



Chapter 5 – Off Airport Roadways and Traffic

5.1 TRAFFIC IMPACTS TO SURROUNDING OFF AIRPORT ROADWAYS

5.1.1 Existing Traffic Conditions

The following intersections were identified as a result of initial study coordination with the City of Dallas and the Master Plan Advisory Committee and peak-hour turning movement counts were collected at each during August 2000:

- Southbound I-35E Frontage Road and Mockingbird Lane
- Northbound I-35E Frontage Road and Mockingbird Lane
- Cedar Springs Road and Mockingbird Lane
- Eastbound Mockingbird Lane to Northbound Airdrome Drive
- Lemmon Avenue and Mockingbird Lane
- Inwood Road and Mockingbird Lane
- Southbound Dallas North Tollway (DNT) and Mockingbird Lane
- Northbound DNT and Mockingbird Lane
- Lemmon Avenue and Inwood Road
- Lemmon Avenue and Airdrome Drive
- Lemmon Avenue and University Boulevard

Twenty-four hour tube counts were collected in July 2000 at various locations on roadways surrounding the airport. A seven-day, tube count was also conducted from July 27 through August 3, 2000 on the north and east legs of the Cedar Springs Road and Mockingbird Lane intersection. From this count, the peak hour of airport activity was found to occur on Friday afternoon between 3:45 and 4:45 P.M. Daily traffic for the Friday peak day was found to be 38,800 vpd and 49,900 vpd on Cedar Springs Road and Mockingbird Lane, respectively. Turning counts were also collected at the intersections during this peak period. Supplementing the collected traffic data were 1998 traffic turning movement counts at the Lemmon Avenue and Lovers Lane intersection found in the *Preliminary Traffic Study for an Aviation Terminal at Love Field Airport in Dallas, Texas*, conducted by DeShazo, Tang & Associates, Inc. in April 1998.

Intersection levels of service were based on methodologies prescribed by the Highway Capacity Manual (HCM)¹ for signalized and unsignalized intersections. Level of service for signalized intersections is defined in terms of delay per vehicle. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In contrast, in previous versions of the HCM (1994 and earlier), delay included only stopped delay. Control delay is sometimes referred to as *signal delay*.

Specifically, level of service (LOS) criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. The criteria are given in Table 5-1. Delay is a

¹ Transportation Research Board, *Highway Capacity Manual*, Special Report 209, Third Edition, Updated December 1997.



Chapter 5 – Off Airport Roadways and Traffic

complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

Table 5-2 provides the results of LOS calculations conducted for the existing traffic conditions during the mid-week A.M. and P.M. commuter peak hours as well as during the Friday afternoon airport peak hour. The turning counts were collected for the mid-week A.M. and P.M. commuter peak hour conditions with the exception of Cedar Springs/Mockingbird. The counts at the Cedar Springs/Mockingbird intersection were collected during the Friday afternoon airport peak hour.

**Table 5-1
INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service (LOS)	Description	Signalized Intersection Average Delay (seconds)	Unsignalized Intersection Average Delay (seconds)
A	Very low delay. Most vehicles do not stop at the intersection.	≤ 10	≤ 10
B	More vehicles stop than with LOS A, causing higher delays.	> 10 and ≤ 20	> 10 and ≤ 15
C	The number of vehicles stopping becomes significant, though many still pass through the intersection without stopping.	> 20 and ≤ 35	> 15 and ≤ 25
D	The influence of congestion becomes more noticeable. Many vehicles stop and the proportion of vehicles not stopping declines.	> 35 and ≤ 55	> 25 and ≤ 35
E	Results in delay considered to be unacceptable.	> 55 and ≤ 80	> 35 and ≤ 50
F	Considered unacceptable to most drivers, often occurs with over saturation, when arriving traffic exceeds the capacity at the intersection.	> 80	> 50

Source: 1997 Highway Capacity Manual.



