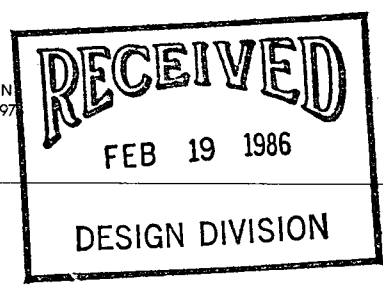


PRINCIPALS:
KENNETH J. VAUGHN, PE,
PRESIDENT
ROBERT A. VAN WYE, PE
GLENN C. GRAY, PE

WALLACE W. BEASLEY, PE
ROBERT W. LAMBERTON, PE
DAVID V. OWSLEY, PE
JAMES E. McCLANAHAN, PE

ASSOCIATES:
IVAN E. UBBEN, PE
M. CLARK THOMPSON, PE
DONALD T. GARDNER, PE

KENNETH H. LARKIN
FOUNDER, 1908-1977



February 12, 1986

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	10.4	Commercial-Retail	99,231
L2	9.0	Warehouses	117,058
L3	2.2	Commercial-Retail	<u>29,175</u>
		Subtotal	245,464
<u>Dugan C.U.P.</u>			
D1A	3.6	Hotel	70,000 (220 rooms)
D1B	12.0	Commercial-Retail	86,150
D2	5.8	Office	107,400
D3	14.8	Commercial-Retail	128,990
D4	2.2	Office	23,618
D4 - Alternate 1		Warehouses	23,618
D5	7.8	Hardware Store	101,400
D6	1.4	Commercial-Retail	<u>17,745</u>
		Subtotal	535,303
		Total	780,767

As can be seen above, the total proposed floor area has been reduced from 3,100,000 s.f. to 780,767 s.f. of commercial uses including 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 a discount hardware/building materials store consisting of 80,000 square feet of floor area and 21,400 square feet of fenced storage area for building materials. Construction of this store would begin 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. Rates for many land uses are relatively constant from one day to the next. For example, the number of trips to and from residential areas, office buildings, manufacturing plants, and schools is about the same each day. It is therefore generally accepted to design the access and circulation needs for these types of areas based on average or typical trip generation rates.

For other land uses such as retail stores, banks, hotels, and restaurants, the trip generation rates vary significantly from day-to-day and month-to-month. It is generally accepted that the design of access for these types of facilities should be based on the 30th highest hour of the year. Studies of traffic volumes generated by the Towne East and Towne West shopping centers in Wichita indicate that the average measured traffic generation rates during a typical month (i.e. October) were between 15 and 33 percent lower than the published recommended design trip generation rates for such facilities.

The trip generation rates used in this analysis for the various proposed land uses in the study area were obtained from the recommended design values published by the Institute of Transportation Engineers. These published design values incorporate the average values for land uses where there is little variation between average and maximum rates, and generally the 30th highest hour values for land uses where observed trip generation rates vary significantly.

Tables A-1 through A-4 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 and A-2 reflect the expected weekday conditions assuming that the parcels are 100 percent developed and occupied, while Tables A-3 and A-4 reflect the corresponding Saturday conditions.

Review of Tables A-1 through A-4 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. Therefore, 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 (1)			
	Weekday P.M. Peak Hour		Saturday Peak Hour	
	In	Out	In	Out
PHASE ONE	243	254	558	578
TOTAL DEVELOPMENT	1484	1783	2330	2250

(1) 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	
	In	Out	In	Out
East via Kellogg Ave.	56%	36%	46%	51%
West via Kellogg Ave.	27%	38%	35%	31%
North via Mid-Continent	17%	26%	19%	18%

↗ assignment to unpaved Taft

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 and westbound through movements on Kellogg at Dugan are expected to increase to a L.O.S. D (i.e. $V/C = 1.06$ to 1.15) 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.

Table 5 indicates that four movements during the P.M. Weekday peak hour and five 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.

The levels of congestion indicated in Table 5, which are expected with ultimate development of the Dugan and Landing C.U.P.s, are generally undesirable. These high levels of congestion are projected only during the P.M. weekday peak periods and the Saturday shopping peak periods. In addition, due to the variability of retail trip generation the congestion levels should be lower than the design levels during many days of the year.

To serve the expected ultimate demands from the Dugan and Landing C.U.P.s and to allow for future traffic growth on Kellogg, major improvements should be constructed along the Kellogg corridor. For example, widening Kellogg to a six lane facility would bring the volume/capacity ratios shown on Table 5 to maximum design values for a Level of Service D. This, however, would allow for very little traffic growth on Kellogg from the vacant land to the south and west of the study area.

The City and State Highway Department have been planning to convert Kellogg to a freeway facility adjacent to the study site to serve the existing and future traffic growth. This freeway concept presently includes an interchange at Julia Street and the conversion of the Kellogg frontage roads to one-way operation. Also included is the closing of the Dugan and Kellogg intersection. Due to the present nature of the area with Dugan providing the major north-south access, the proposed freeway concept would create significant interruptions of access and increases in circulation requirements for trips to and from the study site, as well as the major commercial land uses on the south side of Kellogg.

An analysis of the proposed freeway concept plan indicates that it would be feasible to provide an additional grade separated crossing of Kellogg over Dugan. This would maintain more direct access to commercial tracts and reduce the amount of traffic circulation and conflicts. The removal of the through traffic volumes on

Kellogg from the at-grade intersection at Dugan would eliminate the congestion as indicated in Tables 4 and 5.

In the interim time until the conversion of Kellogg to a freeway facility, the proposed intersection geometric and traffic control improvements at Kellogg and Dugan would be capable of serving the Phase One hardware store facility and some additional land use development within a Level of Service D. An additional volume/capacity analysis indicates that a total of 155,300 square feet of retail land uses could be allowed within the Phase One development of the Dugan and Landing C.U.P.s. The computed volume/capacity conditions expected with this maximum Phase One development are shown in Table 6.

Although the 21,400 square feet of outdoor storage area must be included as a part of the hardware store floor area by City requirements, it should be noted that this storage area would not be expected to generate traffic volumes at normal design rates. As such, Phase One of this development could include the 80,000 s.f. of hardware store and up to 75,300 s.f. of other retail floor area.

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	100	0.67
Thru & Right	149	180	0.83	171	170	1.01
Southbound						
Left Turn	263	260	1.01	543	540	1.01
Thru & Right	178	180	0.99	253	250	1.01
Eastbound						
Left Turn	144	180	0.80	352	350	1.01
Thru	1344	1540	0.87	1358	1200	1.13
Right Turn	52	650	0.08	88	600	0.15
Westbound						
Left Turn	100	110	0.91	184	180	1.02
Thru	1957	1650	1.19	1231	1150	1.07
Right Turn	167	650	0.26	341	650	0.52

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	72	270	0.27	129	560	0.23
Thru	626	(1)		588	(1)	
Westbound						
Left Turn	17	50	0.34	18	140	0.13
Right Turn	140	270	0.52	137	560	0.24

(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	140	0.99	67	140	0.48
Thru & Right	149	200	0.75	171	200	0.86
Southbound						
Left Turn	360	280	1.29	624	480	1.30
Thru	312	240	1.30	312	240	1.30
Eastbound						
Left Turn	260	200	1.30	364	280	1.30
Thru	1562	1500	1.04	1662	1265	1.31
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	862	900	0.96	884	900	0.98

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	233	500	0.47	617	650	0.95
Southbound						
Left Turn	283	390	0.73	466	480	0.97
Thru	626	1850	0.34	588	1850	0.32
Westbound						
Left Turn	331	390	0.85	352	390	0.90
Right Turn	670	1200	0.56	703	1200	0.59

LEVELS OF TRAFFIC SERVICE:

Volume / Capacity Ratio

< 0.85

0.86 - 0.95

0.96 - 1.05

1.06 - 1.15

1.16 - 1.30

> 1.30

Level of Service

A

B

C

D

E

F

(Desirable Design Level)

(Possible Capacity)

TABLE 6
VOLUME/CAPACITY SUMMARY

PROJECTED CONDITIONS - PHASE ONE PLUS

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	120	1.15	67	100	0.67
Thru & Right	149	130	1.15	171	150	1.14
Southbound						
Left Turn	323	280	1.15	644	560	1.15
Thru & Right	219	190	1.15	325	290	1.12
Eastbound						
Left Turn	186	180	1.03	438	380	1.15
Thru	1344	1540	0.87	1358	1180	1.15
Right Turn	52	650	0.08	88	600	0.15
Westbound						
Left Turn	100	110	0.91	201	180	1.12
Thru	1957	1650	1.19	1231	1070	1.15
Right Turn	254	650	0.39	456	650	0.70

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	98	270	0.36	176	560	0.31
Thru	626	(1)		588	(1)	
Westbound						
Left Turn	17	50	0.34	18	140	0.13
Right Turn	183	270	0.68	179	560	0.32

(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

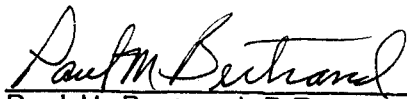
SUMMARY AND RECOMMENDATIONS

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 operate at acceptable levels of service 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 at Dugan and Julia will be required if the study site and the adjacent area of the City are allowed to continue to develop and grow.

