

Report on
Monona Grove High School

Traffic Impact Study

Draft

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Monona Grove High School

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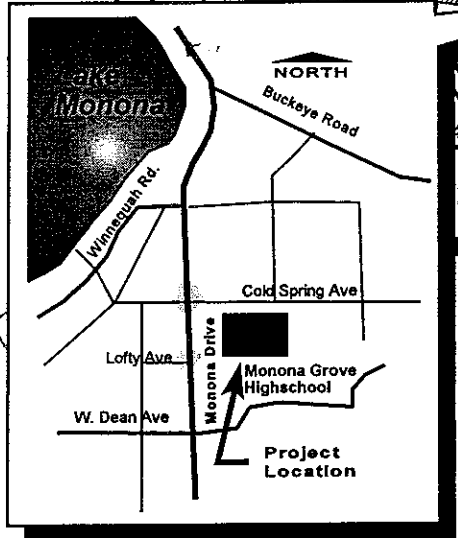
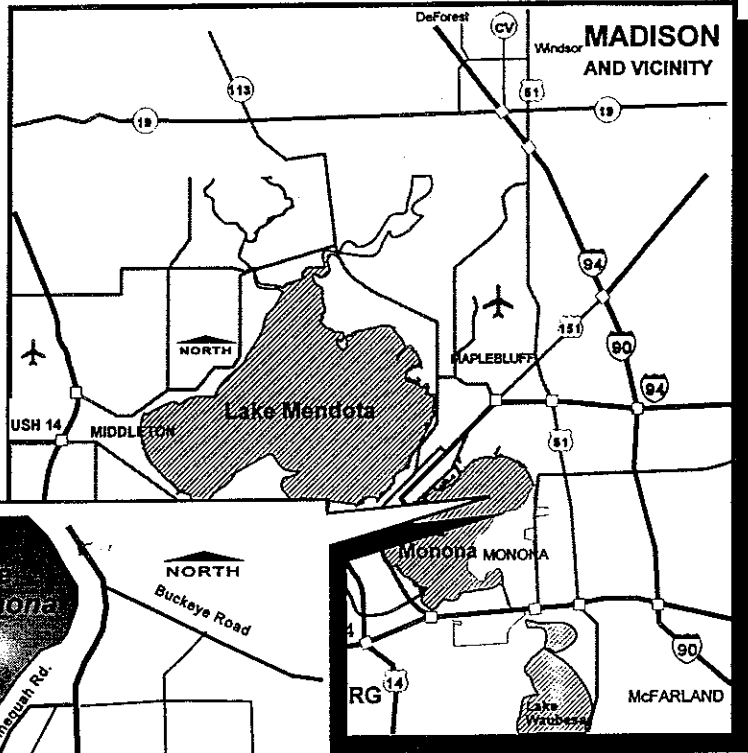
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ES.01 INTRODUCTION

The Monona Grove School District is proposing to build a new high school building at the current high school site located on Monona Drive. The school currently enrolls 750 students and the proposed project will increase their capacity by 250 students. With the construction of this building, several facility changes will also occur including additional parking, revised site access, a new swimming pool, and a new auditorium. Figure ES.01-1 shows the general study location. School construction will likely take two and one half years, with completion anticipated in the fall of 2000.



ES.02 PURPOSE OF THE REPORT

This study considers traffic operation and pedestrian accommodations with several site configurations. The purpose of this report is to evaluate potential

Figure ES.01-1 Project Location

benefits and drawbacks associated with each configuration and make a recommendation as to which configuration best meets the schools needs. The focus of the study evaluates the Lofty/Monona Drive intersection, the Cold Spring Avenue/Monona Drive intersection, and the proposed school site layout. Proposed alternative layouts include providing access to the site from either the Lofty Avenue/Monona Drive intersection, the Cold Spring Avenue/Monona Drive intersection, or both. Proposed alternative traffic control strategies include either continued stop sign control of Cold Spring Avenue and Lofty Avenue or a traffic signal at either of these locations.

ES.03 ANALYSIS

A. Motor vehicles

According to the Institute of Transportation Engineers Trip Generation Manual, the school itself generates 1,200 vehicles per day when school is in session. During the evening peak hour, less than 38 percent of school traffic uses the Cold Spring/Monona Drive intersection. At least 62 percent of the evening peak hour traffic from the school exits via Jerome Street to the north or via Cold Spring Avenue to the east.

This study analyzed intersection operational characteristics for weekday A.M. and P.M. peak hours. According to the analysis, left turns from Cold Spring Avenue and Lofty Avenue on to Monona Drive currently experience excessive delays during the A.M. and P.M. peak hours. These delays may exceed two minutes. Frustration caused by these long delays in some instances cause drivers to make turning maneuvers with traffic gaps that they would ordinarily find unacceptable.

The Manual on Uniform Traffic Control Devices publishes guideline criteria for determining the need for traffic signals. These criteria are called warrants and there are 14 different "warrants" that justify intersection signalization. Warrant analyses were performed for the Monona Drive/Cold Spring Avenue and Monona Drive/Lofty Avenue intersections. Evaluation of the Monona Drive/Cold Spring intersection indicates that this intersection currently meets warrant 4, School Crossings, and warrant 11, Peak Hour Volume. Evaluation of the Monona Drive/Lofty Avenue intersection indicates that this intersection currently meets warrant 4, School Crossings. If all access to the school is via the Lofty Avenue intersection, this intersection would also meet warrant 11, Peak Hour Volume.

It is likely that with better access to Monona Drive via a traffic signal, more traffic would use Monona Drive to access the school site. Currently at least 62 percent of traffic exiting the school in the pm peak hour avoids Monona Drive by using local streets such as Jerome Street and Cold Spring Avenue to the east. With the additional traffic attracted to Monona Drive due to the convenience of traffic signals, signal warrants would likely be exceeded to a greater degree than current traffic volumes indicate.

B. Pedestrians

The minimum recommended traffic gap for a pedestrian to cross Monona Drive is 15 seconds. To determine the number of crossing opportunities for pedestrians a gap study was performed. Between 3 P.M. and 4 P.M., there were 6 gaps of 15 or more seconds. Between 3:30 P.M. and 3:45 P.M., there was one gap of 15 or more seconds. The Monona Grove High School class day ends at 3:27 P.M., therefore, there was only one gap of adequate length during the

afternoon rush as students left school. Currently, many students cross Monona Drive while there are insufficient gaps. Observation of this peak pedestrian period found that as students crossed Monona Drive, much of the traffic on Monona Drive slowed and yielded to the pedestrians in the marked crosswalks. Therefore, while there may be only one gap of recommended length for pedestrians crossing during this peak period, pedestrians are creating more opportunities by forcing Monona Drive traffic to yield.

C. Crash History

For the three-year period from 1994 through 1996, there were eight reported crashes at the Monona Drive/Cold Spring Avenue intersection. Eight crashes within a three-year period is not unusual for an intersection carrying these traffic volumes and does not in itself warrant signalization. For the three-year period from 1994 through 1996, there were four reported crashes at the Monona Drive/Lofty Avenue intersection. Again, four crashes is not unusual for an intersection carrying these traffic volumes and does not in itself warrant signalization.

ES.04 RECOMMENDATIONS

The recommended option should address to the greatest extent the traffic and pedestrian operational objectives. These objectives are:

- Facilitate passenger car travel to and from the school site.
- Accommodate bus travel to, from, and within the site.
- Provide convenient and safe pedestrian routes to and from the site.

Locating all vehicular access onto Cold Spring Avenue and installing a traffic signal at the Cold Spring Avenue/Monona Avenue best addresses these objectives. Passenger car travel to and from the site will be convenient and predictable. Bus travel similarly benefits from the installation of a traffic signal on Monona Drive. Pedestrians are provided more substantial gaps at the Lofty Avenue intersection without the added potential for crashes from vehicular access to the school site at Lofty Avenue. Pedestrians are also provided a signalized intersection at which to cross Monona Drive if they so choose. Traffic on Monona Drive is delayed only slightly, and through appropriate signal timing, speeds between Dean Avenue and Cold Spring Avenue can be better controlled. Neighborhood residents will benefit from better access to Monona Drive due to the traffic signal, and less non neighborhood cut through traffic which previously used local streets to avoid delays at Monona Drive.

ES.05 IMPLEMENTATION

The county is planning to rebuild Monona Drive in approximately seven years. The most cost effective strategy for installing a traffic signal at Monona Drive and Cold Spring Avenue would be to coordinate signal installation with this construction work. In the interim, traffic patterns should remain similar to those today, with slightly greater delays due to the increased traffic to the site. With the additional parking and building amenities, there is greater justification for traffic signals once the new school is completed.

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SECTION 1
INTRODUCTION

1.01 PROJECT DESCRIPTION AND LOCATION

The Monona Grove School District is proposing to build a new high school building at the current high school site located on Monona Drive. The school currently enrolls 750 students and the proposed project will increase their capacity by 250 students. The project is located in the City of Monona at the intersection of Monona Drive and Cold Spring Avenue. With the construction of this building, several facility changes will also occur including additional parking, revised site access, a new swimming pool, and a new auditorium. Figure 1.01-1 shows the general study location. Approximately 227,000 square feet of floor area is anticipated for the new building. Land use surrounding the development locations consists of residential housing north and west of the school, and commercial development south and east of the school.

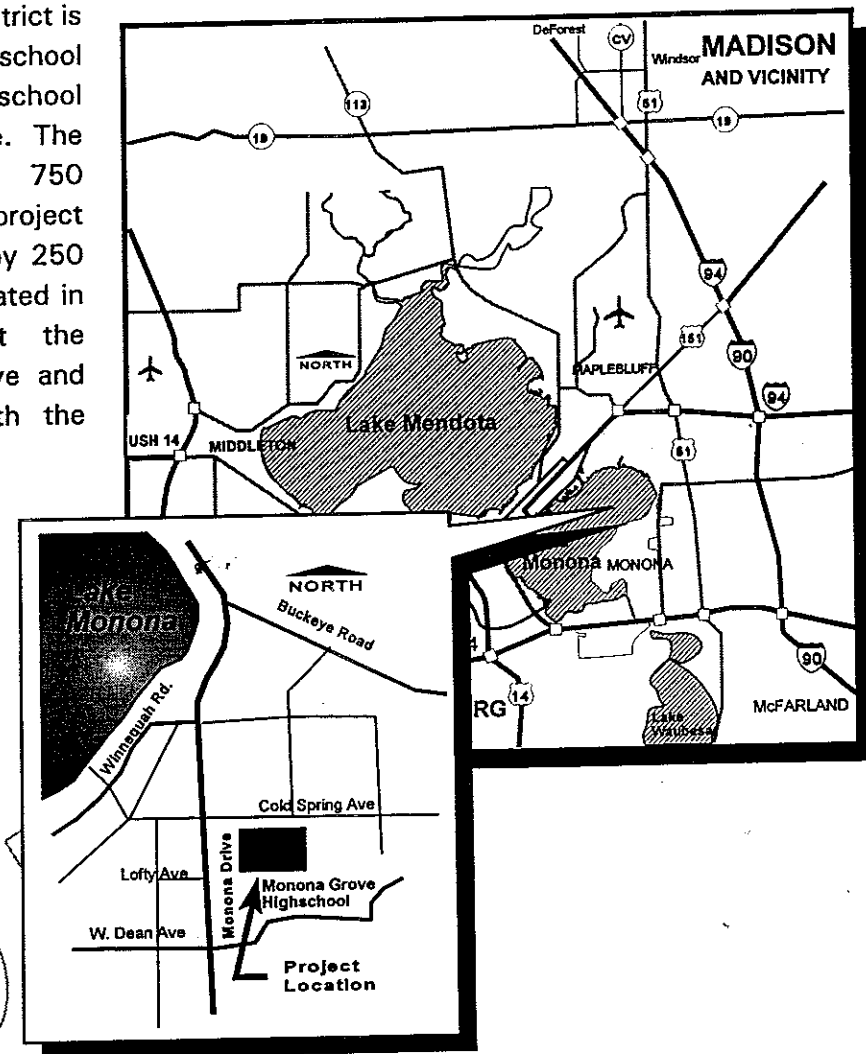


Figure 1.01-1 Project Location

Monona Drive will serve as the primary access for the school via Lofty Avenue and/or Cold Spring Avenue.

The school construction will likely take two and one half years, with completion anticipated in the fall of 2000. Figure 1.01-2 shows the existing site layout of the site, and existing access locations.

1.02 PURPOSE OF THE REPORT

This study will consider traffic operation and pedestrian accommodations with several site configurations. The purpose of this report is to evaluate potential benefits and drawbacks associated with each configuration and make a recommendation as to which configuration best meets the schools needs.

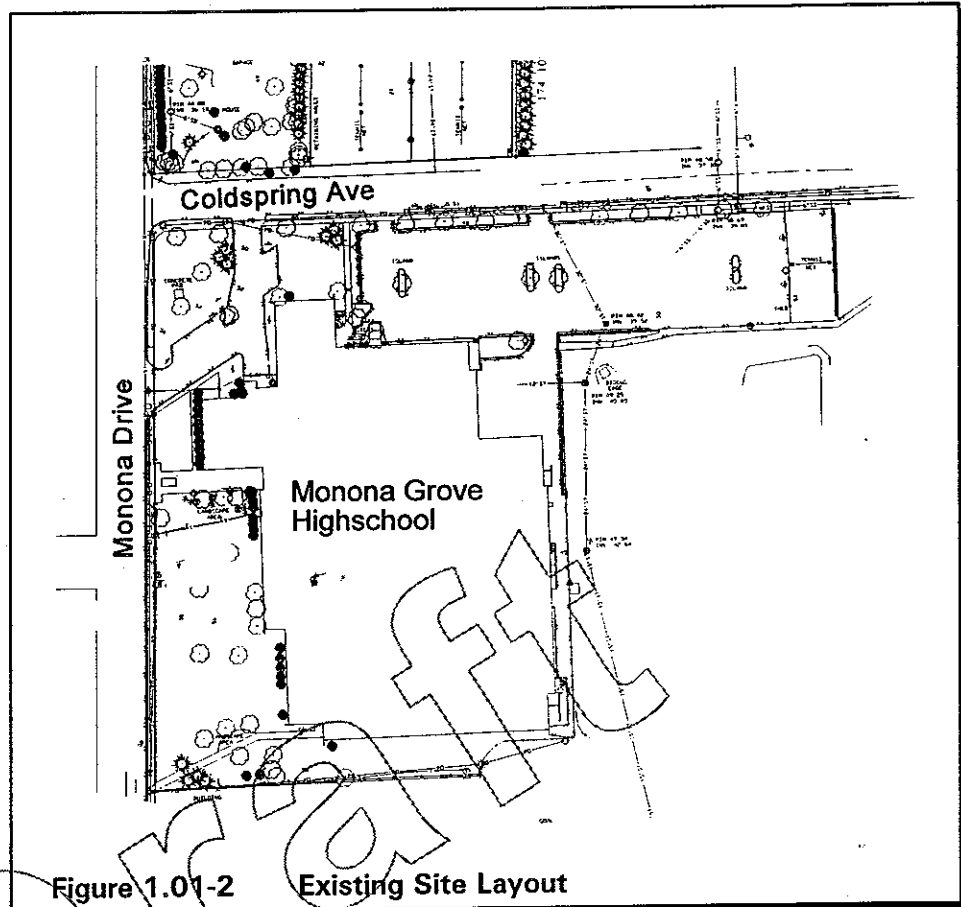


Figure 1.01-2 Existing Site Layout

To perform this analysis, this study performed several activities, including:

- Inventorying the existing geometry, traffic volumes, and pedestrian volumes in and around the school.
- Determining the existing level of service for traffic and pedestrians at the intersections of Monona Drive/ Cold Spring Avenue, and Monona Drive/Lofty Avenue.
- Determining the future pedestrian and vehicular traffic and traffic needs in the vicinity of the school.
- Formulating alternatives to address the vehicular and pedestrian needs in the school vicinity.