Chapter 5 – Off Airport Roadways and Traffic

Table 5-2 Existing Level of Service

Intersection	A.M. Commuter Peak Existing (2000)		P.M. Commuter Peak Existing (2000)		Airport Peak Existing (2000)	
	Delay	LOS	Delay	LOS	Delay	LOS
SB I-35E Frontage Road and Mockingbird	22.2	C	31.0	C	45.5	D
NB I-35E Frontage Road and Mockingbird	34.0	C	25.9	C	30.2	C
Cedar Springs and Mockingbird	30.0	C	44.8	D	60.5	E
EB Mockingbird to NB Airdrome	10.4	B	18.9	B	20.2	C
Lemmon and Mockingbird	24.3	C	25.5	C	24.8	C
Inwood and Mockingbird	31.2	C	44.5	D	40.8	D
SB Dallas North Tollway and Mockingbird	13.1	B	18.5	B	17.9	B
NB Dallas North Tollway and Mockingbird	17.7	B	69.7	E	68.6	E
Lemmon and Inwood	32.8	C	63.4	E	37.6	D
Lemmon and Airdrome	12.1	B	21.7	C	21.1	C
Lemmon and University Boulevard	17.0	B	17.8	B	18.2	B
Lemmon and Lovers Lane	24.6	C	33.3	C	33.0	C

The LOS results show that during the P.M. commuter peak, the Northbound DNT/Mockingbird and the Lemmon/Inwood intersections operate at LOS “E.” During the Friday afternoon airport peak, the Northbound DNT/Mockingbird and the Cedar Springs/Mockingbird intersections operate at LOS “E.” The remaining intersections operate at an acceptable LOS (LOS “D” or better) during the commuter and airport peaks.

5.1.2 Future Traffic Conditions

Detailed traffic analyses were performed for the years 2005 and 2020. Comparative analyses were also performed for 2010 to evaluate the impact of the future alternative gate scenarios. The year 2005 off-site airport trip generation was obtained from the on-site traffic study. The 2005 traffic forecasts of airport activity were inflated by 13 percent to arrive at a 2020 level of airport traffic activity. Year 2020 daily traffic forecasts from the North Central Texas Council of Governments (NCTCOG) were obtained for the Love Field area. A.M. and P.M. peak hour turning forecasts were developed from the NCTCOG model forecast using the existing traffic counts collected. The NCTCOG airport traffic assignment was isolated and subtracted from these turning forecasts. The 2020 airport traffic activity forecast from the Master Plan study was then added to the 2020 background traffic volumes. The trip assignment used in the 2020 peak hour assignment was proportional to the same assignment of the isolated airport trips from the NCTCOG model.

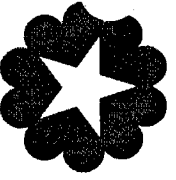


Chapter 5 – Off Airport Roadways and Traffic

Year 2005 background forecasts were estimated by linearly interpolating between the existing non-airport traffic and the 2020 background traffic levels. The 2005 airport trip assignment was added to this 2005 background forecast using a trip distribution that was also linearly interpolated between the existing airport trip assignment and that demonstrated in the 2020 NCTCOG model. Figures 5-1 through 5-3 depict the existing 2000 traffic conditions and year 2005 and 2020 traffic forecasts.

The City of Dallas has identified several short-term improvements to area intersections in their *Love Field Area Traffic Study, dated April 12, 1999*. These intersection improvements are to be constructed by 2003 and were assumed for all future analyses. They include:

