

FINAL

MEMORANDUM

TO: Laurie Hoogeveen
Transportation Planner
City of DeKalb

FROM: Chris L. DeRosia, E.I.T.
Transportation Consultant

Rolf P. Kilian
Executive Vice President

DATE: June 30, 2005

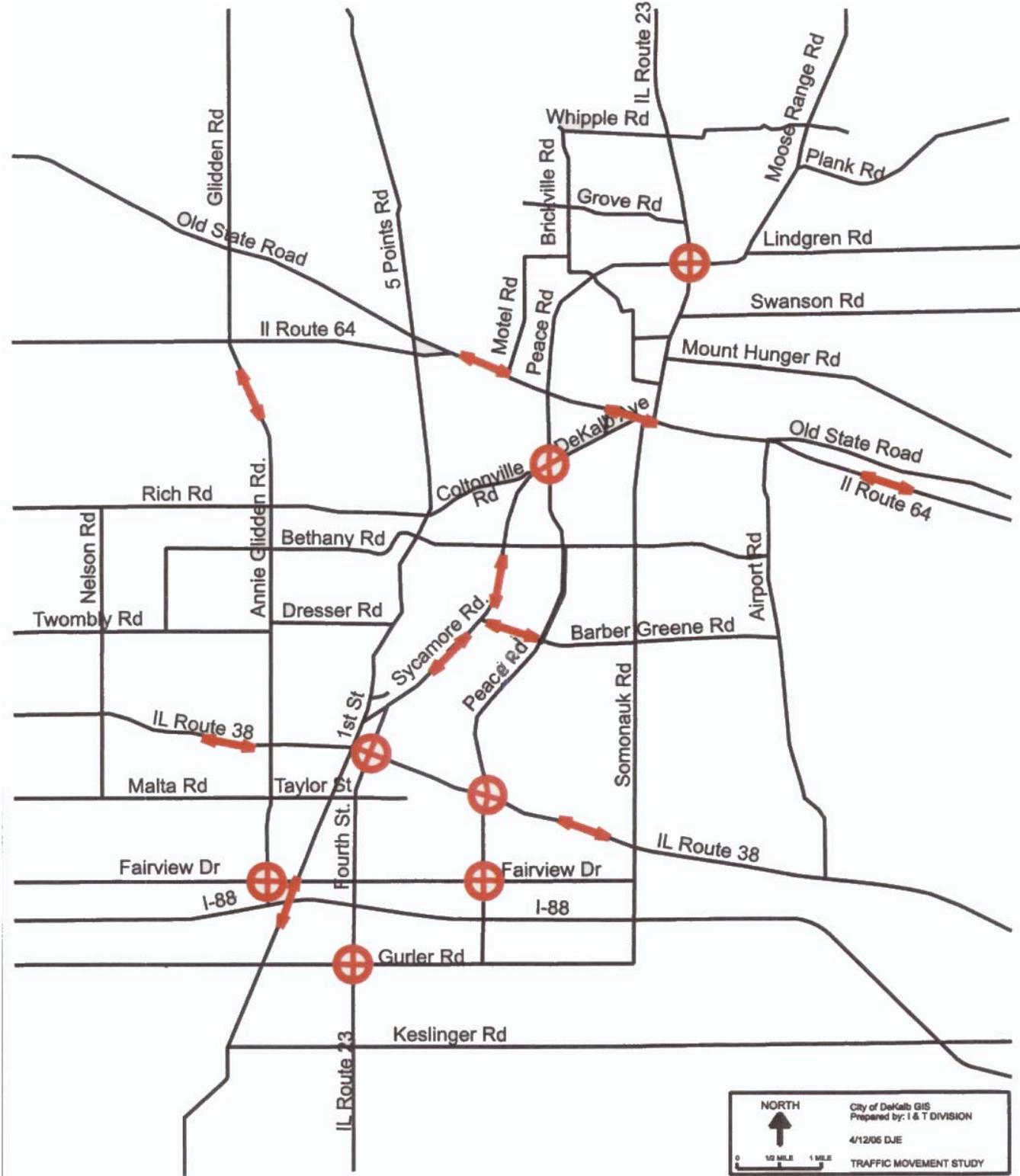
SUBJECT: Truck License Plate Survey and Traffic Count
DeKalb, Illinois

INTRODUCTION

Metro Transportation Group, Inc. was retained by the City of DeKalb to perform a Truck License Plate Survey and Traffic Count for the DeKalb, Sycamore Area Transportation Study (DSATS) Urbanized Area – DeKalb, Sycamore and Cortland. A map of this area showing the primary roadways and survey/count locations is provided on **Figure 1**.