- Evaluating the alternatives as to how they address the pedestrian and vehicular needs of the school.
- Evaluating current parking capacity and future parking needs.
- Selecting an alternative which best addresses the needs of Monona Grove High School.

The focus of the study evaluates the Lofty/Monona Drive intersection, the Cold Spring Avenue intersection, and the proposed school site layout.

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SECTION 2
EXISTING CONDITIONS

2.01 GEOMETRY AND LAYOUT

A. Roadways

Monona Drive serves as an arterial transporting road users from the Beltline to Atwood Avenue and other points in Madison. This four-lane undivided roadway incorporates 44 feet of traveling surface with 2.5-foot gutters. Average Daily Traffic (1996) on Monona Drive is 26,600 vehicles per day (vpd).¹ There are sidewalks on both sides of Monona Drive south of Cold Spring Avenue and on the west side north of Cold Spring Avenue. South of the Monona Grove High School, Monona Drive is commercially oriented with strip malls and service station-like establishments. In front of and north of the high-school, Monona Drive has residential housing lining its frontage.

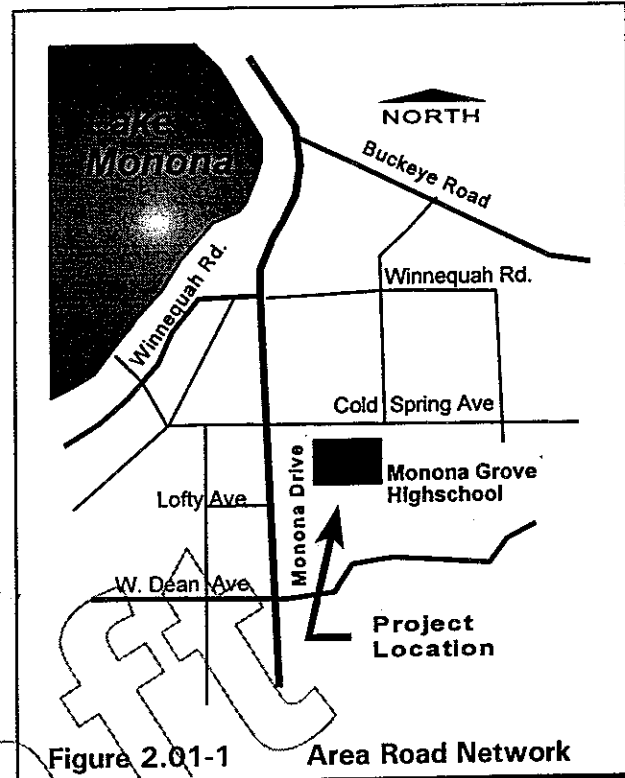


Figure 2.01-1 Area Road Network

Cold Spring Avenue is a two-lane undivided road which intersects with Monona Drive. Cold Spring Avenue is 34 feet wide west of Monona Drive and 39 feet wide east of Monona Drive. Adjacent land uses on Cold Spring Avenue are primarily residential. Average Daily Traffic on Cold Spring Avenue in the area investigated is about 1,100 vpd.² There is sidewalk on the south side of Cold Spring Avenue east of Monona Drive. Cold Spring Avenue is predominantly a residential street.

Lofty Avenue is a two-lane undivided road which intersects Monona Drive from the west. Lofty Avenue is 34 feet wide. Adjacent land uses on Lofty Avenue are primarily residential. Average Daily Traffic on Lofty Avenue in the area investigated is about 550 vpd.³ There are no sidewalks on Lofty Avenue. Lofty Avenue is predominantly a residential street.

¹ From WisDOT Wisconsin Highway Traffic Volume Data.

² Based on traffic counts taken 11/19/97-11/20/97.

³ Based on traffic counts taken 11/19/97-11/20/97.

Thier report claims 345' SD with 40 mph approach speed
 ⇒ should yield design spd. of 34.5 mph
 Not 27 mph as their report states

are based on different assumptions which result in lower values. No-passing zones are based on the 85th percentile speed during low-volume conditions, which is slightly less than the design speed.

Sight distance adequate for passing should be provided frequently in design of two-lane highways, and each passing section should be as long as feasible. Although the frequency and lengths of such passing sections depend on physical and cost considerations and cannot be reduced to a standard, the importance of providing passing opportunities on as much of the length of a two-lane highway as possible cannot be overemphasized. The percentage of the highway where passing can take place affects not only capacity, but also the safety, comfort, and convenience of all highway users.

For purposes of design, passing sight distance for both horizontal and vertical restrictions is measured from a "seeing" height of 3.5 ft (1.05 m) to an object height of 4.25 ft (1.3 m). For purposes of marking pavement, it is measured from a "seeing" height of 3.75 ft (1.15 m) to an object height of 3.75 ft (1.15 m).

Intersection sight distance. Intersections should be planned and located to provide as much sight distance as possible. In achieving a safe highway design, as a minimum, there should be sufficient sight distance for the driver on the minor highway to cross the major highway without requiring approaching traffic to reduce speed. Minimums for different design speeds are shown in Table 19-8. Stop con-

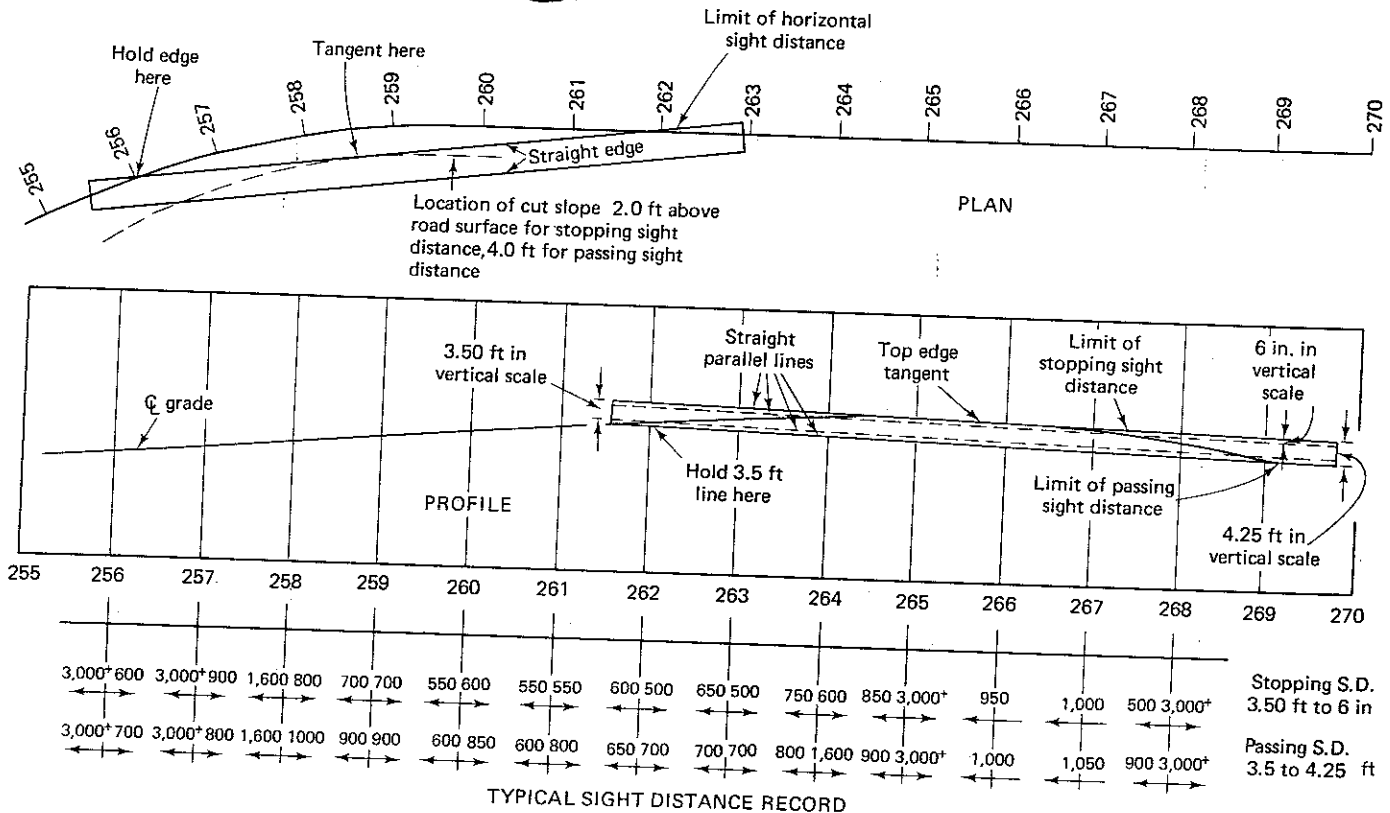
trols are assumed; other forms of traffic control have different intersection sight distance requirements.

Procedures for checking plans. It is often desirable during the preliminary design stage to determine graphically the sight distances and record them at frequent intervals. Methods for scaling sight distances and a typical sight distance record which should be shown on final plans are shown in Figure 19.2. For two-lane highways, passing sight distance, in addition to stopping sight distance, should be shown.

Horizontal sight distance on the inside of curves may be limited by obstructions such as buildings, plant growth, or cut slope. Horizontal sight distance is measured along a straight edge, as indicated in the upper left in Figure 19.2.

Figure 19.2. Scaling and recording sight distances on plans. (Metric conversion factor: multiply values by 0.305 m/ft.) SOURCE: Adapted from *A Policy on Geometric Design of Rural Highways*, Washington, D.C.: American Association of State Highway Officials, 1965, p. 150.

not always practical in urban environments.



B. Intersections

The most northerly intersection in the study area is the Monona Drive/Cold Spring Avenue intersection. Monona Drive runs north south while Cold Spring Avenue runs east west. The Monona Drive/Cold Spring Avenue intersection is unsignalized with north-south Monona Drive traffic having through right-of-way and Cold Spring Avenue having stop control. Sight distance at this intersection to the north is more than adequate; however, sight distance to the south is only 345 feet. This sight distance corresponds to a safe traveling speed of 27 mph for northbound Monona Drive vehicles. The posted speed limit for northbound Monona Drive vehicles, however, is 40 mph. Therefore, northbound Monona Drive vehicles must slow down for westbound Cold Spring vehicles turning right or eastbound Cold Spring vehicles turning left onto Monona Drive. Although this intersection sight distance is less than desirable, a review of the intersection's crash history from 1994 to 1996 does not show a crash associated with sight distance. Therefore, the crash history suggests that this less than desirable sight distance does not pose a significant safety problem.

The intersection of Monona Drive with Lofty Avenue is located directly south of Cold Spring Avenue. This intersection is also unsignalized with Lofty Avenue having stop control and Monona Drive having the through right-of-way. At present, this intersection is three way, with Lofty Avenue ending at Monona Drive. As part of the proposed school access plan, the existing school driveway located between Lofty Avenue and Cold Spring Avenue may be relocated to the east side of this intersection. Sight distance at this intersection is greater than 1,000 feet in both directions, which is more than adequate for the speeds on Monona Drive.

The Monona Drive/West Dean Avenue intersection is a signalized intersection 900 feet south of Monona Grove High School. This intersection is not technically within the study area. Signal timing associated with this intersection, however, influences vehicular and pedestrian traffic entering and exiting the high school. Therefore, this intersection is considered in some portions of the report.

C. Site

The existing school layout has four access points (driveways). One driveway lies on Monona Drive between Cold Spring Ave and Lofty Avenue and forms a "U" with a driveway on Cold Spring Avenue. This driveway combination is used primarily for drop-off traffic and buses. The third and fourth driveways are also located on Cold Spring Avenue and serve as the entrance to majority of the school's parking. This driveway is used both for drop-off traffic and for vehicles using the school's 182 parking spaces.

D. Pedestrian Accommodations

Monona Drive has sidewalks on both sides of Monona Drive south of Cold Spring Avenue and on the west side of Monona Drive north of Cold Spring Avenue. Additionally, there is sidewalk on the south side of Cold Spring Avenue to the east of Monona Drive. Special "zebra" stripe crosswalks crossing Monona Drive are located at Cold Spring Avenue, Lofty Avenue, and between Lofty Avenue and Dean Avenue. At the Dean Avenue signal there are pedestrian signal heads and push buttons.

2.02 TRAFFIC VOLUMES

A. Motor vehicles

Currently traffic volumes on Monona Drive range from 25,400 to 38,700 vehicles per day. Traffic volumes on Cold Spring Ave are 1,100 vehicles per day and volumes on Lofty Avenue are 550 vehicles per day⁴. According to the Institute of Transportation Engineers Trip Generation Manual, the school itself generates 1,200 vehicles per day when school is in session. During the evening peak hour, less than 38 percent of school traffic uses the Cold Spring/Monona Drive intersection. At least 62 percent of the evening peak hour traffic from the school exits via Jerome Street to the north or via Cold Spring Avenue to the east. Parking for the school facility is accommodated by the 182 parking spaces on the site and along adjacent side streets. Approximately 50 vehicles a day park on side streets adjacent to the site when school is in session.

For this study, turning volumes were also recorded for the Cold Spring Avenue/Monona Drive intersection and the Lofty Avenue/Monona Drive intersection. The predominant turning movements at the Cold Spring Avenue/Monona Drive intersection are north bound right turns and west bound left turns. Even with modest volumes, traffic queues of eight or more vehicles waiting to turn onto Monona Drive are common on Cold Spring Avenue. Turning movements at the Lofty Avenue/Monona Drive intersection are minor, with no more than 10 vehicles per hour making any one turning movement. This indicates that much of the traffic at these intersections is oriented towards the south, and that many drivers chose to avoid Monona Drive by using Cold Spring Avenue to the east and Jerome Street to the north.

No counts were taken during special events such as concerts, football and basketball games. It is estimated that these types of events can generate from 500 to 750 trips, depending on

⁴ Mainline traffic volumes were obtained from both WisDOT and counts taken on November 19 and 20, 1997. Traffic turning counts were also recorded on November 19 from 7 to 9 A.M. and 2 to 6 P.M. and December 16 and 17 from 7:15 to 8:15 A.M. and 3:15 to 4:15 P.M. at 15 - minute intervals.

how large an audience attends. For larger events, traffic control on Monona Drive is managed by a police officer.