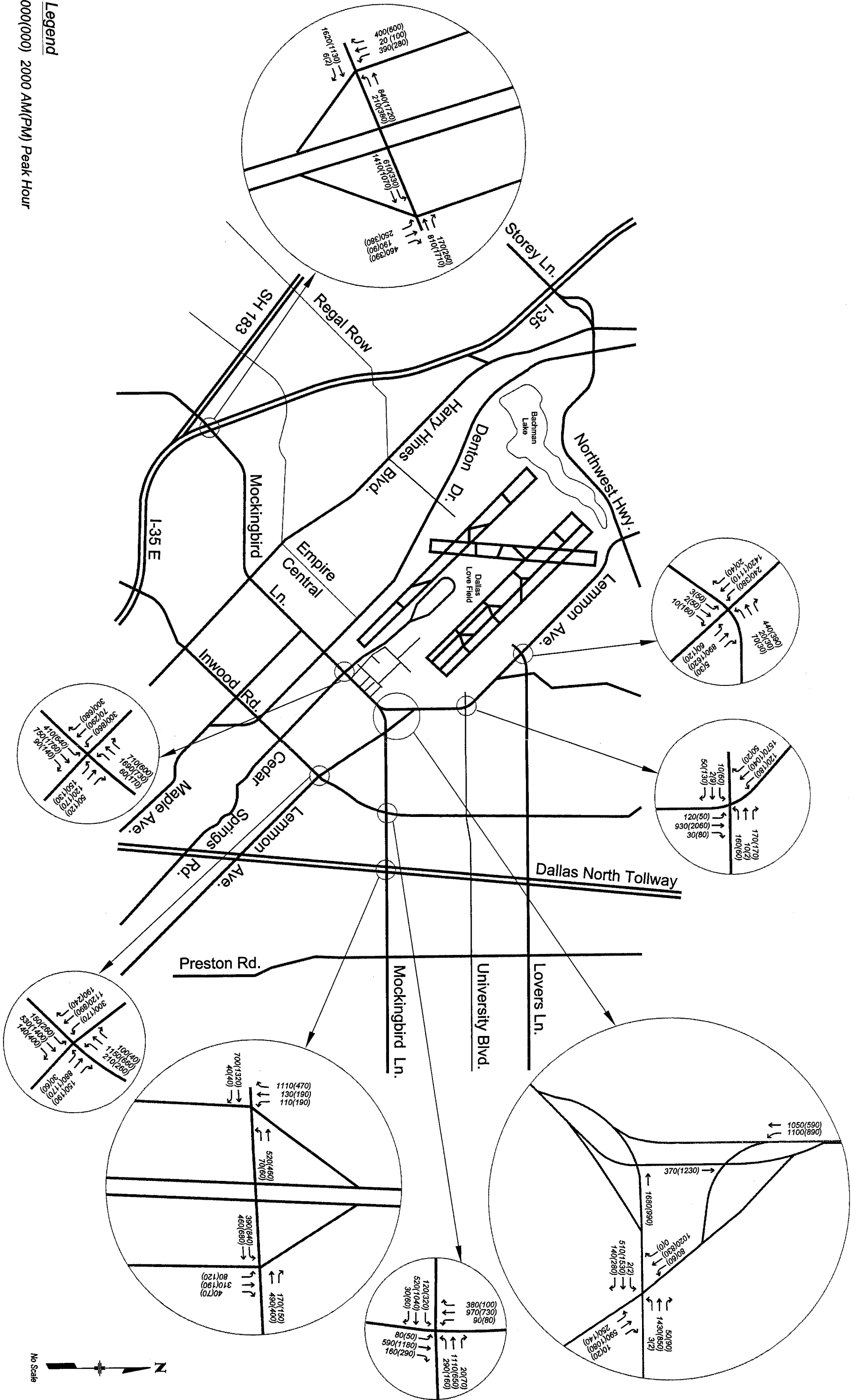
- Mockingbird at Cedar Springs – Increase southeast and southwest curb radii.
- Mockingbird, Airdrome to Denton – Add westbound lane from Airdrome to Cedar Springs and Cedar Springs to Denton - Median improvements.
- Mockingbird at Airdrome – Geometric improvements.
- Mockingbird at Lemmon – Add northbound (Lemmon) dual left-turn, increase northwest corner radius.
- Lemmon at Inwood – Dual left turns for all approaches, right-turn lanes for eastbound, westbound and northbound, improve all corner radii.
- Mockingbird at Inwood – Westbound dual left turn, southbound right turn lane, increase southbound and northbound left turn storage, improve all corner radii.
- Lemmon, Airdrome to Bluffview – Add southbound lane, add two northbound lanes from Airdrome to University, add one northbound lane from University to Bluffview, geometric improvements, upgrade signals.



