

DUGAN PROPERTIES - KELLOGG & DUGAN RD.

9-29-83

- I. Proposed improvements include ponding on the Dugan site in order to utilize the existing RCBC structure under Kellogg at Dugan Road.

Costs - 2 Acre Pond Site	\$ 87,000
Dam Structure	20,000
Excavate remaining channel	41,000
Extend existing RCBC	110,000
Pave Dugan Rd. 41' width	160,000
Total =	<u>\$418,000</u>

- II. Cost of proposed 48" SWS in Dugan to Taft as per current KDOT plans

Total = \$110,000

- III. Cost of local Dugan Road area SWS to improve Dugan Rd. at this time & reroute the 48" SWS at the time the KDOT improvements are constructed.

Total = \$ 30,000

- IV. Cost of tunneling the 48" SWS under Kellogg

Total = \$100,000

ITEMS I, II, & IV.

Total = \$ 628,000.

ITEMS I, & III.

Total = \$ 448,000.

PONDING PROPOSAL

City of Wichita's cost to put a new drainage structure at
Dugan Road and Highway 54: \$828,200 to \$1,159,000.

Dugan Proposal (Paid for by City)

Extend Current Box at Dugan	\$ 100,000.00
Build Dam (No Liability)	20,000.00
Two Acres of Land (Pond Easement)	87,000.00
Dig One Remaining Drainage Channel	41,000.00
Dugan's Cost of Paving Dugan 1/2 (160,000)	80,000.00
Dugan's Cost of Drainage for Dugan 1/2 (40,000)	20,000.00
All dirt removed from pond and drainage channel to be placed and levelled on Dugan land.	
State Pays for Tunneling 48" pipe and Placement of Pipe Under Highway 54	70,000.00
	<u>\$ 418,000.00</u>

PRINCIPALS:

KENNETH H. LARKIN, PE.
PRESIDENT
ROBERT A. VAN WYE, PE.
GLENN C. GRAY, PE.

WALLACE W. BRASLEY, PE.
ROBERT W. LAMBERTON, PE.
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ASSOCIATES:

IVAN E. UBBEN, PE.
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KENNETH H. LARKIN
FOUNDER, 1908-1973



October 1, 1985

LARKIN ASSOCIATES
CONSULTING ENGINEERS, INC.

9233 WARD PARKWAY, SUITE 300
KANSAS CITY, MISSOURI 64114
TELEPHONE 816/361-0440

Mr. Brent Wooten, P.E.
Baughman Company
330 Laura
Wichita, Kansas 67211

Re: Traffic Access Study
Commercial Development
Kellogg and Dugan
Wichita, Kansas
LA #85090

Dear Mr. Wooten:

In accordance with your request, Larkin Associates Consulting Engineers, Inc. has prepared a traffic engineering analysis of a proposed commercial development to be located along Dugan Street between Kellogg Avenue and Taft Avenue in Wichita, Kansas. The purpose of this analysis was to estimate the development's trip generation potential and determine if any special roadway geometric or traffic control improvements will be required to allow adequate vehicle ingress and egress operations. This study is intended to provide the project planners with information required to prepare site plans for submittal to the City of Wichita for a rezoning request on the development site.

EXISTING CONDITIONS

TRAFFIC VOLUMES . . . This analysis utilized recent 1984-1985 daily traffic count data supplied by the City of Wichita Traffic Engineering Section. The daily traffic volume data was supplemented by detailed counts of vehicle movements through the intersections of Kellogg with Dugan and Mid-Continent with Taft. These detailed vehicle movement counts were obtained during the A.M. and P.M. weekday commuter peak periods (i.e. 7:00 - 9:00 A.M. and 4:00 - 6:00 P.M.) and during the Saturday shopping peak period, 1:00 - 3:00 P.M.

Based on available traffic count data, it is estimated that the average daily volume on Kellogg at Dugan is 37,500 vehicles per day and the ADT volume on Dugan north of Kellogg is 1450 v.p.d. An additional 3200 v.p.d. interchange between Kellogg and Kellogg Drive through the Dugan Street intersection. The estimated ADT

volume is 18,000 v.p.d. on Mid-Continent Drive at Taft, while the ADT on Taft east of Mid-Continent Drive is estimated at 1100 v.p.d.

The peak hours during the A.M. and P.M. weekday commuter periods were recorded to occur from 7:15 to 8:15 A.M. and 5:00 to 6:00 P.M. The Saturday shopping peak hour was recorded to occur from 1:15 to 2:15 P.M. These critical peak traffic movement counts are shown on Exhibits 1 through 6 for the Kellogg with Dugan and the Mid-Continent with Taft intersections.

ADJACENT STREET SYSTEM . . . The study site is bounded by Kellogg/Kellogg Drive on the south, Taft on the north, Ridge on the west and Julia on the east. Dugan Street bisects the study tract and connects Taft to Kellogg. Taft extends west of Ridge to intersect with Mid-Continent.

Kellogg Avenue is an expressway facility which serves as U.S. Route 54. It provides two through traffic lanes in each direction and also provides a separate left turn lane and right turn lane on the approaches to the Dugan intersection. Parallel frontage roads are located along Kellogg Avenue about 35 feet to the north and south. These frontage roads are presently two-lane, two-way roadways.

Mid-Continent Drive is a four-lane median divided arterial route with a separate southbound left turn lane provided at the intersection with Taft. Taft, Dugan and Julia are presently narrow, two-lane roads with substandard pavements.

VOLUME/CAPACITY CONDITIONS . . . The capacities of all vehicle movements through the intersections of Kellogg with Dugan and Mid-Continent with Taft have been computed for the A.M. and P.M. weekday and the Saturday shopping peak hours based on the existing traffic controls and roadway geometrics. These computed capacities are summarized with their respective existing volumes in Tables 1 and 2. As can be seen, the volumes for movements such as the westbound and southbound left turns and the eastbound or westbound through movements at the Kellogg and Dugan intersection exceeded the design capacities during one or more of the critical peak hour periods. All movements at the Mid-Continent and Taft intersection are operating within design capacities under existing stop sign controlled conditions.

TABLE 1
VOLUME/CAPACITY SUMMARY
KELLOGG AVENUE & DUGAN STREET

EXISTING CONDITIONS

Traffic Movement	A.M. PEAK HOUR			P.M. PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Left Turn	50	120	0.42	138	190	0.73
Thru & Right	69	180	0.38	149	240	0.62
Southbound						
Left Turn	125	120	1.04	172	190	0.91
Thru & Right	60	180	0.33	87	240	0.36
Eastbound						
Left Turn	74	110	0.67	82	110	0.75
Thru	1844	1650	1.12	1344	1520	0.88
Right Turn	35	720	0.05	52	650	0.08
Westbound						
Left Turn	129	110	1.17	99	110	0.90
Thru	856	1650	0.52	1957	1520	1.29
Right Turn	32	720	0.04	31	650	0.05

SATURDAY PEAK HOUR

Traffic Movement	Volume	Capacity	V/C
Northbound			
Left Turn	67	240	0.28
Thru & Right	171	290	0.59
Southbound			
Left Turn	248	240	1.03
Thru & Right	74	290	0.26
Eastbound			
Left Turn	157	170	0.92
Thru	1358	1370	0.99
Right Turn	88	570	0.15
Westbound			
Left Turn	184	170	1.08
Thru	1231	1370	0.90
Right Turn	84	570	0.15

TABLE 2
VOLUME/CAPACITY SUMMARY
MID-CONTINENT DRIVE & TAFT STREET

EXISTING CONDITIONS

Traffic Movement	A.M. PEAK HOUR			P.M. PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Left Turn	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Thru & Right	(1)			(1)		
Southbound						
Left Turn	37	840	0.04	31	270	0.11
Thru	(1)			(1)		
Westbound						
Left Turn	8	100	0.08	17	50	0.34
Thru	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Right Turn	4	840	.00	74	270	0.27

Traffic Movement	SATURDAY PEAK HOUR		
	Volume	Capacity	V/C
Northbound			
Left Turn	N.A.	N.A.	N.A.
Thru & Right	(1)		
Southbound			
Left Turn	24	560	0.04
Thru	(1)		
Westbound			
Left Turn	20	140	0.14
Thru	N.A.	N.A.	N.A.
Right Turn	38	560	0.07

(1) This movement has vehicle right-of-way and, therefore, capacity per demand.

PROPOSED CONDITIONS

LAND USE . . . The study site is presently zoned as a commercial community unit plan. This present approved plan would allow up to 3,600,000 square feet of gross leasable commercial floor area. Three parcels of this original C.U.P. have been developed; and the remaining C.U.P. area could provide approximately 3,100,000 s.f. G.L.A. yet to be developed.

The revised development plan that has been presented for this traffic impact analysis consists generally of the original C.U.P. area divided into two commercial C.U.P.s (i.e. the Dugan C.U.P. and the Landing C.U.P.). The proposed land uses for the two C.U.P.s are listed as follows:

<u>Tract</u>	<u>Acres</u>	<u>Land Use</u>	<u>Floor Area (s.f. G.L.A.)</u>
<u>Landing C.U.P.</u>			
L1	9.4	Commercial-Retail	102,140
L2	11.6	Warehouses	<u>151,910</u>
		Subtotal	254,050
<u>Dugan C.U.P.</u>			
DIA	3.7	Hotel	220 rooms
DIB	6.4	Office	107,400
DIC	11.6	Commercial-Retail	101,060
DIC - Alternate 1		Warehouses	151,590
DIC - Alternate 2		Office	151,590
D2	1.4	Commercial-Retail	17,745
D3A	11.9	Commercial-Retail	104,130
D3B	3.3	Drive-in Restaurant	14,000
D4	2.3	Office	30,410
D4 - Alternate 1		Warehouses	30,410
D5	7.8	Hardware Store	<u>80,000</u>
		Subtotal (1)	454,745-
			505,275
		Total (1)	708,795-
			759,325

(1) Does not include floor area for the 220 room hotel.

As can be seen above, the total proposed floor area has been reduced from 3,100,000 s.f. to a maximum of 759,325 s.f. of commercial uses plus a 220 room hotel. The only parcel in the study area with a specific immediate proposed use is Tract D5 in the Dugan C.U.P. This tract is committed for construction of an 80,000 s.f. hardware store immediately upon approval of platting for the Dugan C.U.P. As such, the development of Tract D5 has been analyzed separately as Phase One of the study area development.

TRIP GENERATION . . . The total trip generation expected to and from the study site would depend on the specific land uses to be developed. Studies completed by the Consultant and the Institute of Transportation Engineers indicate that the expected trip generation rates for daily and peak hour periods vary according to type and size of land use facilities.