B. Pedestrian/Bicyclist

From counts taken in November and December 1997, approximately 70 pedestrian cross Monona Drive in the vicinity of the school in the morning and afternoon. The majority of these pedestrians are students whose origin and destination is their cars parked in the neighborhood west of the school. There are no official bicycle counts for the study area; however, it is estimated that between 5 and 10 students ride their bicycles to school during favorable weather.

2.03 SERVICE LEVELS

A. Motor Vehicles

The operation of a roadway (e.g., congestion levels) is typically described as "Level of Service" (LOS). The LOS rating system describes the traffic flow conditions of a roadway or intersection and ranges from A (free-flow conditions) to F (over capacity).

For intersections, LOS is determined by the average delay (in seconds) of all vehicles entering the intersection. The average delay is based on the peak 15-minute period of the peak hour being analyzed. Since this delay is an average value, some vehicles will experience substantially greater delay, and some will experience less delay than the average value. Intersections with short average delays have high Levels of Service; conversely, intersections with long average delays have low Levels of Service. LOS E is considered to be the limit of acceptable delay. A LOS of F for the total intersection is considered to be an indication of the need for improvement.

LOS characteristics are different for signalized and unsignalized intersections. The primary reason for this is that drivers anticipate longer delays at signalized intersections which carry large amounts of traffic. However, drivers generally feel unsignalized intersections should have less delay. Additionally, several driver-behavior considerations combine to make delays at unsignalized intersections less desirable than at signalized intersections. For example, drivers at unsignalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive in order to identify acceptable gaps for entry. Typically, LOS is only calculated for the legs of an unsignalized intersection that have stop control. The following table describes Level of Service characteristics for both signalized and unsignalized intersections.

LOS	Signalized Intersections	Unsignalized Intersections
A	Describes intersections with very low levels of delay that average less than 5 seconds per vehicle. This condition occurs with extremely favorable signal progression and most vehicles arrive on the green phase of the signal.	Describes intersections with very low levels of delay that average less than 5 seconds per vehicle.
B	Describes intersections with low levels of delay that are more than 5 seconds yet less than 15 seconds per vehicle. This condition generally occurs with short cycle lengths and/or good signal progression.	Describes intersections with low levels of delay that are more than 5 seconds yet less than 10 seconds per vehicle.
C	Describes intersections with average delays ranging from 15 to 25 seconds per vehicle. Individual cycle failures (waiting through more than one cycle) may appear at this Level of Service. The number of vehicles stopping is also substantial at this Level of Service.	Describes intersections with average delays ranging from 10 to 20 seconds per vehicle.
D	Describes intersections with average delays ranging from 25 to 40 seconds per vehicle. The influence of congestion becomes more noticeable. This Level of Service may result from long cycle lengths, unfavorable progression and/or high vehicle to capacity ratios. Many vehicles stop and the proportion of non-stopping vehicles declines. Individual cycle failures are noticeable.	Describes intersections with average delays ranging from 20 to 30 seconds per vehicle. The influence of congestion becomes more noticeable.
E	Describes intersections with average delays ranging from 40 to 60 seconds per vehicle. Individual cycle failures are frequent occurrences. This level of service is considered by most agencies to be the limit of acceptable delay.	Describes intersections with average delays ranging from 30 to 45 seconds per vehicle.
F	Describes intersections with average delays that are more than 60 seconds per vehicle. This level of service, considered to be unacceptable by most drivers, often occurs with over saturation. The number of vehicles entering the intersection exceeds the intersection's capacity.	Describes intersections with average delays that are more than 45 seconds per vehicle. LOS F exists where there are insufficient gaps of suitable size to allow a side street demand to cross safely though a major street traffic stream. This LOS is usually evident from extremely long total delays experienced by side street traffic and queuing on the minor approaches.

Source: 1994 Highway Capacity Manual

Table 2.03-1 Operational Characteristics Associated with LOS Ratings

Most roadways typically have two peak-hour periods, one being the morning rush hour and the other being the evening rush hour. This study analyzed intersection operational characteristics for weekday A.M. and P.M. peak hours. Operation was analyzed using Highway Capacity Manual Software for the unsignalized intersections and Signal 94 (possible future) for signalized intersections. The Highway Capacity Manual Software calculates the LOS for yielding movements at stop-controlled intersections. Signal 94 uses the Highway Capacity Manual methods for determining operation levels at signalized intersections. Signal 94 also has the ability to optimize signal phasing and timing.

According to the analysis, left turns from Cold Spring Avenue and Lofty Avenue on to Monona Drive currently operate at LOS F during the A.M. and P.M. peak hours. The analyses also indicate that delays for these left-turning vehicles can be extremely long, in some instances exceeding two minutes. Frustration caused by these long delays in some instances cause drivers to make turning maneuvers with traffic gaps that they would ordinarily find unacceptable.

The Manual on Uniform Traffic Control Devices publishes guideline criteria for determining the need for traffic signals. These criteria are called warrants and there are 14 different "warrants" that justify intersection signalization. These warrants, although giving justification for a traffic signal, do not require that a traffic signal be installed. Warrant analyses were performed for the Monona Drive/Cold Spring Avenue and Monona Drive/Lofty Avenue intersections. Evaluation of the Monona Drive/Cold Spring intersection indicates that this intersection currently meets warrant 4, School Crossings, and warrant 11, Peak Hour Volume. Evaluation of the Monona Drive/Lofty Avenue intersection indicates that this intersection currently meets warrant 4, School Crossings. It is likely that with better access to Monona Drive via a traffic signal, more traffic would use this access. Currently at least 62 percent of traffic exiting the school in the pm peak hour avoid Monona Drive by using local streets such as Jerome St. and Cold Spring Avenue to the east. With the additional traffic attracted to Monona Drive due to the convenience of a traffic signals, signal warrants would be met or exceeded to a greater degree than current traffic volumes indicate.

B. Pedestrians

The minimum recommended traffic gap for a pedestrian to cross Monona Drive is 15 seconds. To determine the number of crossing opportunities for pedestrians a gap study was performed. Between 3 P.M. and 4 P.M., there were 6 gaps of 15 or more seconds. Between 3:30 P.M. and 3:45 P.M., there was one gap of 15 or more seconds. The Monona Grove High School class day ends at 3:27 P.M., therefore, there was only one gap of adequate length during the afternoon rush as students left school. Currently, many students cross Monona Drive while there are insufficient gaps. Observation of this peak pedestrian period found that as students crossed Monona Drive, much of the traffic on Monona Drive slowed and yielded to the

pedestrians in the marked crosswalks. Therefore, while there may be only one gap sufficient for pedestrian crossing during this peak period, pedestrians are creating more opportunities by forcing Monona Drive traffic to yield.

2.04 CRASH HISTORY

A. Monona Drive and Cold Spring Avenue

For the three-year period from 1994 through 1996, there were eight reported crashes at the Monona Drive/Cold Spring Avenue intersection. Five of these crashes involved Cold Spring vehicles turning left onto or crossing Monona Drive. One of these crashes involved a rear-end crash on Monona Drive, one crash involved a Monona Drive vehicle turning left onto Cold Spring Drive, and the other crash involved a crash with a parked car on Monona Drive. Eight crashes within a three-year period is not unusual for an intersection carrying these traffic volumes and does not in itself warrant signalization.

B. Monona Drive and Lofty Avenue

For the three-year period from 1994 through 1996, there were four reported crashes at the Monona Drive/Lofty Avenue intersection; two were rear-end crashes on Monona Drive, one involved a pedestrian, and one involved a parked car. Again, four crashes is not unusual for an intersection carrying these traffic volumes and does not in itself warrant signalization.

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SECTION 3
TRAFFIC IMPACT ANALYSIS

3.01 PROJECTED TRIPS WITH REVISED SCHOOL ROAD NETWORK

Currently the Monona Grove High School enrolls 750 students, which generates approximately 1,200 trips. With the proposed project, the school's capacity will be increased by 250 students, which will increase the number of trips generated by the school by 400. About 50 school-related vehicles also park on adjacent side streets. With the increased on-site parking that will be provided by the project, these vehicles will now enter and exit the high school facility, increasing trips entering and exiting the facility. This shift in parking location may also decrease the number of pedestrians who cross Monona Drive to get to their parked vehicles.

Additionally, the proposed school internal road network may change traffic patterns near the school. Depending on the site layout selected, vehicles may enter and exit on Cold Spring Avenue only, or on a combination of Monona Drive and Cold Spring. The internal layout will affect traffic distribution to the Cold Spring Road and Lofty Avenue intersections, which will in turn affect the traffic operation of these intersections. The traffic distribution associated with the various alternatives is discussed more fully in Section 4 of this report.

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**SECTION 4
ALTERNATIVES**

4.0 ALTERNATIVES

Alternatives for the site must address passenger car, bus, and pedestrian traffic, and access. Therefore, each alternative should:

- Facilitate passenger car travel to and from the school site.
- Accommodate bus travel to, from, and within the site.
- Provide convenient and safe pedestrian routes to and from the site.

To address these objectives, three main alternatives (each with two or three sub-alternatives) were formulated. Each alternative uses different access configurations, site layout configuration, and/or signalization scenarios to accomplish the above stated objectives. The following paragraphs summarize the characteristics of each alternative.

4.01 ALTERNATIVE A

A. Alternative A1

Alternative A1 arranges the school layout so that the only school entrance and exit is a driveway at the Lofty Avenue intersection. Passenger vehicles and buses will use this driveway to enter and exit the site, to drop off students, and to use the school site's parking. All driveways on Cold Spring Avenue would be eliminated as well as the existing school entrance on Monona Drive. Pedestrian crosswalks would remain at Cold Spring Avenue and Lofty Avenue. Sidewalks within the school site will direct pedestrians to the crossing at this intersection. This will focus all of the site traffic to this intersection.

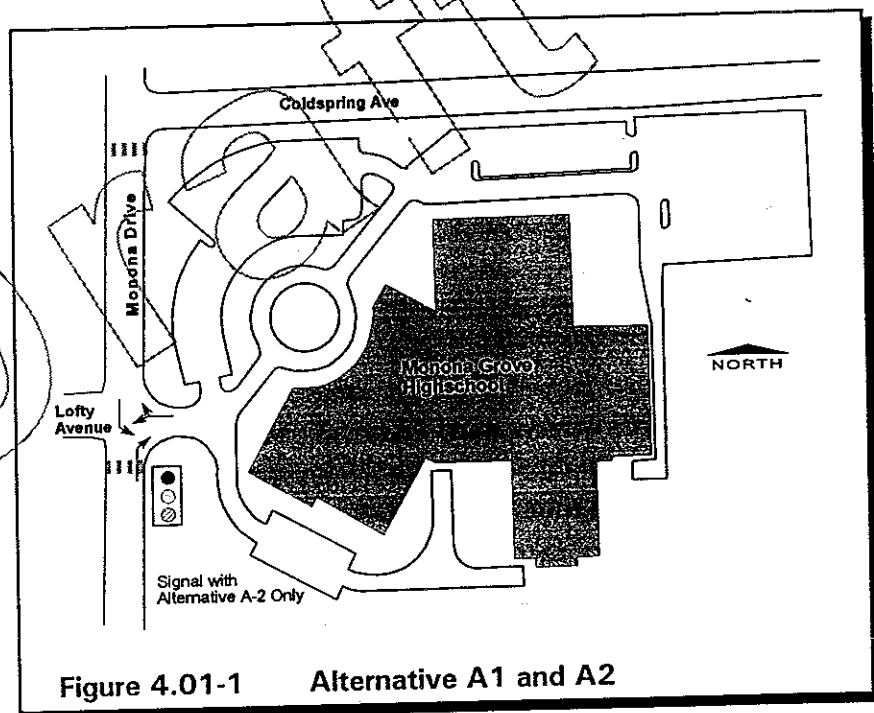


Figure 4.01-1 Alternative A1 and A2

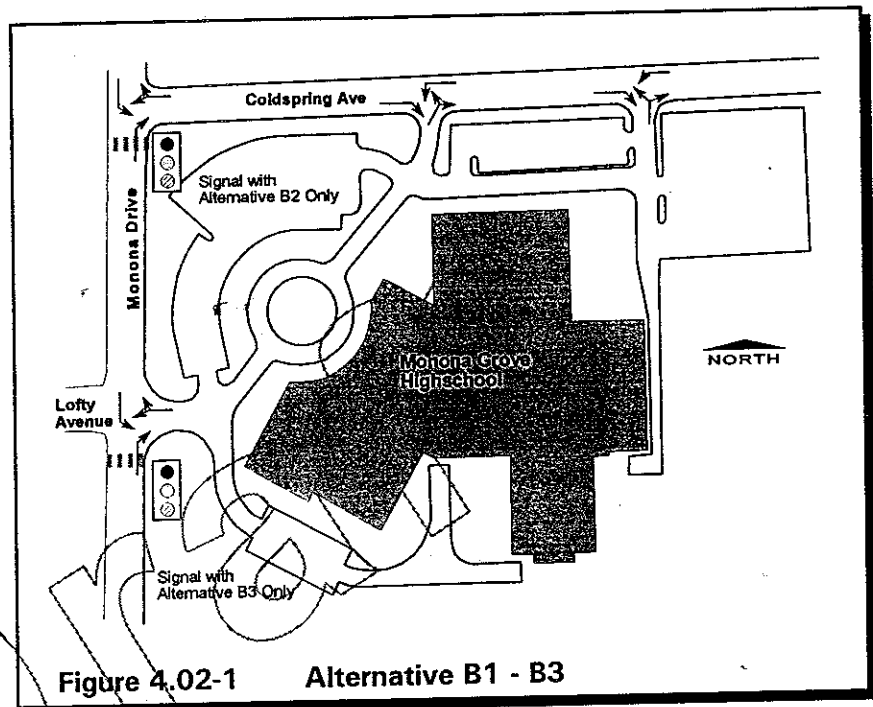
B. Alternative A2

Alternative A2 is identical to Alternative A1 with the exception that Lofty Avenue is signalized. The access driveways along Cold Spring Avenue are eliminated. This will focus all of the site traffic to the Lofty Avenue intersection. All traffic will enter and exit the site at Lofty Avenue. Stop signs will remain at Cold Spring Avenue. Crosswalks will remain at their current locations at Lofty Avenue and Cold Spring Avenue.

4.02 ALTERNATIVE B

A. Alternative B1

Alternative B1 provides access to the site at both Lofty Avenue and Cold Spring Avenue. The driveway at Lofty Avenue and Monona Drive would serve only as an entrance, primarily for passenger cars. There would be two driveways onto Cold Spring Avenue. These driveways would serve as entrances and exits for both passenger cars and buses. Stop signs will remain at Cold Spring Avenue and Lofty Avenue.



The Cold Spring Avenue intersection will serve as the focus for vehicles exiting the school site. Crosswalks will remain at their current locations at Lofty Avenue and Cold Spring Avenue and internal sidewalks will focus pedestrian traffic to the Lofty Avenue intersection.