DALLAS LOVE FIELD
AIRPORT MASTER PLAN



Legend
000(000) 2000 AM(PM) Peak Hour



2000 PEAK HOUR TRAFFIC, AVERAGE DAY, PEAK MONTH

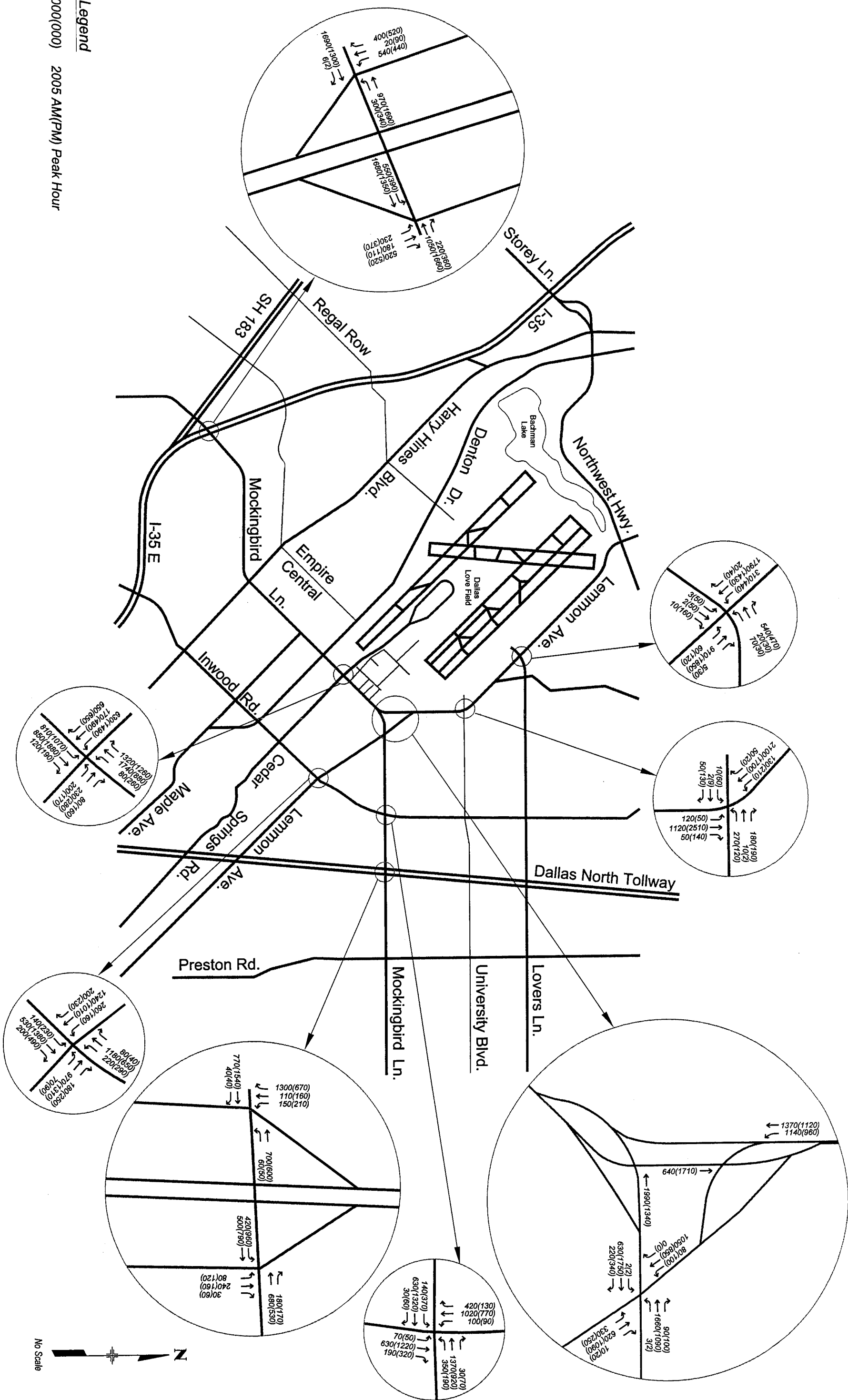
FIGURE 5-1



DALLAS LOVE FIELD
AIRPORT MASTER PLAN



Legend
000(000) 2005 AM(PM) Peak Hour



2005 PEAK HOUR TRAFFIC FORECASTS, CONSTRAINED OPERATIONS