Tables A-1 through A-6 in the Appendix of this report have been prepared to indicate various combinations of possible land uses and the respective vehicle per day or vehicle per hour trip generation rates for the study site. These tables indicate, by C.U.P. and parcel, the potential land uses, the sizes, the daily expected two-way vehicle trips, and the critical peak hour vehicle trips expected to enter or exit the study site. Tables A-1 through A-3 reflect the expected weekday conditions assuming that the parcels are 100 percent developed and occupied, while Tables A-4 through A-6 reflect the corresponding Saturday conditions.

Review of Tables A-1 through A-6 indicates that the A.M. peak hour volumes are lower than the P.M. peak hour or the Saturday peak hour and, as such, are not critical. As such, only the P.M. commuter peak and the Saturday shopping peak conditions have been further analyzed in this report.

Table 3 has been prepared to indicate the average expected trip generation volumes that were assumed in the study analysis.

TABLE 3

	Hourly Traffic Volumes (I)			
	Weekday P.M. Peak Hour		Saturday Peak Hour	
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>
PHASE ONE	192	200	440	456
TOTAL DEVELOPMENT	1450	1810	2010	1910

(I) Traffic volumes in vehicles per hour.

TRIP DISTRIBUTION AND ASSIGNMENT . . . The existing land use development patterns in western Wichita and the recorded traffic flow patterns adjacent to the site were analyzed to establish the directional distribution of the trips generated by the study site. The directional distribution used in this analysis are listed below.

	Weekday P.M.		Saturday	
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>
East via Kellogg Ave.	56%	36%	46%	51%
West via Kellogg Ave.	27%	38%	35%	31%
North via Mid-Continent	17%	26%	19%	18%

These trip distribution percentages were used to assign the critical weekday P.M. commuter peak hour and Saturday shopping peak hour inbound and outbound trip generation volumes to the adjacent street system. The expected traffic movements through the intersections of Kellogg with Dugan and Mid-Continent with Taft after Phase One development are shown on Exhibits 7 and 8 for the P.M. commuter peak hour and on Exhibits 9 and 10 for the Saturday shopping peak hour. Exhibits 11 through 14 display the corresponding peak hour traffic volumes expected after total development of the study site.

The trip distribution percentages shown above reflect existing land use and traffic flow patterns adjacent to the study area. These are assumed to be the desired distributions of user trips to and from the study site. It should also be noted that when the capacity of a desired trip path is constrained, the user will generally find a trip path with a shorter travel time if one is available. For example, if a user

desires to leave the study site and return to the east, the following paths are available.

- 1) Left turn from Dugan onto Kellogg Avenue;
- 2) Right turn onto Kellogg Drive to Mid-Continent, and then through the interchange back to eastbound Kellogg Avenue;
- 3) Right turn from Taft Street onto Mid-Continent, and then eastbound onto Maple Avenue;
- 4) Eastbound on Taft or Hendryx to Hoover Street, and then northbound to Maple Avenue; and
- 5) Left turn from Taft Street onto Mid-Continent, and then onto eastbound Kellogg Avenue via the interchange.

These available paths are listed in order of decreasing attractiveness. If the first (and most desirable) path is operating at a congested level, then users would tend to disperse to the other available paths in proportion to their perceived attractiveness.

VOLUME/CAPACITY CONDITIONS . . . To determine the expected operational levels under both Phase One and full site development conditions, detailed capacity computations were again completed for all vehicle movements through the intersections of Kellogg with Dugan and Mid-Continent with Taft.

The operating conditions expected upon completion and full operation of the proposed hardware store in Phase One have been summarized in Table 4. The capacities listed in Table 4 are based on the assumption that Dugan Street will be widened to provide two through lanes in both directions and double left turn lanes on the southbound approach. A double left turn lane was also found to be needed on the eastbound approach on Kellogg Avenue to serve the expected traffic demands during the Saturday peak hour conditions. The capacities listed in Table 4 also assume that an additional signal phase will be added at Dugan and Kellogg for north-south left turn movements.

As can be seen in Table 4, almost all movements through the two study intersections are expected to operate at a design level of service C or better during both P.M. Weekday and Saturday peak hour conditions. The westbound through movement on Kellogg at Dugan is projected to operate at a level of service

E during the P.M. Weekday peak hour as it does under existing conditions (see Table 1). The eastbound through movement on Kellogg at Dugan is expected to increase from a L.O.S. C. (i.e. $V/C = 0.99$) to a L.O.S. D (i.e. $V/C = 1.14$) during the peak hour conditions on Saturday. Table 4 reflects the expected operating conditions with all drivers using desired paths to and from the study site and no traffic diversion due to capacity constraints.

The operating conditions expected when the entire study site is 100 percent developed and occupied are summarized in Table 5. In addition to the improvements required for the Phase One development, the capacities listed in Table 5 are based on the following assumptions:

1. The Taft and Mid-Continent intersection will be controlled by a three-phase traffic signal;
2. A northbound right turn lane will be added on Mid-Continent at Taft;
3. A westbound free flowing right turn lane will be added on Taft at Mid-Continent;
4. A southbound double left turn lane will be added on Mid-Continent at Taft; and
5. A slip ramp will be added from westbound Kellogg Avenue onto Kellogg Drive on the approach to Dugan.

Table 5 indicates that three movements during the P.M. Weekday peak hour and four movements during the Saturday peak hour at Kellogg and Dugan are expected to operate at L.O.S. E. All other movements through the Kellogg and Dugan, as well as the Taft and Mid-Continent intersections, are projected to operate at L.O.S. C or better. Trips that would naturally desire to make southbound or eastbound left turn movements (i.e. L.O.S. E movements) at the Kellogg and Dugan intersection have been assigned to other available paths where excess capacity exists to serve them.

TABLE 4
VOLUME/CAPACITY SUMMARY

PROJECTED CONDITIONS - PHASE ONE

Traffic Movement	KELLOGG AVENUE & DUGAN STREET P.M. PEAK HOUR			SATURDAY PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Left Turn	138	140	0.99	67	280	0.24
Thru & Right	149	240	0.62	171	240	0.71
Southbound						
Left Turn	248	250	0.99	480	480	1.00
Thru & Right	167	240	0.70	223	240	0.93
Eastbound						
Left Turn	138	200	0.69	319	320	1.00
Thru	1344	1540	0.87	1358	1190	1.14
Right Turn	52	540	0.10	88	500	0.18
Westbound						
Left Turn	100	110	0.91	184	180	1.02
Thru	1957	1540	1.27	1231	1190	1.03
Right Turn	143	540	0.26	299	500	0.60

Traffic Movement	MID-CONTINENT DRIVE & TAFT STREET P.M. PEAK HOUR			SATURDAY PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Thru	1131	(1)		588	(1)	
Southbound						
Left Turn	64	270	0.24	107	560	0.19
Thru	626	(1)		588	(1)	
Westbound						
Left Turn	17	50	0.34	18	140	0.13
Right Turn	126	270	0.47	119	560	0.21

(1) This movement is not capacity constrained.

LEVELS OF TRAFFIC SERVICE:

Volume / Capacity Ratio	Level of Service
< 0.85	A
0.86 - 0.95	B
0.96 - 1.05	C (Desirable Design Level)
1.06 - 1.15	D
1.16 - 1.30	E (Possible Capacity)
> 1.30	F

TABLE 5
VOLUME/CAPACITY SUMMARY

PROJECTED CONDITIONS - TOTAL DEVELOPMENT

Traffic Movement	KELLOGG AVENUE & DUGAN STREET P.M. PEAK HOUR			SATURDAY PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Left Turn	138	280	0.49	67	280	0.24
Thru & Right	149	240	0.62	171	240	0.71
Southbound						
Left Turn	360	280	1.29	624	480	1.30
Thru	17	240	0.07	21	240	0.09
Right Turn	653	1200	0.54	634	1200	0.53
Eastbound						
Left Turn	260	200	1.30	364	280	1.30
Thru	1567	1500	1.04	1646	1265	1.30
Right Turn	52	540	0.10	88	480	0.18
Westbound						
Left Turn	100	110	0.91	184	150	1.23
Thru	1957	1500	1.30	1231	1265	0.97
Right Turn	829	1200	0.69	1009	1200	0.84

Traffic Movement	MID-CONTINENT DRIVE & TAFT STREET P.M. PEAK HOUR			SATURDAY PEAK HOUR		
	Volume	Capacity	V/C	Volume	Capacity	V/C
Northbound						
Thru	1121	1320	0.85	579	1180	0.49
Right Turn	213	500	0.43	505	650	0.78
Southbound						
Left Turn	277	390	0.71	405	480	0.84
Thru	626	1850	0.34	588	1850	0.32
Westbound						
Left Turn	337	390	0.86	317	390	0.81
Right Turn	680	1200	0.57	555	1200	0.46

LEVELS OF TRAFFIC SERVICE:

Volume / Capacity Ratio	Level of Service
< 0.85	A
0.86 - 0.95	B
0.96 - 1.05	C (Desirable Design Level)
1.06 - 1.15	D
1.16 - 1.30	E (Possible Capacity)
> 1.30	F

SUMMARY AND RECOMMENDATIONS

This analysis has indicated that, with some improvements at the Kellogg and Dugan intersection, the traffic operations adjacent to the study site can be expected to be comparable to existing conditions with the addition of the Phase One development. If the total site is developed as proposed, several conflicting traffic movements at the Kellogg and Dugan intersection can be expected to experience significant congestion during the weekday and Saturday peak hours. The Taft and Mid-Continent intersection will be expected to operate at a free flowing L.O.S. A.

If major improvements are constructed along Kellogg Avenue adjacent to the study site, then the proposed development plan can be accomplished with good traffic operational levels even during peak hour periods. Due to the high volumes of traffic which exist along Kellogg Avenue, either additional lanes must be constructed for through traffic or a series of grade separated crossings and interchanges will be required if the study site and the adjacent area of the City are allowed to continue to develop and grow.

The ability of the adjacent street system to serve additional development on the study site will depend on which tract is developed, with what land use, and when it is constructed relative to the improvements along Kellogg Avenue.

We hope that this analysis summary has provided sufficient information to plan subsequent development alternatives for the study site. If additional information is required, please contact us.

Sincerely,

Paul M. Bertrand, P.E.