B. Alternative B2

Alternative B2 is identical to Alternative B1 with the exception that Cold Spring Avenue is signalized. Due to this signalization, it is expected that more traffic will choose to use the Cold Spring Avenue driveways to enter and exit the school site. The signal at Cold Spring Avenue will be coordinated with the signal at West Dean Avenue to provide gaps in Monona Drive's traffic stream. These gaps will provide more opportunities for pedestrians to conveniently cross Monona Drive. Crosswalks will remain at their current locations at Lofty Avenue and Cold Spring Avenue and the internal sidewalks would continue to encourage pedestrian crossings at the Lofty Avenue intersection. The signalized Cold Spring intersection, however,

would also have pedestrian signals and crosswalks for students choosing to use this intersection.

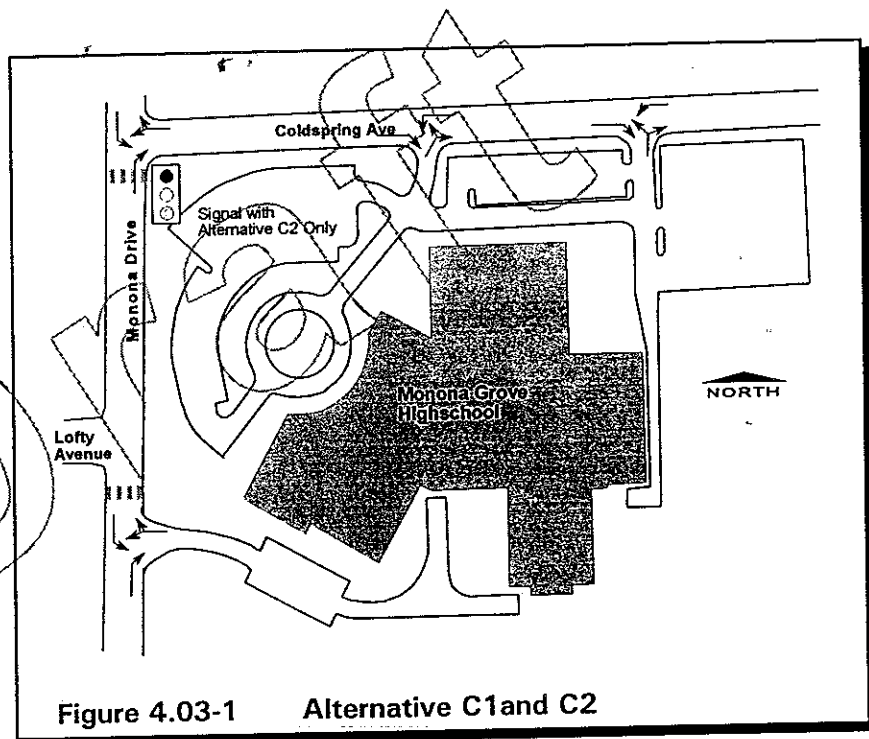
C. Alternative B3

Alternative B3 is similar to Alternative B2 in that it provides access to the site at both Lofty Avenue and Cold Spring Avenue. Alternative B3 differs from Alternative B2 mainly in that a signal will be located at Lofty Avenue rather than Cold Spring Avenue. The driveway on Monona Drive would coincide with Lofty Avenue and would be used for both entering and exiting the site. Site traffic will be divided between Lofty Avenue and Cold Spring Avenue, although with the signal at Lofty Avenue it is expected that more traffic will choose to use this intersection. Stop signs will remain at Cold Spring Avenue. Crosswalks will remain at their current locations at Lofty Avenue and Cold Spring Avenue. Non site-related traffic may drive through the school site to gain access to the signal at Lofty Avenue.

4.03 ALTERNATIVE C

A. Alternative C1

Alternative C1 provides general access to the site exclusively at Cold Spring Avenue. Access directly onto Monona Drive via Lofty Avenue is eliminated. This will focus nearly all of the site traffic to the Monona Drive/Cold Spring Avenue intersection. A driveway access will be located on Monona Drive south of Lofty Avenue for truck and staff use only. The stop signs at Lofty Avenue and Cold Spring Avenue will remain. Crosswalks will remain at their current locations at Cold Spring Avenue and Lofty Avenue.



B. Alternative C2

Alternative C2 is identical to Alternative C1 with the exception that Cold Spring Avenue is signalized. Access directly onto Monona Drive via Lofty Avenue is eliminated. This will focus

nearly all of the site traffic to the Monona Drive/Cold Spring Avenue intersection. A driveway access will be located on Monona Drive south of Lofty Avenue for truck and staff use only. The stop sign at Lofty Avenue will remain. The signal at Cold Spring Avenue will be coordinated with the signal at West Dean Avenue to provide gaps in Monona Drive's traffic stream. These gaps will provide more opportunities for pedestrians to conveniently cross Monona Drive. Crosswalks will remain at their current locations at Cold Spring Avenue and Lofty Avenue.

Draft

Draft

SECTION 5
ALTERNATIVE ANALYSIS

5.01 ALTERNATIVE A

A. Alternative A1

With Alternative A1, access from the site will be extremely difficult for traffic turning left onto Monona Drive. All of the school site traffic will be forced to use this intersection, yet the projected level of service for left turns exiting the site is F with delays exceeding three minutes. With the exception of some yielding for vehicles turning into the school, traffic on Monona Drive will be relatively unimpeded by this alternative. Due to the proximity of the school building to the intersection, traffic circulation on school grounds may be difficult near the Lofty Avenue intersection. Here traffic queues will tend to block parking aisles creating congestion. Local traffic patterns to and from the school will also change as all vehicles will need to use Monona Drive rather than Cold Spring Avenue to access the site. Traffic gaps for pedestrians crossing Monona Drive will not be frequent, therefore crossing difficulty will remain the same. Also, since all school traffic is focused at the Lofty Avenue intersection, there is a greater potential for vehicle-pedestrian conflicts at this intersection.

B. Alternative A2

With a signal at Lofty Avenue, exiting the school site will be much easier with a projected level of service of B to C and average delays of from 13 to 18 seconds. There will be some delay to vehicles traveling on Monona Drive because two way progression along Monona Drive will not be as effective. Calculated values of delay for through traffic in the peak am and pm hours is between 4 and 8 seconds per vehicle. Due to the proximity of the school building to the intersection, traffic circulation on school grounds may be difficult near the Lofty Avenue intersection. Here traffic queues will tend to block parking aisles creating congestion. Local traffic patterns to and from the school will also change as all vehicles will need to use Monona Drive rather than Cold Spring Avenue to access the site. The signal will create substantially more gaps for pedestrians crossing Monona Drive. There may be some potential conflicts between left turning vehicles and pedestrians at the Lofty Avenue crosswalk during the crossing phase of the signal cycle. Some pedestrians may also chose to ignore the signal control, also increasing the potential for pedestrian-vehicle conflicts.

5.02 ALTERNATIVE B

A. Alternative B1

This option is the most similar to the existing operations. Traffic exiting the site and turning left onto Monona Drive will continue to experience a level of service F with average delays exceeding 5 minutes. With the exception of some yielding for vehicles turning into the school, traffic on Monona Drive will be relatively unimpeded by this alternative. Due to the proximity of the school building to the intersection, traffic circulation on school grounds may be difficult near the Lofty Avenue intersection. By providing Cold Spring Avenue as another option for

A.0 Traffic Data

Traffic data was obtained from WisDOT Wisconsin Highway Traffic Volume Data, March 1997, and counts taken in November and December, 1997.

Two way daily traffic volume on Cold Spring Avenue east of the Monona Grove High School driveway was 1073 vehicles and two way daily traffic volume on Jerome Street north of Cold Spring Avenue was 455 vehicles.

Draft

24/97
31:34

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

File ID : 3
Info 1 :
Info 2 :

Date : Nov 19, 1997 Wed
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour	1-SB, Monona approach				Hour Total	Graph	1000
Starts	0	15	30	45	Total	0	

AM							
12							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
PM							
12							
1							
2				132	132	*****	
3	192	154	214	215	775	*****	
4	212	239	233	227	911	*****	
5	252	210	179	149	790	*****	
6	161	164	117	113	555	*****	
7	102	73	88	83	346	*****	
8	69	75	66	84	294	*****	
9	71	53	78	49	251	*****	
10	36	33	19	20	108	*****	
11	25	19	11	6	61	***	

TOTALS					4223	
AVERAGE	114.1	period			456.5	

Peak PM Hour is *** 4:15pm to 5:15pm ***
 Volume Lane 1 : 951
 Peak Hour Factor : 0.943
 Peak / Day Total : 0.225

24/97
31:34

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

File ID : 3
Info 1 :
Info 2 :

Date : Nov 20, 1997 Thu
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour Starts	1-SB, Monona	approa	Hour	Graph	1000
	0	15	30	45	Total
AM					
12	6	4	5	6	21
1	6	6	5	4	21
2	7	3	1	3	14
3	2	3	5	4	14
4	3	7	7	7	24
5	5	16	14	34	69
6	38	42	90	100	270
7	108	175	261	220	764
8	140	145	133	97	515
9	104	111	124	100	439
10	86	122	122	138	468
11	126	158	144	131	559
PM					
12	140	150	161	158	609
1	150	162	132	134	578
2	150	150	143		443
3					
4					
5					
6					
7					
8					
9					
10					
11					

TOTALS 4808
AVERAGE 81.5 period 326.0

Peak AM Hour is *** 7:15am to 8:15am ***
Volume Lane 1 : 796
Peak Hour Factor : 0.762
Peak / Day Total : 0.166

Peak PM Hour is *** 12:30pm to 1:30pm ***
Volume Lane 1 : 631
Peak Hour Factor : 0.974
Peak / Day Total : 0.131

12/24/97
 10:31:34

***** Single Channel 15 Minute Final Report (page 1 of 2) *****

te ID : 3
 info 1 :
 Info 2 :

Start Date : Nov 19, 1997 Wed
 End Date : Nov 20, 1997 Thu
 Adj. Factor: 1.00

 ALL DAYS COMBINED

Hour starts	1-SB, 0	Monona 15	approa 30	Hour 45	Graph Total	1000
AM						
12	6	4	5	6	21	*
1	6	6	5	4	21	*
2	7	3	1	3	14	*
3	2	3	5	4	14	*
4	3	7	7	7	24	**
5	5	16	14	34	69	***
6	38	42	90	100	270	*****
7	108	175	261	220	764	*****
8	140	145	133	97	515	*****
9	104	111	124	100	439	*****
10	86	122	122	138	468	*****
11	126	158	144	131	559	*****
PM						
12	140	150	161	158	609	*****
1	150	162	132	134	578	*****
2	150	150	143	132	575	*****
3	192	154	214	215	775	*****
4	212	239	233	227	911	*****
5	252	210	179	149	790	*****
6	161	164	117	113	555	*****
7	102	73	88	83	346	*****
8	69	75	66	84	294	*****
9	71	53	78	49	251	*****
10	36	33	19	20	108	*****
11	25	19	11	6	61	***

TOTALS 9031
 AVERAGE 94.1 period 376.3

Peak AM Hour is *** 7:15am to 8:15am ***
 - Volume Lane 1 : 796
 Peak Hour Factor : 0.762
 Peak / Day Total : 0.088

Peak PM Hour is *** 4:15pm to 5:15pm ***
 Volume Lane 1 : 951
 Peak Hour Factor : 0.943
 Peak / Day Total : 0.105

12/24/97
13:34

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Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 2 of 2) *****

Site ID : 3
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS AVERAGED

Hour Starts	1-SB, Monona approach				Hour Total	Graph	1000
	0	15	30	45		0	
AM							
12	6	4	5	6	21	*	
1	6	6	5	4	21	*	
2	7	3	1	3	14	*	
3	2	3	5	4	14	*	
4	3	7	7	7	24	**	
5	5	16	14	34	69	***	
6	38	42	90	100	270	*****	
7	108	175	261	220	764	*****	
8	140	145	133	97	515	*****	
9	104	111	124	100	439	*****	
10	86	122	122	138	468	*****	
11	126	158	144	131	559	*****	
PM							
12	140	150	161	158	609	*****	
1	150	162	132	134	578	*****	
2	150	150	143	132	575	*****	
3	192	154	214	215	775	*****	
4	212	239	233	227	911	*****	
5	252	210	179	149	790	*****	
6	161	164	117	113	555	*****	
7	102	73	88	83	346	*****	
8	69	75	66	84	294	*****	
9	71	53	78	49	251	*****	
10	36	33	19	20	108	*****	
11	25	19	11	6	61	***	

TOTALS 9031
AVERAGE 94.1 period 376.3

Peak AM Hour is *** 7:15am to 8:15am ***
Volume Lane 1 : 796
Peak Hour Factor : 0.762
Peak / Day Total : 0.088

Peak PM Hour is *** 4:15pm to 5:15pm ***
Volume Lane 1 : 951
Peak Hour Factor : 0.943
Peak / Day Total : 0.105

24/97
40:24

Traffic Engineering Services Inc.
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Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

File ID : 4
Info 1 :
Info 2 :

Date : Nov 19, 1997 Wed
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour Starts	1-NB, Monona approach				Hour Total	Graph	
	0	15	30	45		0	1200

M							
2							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
PM							
12							
1							
2			128	149	277	*****	
3	209	243	218	228	898	*****	
4	255	288	276	303	1122	*****	
5	305	271	209	193	978	*****	
6	163	176	140	103	582	*****	
7	129	102	86	98	415	*****	
8	81	75	74	58	288	*****	
9	79	50	50	44	223	*****	
10	26	31	24	27	108	****	
11	12	19	10	15	56	***	

AVERAGE	130.2 period	4947	520.7
---------	--------------	------	-------

Peak PM Hour is *** 4:15pm to 5:15pm ***
 Volume Lane 1 : 1172
 Peak Hour Factor : 0.961
 Peak / Day Total : 0.237

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

12/24/97
14:40:24

*** Single Channel 15 Minute ***

Date : Nov 20, 1997 Thu
Factor : 1.00

Site ID : 4
Info 1 :
Info 2 :

Lane 1-Normal, Axle, /2

Hour Starts	1-NB, 0	Monona 15	approa 30	Hour 45	Total	Graph 0	1200
AM							
12	5	7	5	8	25	*	
1	6	3	5	3	17	*	
2	8	7	3	7	25	*	
3	6	5	8	8	27	*	
4	13	12	25	37	87	****	
5	48	74	132	118	372	*****	
6	197	243	296	192	928	*****	
7	122	117	118	132	489	*****	
8	122	135	121	120	498	*****	
9	161	136	164	169	630	*****	
10	188	193	154	176	711	*****	
11	221	246	193	160	820	*****	
PM							
12	165	180	203	236	784	*****	
1	207	209			416	*****	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

TOTALS 5829
AVERAGE 107.9 period 431.8

Peak AM Hour is *** 6:00am to 7:00am ***
Volume Lane 1 : 928
Peak Hour Factor : 0.784
Peak / Day Total : 0.159