FIGURE 5-2

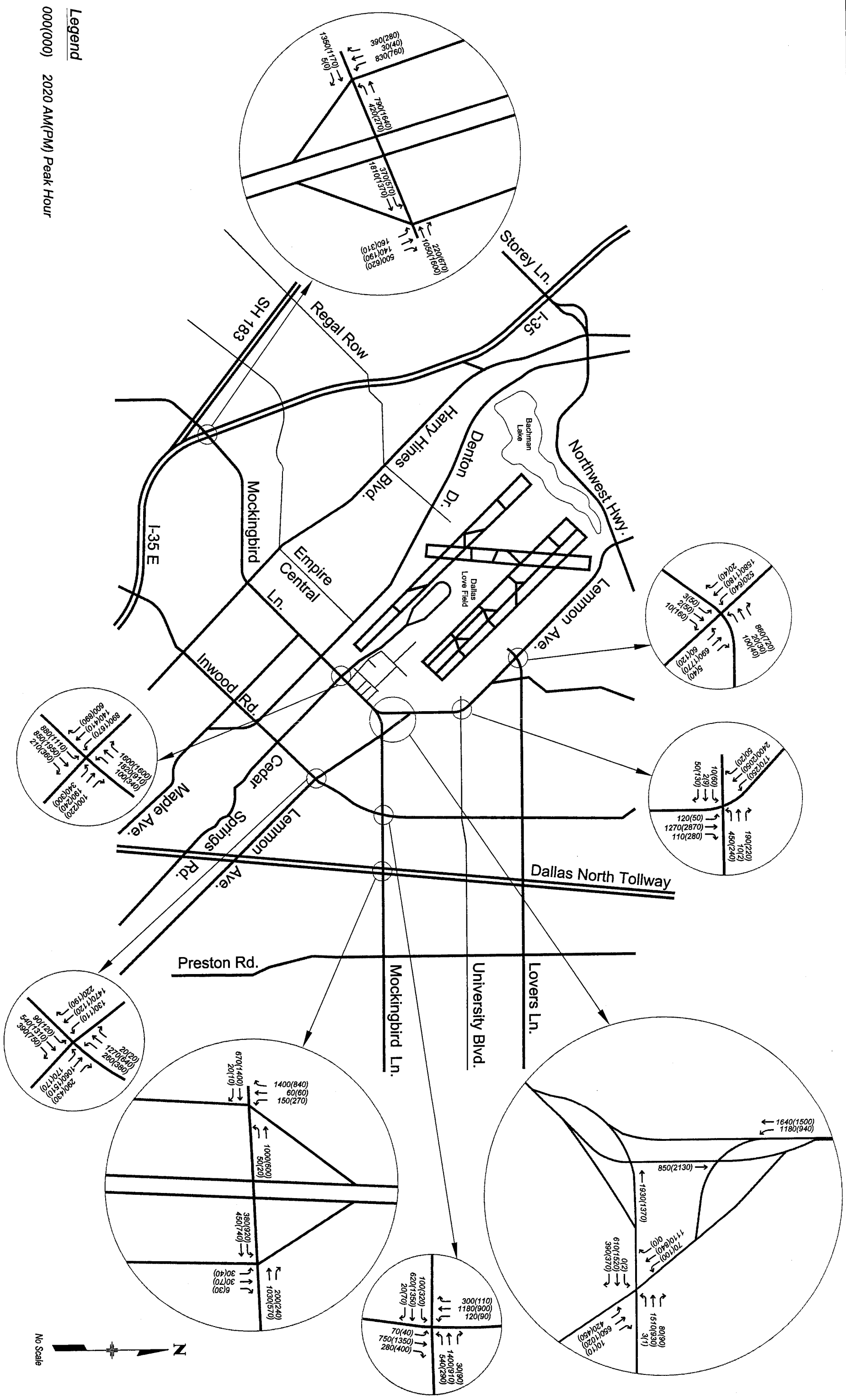
DMJM
Aviation
17300 Dallas Parkway, Suite 1010
Dallas, TX 75248
Tel: 972.735.3017
Fax: 972.735.3001



DALLAS LOVE FIELD
AIRPORT MASTER PLAN



Legend
000(000) 2020 AM(PM) Peak Hour



2020 PEAK HOUR FORECASTS

FIGURE 5-3