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:sv

Exhibits

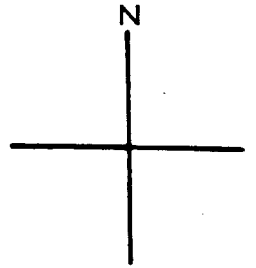
EXISTING A.M. PEAK HOUR

KELLOGG & DUGAN

From 7:15 (A.M.) (RMX)
To 8:15 (A.M.) (RMX)

Average
Day of Week

Date



INDICATE NORTH

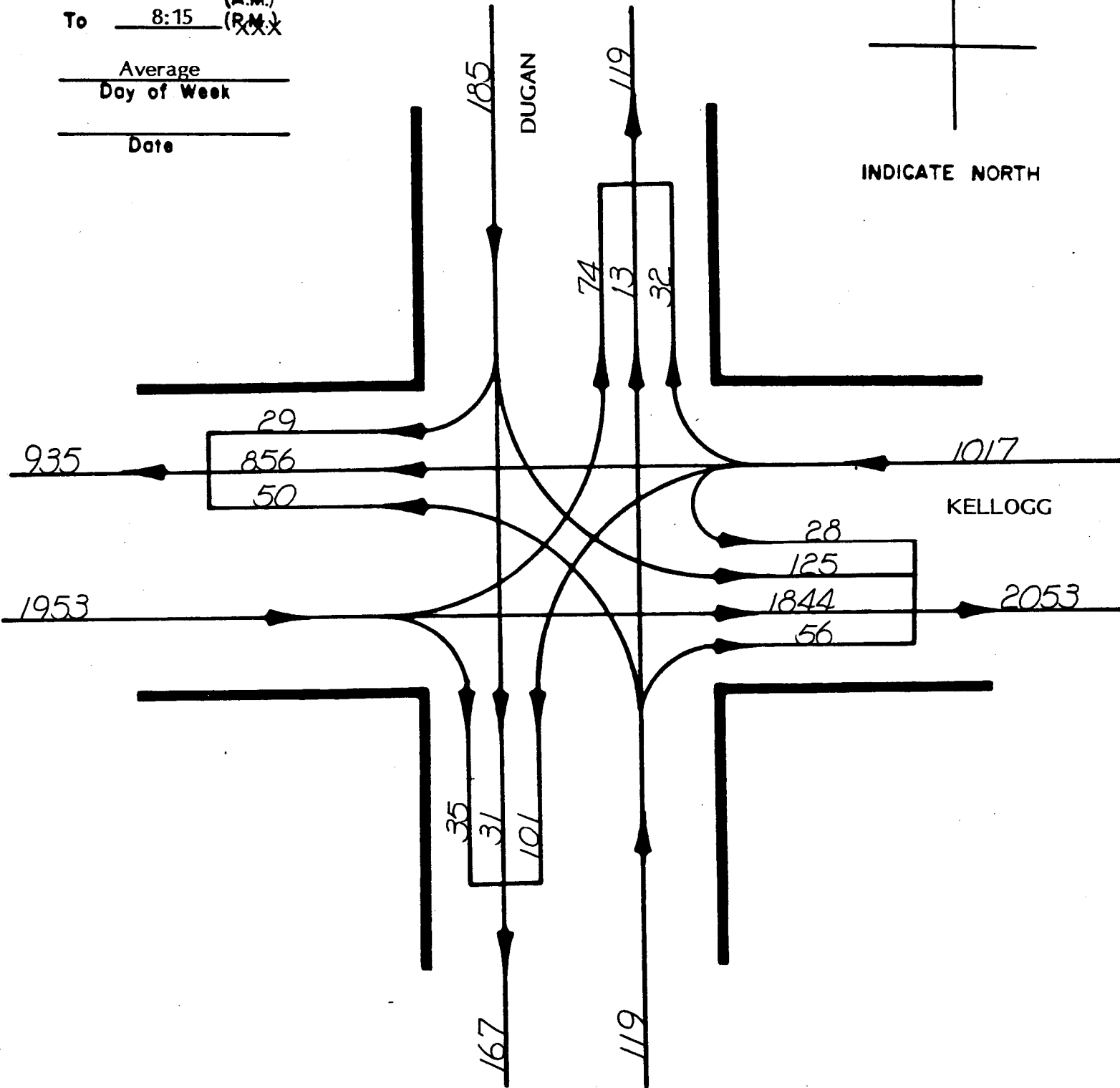


EXHIBIT 1



EXISTING P.M. PEAK HOUR

KELLOGG & DUGAN

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

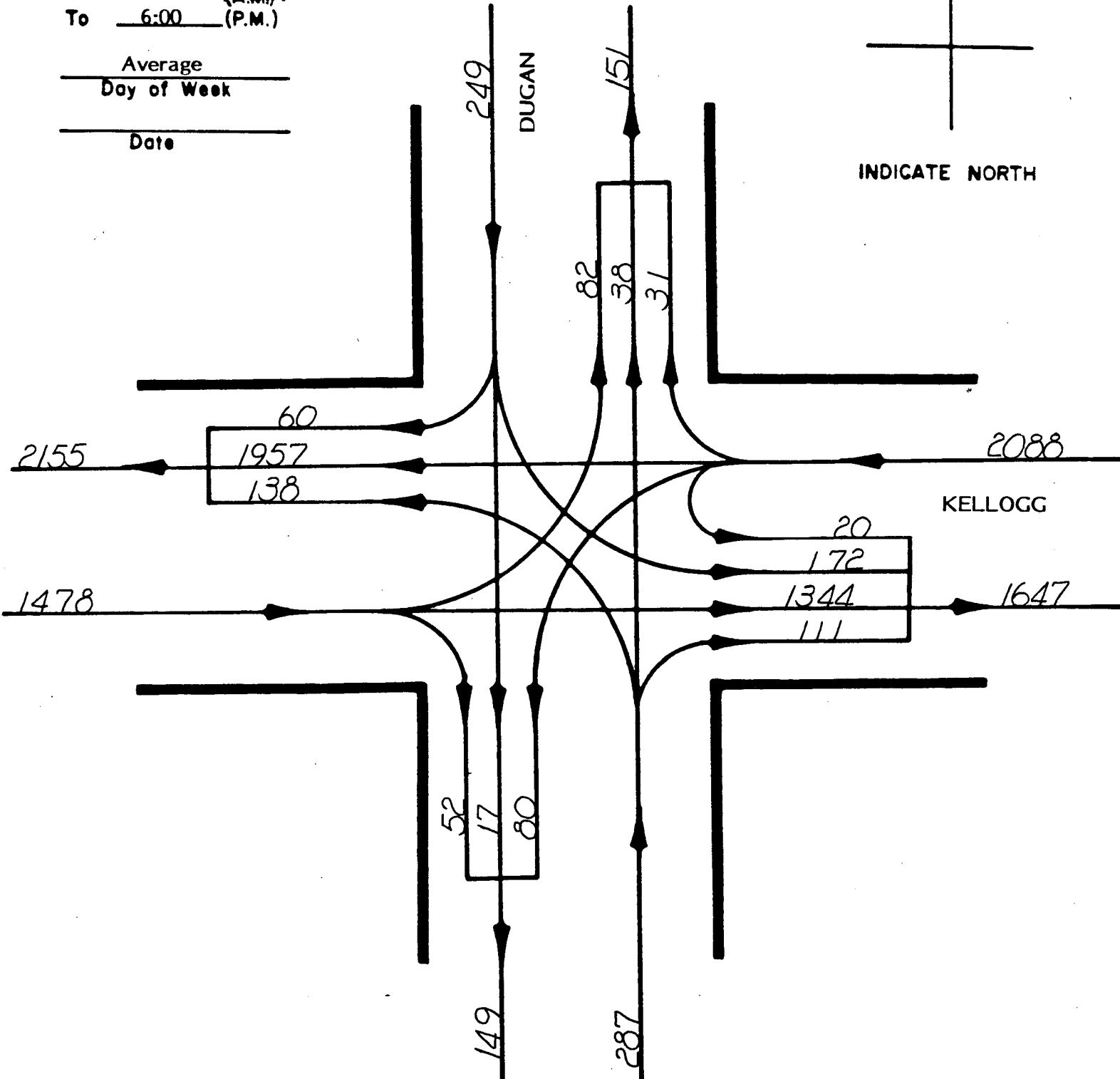
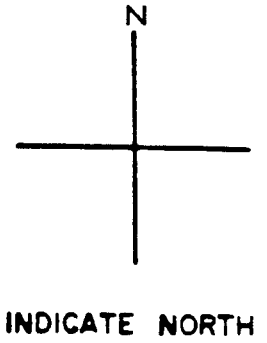


EXHIBIT 2



LARKIN ASSOCIATES
CONSULTING ENGINEERS, INC.

EXISTING SATURDAY PEAK HOUR

KELLOGG & DUGAN

From 1:15 (P.M.)

To 2:15 (P.M.)