Peak PM Hour is *** 12:30pm to 1:30pm ***
Volume Lane 1 : 855
Peak Hour Factor : 0.906
Peak / Day Total : 0.147

11/24/97
14:40:24

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 1 of 2) *****

Site ID : 4
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS COMBINED

Hour Starts	1-NB, Monona approach				Hour Total	Graph	1200
	0	15	30	45		0	
AM							
12	5	7	5	8	25	*	
1	6	3	5	3	17	*	
2	8	7	3	7	25	*	
3	6	5	8	8	27	*	
4	13	12	25	37	87	****	
5	48	74	132	118	372	*****	
6	197	243	296	192	928	*****	
7	122	117	118	132	489	*****	
8	122	135	121	120	498	*****	
9	161	136	164	169	630	*****	
10	188	193	154	176	711	*****	
11	221	246	193	160	820	*****	
PM							
12	165	180	203	236	784	*****	
1	207	209			416	*****	
2			128	149	277	*****	
3	209	243	218	228	898	*****	
4	255	288	276	303	1122	*****	
5	305	271	209	193	978	*****	
6	163	176	140	103	582	*****	
7	129	102	86	98	415	*****	
8	81	75	74	58	288	*****	
9	79	50	50	44	223	*****	
10	26	31	24	27	108	****	
11	12	19	10	15	56	***	

TOTALS 10776
AVERAGE 117.1 period 468.5

Peak AM Hour is *** 6:00am to 7:00am ***
Volume Lane 1 : 928
Peak Hour Factor : 0.784
Peak / Day Total : 0.086

Peak PM Hour is *** 4:15pm to 5:15pm ***
Volume Lane 1 : 1172
Peak Hour Factor : 0.961
Peak / Day Total : 0.109

1 24/97
9 40:24

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***** Single Channel 15 Minute Final Report (page 2 of 2) *****

File ID : 4
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS AVERAGED

Hour Starts	1-NB, Monona approach				Hour Total	Graph	1200
	0	15	30	45		0	
AM							
12	5	7	5	8	25	*	
1	6	3	5	3	17	*	
2	8	7	3	7	25	*	
3	6	5	8	8	27	*	
4	13	12	25	37	87	****	
5	48	74	132	118	372	*****	
6	197	243	296	192	928	*****	
7	122	117	118	132	489	*****	
8	122	135	121	120	498	*****	
9	161	136	164	169	630	*****	
10	188	193	154	176	711	*****	
11	221	246	193	160	820	*****	
PM							
12	165	180	203	236	784	*****	
1	207	209			416	*****	
2			128	149	277	*****	
3	209	243	218	228	898	*****	
4	255	288	276	303	1122	*****	
5	305	271	209	193	978	*****	
6	163	176	140	103	582	*****	
7	129	102	86	98	415	*****	
8	81	75	74	58	288	*****	
9	79	50	50	44	223	*****	
10	26	31	24	27	108	****	
11	12	19	10	15	56	***	

TOTALS 11244
AVERAGE 122.2 period 488.9

Peak AM Hour is *** 6:00am to 7:00am ***
Volume Lane 1 : 928
Peak Hour Factor : 0.784
Peak / Day Total : 0.083

Peak PM Hour is *** 4:15pm to 5:15pm ***
Volume Lane 1 : 1172
Peak Hour Factor : 0.961
Peak / Day Total : 0.104

11/24/97
24:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

File ID : 2
Info 1 :
Info 2 :

Date : Nov 19, 1997 Wed
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour	1-EB, Coldspring ap Hour				Graph	
Starts	0	15	30	45	Total	0

AM							
12							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
PM							
12							
1							
2			3	5	8	*****	
3	2	4	5	8	19	*****	
4	3	4	4	2	13	*****	
5	2	1	2	5	10	*****	
6	4	4	1	1	10	*****	
7	2	1	0	2	5	*****	
8	1	2	2	1	6	*****	
9	0	1	1	1	3	*****	
10	1	1	1	0	3	*****	
11	0	1	1	0	2	****	

TOTALS					79	
AVERAGE	2.1	period			8.3	

Peak PM Hour is *** 3:15pm to 4:15pm ***
 Volume Lane 1 : 20
 Peak Hour Factor : 0.625
 Peak / Day Total : 0.253

Traffic Engineering Services Inc.
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 Elm Grove, WI 53122
 (414)797-9097 Fax (414)797-9098

*** Single Channel 15 Minute ***

Date : Nov 20, 1997 Thu
 Factor : 1.00

File ID : 2
 Info 1 :
 Info 2 :

Lane 1-Normal, Axle, /2

Hour	1-EB, Coldspring ap				Hour	Graph	
Starts	0	15	30	45	Total	0	25
12 AM	0	0	0	0	0	*	
1	0	0	0	0	0	*	
2	1	0	0	0	1	**	
3	0	0	1	0	1	**	
4	0	0	1	1	2	****	
5	0	0	1	0	1	**	
6	3	3	2	1	9	*****	
7	2	4	6	2	14	*****	
8	4	1	1	2	8	*****	
9	1	1	3	2	7	*****	
10	1	0	0	2	3	*****	
11	1	2	1	2	6	*****	
12 PM	3	6	1	5	15	*****	
1	3	2	2	1	8	*****	
2	0	5			5	*****	
3							
4							
5							
6							
7							
8							
9							
10							
11							

TRALS 80
 AVERAGE 1.4 period 5.5

Peak AM Hour is *** 7:15am to 8:15am ***
 Volume Lane 1 : 16
 Peak Hour Factor : 0.667
 Peak / Day Total : 0.200

Peak PM Hour is *** 12:00pm to 1:00pm ***
 Volume Lane 1 : 15
 Peak Hour Factor : 0.625
 Peak / Day Total : 0.188

24/97
24:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 1 of 2) *****

Site ID : 2
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS COMBINED

Hour	1-EB	Coldspring	ap	Hour	Graph	
Parts	0	15	30	45	Total	0
M						
12	0	0	0	0	0	*
1	0	0	0	0	0	*
2	1	0	0	0	1	**
3	0	0	1	0	1	**
4	0	0	1	1	2	****
5	0	0	1	0	1	**
6	3	3	2	1	9	*****
7	2	4	6	2	14	*****
8	4	1	1	2	8	*****
9	1	1	3	2	7	*****
10	1	0	0	2	3	*****
11	1	2	1	2	6	*****
PM						
12	3	6	1	5	15	*****
1	3	2	2	1	8	*****
2	0	5	3	5	13	*****
3	2	4	5	8	19	*****
4	3	4	4	2	13	*****
5	2	1	2	5	10	*****
6	4	4	1	1	10	*****
7	2	1	0	2	5	*****
8	1	2	2	1	6	*****
9	0	1	1	1	3	*****
10	1	1	1	0	3	*****
11	0	1	1	0	2	****

TOTALS 159
AVERAGE 1.7 period 6.6

Peak AM Hour is *** 7:15am to 8:15am ***
Volume Lane 1 : 16
Peak Hour Factor : 0.667
Peak / Day Total : 0.101

Peak PM Hour is *** 3:15pm to 4:15pm ***
Volume Lane 1 : 20
Peak Hour Factor : 0.625
Peak / Day Total : 0.126

24/97
24:33

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Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 2 of 2) *****

Site ID : 2
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS AVERAGED

Hour	1-EB	Coldspring	ap	Hour	Total	Graph	
arts	0	15	30	45		0	25
M							
12	0	0	0	0	0	*	
1	0	0	0	0	0	*	
2	1	0	0	0	1	**	
3	0	0	1	0	1	**	
4	0	0	1	1	2	****	
5	0	0	1	0	1	**	
6	3	3	2	1	9	*****	
7	2	4	6	2	14	*****	
8	4	1	1	2	8	*****	
9	1	1	3	2	7	*****	
10	1	0	0	2	3	*****	
11	1	2	1	2	6	*****	
PM							
12	3	6	1	5	15	*****	
1	3	2	2	1	8	*****	
2	0	5	3	5	13	*****	
3	2	4	5	8	19	*****	
4	3	4	4	2	13	*****	
5	2	1	2	5	10	*****	
6	4	4	1	1	10	*****	
7	2	1	0	2	5	*****	
8	1	2	2	1	6	*****	
9	0	1	1	1	3	*****	
10	1	1	1	0	3	*****	
11	0	1	1	0	2	****	

TOTALS
AVERAGE 1.7 period 159 6.6

Peak AM Hour is *** 7:15am to 8:15am ***
Volume Lane 1 : 16
Peak Hour Factor : 0.667
Peak / Day Total : 0.101

Peak PM Hour is *** 3:15pm to 4:15pm ***
Volume Lane 1 : 20
Peak Hour Factor : 0.625
Peak / Day Total : 0.126

11/24/97
18:15

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

File ID : 1
Info 1 :
Info 2 :

Date : Nov 19, 1997 Wed
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour Starts	1-WB	Coldspring	ap	Hour	Graph	125
	0	15	30	45	Total	0

AM						
12						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
PM						
12						
1						
2			12	10	22	*****
3	14	12	48	9	83	*****
4	11	9	7	10	37	*****
5	10	7	16	8	41	*****
6	22	17	8	10	57	*****
7	20	10	17	12	59	*****
8	44	20	8	2	74	*****
9	2	1	0	1	4	**
10	0	2	0	0	2	*
11	0	0	0	1	1	*

TOTALS					380
AVERAGE	10.0	period			40.0

Peak PM Hour is *** 7:30pm to 8:30pm ***
 Volume Lane 1 : 93
 Peak Hour Factor : 0.528
 Peak / Day Total : 0.245

24/97
28:15

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

Date : Nov 20, 1997 Thu
Factor : 1.00

File ID : 1
Info 1 :
Info 2 :

Lane 1-Normal, Axle, /2

Hour Starts	1-WB, 0	Coldspring 15	ap 30	Hour 45	Total	Graph 0	125
AM							
12	0	1	0	0	1	*	
1	0	1	0	0	1	*	
2	0	0	0	0	0	*	
3	0	0	0	0	0	*	
4	0	0	2	0	2	*	
5	0	0	1	6	7	***	
6	5	2	2	2	11	****	
7	7	31	49	37	124	*****	
8	5	14	4	6	29	*****	
9	6	2	4	7	19	*****	
10	6	3	11	5	25	*****	
11	9	19	10	12	50	*****	
PM							
12	12	3	4	21	40	*****	
1	14	5	14	17	50	*****	
2	19	9			28	*****	
3							
4							
5							
6							
7							
8							
9							
10							
11							

FALSE AVERAGE 6.7 period 387 26.7

Peak AM Hour is *** 7:00am to 8:00am ***
Volume Lane 1 : 124
Peak Hour Factor : 0.633
Peak / Day Total : 0.320

Peak PM Hour is *** 1:30pm to 2:30pm ***
Volume Lane 1 : 59
Peak Hour Factor : 0.776
Peak / Day Total : 0.152

24/97
28:15

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax (414)797-9098

***** Single Channel 15 Minute Final Report (page 1 of 2) *****

File ID : 1
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS COMBINED

Hour Starts	1-WB, 0	Coldspring 15	ap 30	Hour 45	Total	Graph 0	125
M							
-2	0	1	0	0	1	*	
1	0	1	0	0	1	*	
2	0	0	0	0	0	*	
3	0	0	0	0	0	*	
4	0	0	2	0	2	*	
5	0	0	1	6	7	***	
6	5	2	2	2	11	****	
7	7	31	49	37	124	*****	
8	5	14	4	6	29	*****	
9	6	2	4	7	19	*****	
10	6	3	11	5	25	*****	
11	9	19	10	12	50	*****	
PM							
12	12	3	4	21	40	*****	
1	14	5	14	17	50	*****	
2	19	9	12	10	50	*****	
3	14	12	48	9	83	*****	
4	11	9	7	10	37	*****	
5	10	7	16	8	41	*****	
6	22	17	8	10	57	*****	
7	20	10	17	12	59	*****	
8	44	20	8	2	74	*****	
9	2	1	0	1	4	**	
10	0	2	0	0	2	*	
11	0	0	0	1	1	*	

AVERAGE 767
8.0 period 32.0

Peak AM Hour is *** 7:00am to 8:00am ***
Volume Lane 1 : 124
Peak Hour Factor : 0.633
Peak / Day Total : 0.162

Peak PM Hour is *** 7:30pm to 8:30pm ***
Volume Lane 1 : 93
Peak Hour Factor : 0.528
Peak / Day Total : 0.121

'24/97
28:15

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 2 of 2) *****

File ID : 1
Info 1 :
Info 2 :

Start Date : Nov 19, 1997 Wed
End Date : Nov 20, 1997 Thu
Adj. Factor: 1.00

ALL DAYS AVERAGED

Hour	1-WB	Coldspring	ap	Hour	Graph	
Ports	0	15	30	45	Total	0
M						
2	0	1	0	0	1	*
1	0	1	0	0	1	*
2	0	0	0	0	0	*
3	0	0	0	0	0	*
4	0	0	2	0	2	*
5	0	0	1	6	7	***
6	5	2	2	2	11	****
7	7	31	49	37	124	*****
8	5	14	4	6	29	*****
9	6	2	4	7	19	*****
10	6	3	11	5	25	*****
11	9	19	10	12	50	*****
PM						
12	12	3	4	21	40	*****
1	14	5	14	17	50	*****
2	19	9	12	10	50	*****
3	14	12	48	9	83	*****
4	11	9	7	10	37	*****
5	10	7	16	8	41	*****
6	22	17	8	10	57	*****
7	20	10	17	12	59	*****
8	44	20	8	2	74	*****
9	2	1	0	1	4	**
10	0	2	0	0	2	*
11	0	0	0	1	1	*

TOTALS 767
AVERAGE 8.0 period 32.0

Peak AM Hour is *** 7:00am to 8:00am ***
Volume Lane 1 : 124
Peak Hour Factor : 0.633
Peak / Day Total : 0.162

Peak PM Hour is *** 7:30pm to 8:30pm ***
Volume Lane 1 : 93
Peak Hour Factor : 0.528
Peak / Day Total : 0.121

Monona Drive & Coldspring
 11/19 and 11/20 1997

HOUR	STARTS	SB	WB	NB	EB		NB + SB
12 AM			21	1	25	0	46
	1		21	1	17	0	38
	2		14	0	25	1	39
	3		14	0	27	1	41
	4		24	2	87	2	111
	5		69	7	372	1	441
	6		270	11	928	9	1198
	7		764	124	489	14	1253
	8		515	29	498	8	1013
	9		439	19	630	7	1069
	10		468	25	711	3	1179
	11		559	50	820	6	1379
12 PM			609	40	784	15	1393
	1		578	50	416	8	994
	2		575	50	277	13	852
	3		775	83	898	19	1673
	4		911	37	1122	13	2033
	5		790	41	978	10	1768
	6		555	57	582	10	1137
	7		346	59	415	5	761
	8		294	74	288	6	582
	9		251	4	223	3	474
	10		108	2	108	3	216
	11		61	1	56	2	117
						TOTAL NS	19807