The DeKalb Sycamore Area Transportation Study initiated this study in order to better understand the truck traffic magnitude and flow within the DeKalb-Sycamore area. A few impetuses for this study include the recent increase of toll charges on nearby I-88, the location of several new warehouse type businesses in the area, and growing concerns from citizens about truck traffic. Citizen concerns were particularly relevant in the consideration of traffic in the downtown areas.

The license plate survey was conducted at 38 different locations in and around the metropolitan planning area. These locations were determined by DSATS. The surveys were conducted from 6:30 a.m. to 9:30 a.m., 10:30 a.m. to 1:30 p.m., and 3:30 p.m. to 6:30 p.m. Trucks were classified based on which 15-minute period they passed through a specified cordon, with the last four characters of their front license plate being recorded. All survey points were conducted simultaneously and bi-directionally. The license plate survey data was summarized and matched by time to determine the number of trucks that pass through the urbanized area during a 45-minute period versus those that have a destination within the area.



The traffic counts were obtained through the use of Automatic Traffic Recorders (ATR's). The ATR counts were conducted at thirty-eight (38) different locations. The counts were conducted for a period of 72 hours (Tuesday, Wednesday and Thursday) and classified vehicles by type. These traffic counts were taken from Monday, May 16, 2005 through Friday, June 17, 2005. Vehicles were classified as: bikes; cars with trailers; two-axle long (pick-up trucks); buses; two-axle six-tire; everything larger than two-axle was categorized by the number of axles.

24-Hour Traffic Counts

Automatic Traffic Recorders were used to count three days (Tuesday, Wednesday and Thursday) of traffic at the locations shown on Figure 1. Each ATR was set to record the classification of each vehicle so that the Average Daily Truck Traffic (ADTT) could be determined. The total 3-day truck traffic volume was averaged to determine the ADTT. Flow Maps will be submitted along with this memo to show the Average Daily Traffic (ADT), ADTT, and the amount of traffic passing through the study area shown on Figure 1. These ADT, ADTT, and through truck traffic maps have been scaled down and included as **Figures 2, 3 and 4**, respectively. The ADT data is summarized in **Table 1** and the ADTT data is summarized in **Table 2**. The latter is based on the results of the 9-hour license plate survey, which is described in detail below. It should be noted that the ADTT at the intersection of IL-38 and IL-23 is low on the east and west legs, because the railroad tracks caused some vehicles to stop directly on the counter tubes while other vehicles are passing over the tubes in the opposite direction and therefore, the counters could not accurately record the count and/or classify the vehicles.

**Table 1
 Truck Traffic Summary**

Location	24-Hour Traffic Counts		
	IN	OUT	ADT
IL-23 north of Peace Road	4,434	4,451	8,885
Plank Road east of IL-23	4,254	4,225	8,479
IL-64 west of Motel Road	N/A	N/A	N/A
IL-64 east of Airport Road	4,032	3,333	7,365
IL-38 west of Somonauk Road	5,347	5,632	10,979
Annie Glidden Road south of IL-64	2,419	2,529	4,948
IL-38 west of Annie Glidden Road	4,765	4,638	9,403
Annie Glidden Road south of Fairview Dr.	3,852	4,108	7,960
IL-23 south of Gurler Road	3,073	3,087	6,160
Peace Road south of Fairview Drive	6,041	5,735	11,776

N/A – Not Available Due to Construction

In Table 1 the IN column represents the number of trucks entering the study area, and the OUT column represents the number of trucks exiting the study area. The ten locations chosen above represent all the major entrance and exit point to the highways in the study area (I-88, IL-64, IL-23, and IL-38).

The traffic counts suggest that IL-38 is the most heavily traveled State Route in the study area, however it is difficult to determine the amount of traffic coming from the west on IL-64. Counts could not be obtained at this location due to the repaving project taking place along IL-64. The ADT counts taken at the intersection of IL-23 and IL-38/Lincoln Highway are low in comparison with counts taken by the Illinois Department of Transportation (IDOT) in 2003. Perhaps the counts are lower than usual with the majority Northern Illinois University's (NIU's) students off campus for summer vacation.

There is a significant amount of traffic utilizing the intersection of Fairview Drive and Peace Road. Some of the traffic is coming from the full interchange with I-88 to the south. The best route for motorists using IL-23, IL-38 to and from the east, and IL-64 to and from the east is to use either of this interchange rather than the interchange at Annie Glidden Road. The best route for motorist using IL-38 to and from the west, and IL-64 to and from the west is to use the interchange at Annie Glidden Road.