Saturday
Day of Week

Date

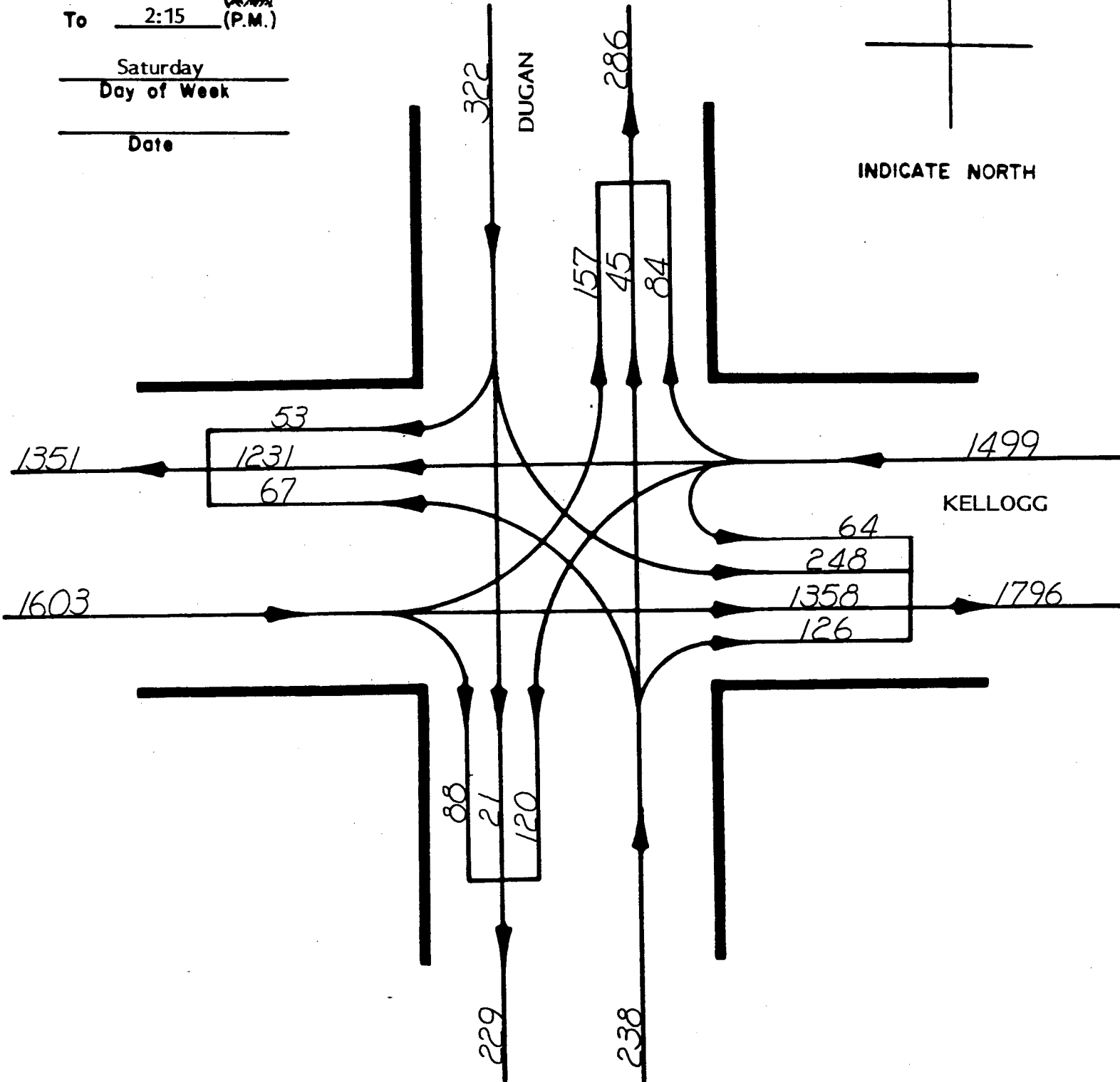
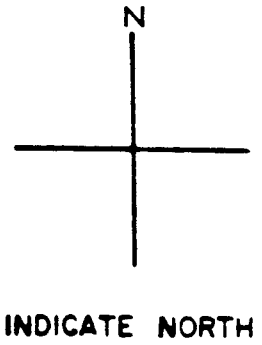


EXHIBIT 3



LARKIN ASSOCIATES
CONSULTING ENGINEERS, INC.