Station : Monona Dr. & Coldspring Rd.
 Date :
 Prepared by:

Vehicle group 1

Date/Time	Southbound				Westbound				Northbound				Eastbound				Total
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	
11/19/97	0	0	139	11	0	2	3	14	0	25	161	0	1	0	0	0	356
0	0	0	141	10	0	3	3	15	0	40	159	1	1	0	1	0	374
15	0	0	190	10	0	15	2	18	0	47	190	0	0	2	0	1	475
30	0	0	190	10	0	15	2	18	0	47	190	0	0	2	0	1	475
45	0	2	254	16	0	23	1	15	0	29	235	1	0	6	0	1	583
Total	0	2	724	47	0	43	9	62	0	141	745	2	2	8	1	2	1788
0	0	0	149	3	0	1	0	6	0	11	171	1	0	0	1	2	345
15	0	0	145	2	0	2	2	4	0	2	162	0	1	1	1	0	322
30	0	0	152	1	0	2	0	5	0	5	154	0	0	0	0	0	319
45	0	0	139	2	0	3	0	2	0	5	145	0	0	0	0	0	296
Total	0	0	585	8	0	8	2	17	0	23	632	1	1	1	2	2	1282
* BREAK *																	
0	0	0	128	0	0	2	0	1	0	6	142	0	1	0	1	2	283
15	0	0	130	1	0	3	0	1	0	5	138	0	0	1	1	2	282
30	0	0	141	0	0	1	1	5	0	4	146	1	1	3	1	0	304
45	0	1	139	1	1	4	0	5	1	2	145	0	0	3	0	1	303
Total	0	1	538	2	1	10	1	12	1	17	571	1	2	7	3	5	1172
0	0	0	187	0	0	0	0	0	1	11	201	0	0	2	0	0	402
15	0	1	191	4	0	5	0	4	0	13	220	0	0	1	0	2	441
30	1	0	173	8	1	8	2	22	1	26	174	6	2	2	0	1	427
45	0	0	201	10	0	4	0	9	0	11	203	0	0	3	2	0	443
Total	1	1	752	22	1	17	2	35	2	61	798	6	2	8	2	3	1713
0	1	1	202	5	1	1	1	8	0	16	162	5	1	4	2	0	410
15	0	1	234	4	0	3	0	4	0	12	223	1	0	2	0	2	486
30	0	2	234	8	1	1	2	3	0	12	248	0	1	4	0	0	516
45	0	0	222	5	0	2	0	3	0	8	230	2	0	2	0	0	474
Total	1	4	892	22	2	7	3	18	0	48	863	8	2	12	2	2	1886
7:00	0	0	191	5	0	0	0	0	0	7	200	0	0	0	0	0	403
7:15	0	0	185	4	0	2	0	2	0	2	189	0	0	0	0	2	386
7:30	0	0	198	2	0	1	0	0	0	3	192	0	0	0	0	0	396
7:45	0	0	200	1	0	0	0	0	0	2	175	0	0	2	2	0	382
Total	0	0	774	12	0	3	0	2	0	14	756	0	0	2	2	2	1567
TOTAL*	2	8	4265	113	4	88	17	146	3	304	4365	18	9	38	12	16	9408

Traffic Engineering Services, Inc.
 890 N. Elm Grove Rd., Suite 211
 Elm Grove, WI 53122
 (414)797-9097 Fax(414)797-9097

Site Code : 00000002
 Start Date: 11/19/97
 File I.D. : GAP_002
 Page : 1

Location : Gaps and peds at Lofly
 Number :
 Method by:

Study done on : , Northbound/Southbound

	Vehicle group 1																Total Gaps	Avg. Gap
	Gaps (in seconds)																	
Volume	2	4	6	8	10	12	14	16	18	20	22	24	26	28	> 30			
Count	- 3	- 5	- 7	- 9	- 11	- 13	- 15	- 17	- 19	- 21	- 23	- 25	- 27	- 29				
11/19/97																		
5:45	1	18	18	6	2	3	1	1	0	1	1	1	0	0	0	0	52	5
6:00	60	12	9	1	1	2	1	0	0	0	1	0	0	0	0	0	27	5
6:45	1	26	20	12	4	3	2	0	0	0	0	0	0	0	0	0	67	4
7:00	1	33	23	5	7	3	1	0	1	0	0	0	0	0	0	0	73	4
Total	63	89	70	24	14	11	5	1	1	1	2	0	0	0	0	0	219	5
PAL*	63	89	70	24	14	11	5	1	1	1	2	0	0	0	0	0	219	5
Percent		40.6%	32%	11%	6.4%	5%	2.3%	.5%	.5%	.5%	.9%	0%	0%	0%	0%	0%		

12/22/97
14:03:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax (414)797-9098

Page: 1

*** Single Channel 15 Minute ***

Site ID : LOFTY AVE.
Info 1 :
Info 2 :

Date : Dec 16, 1997 Tue
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour Starts	1-EAST/WEST				Hour Total	Graph	
	0	15	30	45		0	100
AM							
12							
1							
2							
3							
4							
5							
6							
7							
8			2	7	9	****	
9	0	2	0	4	6	***	
10	2	2	23	14	41	*****	
11	8	30	14	15	67	*****	
PM							
12	7	5	3	5	20	*****	
1	3	4	2	8	17	*****	
2	8	9	10	5	32	*****	
3	6	21	49	14	90	*****	
4	2	7	4	6	19	*****	
5	9	6	9	9	33	*****	
6	5	4	9	10	28	*****	
7	3	7	11	4	25	*****	
8	3	2	4	5	14	*****	
9	0	7	5	4	16	*****	
10	0	0	9	0	9	****	
11	2	0	5	3	10	****	

TOTALS 436
AVERAGE 7.0 period 28.1

Peak AM Hour is *** 10:30am to 11:30am ***
Volume Lane 1 : 75
Peak Hour Factor : 0.625
Peak / Day Total : 0.172

Peak PM Hour is *** 3:00pm to 4:00pm ***
Volume Lane 1 : 90
Peak Hour Factor : 0.459
Peak / Day Total : 0.206

12/22/97
4:03:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

*** Single Channel 15 Minute ***

Site ID : LOFTY AVE.
Info 1 :
Info 2 :

Date : Dec 17, 1997 Wed
Factor : 1.00

Lane 1-Normal, Axle, /2

Hour Starts	1-EAST/WEST				Hour Total	Graph	100
	0	15	30	45			
AM							
12	0	0	2	0	2	*	
1	0	1	2	2	5	***	
2	0	0	0	0	0	*	
3	0	0	0	0	0	*	
4	0	0	0	0	0	*	
5	0	0	2	0	2	*	
6	0	0	0	1	1	*	
7	2	14	31	14	61	*****	
8	3	4	5	2	14	*****	
9	3	6	2	2	13	*****	
10	6	2	3	2	13	*****	
11	12	30	28	21	91	*****	
PM							
12	1	4	4	4	13	*****	
1	7	7	0	10	24	*****	
2	3	4	9	8	24	*****	
3	2	12	18		32	*****	
4							
5							
6							
7							
8							
9							
10							
11							

TOTALS 295
AVERAGE 4.7 period 18.7

Peak AM Hour is *** 11:00am to 12:00pm ***
Volume Lane 1 : 91
Peak Hour Factor : 0.758
Peak / Day Total : 0.308

Peak PM Hour is *** 2:45pm to 3:45pm ***
Volume Lane 1 : 40
Peak Hour Factor : 0.556
Peak / Day Total : 0.136

12/22/97
14:03:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 1 of 2) *****

Site ID : LOFTY AVE.
Info 1 :
Info 2 :

Start Date : Dec 16, 1997 Tue
End Date : Dec 17, 1997 Wed
Adj. Factor: 1.00

ALL DAYS COMBINED

Hour Starts	1-EAST/WEST				Hour Total	Graph	175
	0	15	30	45			
AM							
12	0	0	2	0	2	*	
1	0	1	2	2	5	**	
2	0	0	0	0	0	*	
3	0	0	0	0	0	*	
4	0	0	0	0	0	*	
5	0	0	2	0	2	*	
6	0	0	0	1	1	*	
7	2	14	31	14	61	*****	
8	3	4	7	9	23	*****	
9	3	8	2	6	19	*****	
10	8	4	26	16	54	*****	
11	20	60	42	36	158	*****	
PM							
12	8	9	7	9	33	*****	
1	10	11	2	18	41	*****	
2	11	13	19	13	56	*****	
3	8	33	67	14	122	*****	
4	2	7	4	6	19	*****	
5	9	6	9	9	33	*****	
6	5	4	9	10	28	*****	
7	3	7	11	4	25	*****	
8	3	2	4	5	14	****	
9	0	7	5	4	16	****	
10	0	0	9	0	9	***	
11	2	0	5	3	10	***	

TOTALS 731
AVERAGE 7.6 period 30.5

Peak AM Hour is *** 11:00am to 12:00pm ***
Volume Lane 1 : 158
Peak Hour Factor : 0.658
Peak / Day Total : 0.216

Peak PM Hour is *** 3:00pm to 4:00pm ***
Volume Lane 1 : 122
Peak Hour Factor : 0.455
Peak / Day Total : 0.167

12/22/97
14:03:33

Traffic Engineering Services Inc.
890 N. Elm Grove Rd. Suite 211
Elm Grove, WI 53122
(414)797-9097 Fax(414)797-9098

***** Single Channel 15 Minute Final Report (page 2 of 2) *****

Site ID : LOFTY AVE.
Info 1 :
Info 2 :

Start Date : Dec 16, 1997 Tue
End Date : Dec 17, 1997 Wed
Adj. Factor: 1.00

ALL DAYS AVERAGED

Hour Starts	1-EAST/WEST				Hour Total	Graph	100
	0	15	30	45			
AM							
12	0	0	2	0	2	*	
1	0	1	2	2	5	***	
2	0	0	0	0	0	*	
3	0	0	0	0	0	*	
4	0	0	0	0	0	*	
5	0	0	2	0	2	*	
6	0	0	0	1	1	*	
7	2	14	31	14	61	*****	
8	3	4	4	5	23	*****	
9	2	4	1	3	10	*****	
10	4	2	13	8	27	*****	
11	10	30	21	18	79	*****	
PM							
12	4	5	4	5	17	*****	
1	5	6	1	9	21	*****	
2	6	7	10	7	28	*****	
3	4	17	34	14	122	*****	
4	2	7	4	6	19	*****	
5	9	6	9	9	33	*****	
6	5	4	9	10	28	*****	
7	3	7	11	4	25	*****	
8	3	2	4	5	14	*****	
9	0	7	5	4	16	*****	
10	0	0	9	0	9	****	
11	2	0	5	3	10	*****	

TOTALS 561
AVERAGE 4.5 period 18.0

Peak AM Hour is *** 11:00am to 12:00pm ***
Volume Lane 1 : 79
Peak Hour Factor : 0.658
Peak / Day Total : 0.141

Peak PM Hour is *** 3:00pm to 4:00pm ***
Volume Lane 1 : 69
Peak Hour Factor : 0.507
Peak / Day Total : 0.123