PMB:nh

EXISTING A.M. PEAK HOUR

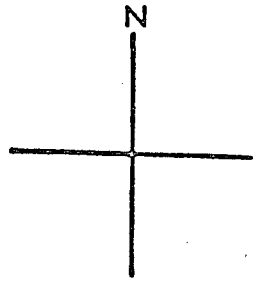
KELLOGG & DUGAN

From 7:15 (A.M.)
(~~PM~~)

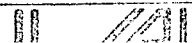
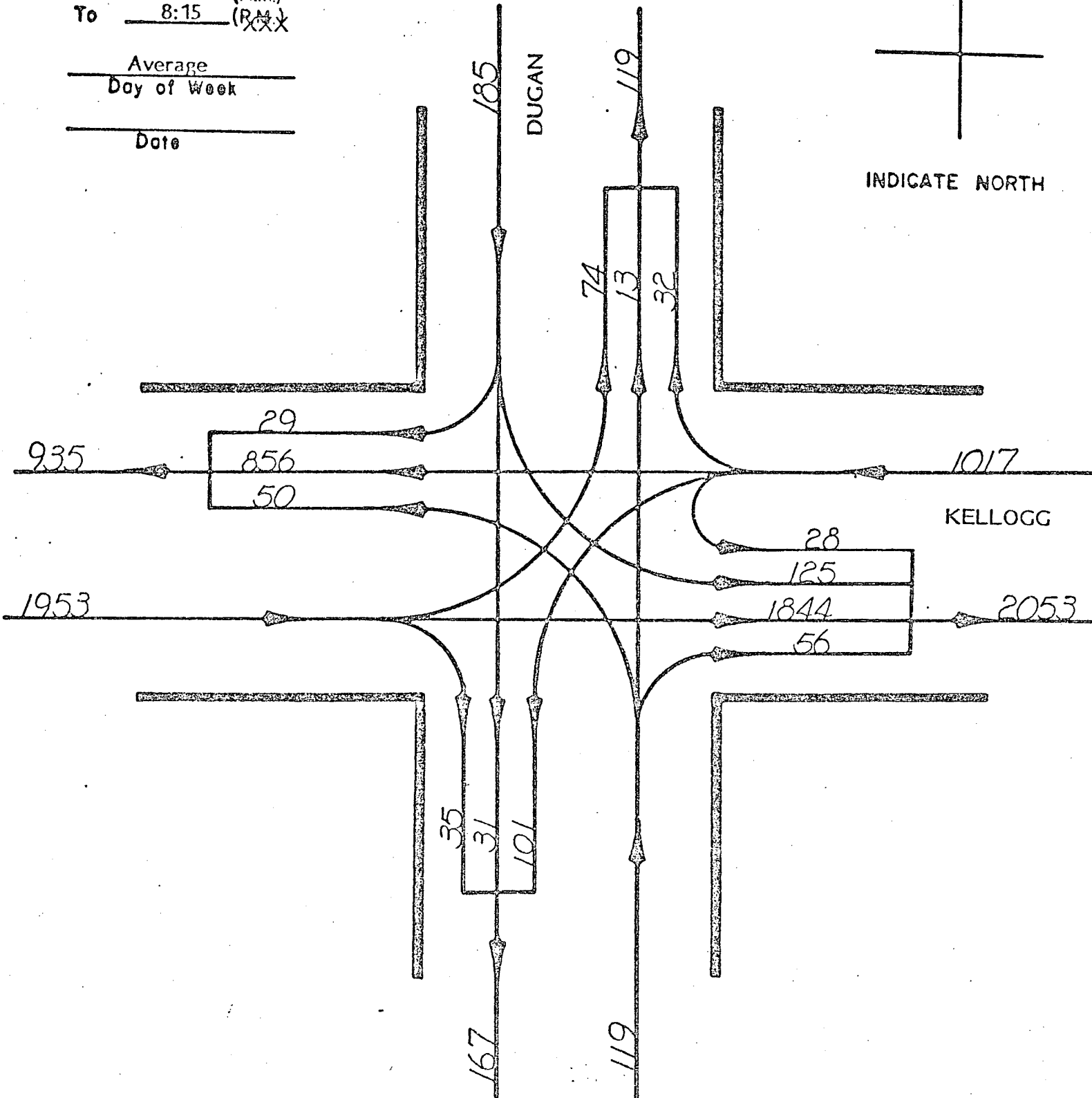
To 8:15 (A.M.)
(~~PM~~)

Average
Day of Week

Date



INDICATE NORTH



EXISTING P.M. PEAK HOUR

KELLOGG & DUGAN

From 5:00 (P.M.)

To 6:00 (P.M.)

Average
Day of Week

Date

N

INDICATE NORTH

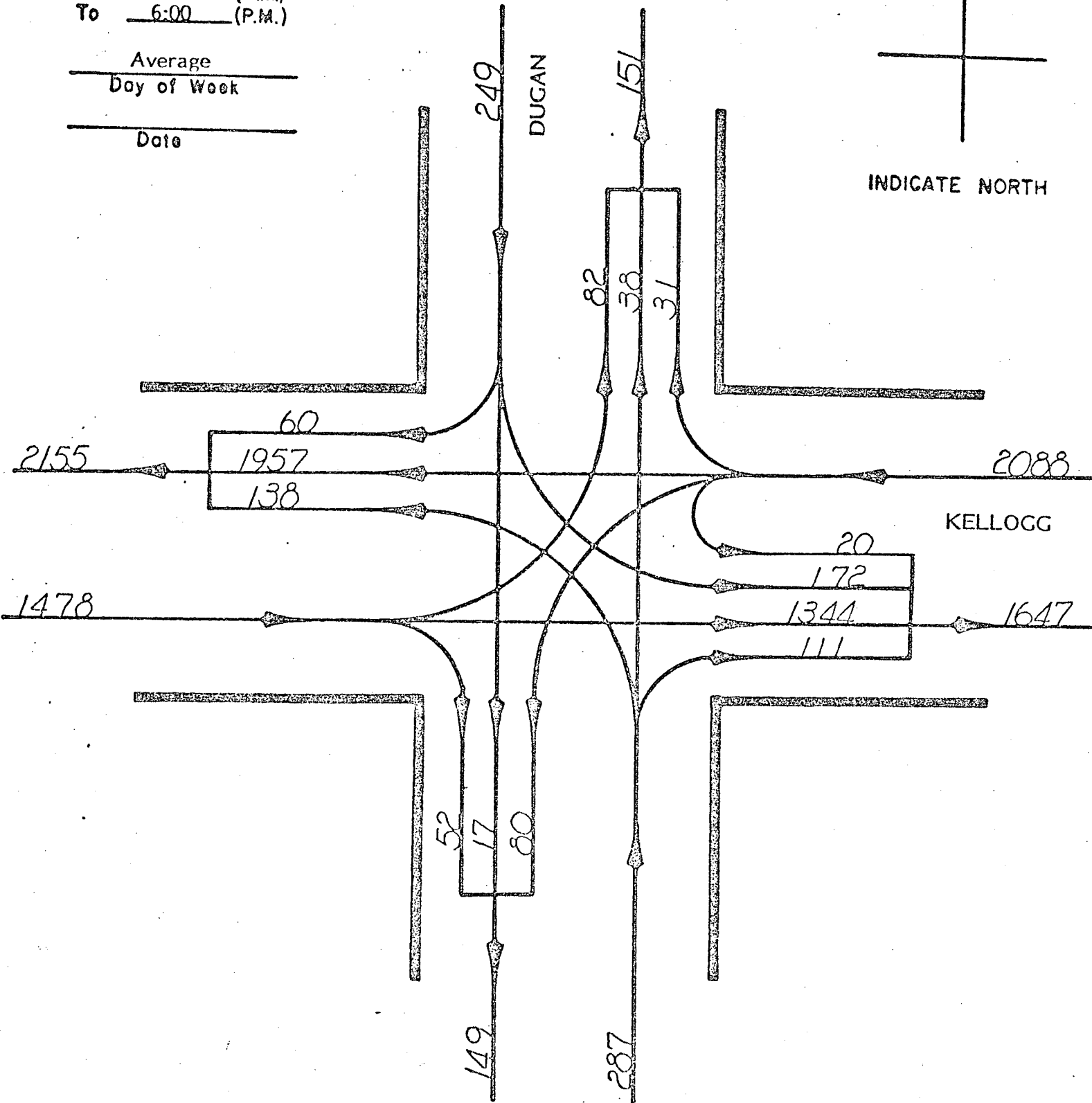
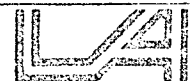


EXHIBIT 2



EXISTING SATURDAY PEAK HOUR

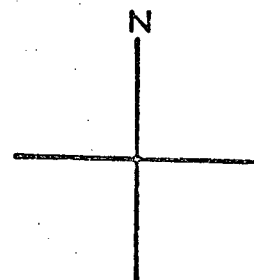
KELLOGG & DUGAN

From 1:15 (P.M.)

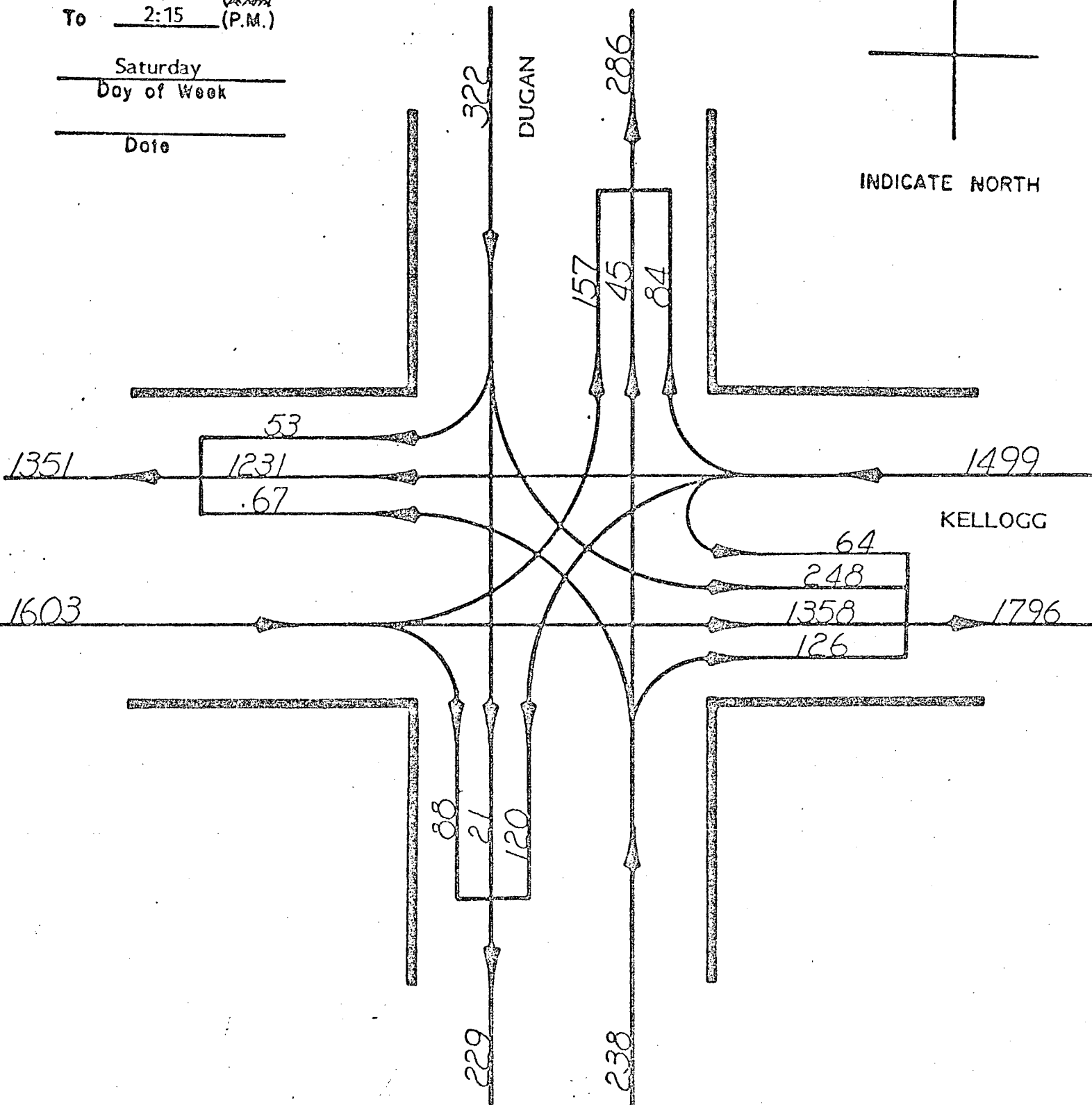
To 2:15 (P.M.)