EXISTING A.M. PEAK HOUR

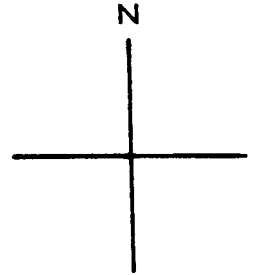
MID-CONTINENT & TAFT

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

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

Average
Day of Week

Date



INDICATE NORTH

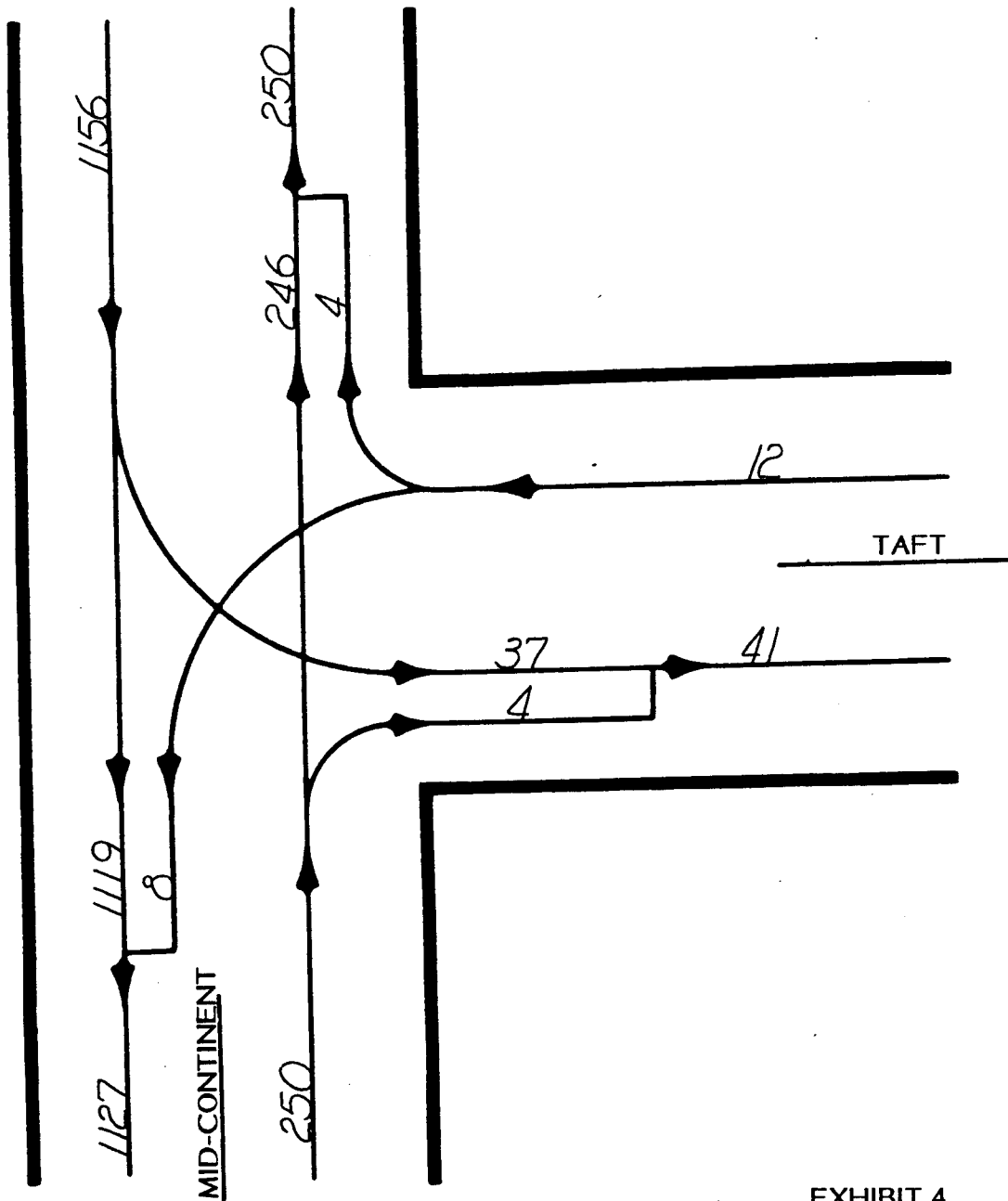


EXHIBIT 4



EXISTING P.M. PEAK HOUR

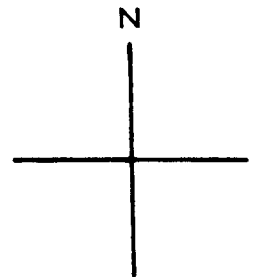
MID-CONTINENT & TAFT

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

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

Average
Day of Week

Date



INDICATE NORTH

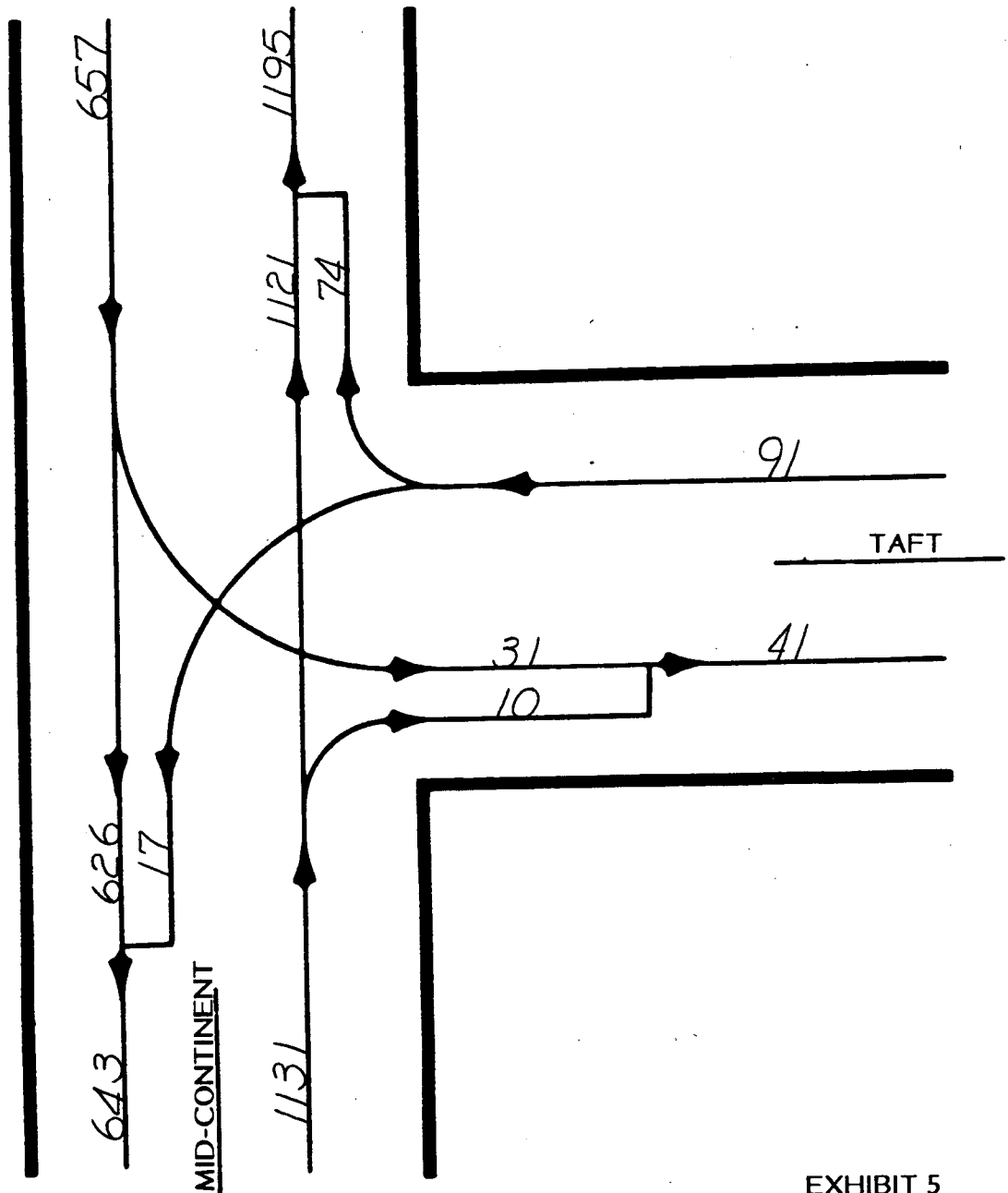


EXHIBIT 5



EXISTING SATURDAY PEAK HOUR

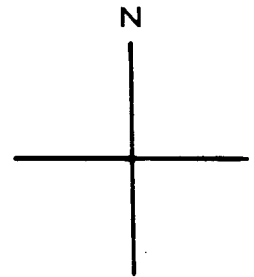
MID-CONTINENT & TAFT

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

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

Saturday
Day of Week

Date



INDICATE NORTH

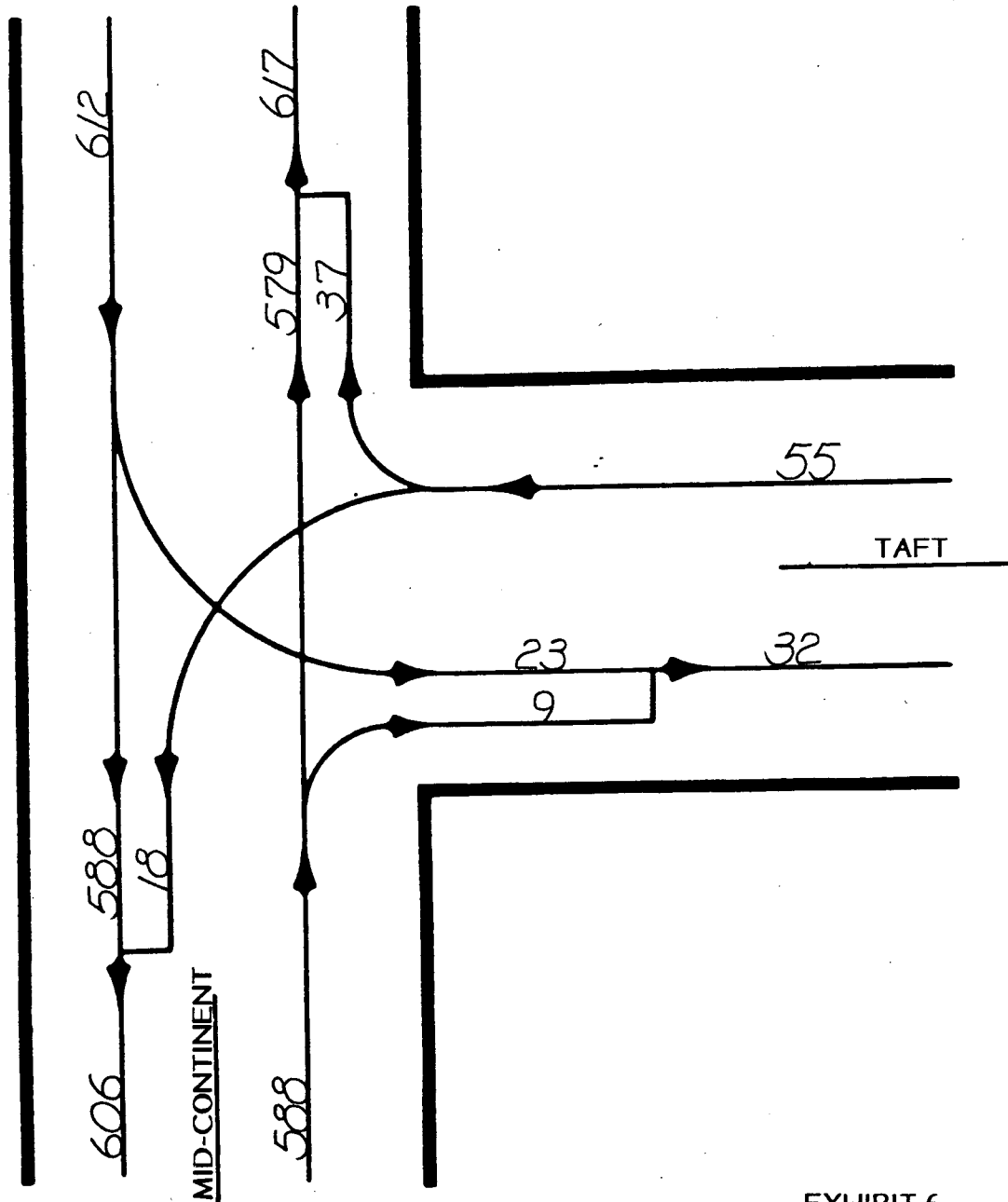


EXHIBIT 6



PHASE ONE
PROJECTED P.M. PEAK HOUR

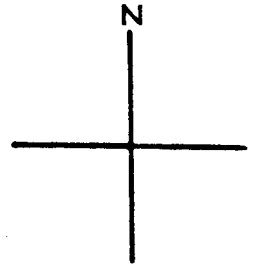
KELLOGG & DUGAN

From 5:00 (P.M.)

To 6:00 (P.M.)