TRAFFIC SURVEY VEHICLE VOLUME COUNT GRAPHIC SUMMARY SHEET

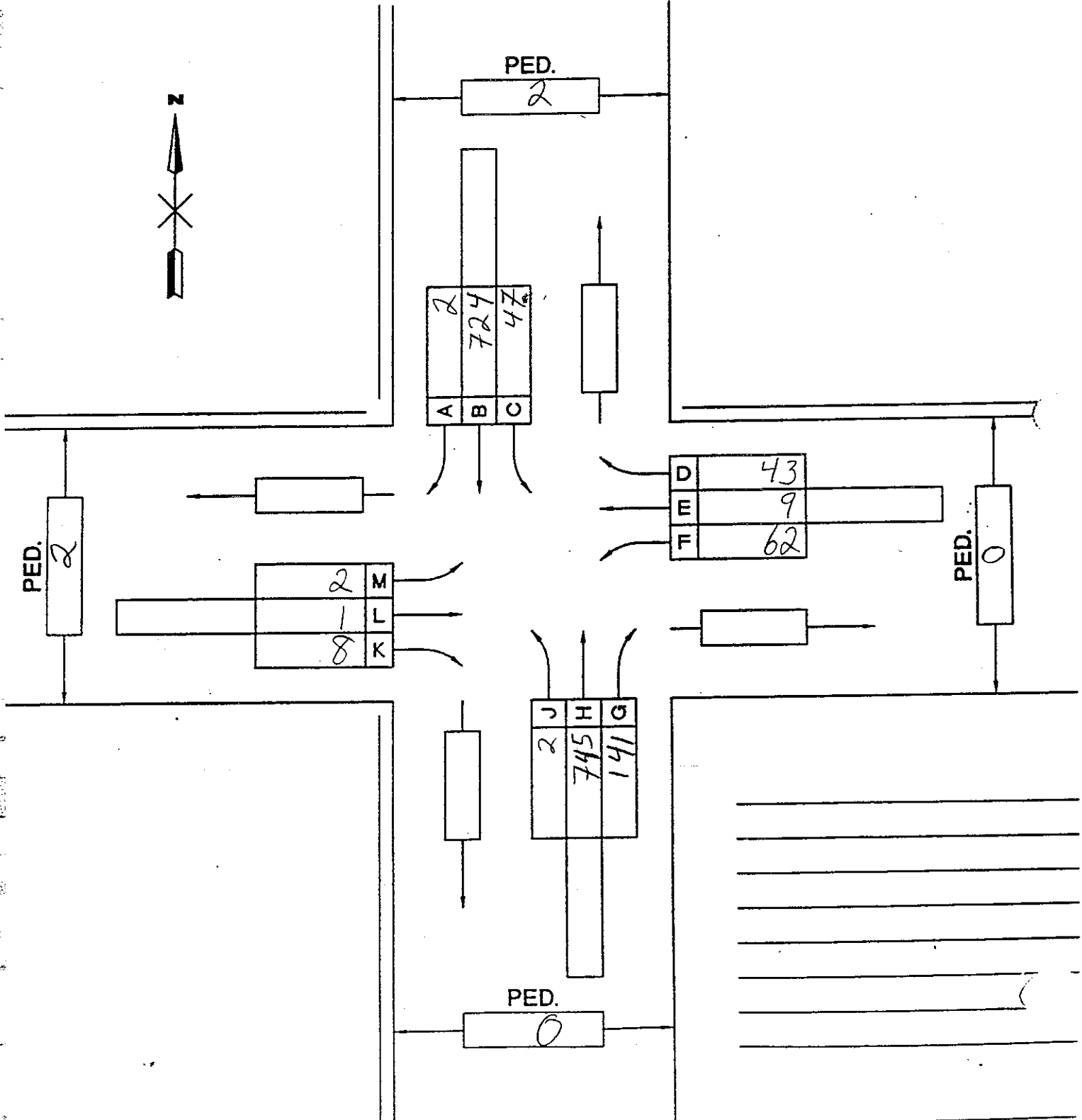
E-T-704-70

DATE 11/19/97 DAY WEDNESDAY TIME 7 AM TO 8 AM SHEET OF

LOCATION: DISTRICT 1 COUNTY DANE RURAL CITY

INTERSECTION MONONA DRIVE AND COLDSRING AVENUE

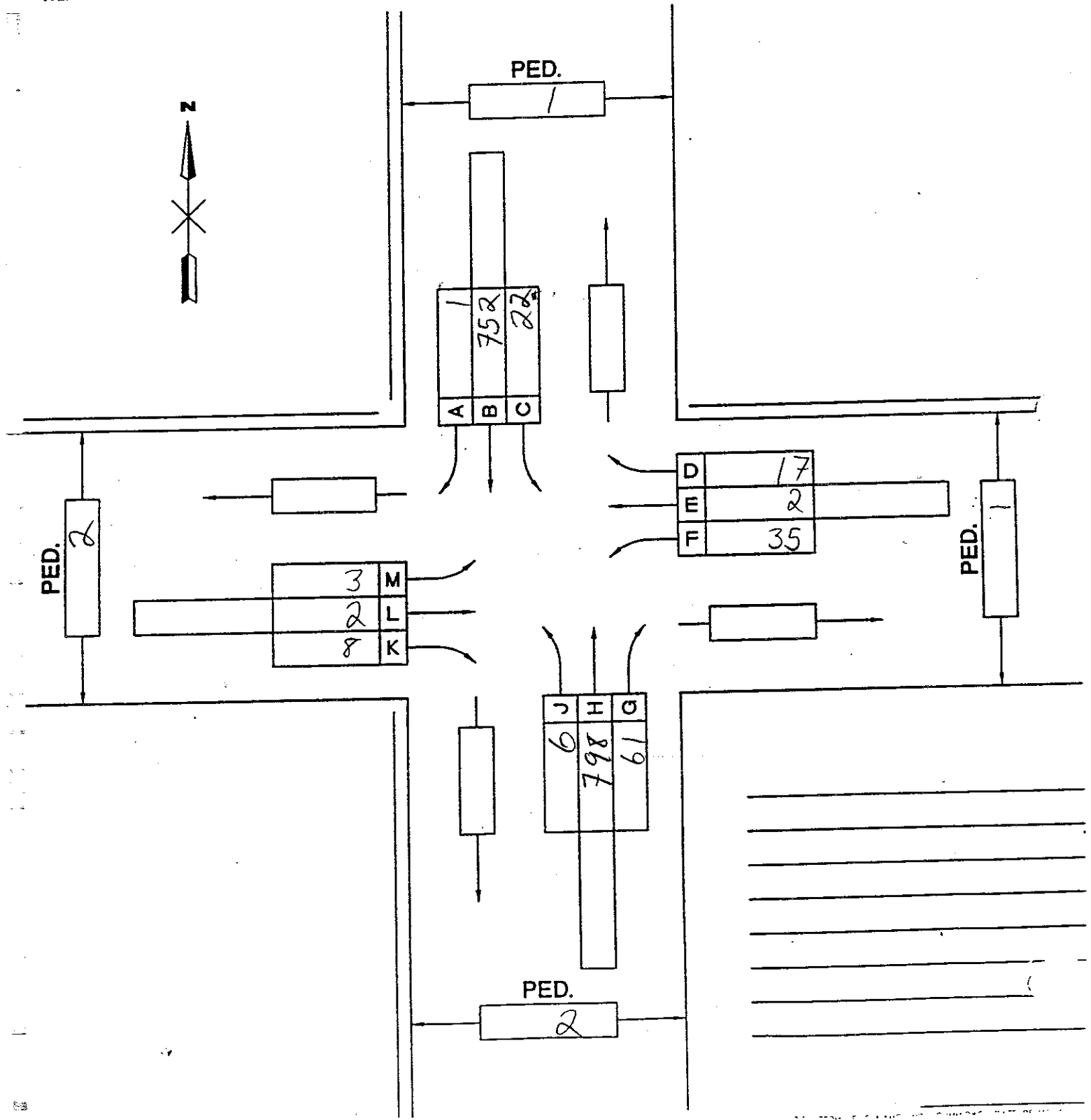
WEATHER CLEAR ROAD CONDITION DRY OBSERVERS



Blank lines for additional notes or comments.

TRAFFIC SURVEY VEHICLE VOLUME COUNT
 GRAPHIC SUMMARY SHEET
 E-T-704-70

DATE 11/19/97 DAY WEDNESDAY TIME 3PM TO 4PM SHEET OF
 LOCATION: DISTRICT 1 COUNTY DANE RURAL CITY ✓
 INTERSECTION MONONA DRIVE AND COLDSRING AVENUE
 WEATHER CLEAR ROAD CONDITION DRY OBSERVERS



TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

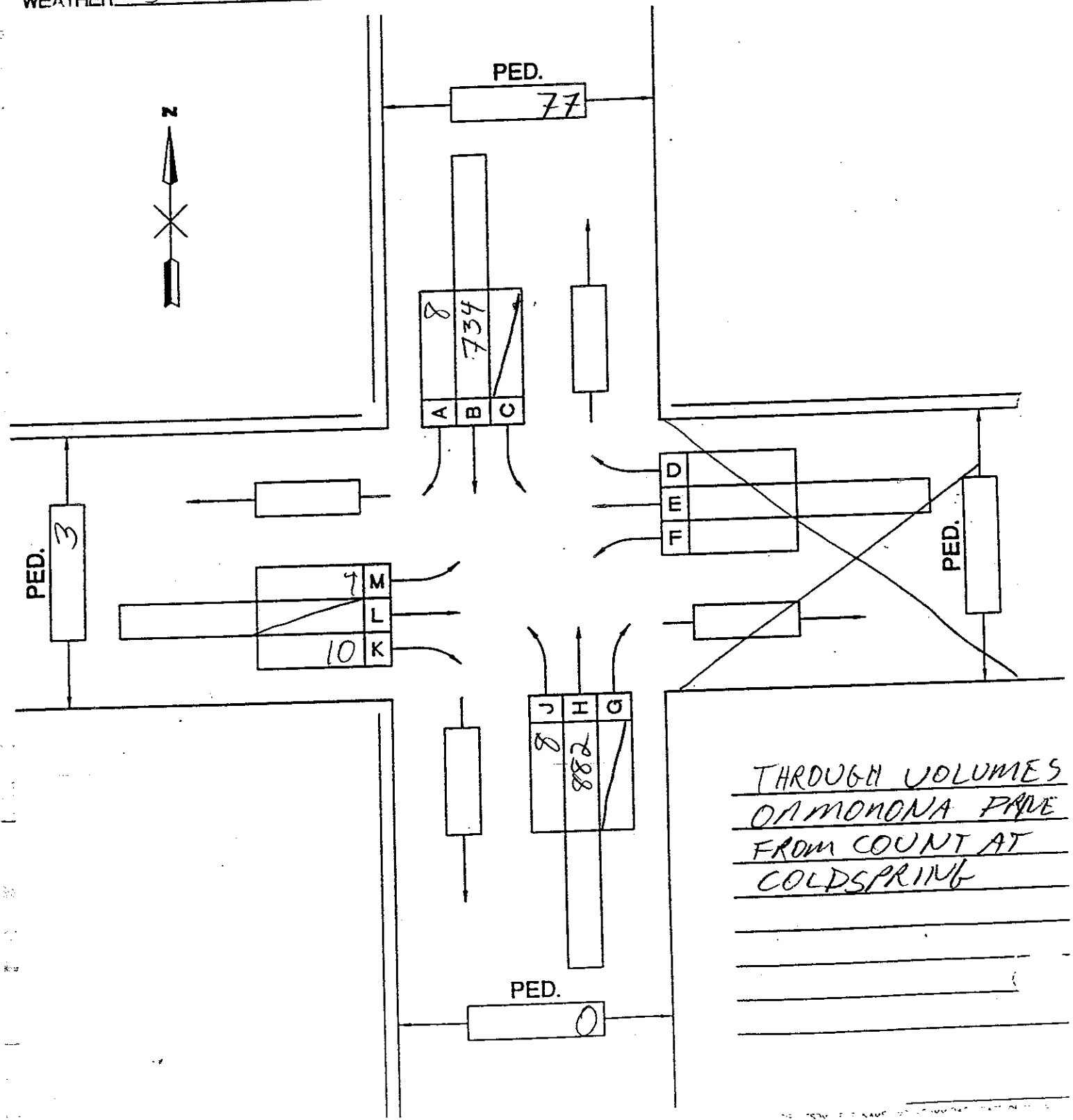
E-T-704-70

DATE 12/16/97 DAY TUESDAY TIME 7:15 AM TO 8:15 AM SHEET OF

LOCATION: DISTRICT 1 COUNTY DANE RURAL CITY ✓

INTERSECTION MONONA DRIVE AND LOFTY AVENUE

WEATHER SUNNY ROAD CONDITION DRY OBSERVERS

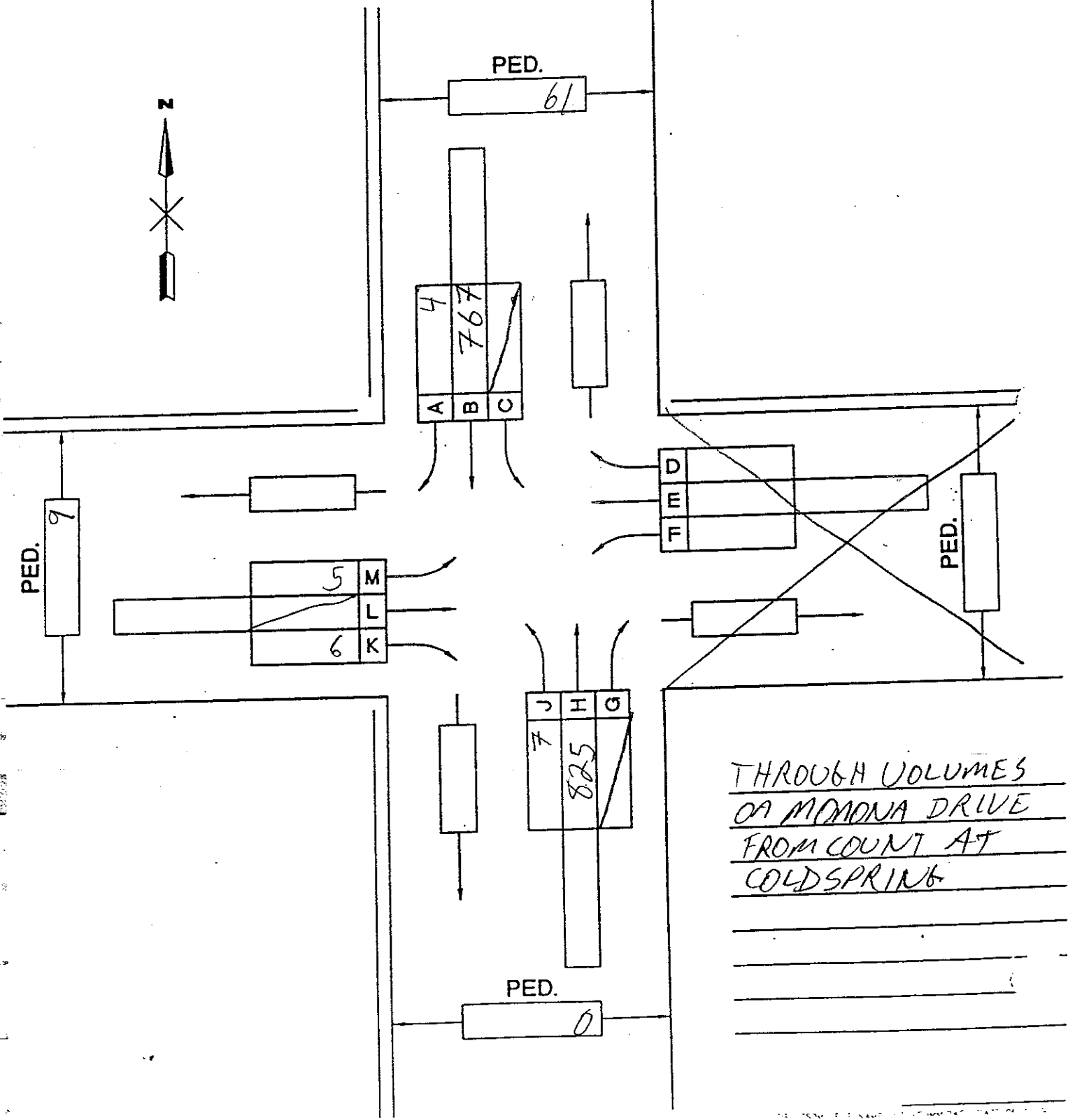


THROUGH VOLUMES
ON MONONA DRIVE
FROM COUNT AT
COLDSRING

TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

T-704-70

DATE 12/17/97 DAY WEDNESDAY TIME 3:15 PM TO 4:15 PM SHEET OF
 LOCATION: DISTRICT 1 COUNTY DANE RURAL CITY
 INTERSECTION MONONA DRIVE AND LOFTY AVENUE
 WEATHER SUNNY ROAD CONDITION DRY OBSERVERS



THROUGH VOLUMES
ON MONONA DRIVE
FROM COUNT AT
COLDSPRING

Traffic Count Summary

Location: Monona Drive and Lofty Avenue

Date: 12/16/97

	Southbound				Northbound				Eastbound			
	ped	right	through	left	ped	right	through	left	ped	right	through	left
07:15	13	2	141	n/a	0	n/a	199	3	0	1	n/a	2
07:30	33	4	190	n/a	0	n/a	237	4	0	3	n/a	1
07:45	30	1	254	n/a	0	n/a	264	1	3	6	n/a	1
08:00	1	1	149	n/a	0	n/a	182	0	0	0	n/a	0
total	77	8	734		0		882	8	3	10		4

Date: 12/17/97

	Southbound				Northbound				Eastbound			
	ped	right	through	left	ped	right	through	left	ped	right	through	left
15:15	26	1	191	n/a	0	n/a	233	1	1	0	n/a	1
15:30	30	0	173	n/a	0	n/a	200	5	2	5	n/a	1
15:45	5	1	201	n/a	0	n/a	214	0	2	0	n/a	1
16:00	0	2	202	n/a	0	n/a	178	1	4	1	n/a	2
total	61	4	767		0		825	7	9	6		5

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APPENDIX B
TRIP GENERATION

B.0 Trip Generation

A. Existing Conditions

The school site currently has 182 parking spaces. These are generally completely filled during school, with an additional 50 school related vehicles observed parked on local streets in adjacent neighborhoods. Hence there are at least 232 vehicles making a one way trip to the site in the morning. Additionally, there are vehicles dropping off students in the morning.