Saturday
Day of Week

Date



INDICATE NORTH



EXISTING A.M. PEAK HOUR

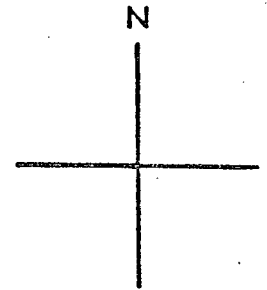
MID-CONTINENT & TAFT

From 7:15 (A.M.)
(~~P.M.~~)

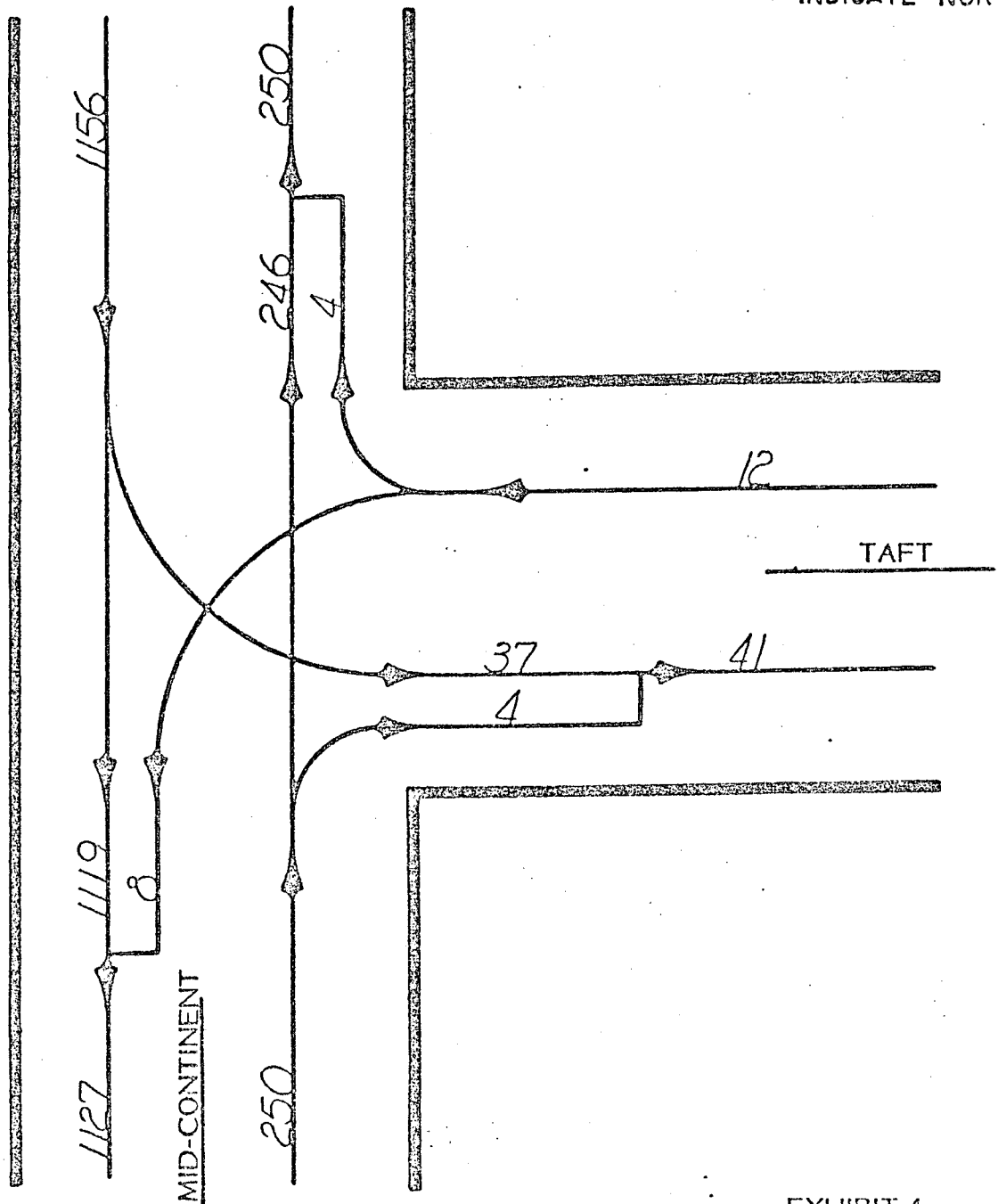
To 8:15 (A.M.)
(~~P.M.~~)

Average
Day of Week

Date



INDICATE NORTH



EXISTING P.M. PEAK HOUR

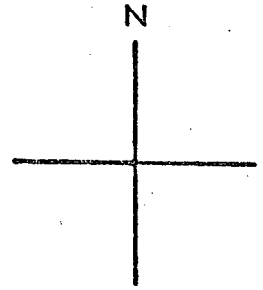
MID-CONTINENT & TAFT

From 5:00 (P.M.)

To 6:00 (P.M.)

Average
Day of Week

Date



INDICATE NORTH

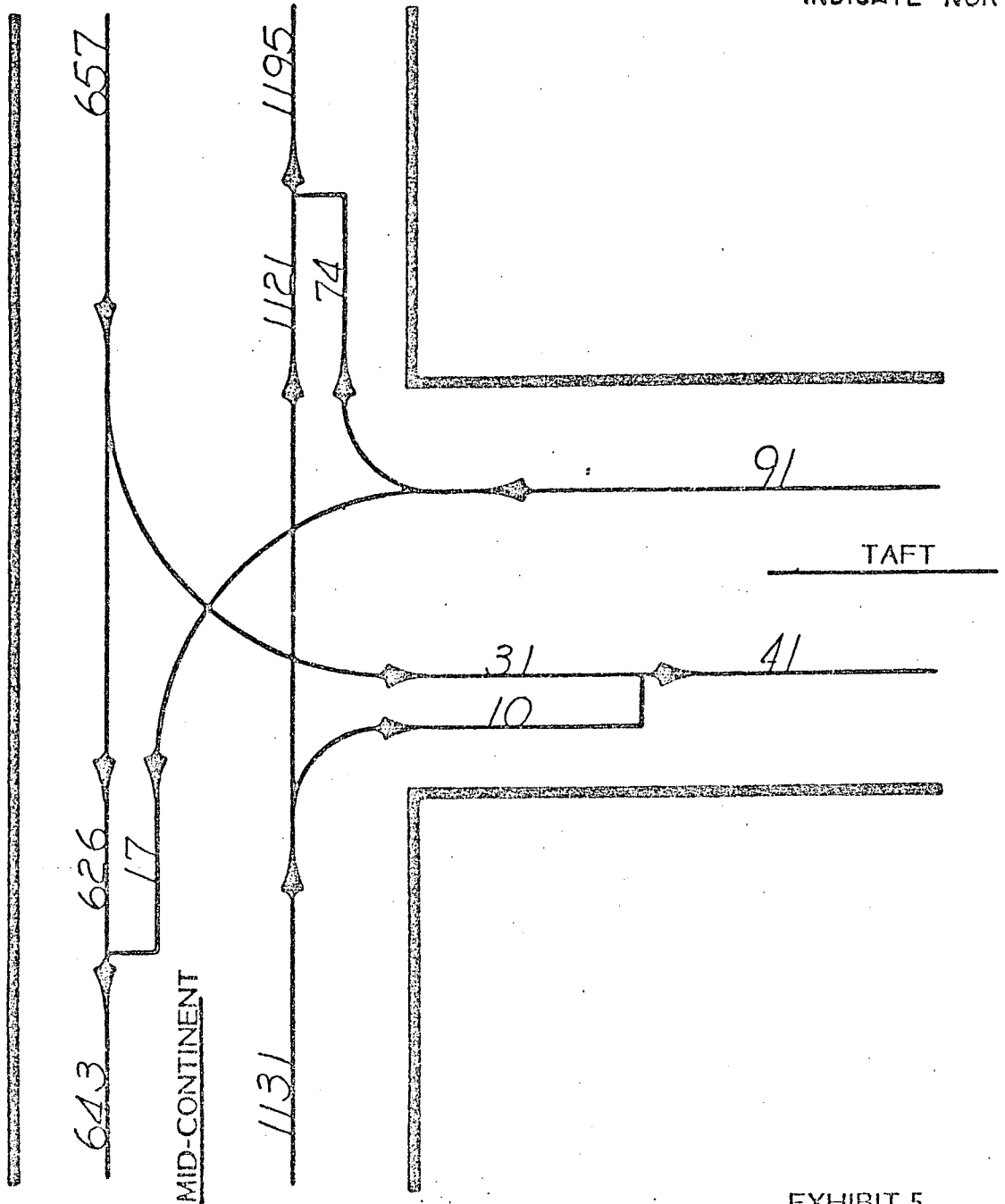
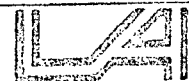


EXHIBIT 5



EXISTING SATURDAY PEAK HOUR

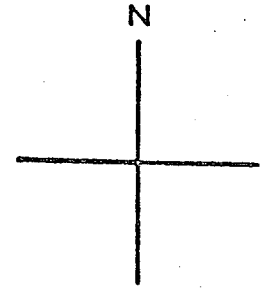
MID-CONTINENT & TAFT

From 1:15 (~~XXX~~) (P.M.)

To 2:15 (~~XXX~~) (P.M.)

