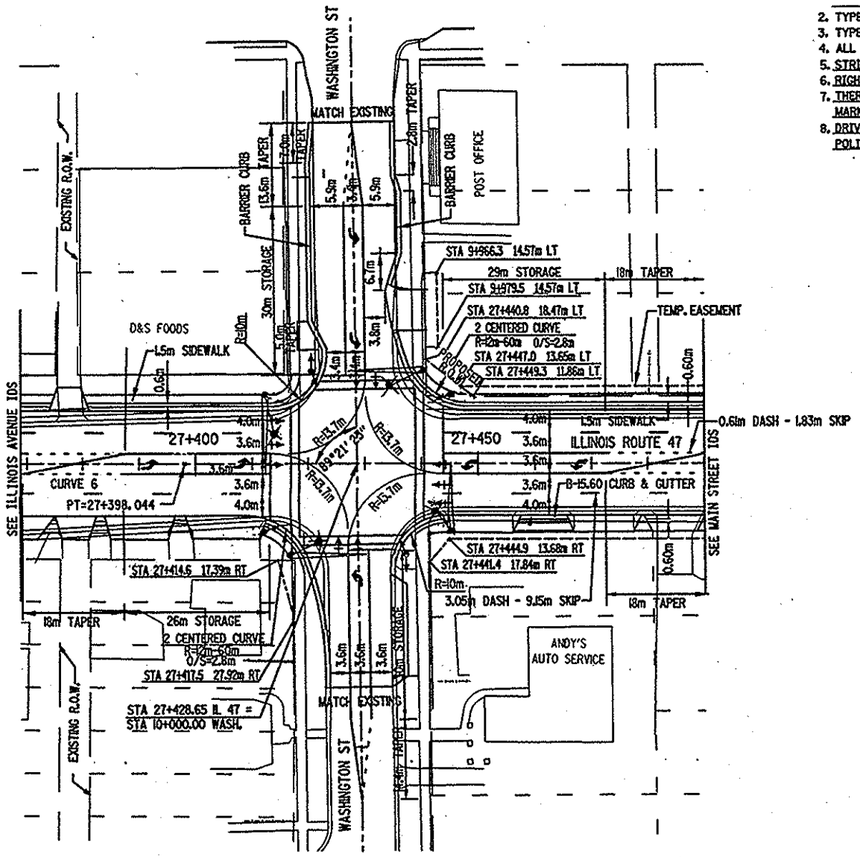
PROGRAM NAME: HIGHWAY CAPACITY SOFTWARE
VERSION: 3.1a
RELEASE DATE: JULY, 1998
VENDOR: TRANSPORTATION RESEARCH CENTER, UNIVERSITY OF FLORIDA

ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION FA 326 (ILLINOIS ROUTE 47) - PRINCIPLE ARTERIAL-2710-2020-50 KM/H
   WASHINGTON STREET - LOCAL ROAD 910-2020-50 KM/H
2. ILLINOIS ROUTE 47 IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION 2000
4. TRAFFIC CONTROL TO BE TRAFFIC SIGNALS (EXISTING) INTERCONNECTED WITH ILLINOIS AVENUE BY WARRANT #1, #2 AND #11.
5. DESIGN VEHICLES WB15

GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE ≤ 1%
2. TYPE B-15.60 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT
3. TYPE _____ CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
4. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
5. STRIPING SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. RIGHT-OF-WAY SHOWN IS SUBJECT TO REVISION DURING DESIGN STAGE.
7. THERMOPLASTIC PAVEMENT MARKING ON MEDIAN WITH RAISED REFLECTIVE PAVEMENT MARKERS ON ILLINOIS ROUTE 47
8. DRIVEWAYS WILL BE IN CONFORMANCE WITH ILLINOIS DEPARTMENT OF TRANSPORTATION POLICY FOR ENTRANCES AND ACCESS DRIVES TO STATE HIGHWAYS.