Average
Day of Week

Date



INDICATE NORTH

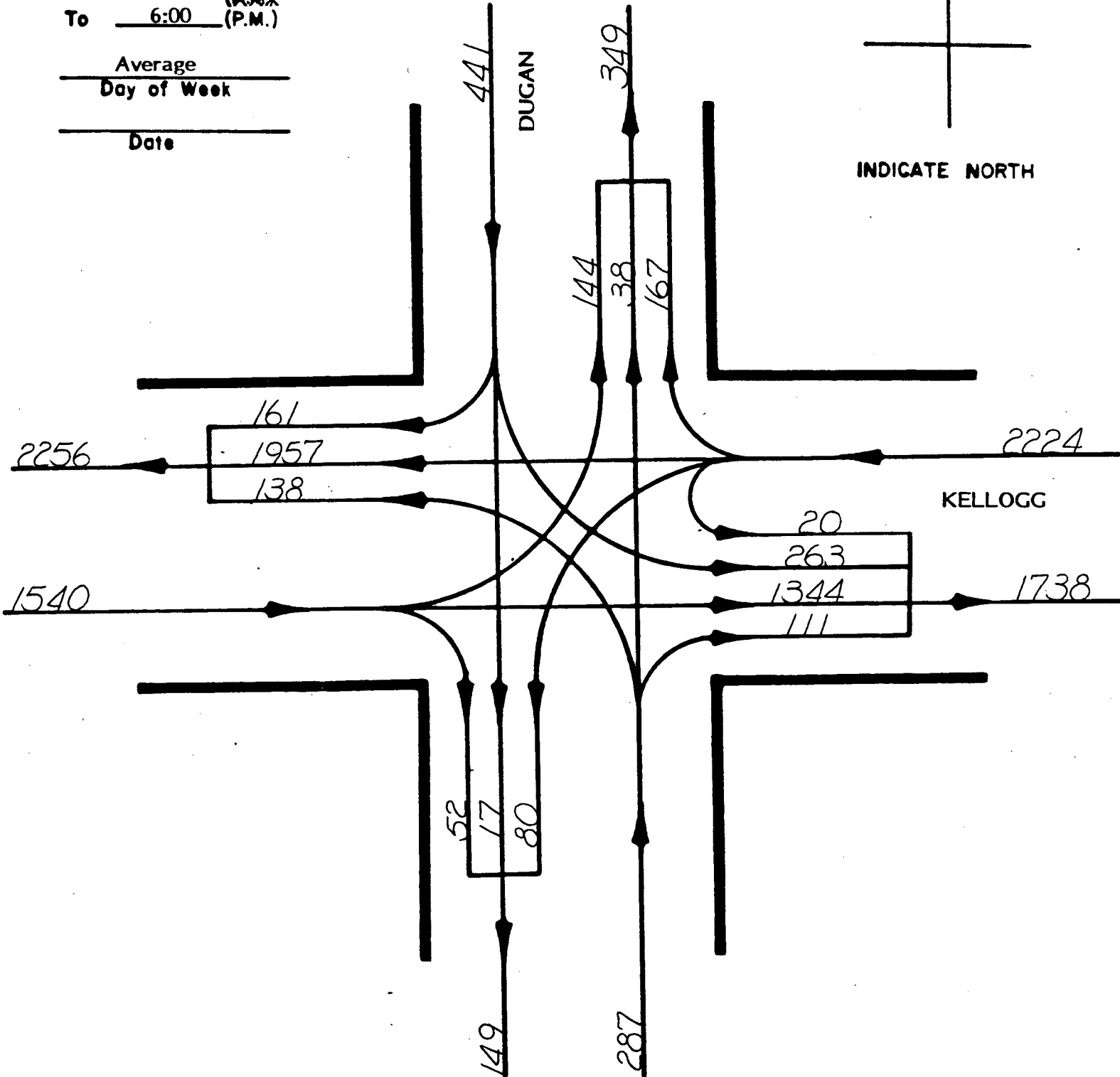


EXHIBIT 7



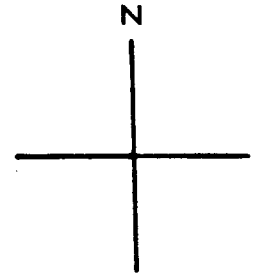
PHASE ONE
 PROJECTED P.M. PEAK HOUR
 MID-CONTINENT & TAFT

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

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

Average
 Day of Week

Date



INDICATE NORTH

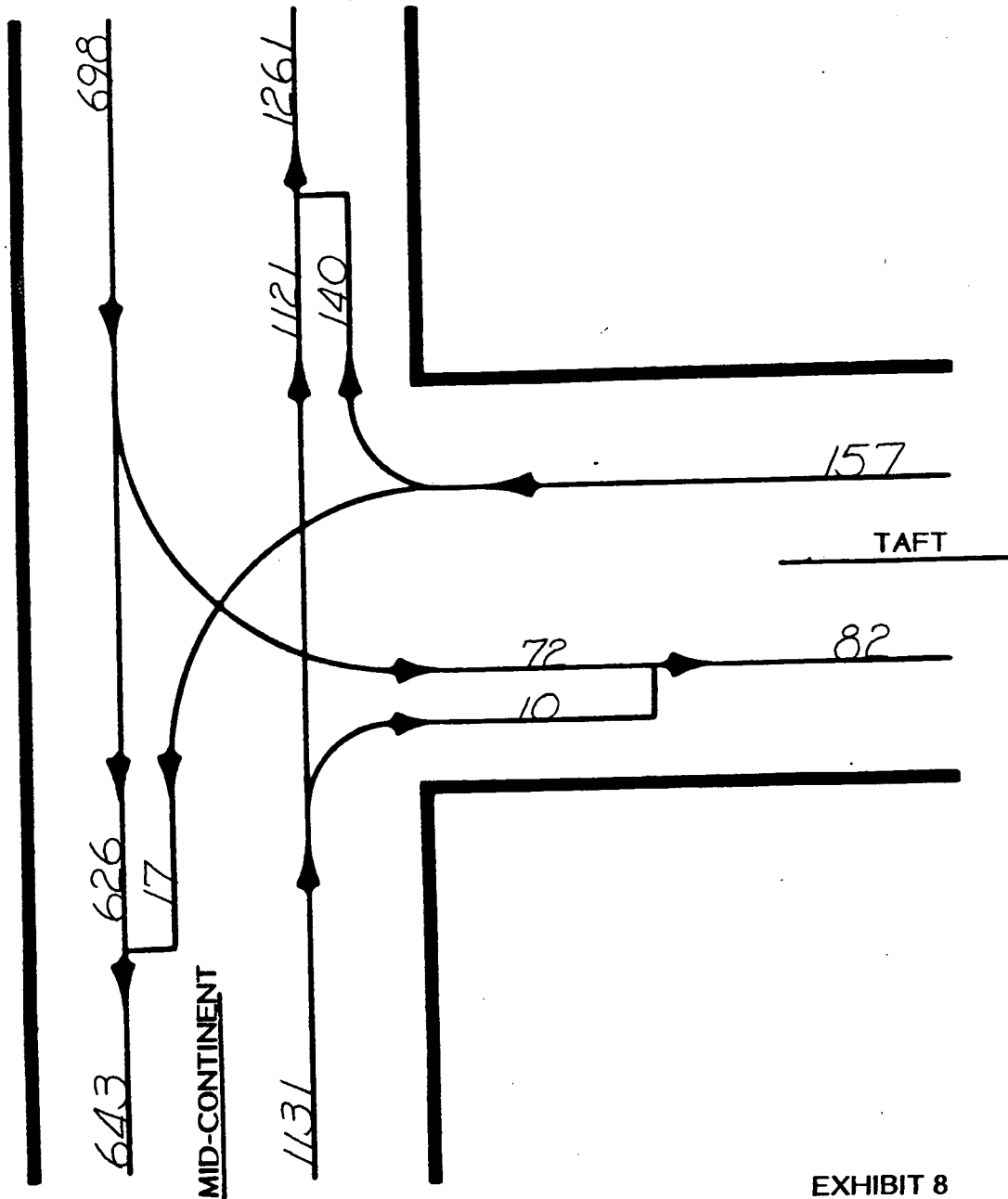


EXHIBIT 8



PHASE ONE
PROJECTED SATURDAY PEAK HOUR

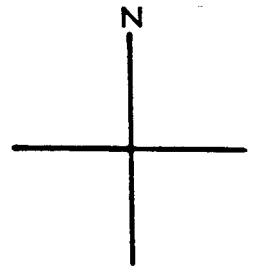
KELLOGG & DUGAN

From 1:15 (P.M.)

To 2:15 (P.M.)

Saturday
Day of Week

Date



INDICATE NORTH

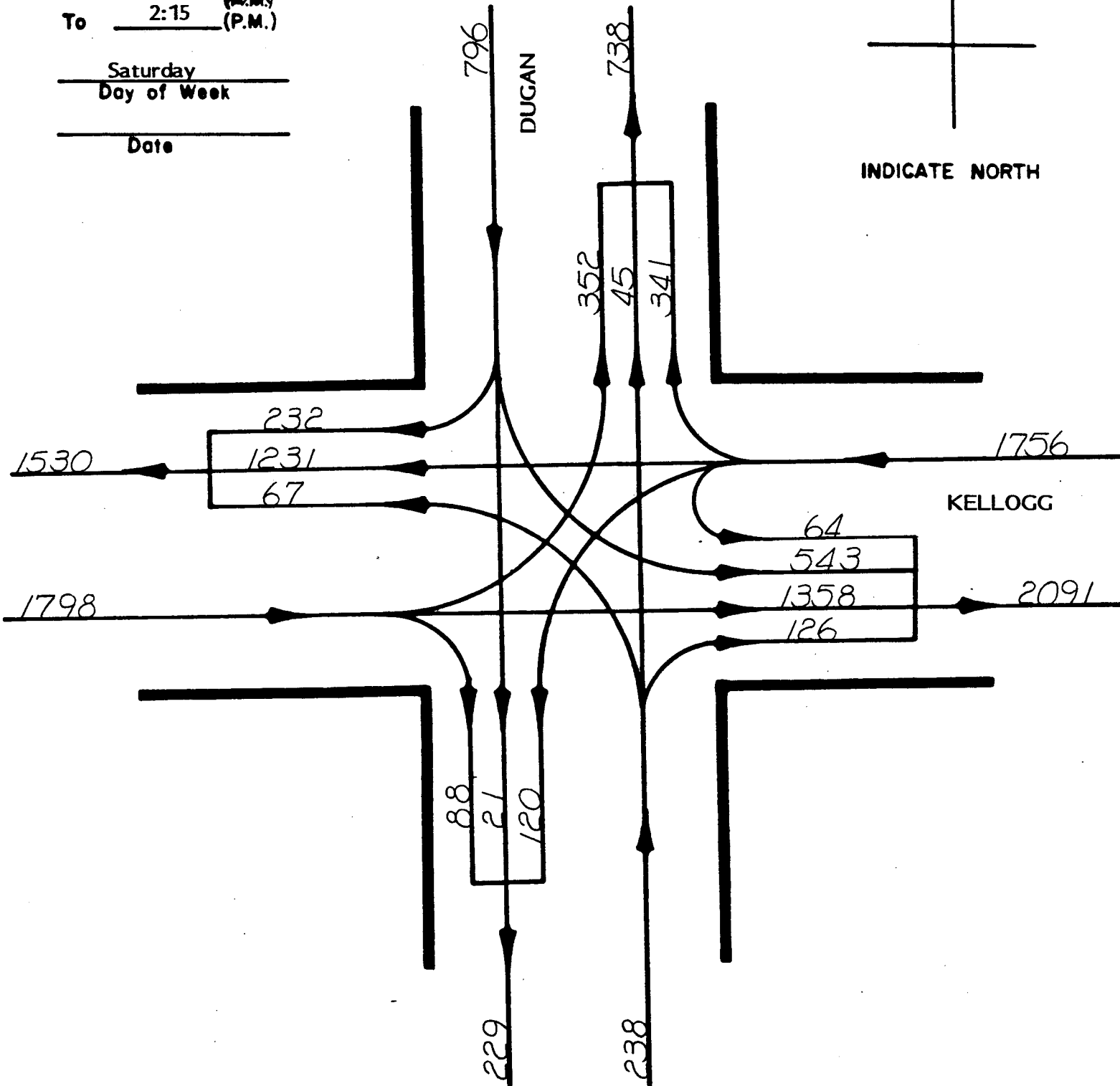


EXHIBIT 9



LARKIN ASSOCIATES
CONSULTING ENGINEERS, INC.