Saturday
Day of Week

Date



INDICATE NORTH

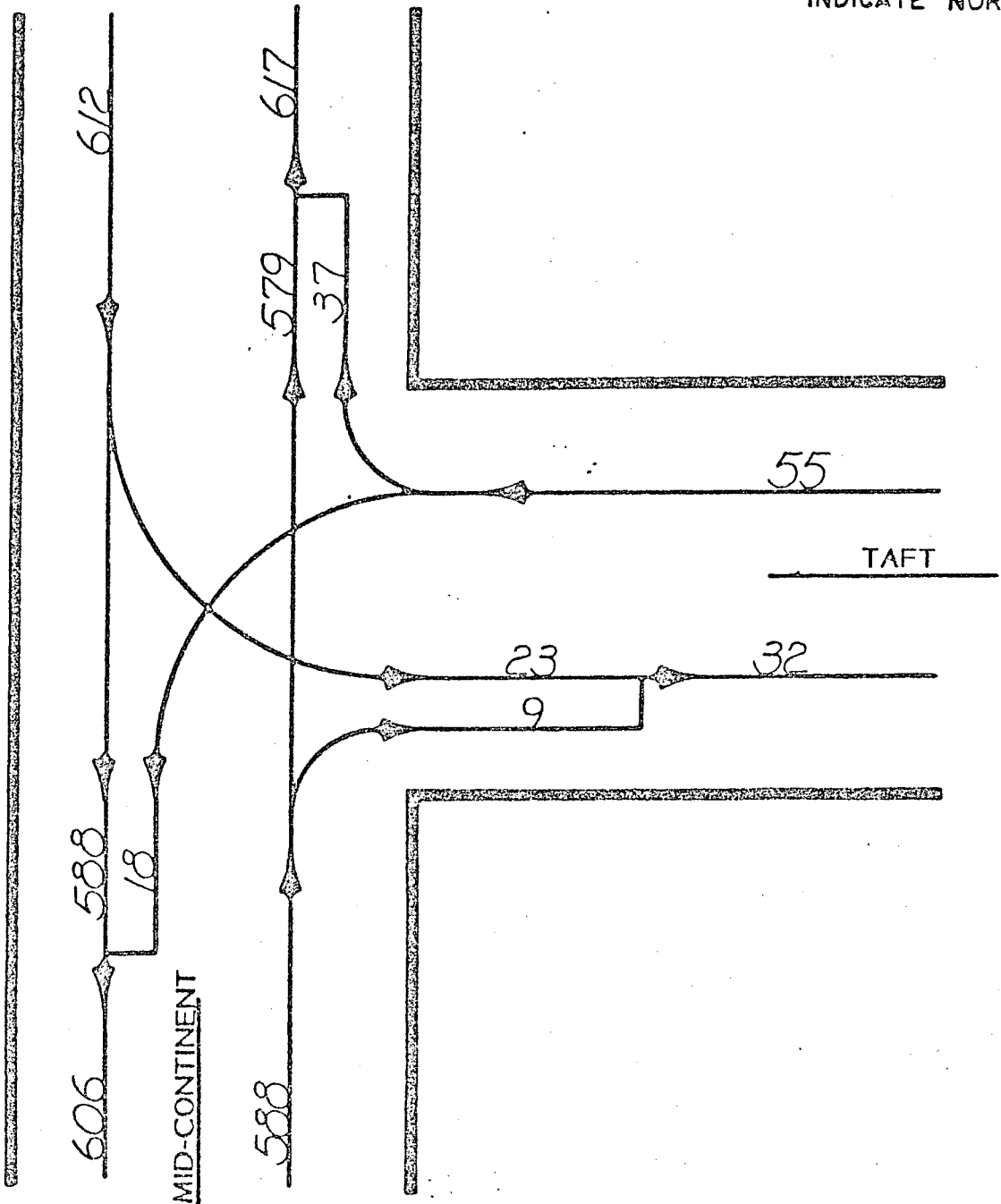
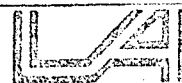


EXHIBIT 6



PHASE ONE
PROJECTED P.M. PEAK HOUR

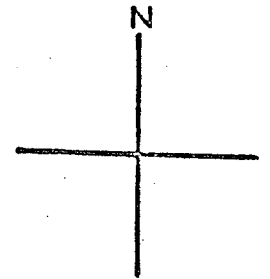
KELLOGG & DUGAN

From 5:00 (XXX) (P.M.)

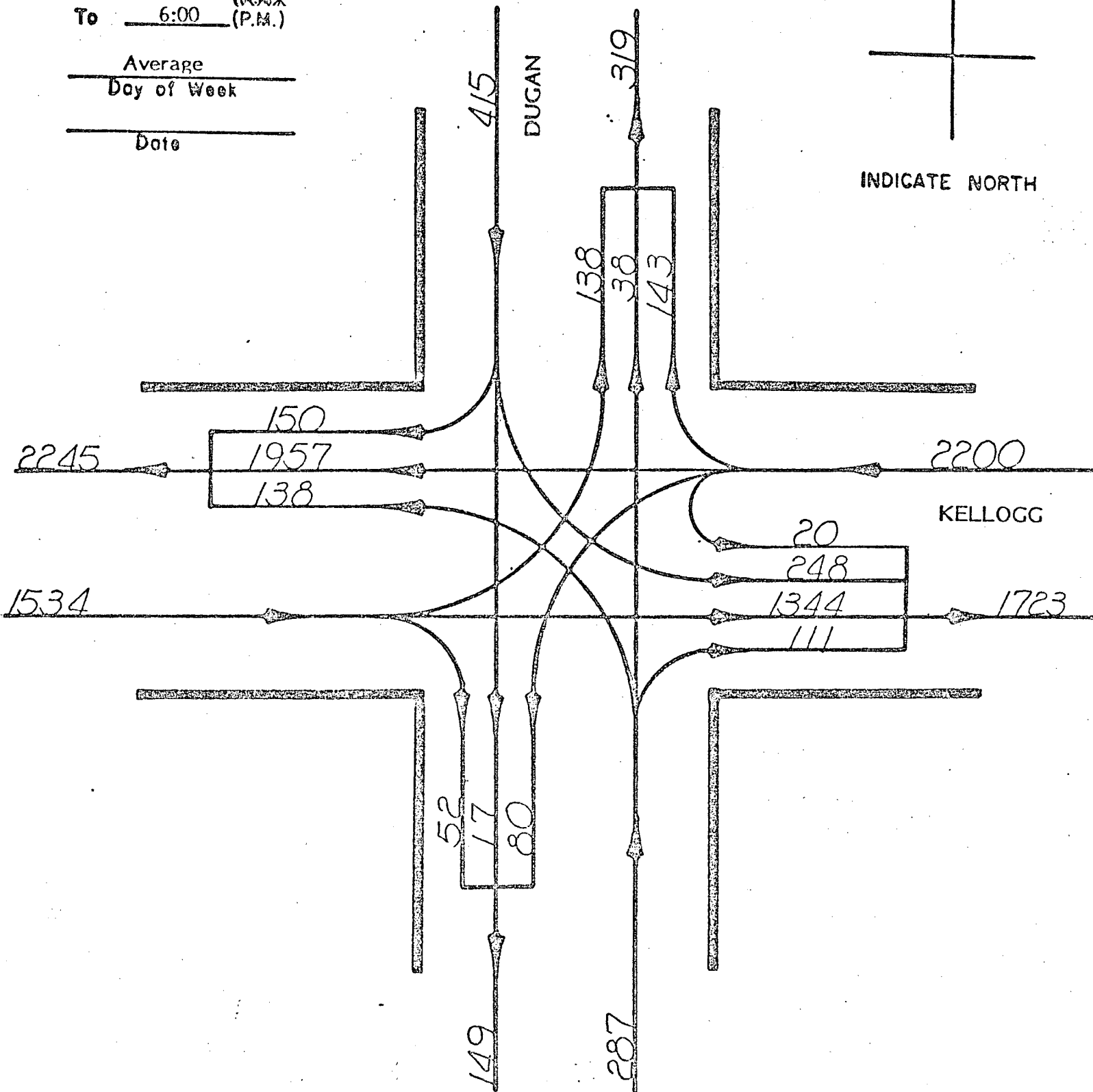
To 6:00 (KMX) (P.M.)

Average
Day of Week

Date



INDICATE NORTH



PHASE ONE
PROJECTED P.M. PEAK HOUR

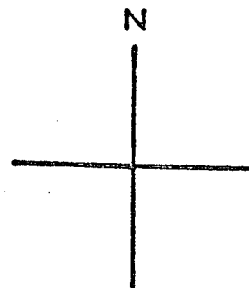
MID-CONTINENT & TAFT

From 5:00 ~~(A.M.)~~ (P.M.)

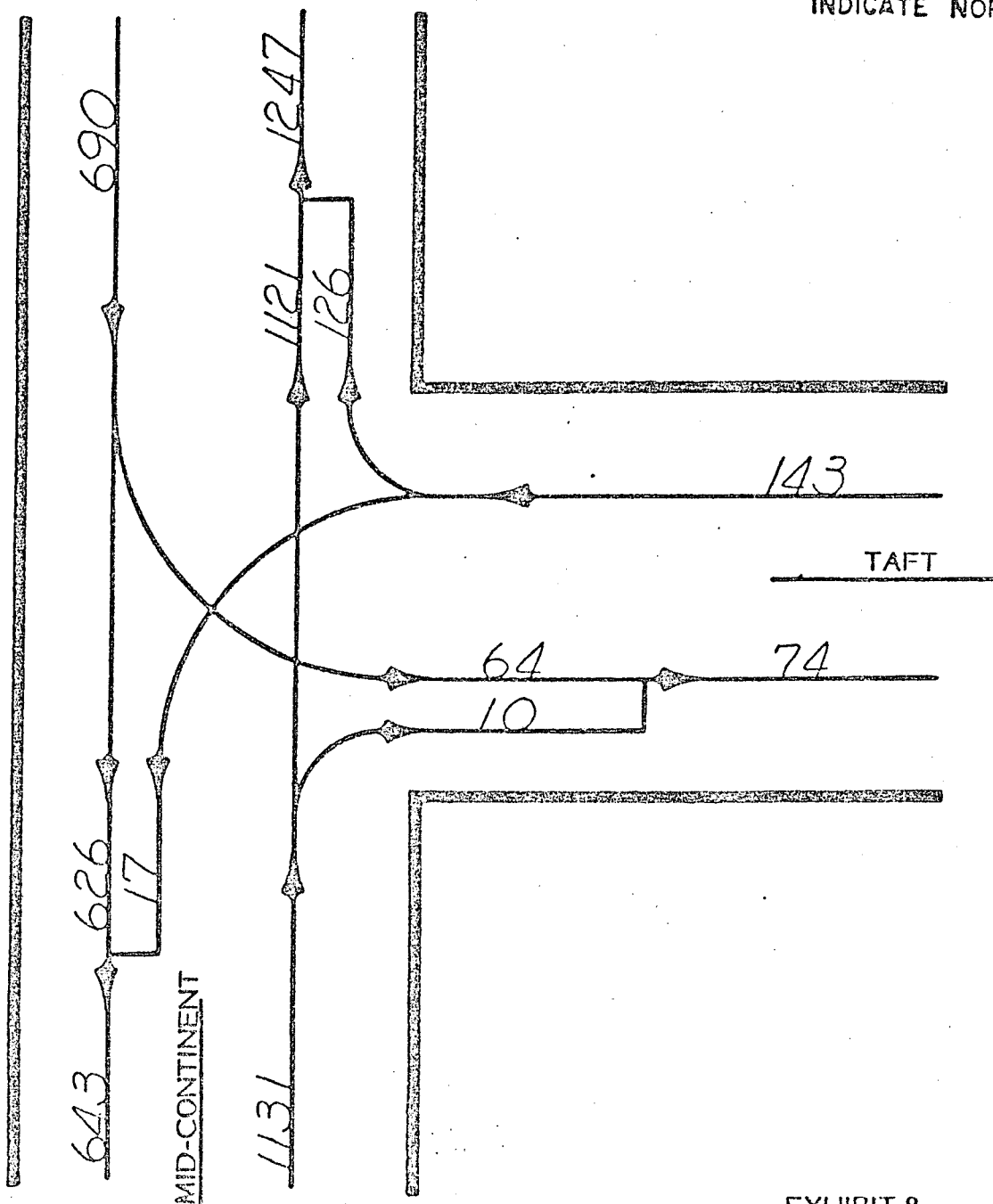
To 6:00 ~~(A.M.)~~ (P.M.)