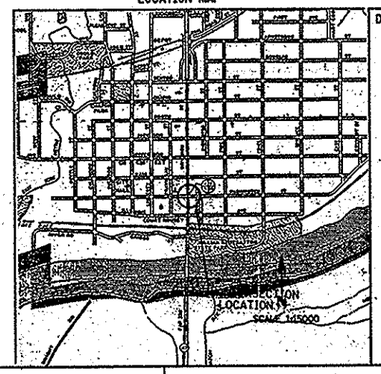


"Intersection design elements are consistent with Illinois Department of Transportation approved policies"

DISTRICT ENGINEER

SCALE IN METERS

LOCATION MAP



DRAWING NO. _____

INTERSECTION DESIGN STUDY

FA ROUTE 326 (ILLINOIS ROUTE 47) WITH ROUTE ____ WASHINGTON STREET

(111, 118) W & RS-1;
SEC. NO. (111) BR, BR-1 PROJ. NO. P-93-048-92

SJN : P-93-048-92 COUNTY GRUNDY

SCALE 1:500

DESIGNED BY HDR ENGINEERING, INC. DATE 06/25/99

SATISFACTORY (DISTRICT GEOMETRIC ENGINEER) DATE 9-30-99

SATISFACTORY (STUDIES AND PLANS ENGINEER) DATE 10-21-99

SATISFACTORY (DISTRICT OPERATIONS ENGINEER) DATE 11-30-99

APPROVED (DISTRICT ENGINEER) DATE 11-30-99

CADD FILE NAME 1de-wa01.dgn

REF FILE NAME 47n-mod.dgn

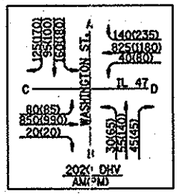
I.D.S. SHEET 1 OF 1

BDE-9409

•DGN-SPEC•
•DATE-TIME•
•REF-
•REF-
•REF-

TRAFFIC DATA

MOVEMENT	YEAR 1995 30TH MAXIMUM HOUR TRAFFIC A.M.	P.M.	PERCENT TRUCK TRAFFIC IN 30th MAX HOUR	ESTIMATED PERCENT INCREASE BY		YEAR 2010 30th MAXIMUM HOUR TRAFFIC A.M.	P.M.	ESTIMATED PERCENT INCREASE BY		YEAR 2020 30th MAXIMUM HOUR TRAFFIC A.M.	P.M.
AB	61	63	2	39	35	85	85	12	18	95	100
AD	103	119	7	36	30	140	155	14	16	160	180
AC	78	113	1	47	37	115	155	9	10	125	170
BA	34	91	0	47	32	50	120	10	17	55	140
BC	17	49	14	47	22	25	60	20	8	30	65
BD	24	31	4	67	29	40	40	13	13	45	45
CD	460	591	7	47	35	675	800	26	24	850	990
CA	47	60	0	49	25	70	75	14	13	80	85
CB	10	14	14	50	7	15	15	33	33	20	20
DC	448	663	8	52	43	680	950	21	24	825	1180
DB	26	52	6	35	35	35	70	14	14	40	80
DA	97	154	2	24	30	120	200	17	18	140	235
TOTAL A	420	600	2	38	32	580	790	13	15	655	910
TOTAL B	172	300	4	45	30	250	390	14	15	285	450
TOTAL C	1060	1490	7	49	38	1580	2055	22	22	1930	2510
TOTAL D	1158	1610	7	46	38	1690	2215	22	22	2060	2710



APPROACH	1995 8TH MAX. HOUR TRAFFIC A.M.	P.M.
A (EB)	133	162
B (WB)	61	94
C (NB)	234	366
D (SB)	314	478

CURVE 6 DATA

P.I. = STA. 27+338.991
Δ = 01°41′30.31″ Lt.
R = 4000m
T = 59.058m
L = 118.107m
E = 0.436m