PHASE ONE
 PROJECTED SATURDAY PEAK HOUR

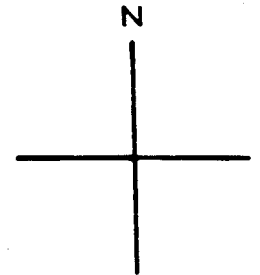
MID-CONTINENT & TAFT

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

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

Saturday
 Day of Week

 Date



INDICATE NORTH

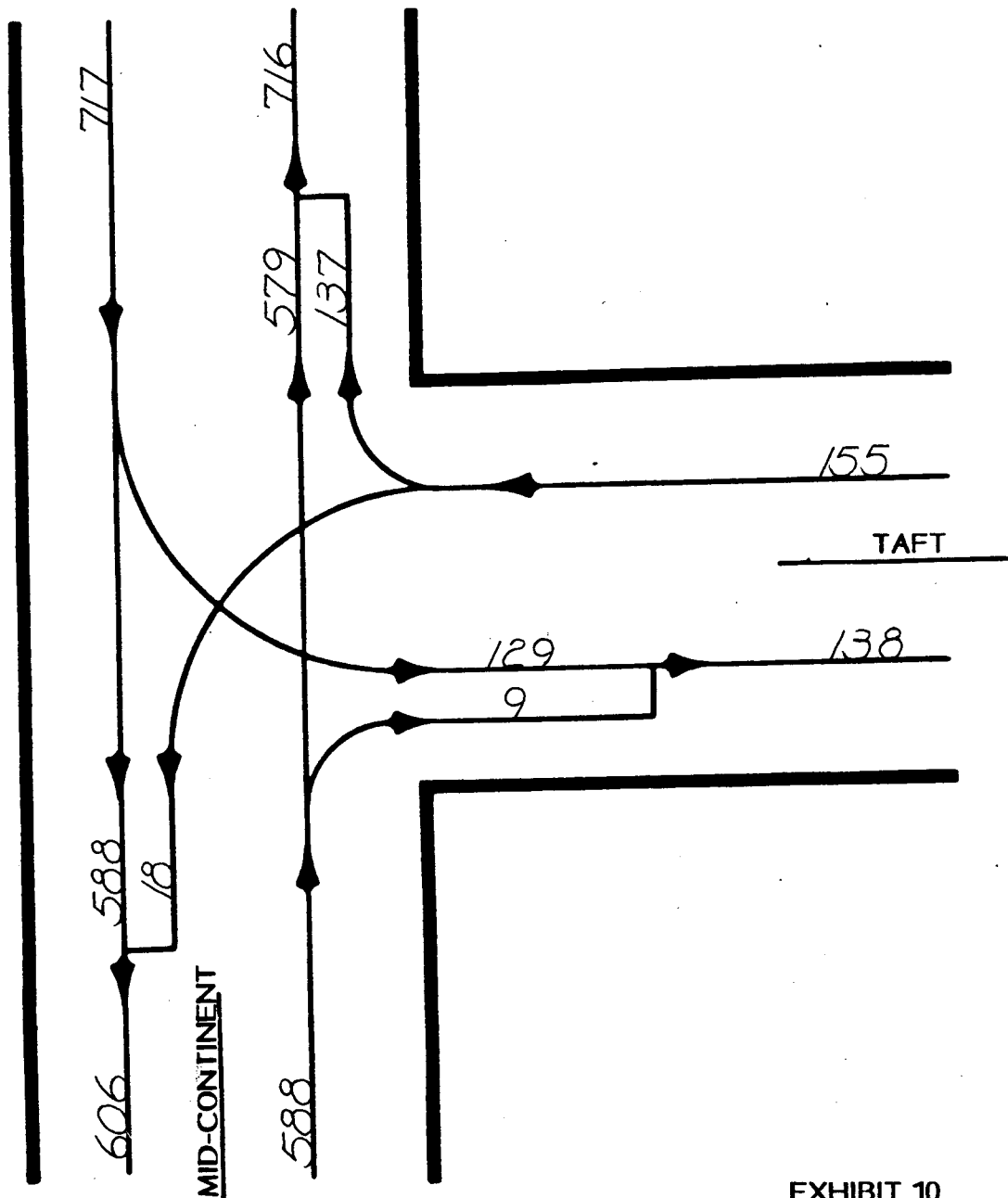


EXHIBIT 10



LARKIN ASSOCIATES

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

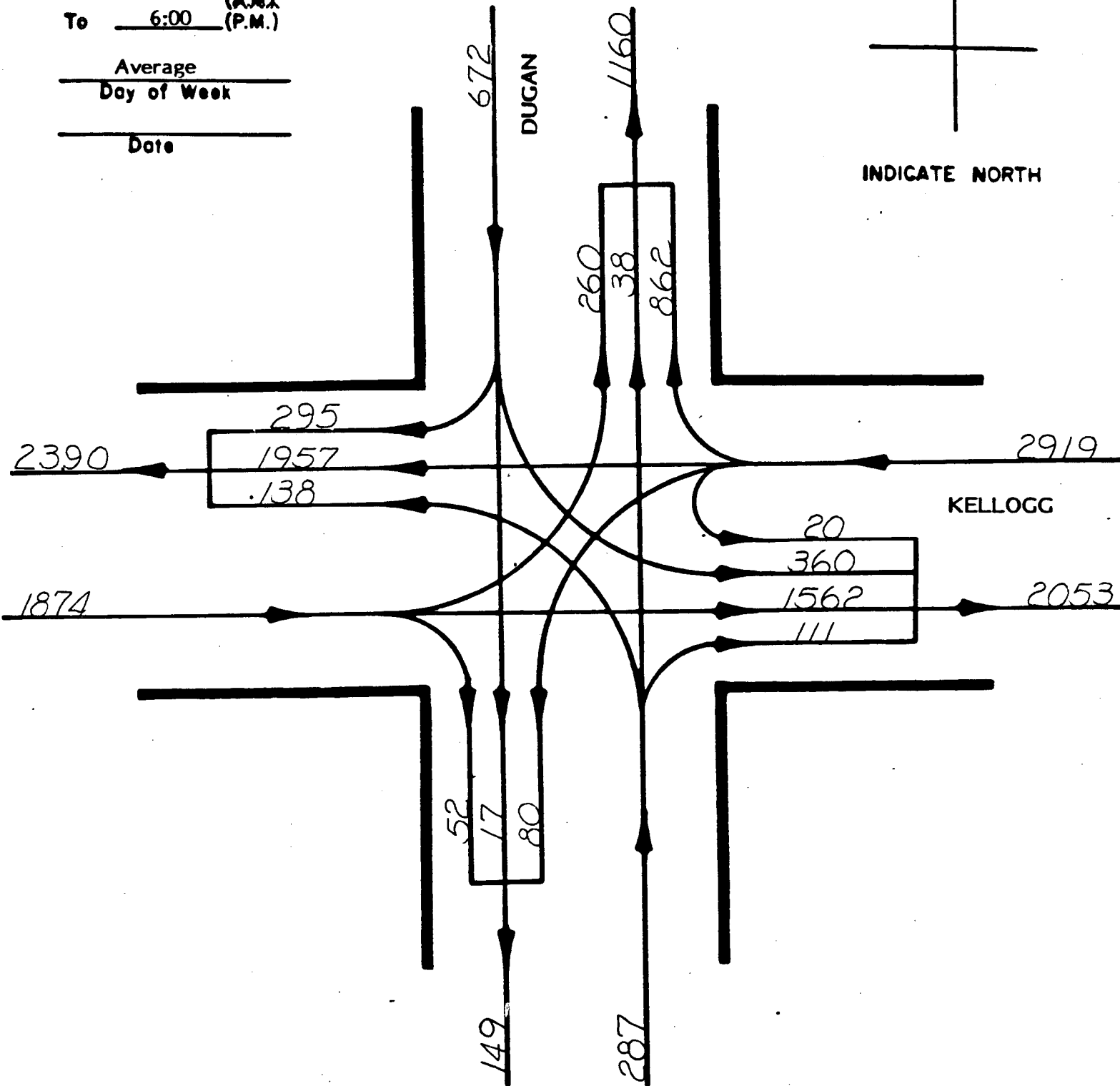
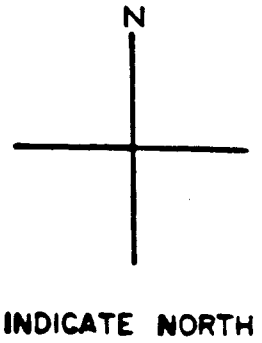