Average
Day of Week

Date



INDICATE NORTH



PHASE ONE
PROJECTED SATURDAY PEAK HOUR

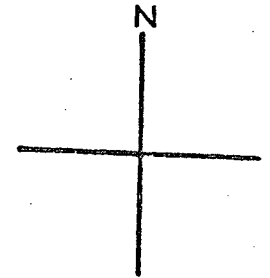
KELLOGG & DUGAN

From 1:15 (P.M.)

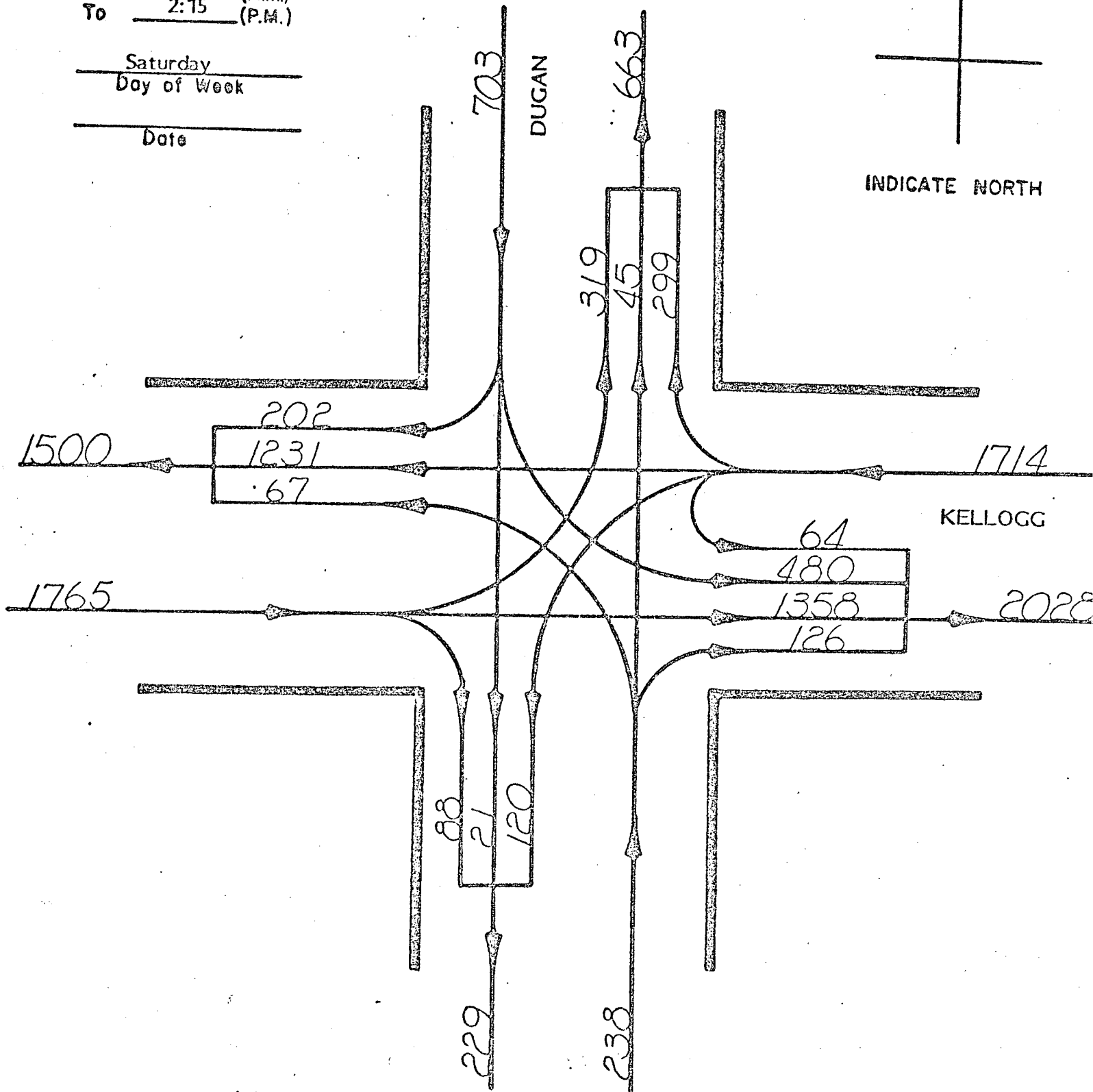
To 2:15 (P.M.)

Saturday
Day of Week

Date



INDICATE NORTH



PHASE ONE
 PROJECTED SATURDAY PEAK HOUR

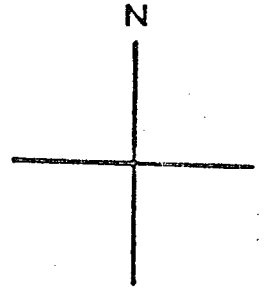
MID-CONTINENT & TAFT

From 1:15 (~~XXX~~) (P.M.)

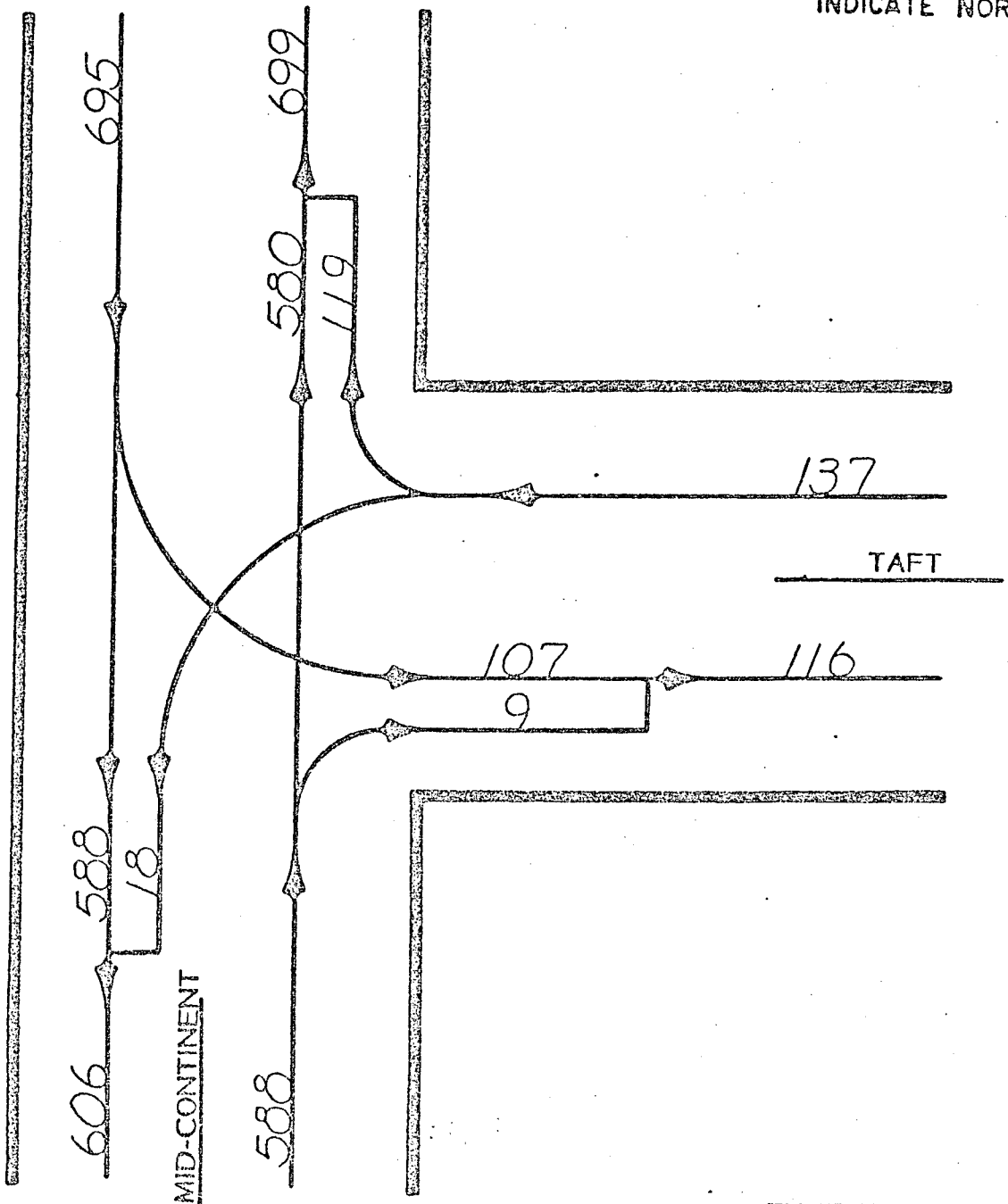
To 2:15 (~~XXX~~) (P.M.)