**Table 2
 Truck Traffic Summary**

Location	24-Hour Traffic Counts			9-Hour Survey		
	IN	OUT	ADTT	IN	OUT	Bi-Directional
IL-23 north of Peace Road	605	597	1202	305	146	451
Plank Road east of IL-23	529	454	983	208	183	391
IL-64 west of Motel Road	N/A	N/A	N/A	97	48	145
IL-64 east of Airport Road	417	354	771	173	178	351
IL-38 west of Somonauk Road	520	503	1023	206	222	428
Annie Glidden Road south of IL-64	179	188	367	54	74	128
IL-38 west of Annie Glidden Road	629	585	1214	284	299	583
Annie Glidden Road south of Fairview Dr.	306	315	621	139	111	250
IL-23 south of Gurler Road	799	312	1111	115	125	240
Peace Road south of Fairview Drive	667	738	1405	263	103	366
Total	4651	4046	8697	1844	1489	3333
Total Trucks With Local Destination	605			355		

N/A – Not Available Due to Construction

In Table 2 the IN column represents the number of trucks entering the study area, and the OUT column represents the number of trucks exiting the study area. The ten locations chosen above represent all the major entrance and exit point to the highways in the study area (I-88, IL-64, IL-23, and IL-38).

The total number of vehicles exiting the study area was subtracted from the total number of vehicles entering the study area to determine the number of vehicles that do not pass through the system during the designated time period. It is assumed that these vehicles have a local destination.

9-Hour License Plate Survey

The truck traffic study was performed on Wednesday, June 8, 2005. The survey was broken down into three different count periods as follows:

- 6:30 a.m. until 9:30 a.m.
- 10:30 a.m. until 1:30 p.m.
- 3:30 p.m. until 6:30 p.m.

It was agreed upon by DSATS that 17 locations be counted to determine the amount of through truck traffic passing through the study region. There were a total of seven intersections and ten roadway segments where workers were placed to record the last four characters of the front license plate of every passing heavy trucks. This was done for consistency, because many tractor/trailer combinations do not have matching front and back license plates. Cars, pick-up trucks, buses, and motorcycles were excluded from the count. Moving trucks and mail carrier trucks were included.

There were four workers placed at each intersection and each worker was responsible for recording the license plate number of all trucks approaching and departing the intersection from the leg they were standing at.

The resulting data was entered into *Microsoft Access* and the license plates from the entering nodes were matched with the license plates from exiting nodes. The high density travel routes were determined from looking at the ADT and ADTT counts and ten segments were identified that accommodate the most through traffic. The total through truck traffic is summarized in **Table 3** below and the through truck traffic tables are provided in the Appendix.

**Table 3
 Through Truck Traffic**

Location	Through Truck Traffic (45-Minute)	Through Truck Traffic (9-Hour)	% Through Truck Traffic Within 45- Minute Time Period
Segment 1 - IL-23 north of Peace Road	103	277	37%
Segment 2 - Plank Road east of IL-23	83	193	43%
Segment 3 - IL-64 west of Motel Road	47	125	38%
Segment 4 - IL-64 east of Airport Road	74	237	31%
Segment 5 - IL-38 west of Somonauk Road	63	168	38%
Segment 6 - Annie Glidden Road south of IL-64	16	53	30%
Segment 7 - IL-38 west of Annie Glidden Road	99	312	32%
Segment 8 - Annie Glidden Road south of Fairview Dr.	45	117	38%
Segment 9 - IL-23 south of Gurler Road	45	144	31%
Segment 10 - Peace Road south of Fairview Drive	18	33	55%

CONCLUSION

At the intersection of IL-23 and IL-38/Lincoln Highway the ADTT counted is similar to the ADTT counted by IDOT in 2003, thus suggesting that traffic is not being shifted from the tollway because of increased tolls. The percentage of truck traffic at this intersection is low in comparison with other areas counted in town. Trucks appear to be using other routes to avoid downtown DeKalb. Observations about downtown Sycamore are nearly impossible to make because of the IL-64 construction.

The percent heavy vehicles vary between 5% and 26%. IL-23, IL-38, IL-64 are all Class II designated highways and they contain the highest percentage of truck traffic. Peace Road is the only other segment in the study area that collects a large amount of truck traffic. The intersection of Peace Road and Fairview Drive experiences a high volume of heavy vehicles because of the interchange at I-88 with Peace Road. Illinois Route 23 has a high volume of heavy vehicles traveling to and from the north and south, however it appears some truck traffic is rerouting from IL-23 to Fairview Drive and Peace Road due to the heavy commercial development located along Sycamore Road. Based on field observations north/south travel is delayed along IL-23 through DeKalb. Motorists are recognizing this and seeking alternative routes to avoid numerous signals along Sycamore Road. The data suggests that Peace Road is receiving some of the diverted truck traffic, and perhaps Somonauk Road is also receiving some of this rerouted north/south truck traffic.