EXHIBIT 11



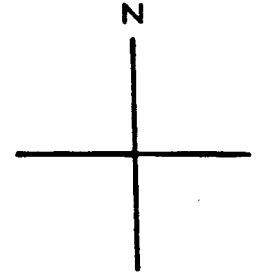
TOTAL DEVELOPMENT
PROJECTED P.M. PEAK HOUR
MID-CONTINENT & TAFT

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

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

Average
Day of Week

Date



INDICATE NORTH

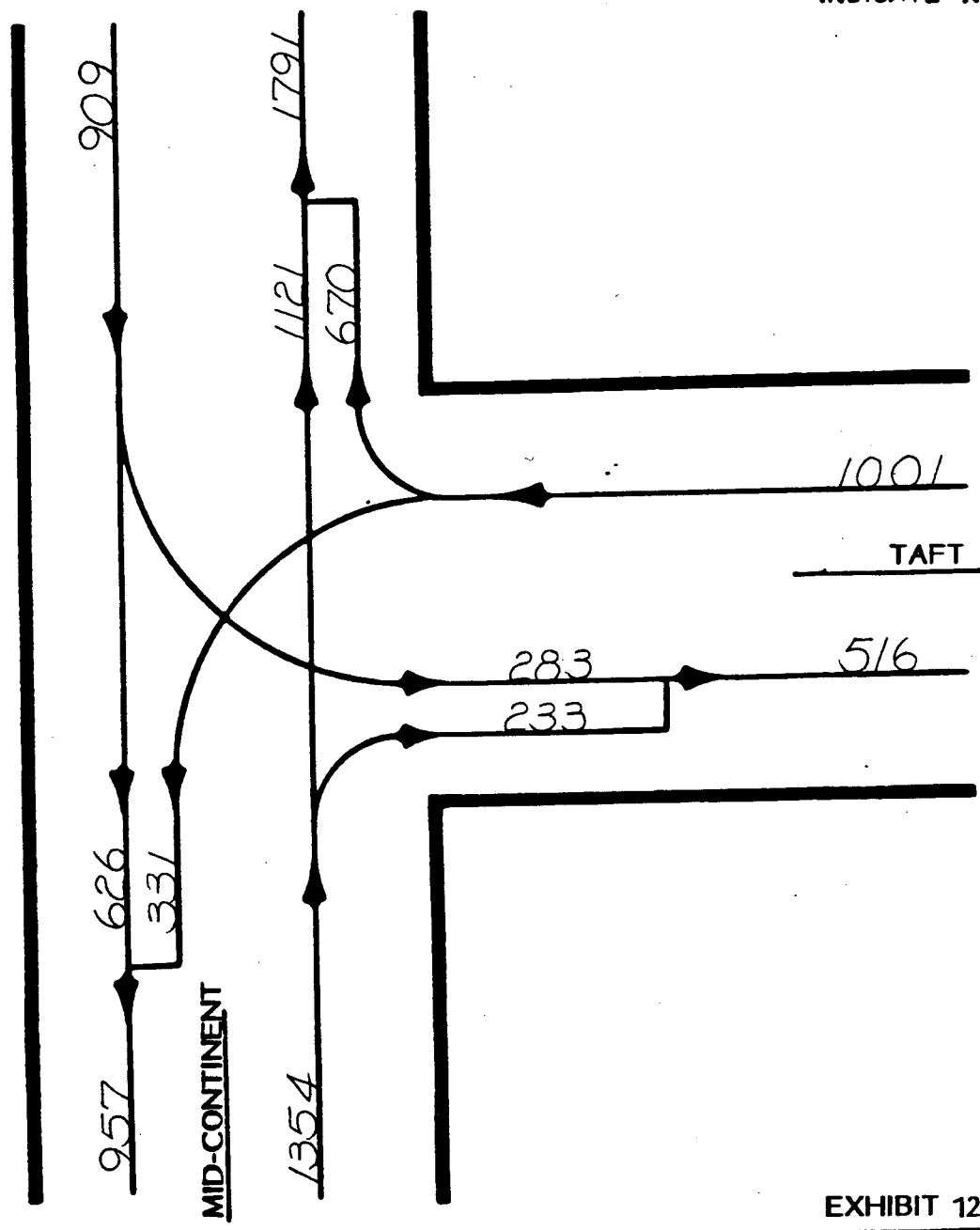


EXHIBIT 12



TOTAL DEVELOPMENT
 PROJECTED SATURDAY PEAK HOUR

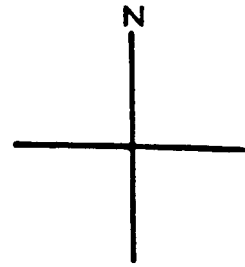
KELLOGG & DUGAN

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

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

Saturday
 Day of Week

 Date



INDICATE NORTH

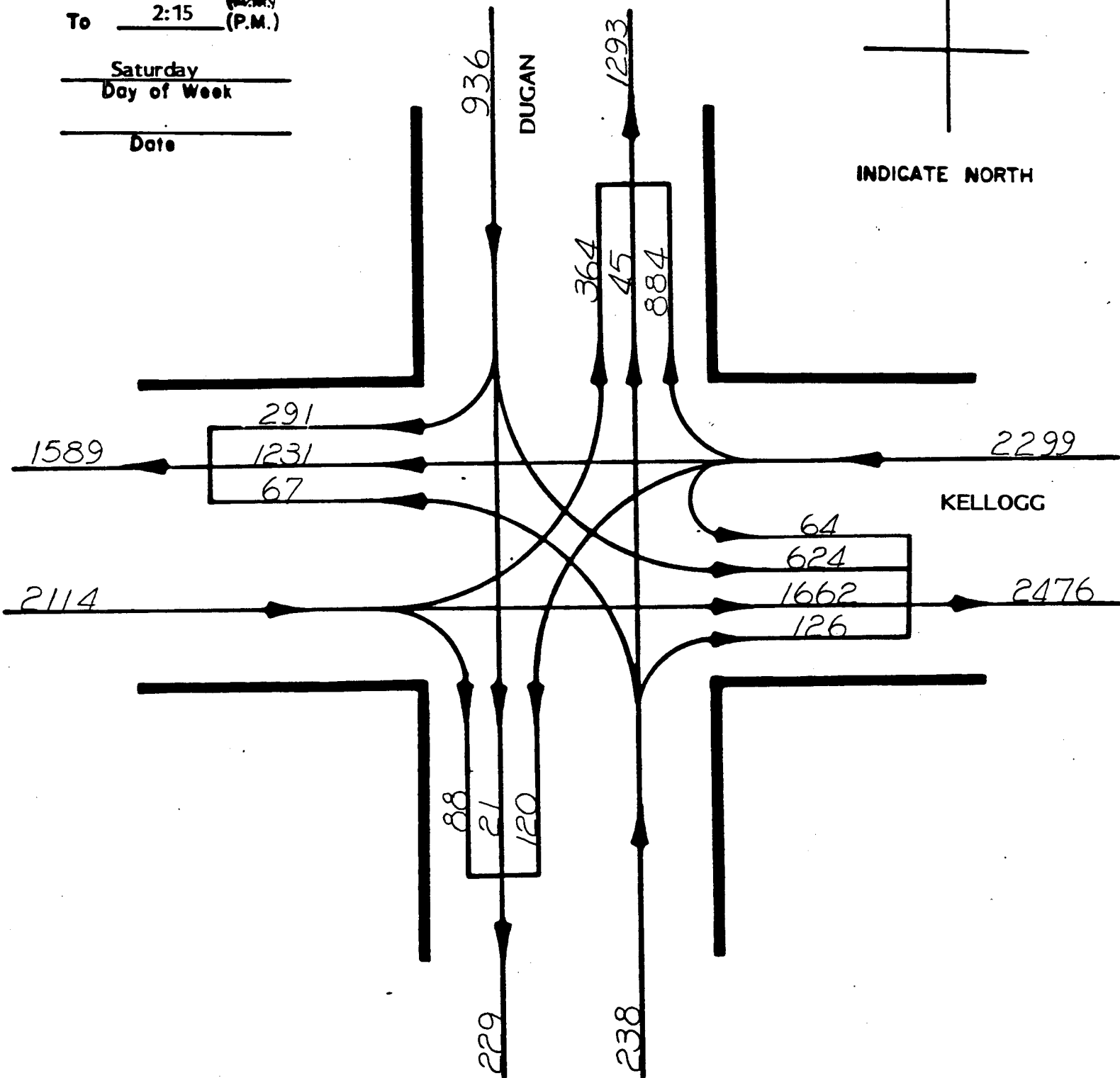


EXHIBIT 13



LARKIN ASSOCIATES

TOTAL DEVELOPMENT
PROJECTED SATURDAY PEAK HOUR

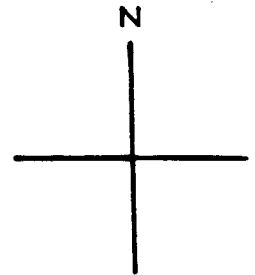
MID-CONTINENT & TAFT

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

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

Saturday
Day of Week

Date



INDICATE NORTH

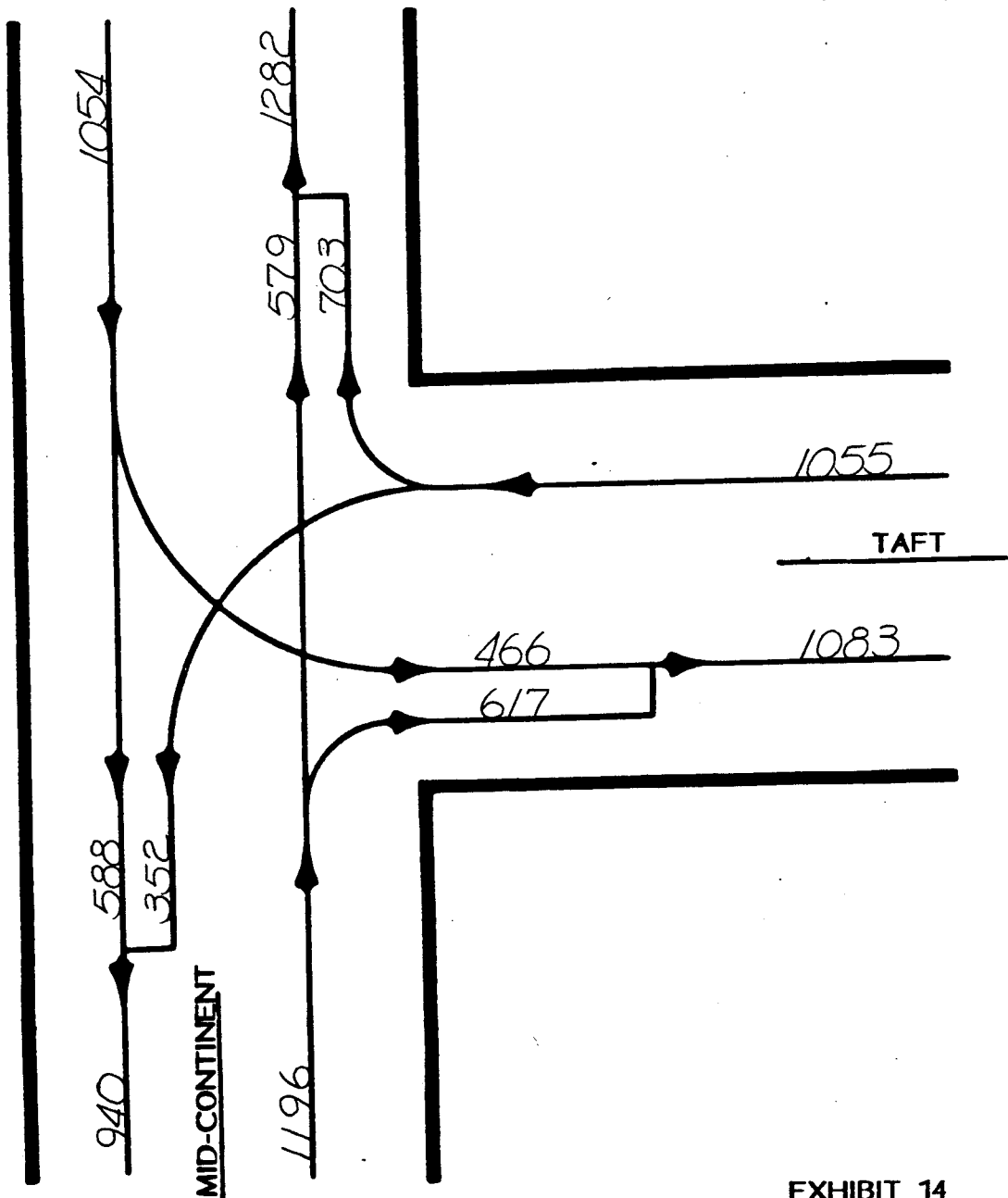


EXHIBIT 14



Appendix

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: December 1, 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
L1	10.4	RETAIL	99231	0	66.7	6619	0.90	89	0.80	79	2.90	288	3.10	308
L2	9.0	W.H.	117058	0	4.9	574	0.56	66	0.10	12	0.57	67	1.06	124
L3	2.2	RETAIL	29175	0	66.7	1946	0.90	26	0.80	23	2.90	85	3.10	90
D1A	3.6	HOTEL	70000	220	10.5	2310	0.57	125	0.28	62	0.36	79	0.37	81
D1B	12.0	RETAIL	86150	0	66.7	5746	0.90	78	0.80	69	2.90	250	3.10	267
D2	5.8	OFFICE	107400	0	14.3	1536	1.80	193	0.20	21	0.41	44	1.62	174
D3	14.8	RETAIL	128990	0	66.7	8604	0.90	116	0.80	103	2.90	374	3.10	400
D4	2.2	OFFICE	23618	0	17.7	418	2.13	50	0.37	9	0.40	9	2.42	57
D5	7.8	RETAIL	101400	0	51.3	5202	0.60	61	0.50	51	2.40	243	2.50	254
D6	1.4	RETAIL	17745	0	51.3	910	0.60	11	0.50	9	2.40	43	2.50	44
TOTAL FLOOR AREA			780767											
TOTAL TRAFFIC VOLUMES						33864		815		438		1482		1799

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: December 1, 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
L1	10.4	RETAIL	99231	0	66.7	6619	0.90	89	0.80	79	2.90	288	3.10	308
L2	9.0	W.H.	117058	0	4.9	574	0.56	66	0.10	12	0.57	67	1.06	124
L3	2.2	RETAIL	29175	0	66.7	1946	0.90	26	0.80	23	2.90	85	3.10	90