Saturday
 Day of Week

 Date



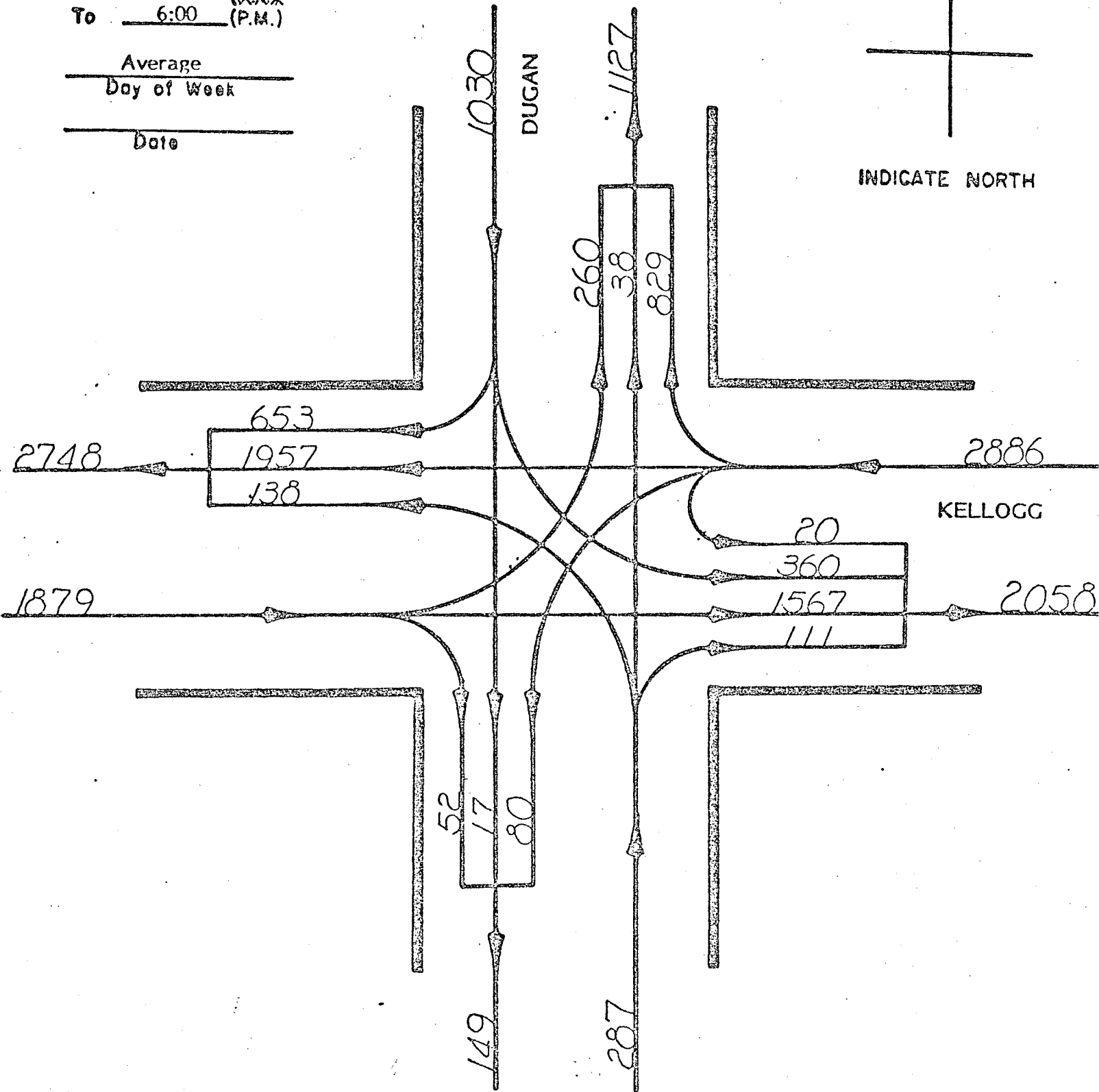
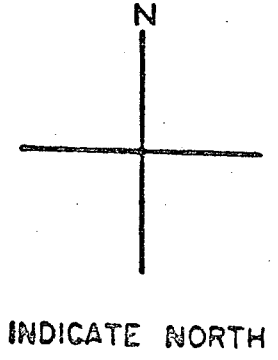
INDICATE NORTH



TOTAL DEVELOPMENT .
PROJECTED P.M. PEAK HOUR

KELLOGG & DUGAN

From 5:00 (XXX) (P.M.)
To 6:00 (XXX) (P.M.)
Average
Day of Week
Date



TOTAL DEVELOPMENT
PROJECTED P.M. PEAK HOUR

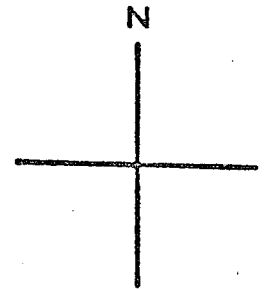
MID-CONTINENT & TAFT

From 5:00 (P.M.)

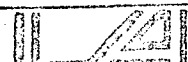
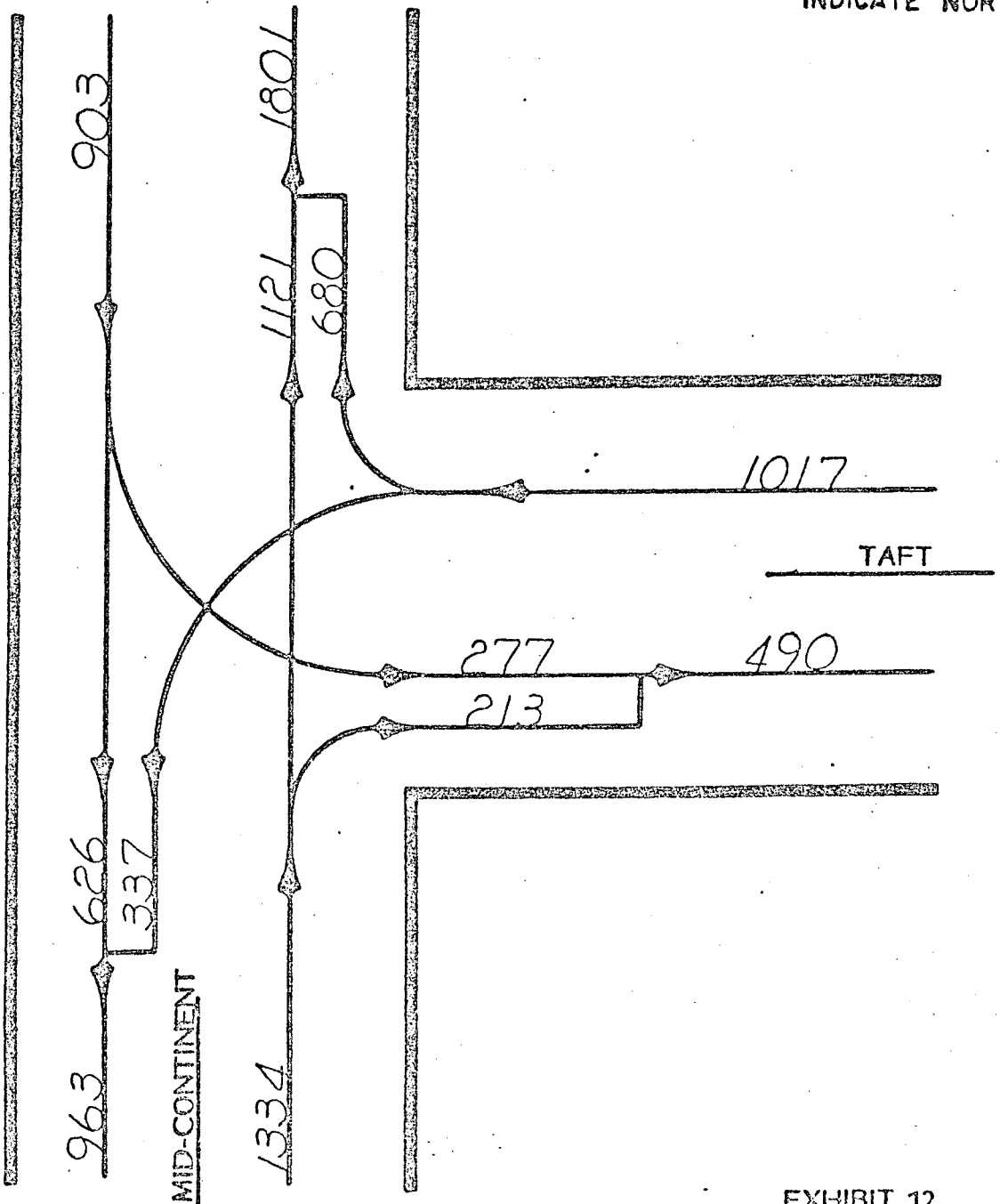
To 6:00 (P.M.)

Average
Day of Week

Date



INDICATE NORTH

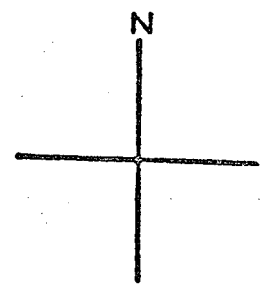


TOTAL DEVELOPMENT
PROJECTED SATURDAY PEAK HOUR

KELLOGG & DUGAN

From 1:15 (P.M.)
To 2:15 (P.M.)
Saturday
Day of Week

Date



INDICATE NORTH

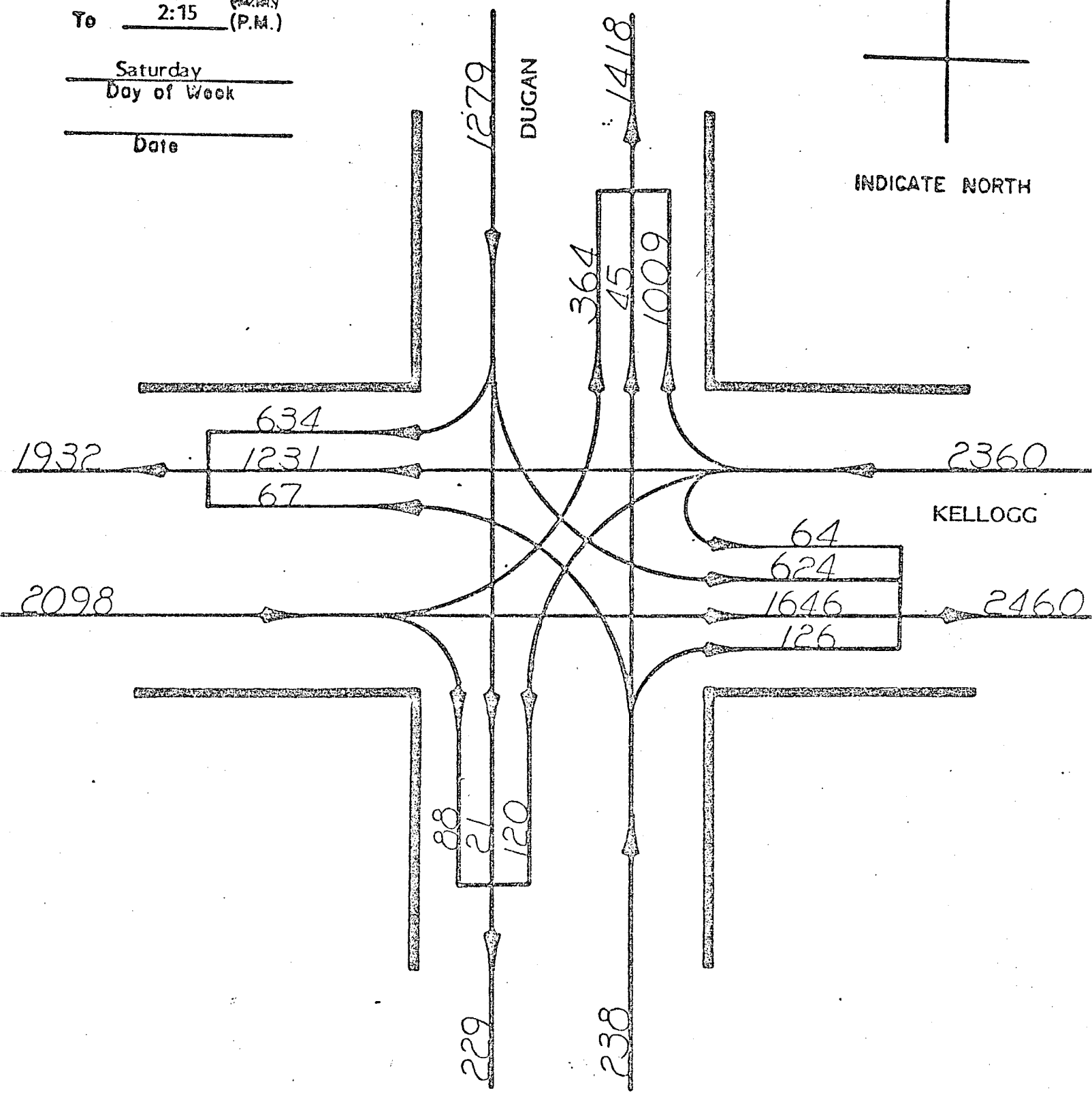


TABLE A-1
 ALTERNATE 1
 WEEKDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	AVERAGE DAILY TRAFFIC		A.M. PEAK HOUR				P.M. PEAK HOUR			
					RATE	VOLUME	ENTER		EXIT		ENTER		EXIT	
							RATE	VOLUME	RATE	VOLUME	RATE	VOLUME	RATE	VOLUME
L1A	9.4	RETAIL	102140	0	66.7	6813	0.90	92	0.80	82	2.90	296	3.10	317
L2	11.6	W.H.	151910	0	4.9	744	0.56	85	0.10	15	0.57	87	1.06	161
D1A	3.7	HOTEL	0	220	10.5	2310	0.57	125	0.28	62	0.36	79	0.37	81
D1B	6.4	OFFICE	107400	0	14.3	1536	1.80	193	0.20	21	0.41	44	1.62	174
D1C	11.6	RETAIL	101060	0	66.7	6741	0.90	91	0.80	81	2.90	293	3.10	313
D2	1.4	RETAIL	17745	0	51.3	910	0.60	11	0.50	9	2.40	43	2.50	44
D3A	11.9	RETAIL	104130	0	66.7	6945	0.90	94	0.80	83	2.90	302	3.10	323
D3B	3.3	D.I. REST	14000	0	553.0	7742	4.25	60	3.65	51	17.00	238	14.60	204
D4	2.3	OFFICE	30410	0	17.7	538	2.13	65	0.37	11	0.40	12	2.42	74
D5	7.8	RETAIL	80000	0	51.3	4104	0.60	48	0.50	40	2.40	192	2.50	200
TOTAL FLOOR AREA			708795											
TOTAL TRAFFIC VOLUMES						38384		863		455		1586		1891

TABLE A-2
 ALTERNATE 2
 WEEKDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	AVERAGE DAILY TRAFFIC		A.M. PEAK HOUR				P.M. PEAK HOUR			
							ENTER		EXIT		ENTER		EXIT	
					RATE	VOLUME	RATE	VOLUME	RATE	VOLUME	RATE	VOLUME	RATE	VOLUME
L1A	9.4	RETAIL	102140	0	66.7	6813	0.90	92	0.80	82	2.90	296	3.10	317
L2	11.6	W.H.	151910	0	4.9	744	0.56	85	0.10	15	0.57	87	1.06	161
D1A	3.7	HOTEL	0	220	10.5	2310	0.57	125	0.28	62	0.36	79	0.37	81
D1B	6.4	OFFICE	107400	0	14.3	1536	1.80	193	0.20	21	0.41	44	1.62	174
D1C	11.6	W.H.	151590	0	4.9	740	0.56	85	0.10	15	0.57	86	1.06	161
D2	1.4	RETAIL	17745	0	51.3	910	0.60	11	0.50	9	2.40	43	2.50	44
D3A	11.9	RETAIL	104130	0	66.7	6945	0.90	94	0.80	83	2.90	302	3.10	323
D3B	3.3	D.I. REST	14000	0	553.0	7742	4.25	60	3.65	51	17.00	238	14.60	204
D4	2.3	W.H.	30410	0	4.9	148	0.56	17	0.10	3	0.57	17	1.06	32
D5	7.8	RETAIL	80000	0	51.3	4104	0.60	48	0.50	40	2.40	192	2.50	200
TOTAL FLOOR AREA			759325											
TOTAL TRAFFIC VOLUMES						31993		809		381		1384		1698

TABLE A-3
 ALTERNATE 3
 WEEKDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	AVERAGE DAILY TRAFFIC		A.M. PEAK HOUR				P.H. PEAK HOUR			
					RATE	VOLUME	ENTER		EXIT		ENTER		EXIT	
							RATE	VOLUME	RATE	VOLUME	RATE	VOLUME	RATE	VOLUME
L1A	9.4	RETAIL	102140	0	66.7	6813	0.90	92	0.80	82	2.90	296	3.10	317
L2	11.6	W.H.	151910	0	4.9	744	0.56	85	0.10	15	0.57	87	1.06	161
D1A	3.7	HOTEL	0	220	10.5	2310	0.57	125	0.28	62	0.36	79	0.37	81
D1B	6.4	OFFICE	107400	0	14.3	1536	1.80	193	0.20	21	0.41	44	1.62	174
D1C	11.6	OFFICE	151590	0	14.3	2168	1.80	273	0.20	30	0.41	62	1.62	246
D2	1.4	RETAIL	17745	0	51.3	910	0.60	11	0.50	9	2.40	43	2.50	44
D3A	11.9	RETAIL	104130	0	66.7	6945	0.90	94	0.80	83	2.90	302	3.10	323
D3B	3.3	D.I. REST	14000	0	553.0	7742	4.25	60	3.65	51	17.00	238	14.60	204
D4	2.3	W.H.	30410	0	4.9	148	0.56	17	0.10	3	0.57	17	1.06	32
D5	7.8	RETAIL	80000	0	51.3	4104	0.60	48	0.50	40	2.40	192	2.50	200
TOTAL FLOOR AREA			759325											
TOTAL TRAFFIC VOLUMES						33421		997		397		1360		1782

TABLE A-4
 ALTERNATE 4
 SATURDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	SATURDAY TRAFFIC RATE	TRAFFIC VOLUME	SATURDAY PEAK HOUR			
							ENTER RATE	ENTER VOLUME	EXIT RATE	EXIT VOLUME
L1A	9.4	RETAIL	102140	0	112.4	11481	4.60	470	4.30	439
L2	11.6	W.H.	151910	0	0.0	0	0.00	0	0.00	0
D1A	3.7	HOTEL	0	220	8.1	1782	0.30	66	0.30	66
D1B	6.4	OFFICE	107400	0	3.5	376	0.24	26	0.21	23
D1C	11.6	RETAIL	101060	0	112.4	11359	4.60	465	4.30	435
D2	1.4	RETAIL	17745	0	78.5	1393	5.50	98	5.70	101
D3A	11.9	RETAIL	104130	0	112.4	11704	4.60	479	4.30	448
D3B	3.3	D.I. REST	14000	0	553.0	7742	17.00	238	14.60	204
D4	2.3	OFFICE	30410	0	2.4	73	0.26	8	0.22	7
D5	7.8	RETAIL	80000	0	78.5	6280	5.50	440	5.70	456
TOTAL FLOOR AREA			708795							
TOTAL TRAFFIC VOLUMES						52190		2289		2178

TABLE A-5
 ALTERNATE 5
 SATURDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	SATURDAY TRAFFIC RATE	TRAFFIC VOLUME	SATURDAY PEAK HOUR			
							ENTER		EXIT	
						RATE	VOLUME	RATE	VOLUME	
L1A	9.4	RETAIL	102140	0	112.4	11481	4.60	470	4.30	439
L2	11.6	W.H.	151910	0	0.0	0	0.00	0	0.00	0
D1A	3.7	HOTEL	0	220	8.1	1782	0.30	66	0.30	66
D1B	6.4	OFFICE	107400	0	3.5	376	0.24	26	0.21	23
D1C	11.6	W.H.	151590	0	0.0	0	0.00	0	0.00	0
D2	1.4	RETAIL	17745	0	78.5	1393	5.50	98	5.70	101
D3A	11.9	RETAIL	104130	0	112.4	11704	4.60	479	4.30	448
D3B	3.3	D.I. REST	14000	0	553.0	7742	17.00	238	14.60	204
D4	2.3	W.H.	30410	0	0.0	0	0.00	0	0.00	0
D5	7.8	RETAIL	80000	0	78.5	6280	5.50	440	5.70	456
TOTAL FLOOR AREA			759325							
TOTAL TRAFFIC VOLUMES						40758		1816		1737

TABLE A-6
 ALTERNATE 6
 SATURDAY TRAFFIC VOLUME GENERATION
 KELLOGG AND DUGAN COMMERCIAL DEVELOPMENT
 WICHITA, KANSAS

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: September 19, 1985.

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	SATURDAY TRAFFIC RATE	TRAFFIC VOLUME	SATURDAY PEAK HOUR			
							ENTER		EXIT	
						RATE	VOLUME	RATE	VOLUME	
L1A	9.4	RETAIL	102140	0	112.4	11481	4.60	470	4.30	439
L2	11.6	W.H.	151910	0	0.0	0	0.00	0	0.00	0
D1A	3.7	HOTEL	0	220	8.1	1782	0.30	66	0.30	66
D1B	6.4	OFFICE	107400	0	3.5	376	0.24	26	0.21	23
D1C	11.6	OFFICE	151590	0	3.5	531	0.24	36	0.21	32
D2	1.4	RETAIL	17745	0	78.5	1393	5.50	98	5.70	101
D3A	11.9	RETAIL	104130	0	112.4	11704	4.60	479	4.30	448
D3B	3.3	D.I. REST	14000	0	553.0	7742	17.00	238	14.60	204
D4	2.3	W.H.	30410	0	0.0	0	0.00	0	0.00	0
D5	7.8	RETAIL	84500	0	78.5	6633	5.50	465	5.70	482
TOTAL FLOOR AREA			763825							
TOTAL TRAFFIC VOLUMES						41641		1877		1795