D1A	3.6	HOTEL	70000	220	10.5	2310	0.57	125	0.28	62	0.36	79	0.37	81
D1B	12.0	RETAIL	86150	0	66.7	5746	0.90	78	0.80	69	2.90	250	3.10	267
D2	5.8	OFFICE	107400	0	14.3	1536	1.80	193	0.20	21	0.41	44	1.62	174
D3	14.8	RETAIL	128990	0	66.7	8604	0.90	116	0.80	103	2.90	374	3.10	400
D4	2.2	W.H.	23618	0	4.9	116	0.56	13	0.10	2	0.57	13	1.06	25
D5	7.8	RETAIL	101400	0	51.3	5202	0.60	61	0.50	51	2.40	243	2.50	254
D6	1.4	RETAIL	17745	0	51.3	910	0.60	11	0.50	9	2.40	43	2.50	44
TOTAL FLOOR AREA			780767											
TOTAL TRAFFIC VOLUMES						33562		778		432		1486		1767

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

Prepared by Larkin Associates
 Prepared for Baughman Company
 Date: December 1, 1985

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	SATURDAY TRAFFIC		SATURDAY PEAK HOUR			
					RATE	VOLUME	ENTER		EXIT	
							RATE	VOLUME	RATE	VOLUME
L1	10.4	RETAIL	99231	0	112.4	11154	4.60	456	4.30	427
L2	9.0	W.H.	117058	0	0.0	0	0.00	0	0.00	0
L3	2.2	RETAIL	29175	0	112.4	3279	4.60	134	4.30	125
D1A	3.6	HOTEL	70000	220	8.1	1782	0.30	66	0.30	66
D1B	12.0	RETAIL	86150	0	112.4	9683	4.60	396	4.30	370
D2	5.8	OFFICE	107400	0	3.5	376	0.24	26	0.21	23
D3	14.8	RETAIL	128990	0	112.4	14498	4.60	593	4.30	555
D4	2.2	OFFICE	23618	0	2.4	57	0.26	6	0.22	5
D5	7.8	RETAIL	101400	0	78.5	7960	5.50	558	5.70	578
D6	1.4	RETAIL	17745	0	78.5	1393	5.50	98	5.70	101
TOTAL FLOOR AREA			780767							
TOTAL TRAFFIC VOLUMES						50182		2334		2250

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: December 1, 1985

TRACT	ACRES	LAND USE	FLOOR AREA	ROOMS	SATURDAY TRAFFIC		SATURDAY PEAK HOUR			
					RATE	VOLUME	ENTER		EXIT	
							RATE	VOLUME	RATE	VOLUME
L1	10.4	RETAIL	99231	0	112.4	11154	4.60	456	4.30	427
L2	9.0	W.H.	117058	0	0.0	0	0.00	0	0.00	0
L3	2.2	RETAIL	29175	0	112.4	3279	4.60	134	4.30	125
D1A	3.6	HOTEL	70000	220	8.1	1782	0.30	66	0.30	66
D1B	12.0	RETAIL	86150	0	112.4	9683	4.60	396	4.30	370
D2	5.8	OFFICE	107400	0	3.5	376	0.24	26	0.21	23
D3	14.8	RETAIL	128990	0	112.4	14498	4.60	593	4.30	555
D4	2.2	W.H.	23618	0	0.0	0	0.00	0	0.00	0
D5	7.8	RETAIL	101400	0	78.5	7960	5.50	558	5.70	578
D6	1.4	RETAIL	17745	0	78.5	1393	5.50	98	5.70	101
TOTAL FLOOR AREA			780767							
TOTAL TRAFFIC VOLUMES						50125		2327		2245