B. Existing and Projected Calculated Trips

The school currently has 750 students and 132,000 Square Feet. The proposed school will have 1,000 students and 227,000 Square Feet. For a baseline trip generation, the average of trips calculated for students and square footage was used. Note that this calculated figure is less than the observed trips. To not overstate the potential for additional trips, however, these lower I.T.E. average trip rates are used. This I.T.E. baseline was factored by the additional number of students to project future trip generation characteristics. The following table summarizes the average trip generation calculations:

Predictive Variable	Value	AM Peak Hour Trips	PM Peak Hour Trips	Daily Trips
Student	750	167 in/59 out	59 in/114 out	998
Square Footage	132,000	229 in/80 out	87 in/169 out	1444
Average existing trips		198 in/70 out	73 in/142 out	1221
Projected future trips: 1,000/750 = 1.3 times existing trips		264 in/93 out	97 in/189 out	1628
Additional future traffic		66 in/23 out	24 in/47 out	407

Table B.1 Trip Generation

B.1 Trip Distribution

A. Alternative A and B3

With Alternative A and B3, all school trips are expected to use the Lofty Avenue/Monona Drive intersection. With alternative B3, some trips may actually use the Monona Drive/Cold Spring Avenue intersection, however by assigning all school traffic to the Lofty Avenue intersection this represents a worst case scenario for operation at the Lofty Avenue intersection. Trips were distributed to the north or south in proportion to the existing AM north south splits at Cold Spring Avenue and Monona Drive. PM north south splits were not used as these are likely not representative of true origins and destinations due to long delays at the east

approach of the Cold Spring Avenue/Monona Drive intersection during the PM peak hour. Hence north south splits were assumed to be 24 percent north and 76 percent south.

B. Alternatives B1, B2 and C1, C2

With Alternatives B1, B2, C1, and C2, all school trips are assumed to use the Monona Drive/Cold Spring Avenue intersection. Some trips may actually use the Lofty Avenue/Monona Drive intersection, however by assigning all school traffic to the Cold Spring Avenue intersection this represents a worst case scenario for operation at the Cold Spring Avenue intersection. Trips were distributed to the north or south in proportion to the existing AM north south splits at Cold Spring Avenue and Monona Drive. PM north south splits were not used as these are likely not representative of true origin destinations due to long delays at the east approach of the Cold Spring Avenue/Monona Drive intersection during the PM peak hour. Hence north south splits were assumed to be 24 percent north and 76 percent south.

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TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

E-T-704-70

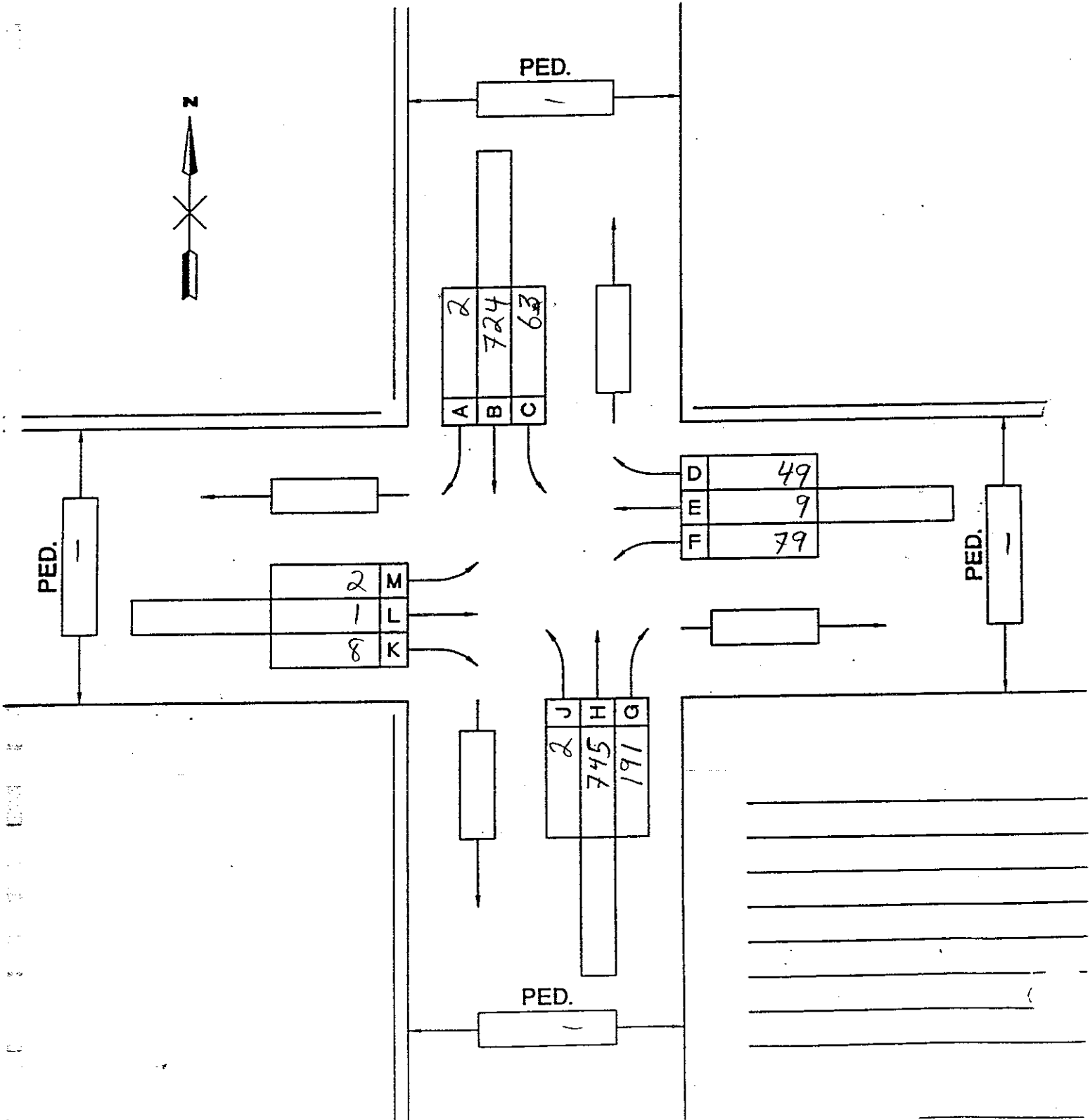
PROJECTED VOLUMES ALTERNATIVE B1, B2, C1, C2

DATE _____ DAY _____ TIME 7AM TO 8AM SHEET _____ OF _____

LOCATION: DISTRICT 1 COUNTY DANE RURAL _____ CITY

INTERSECTION MONONA DRIVE AND COLD SPRING AVENUE

WEATHER _____ ROAD CONDITION _____ OBSERVERS _____



TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

E-T-704-70

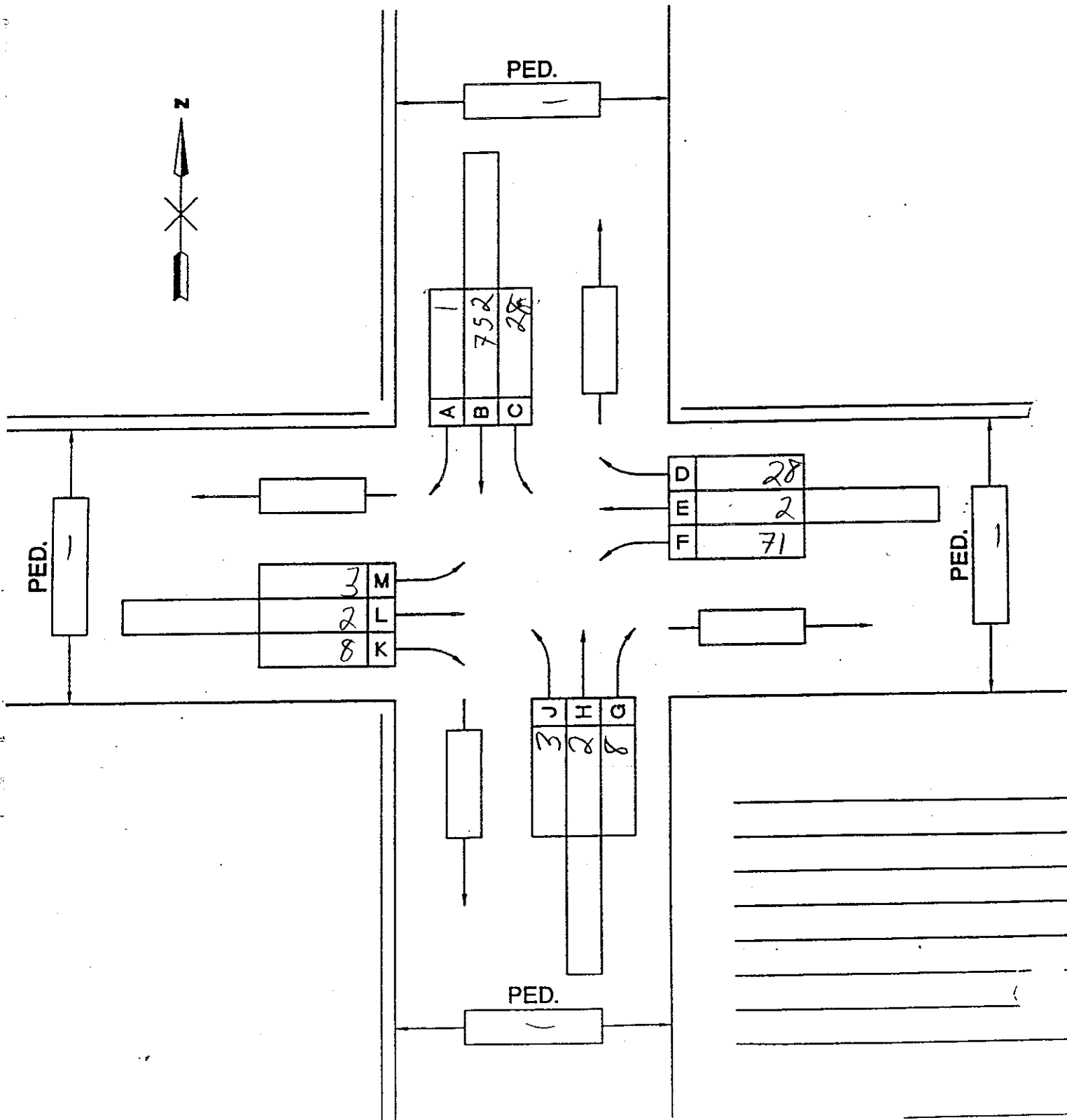
PROJECTED VOLUMES ALTERNATIVE B1, B2, C1, C2

DATE _____ DAY _____ TIME 3PM TO 4PM SHEET _____ OF _____

LOCATION: DISTRICT 1 COUNTY DANE RURAL _____ CITY ✓

INTERSECTION MONONA DRIVE AND COLD SPRING AVENUE

WEATHER _____ ROAD CONDITION _____ OBSERVERS _____



TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

E-T-704-70

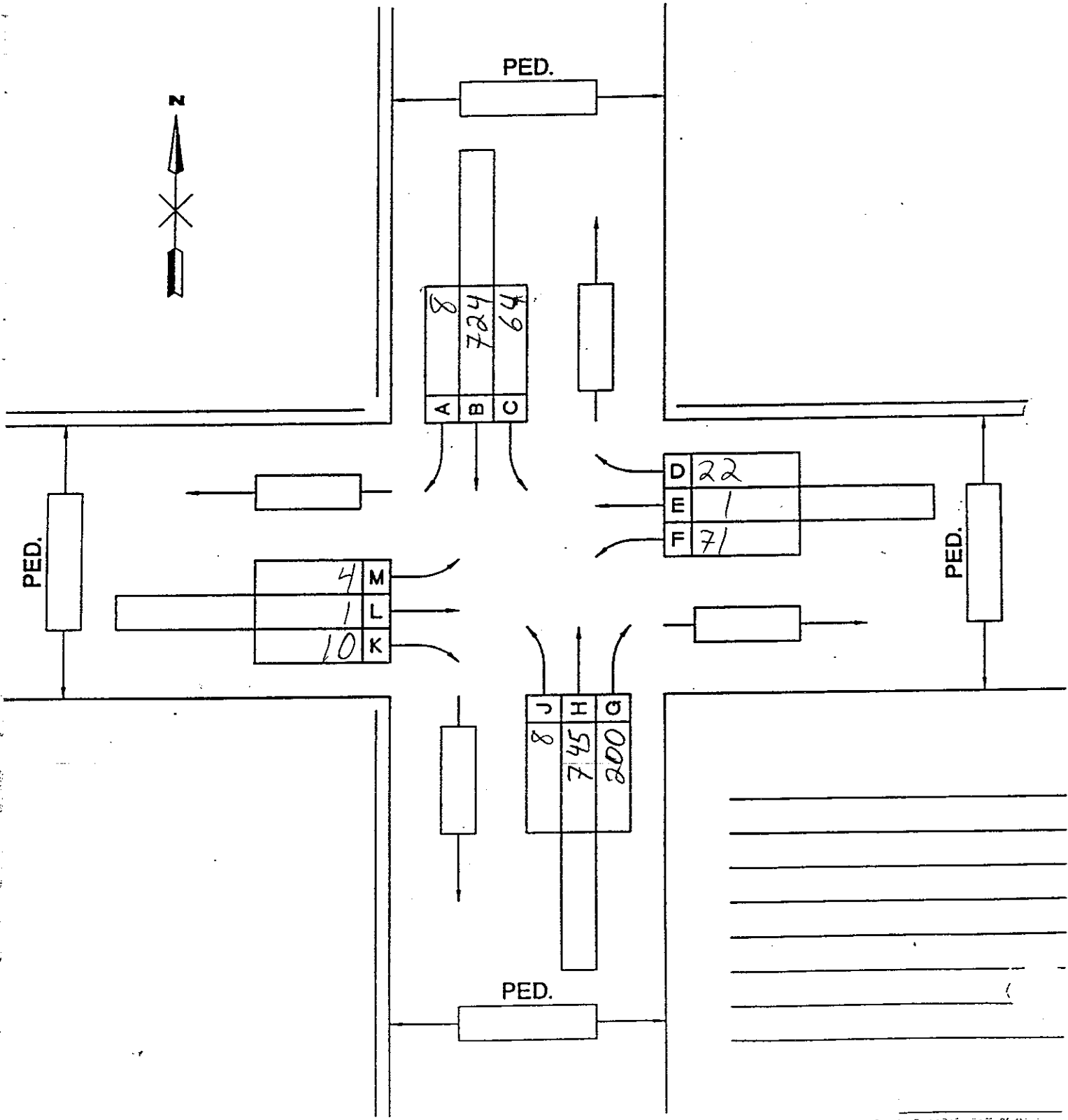
PROJECTED VOLUMES ALTERNATIVE A1, A2, B3

DATE _____ DAY _____ TIME 7AM TO 8AM SHEET _____ OF _____

LOCATION: DISTRICT L COUNTY DANE RURAL _____ CITY ✓

INTERSECTION MONONA DRIVE AND LOFTY AVENUE

WEATHER _____ ROAD CONDITION _____ OBSERVERS _____



TRAFFIC SURVEY VEHICLE VOLUME COUNT
GRAPHIC SUMMARY SHEET

E-T-704-70

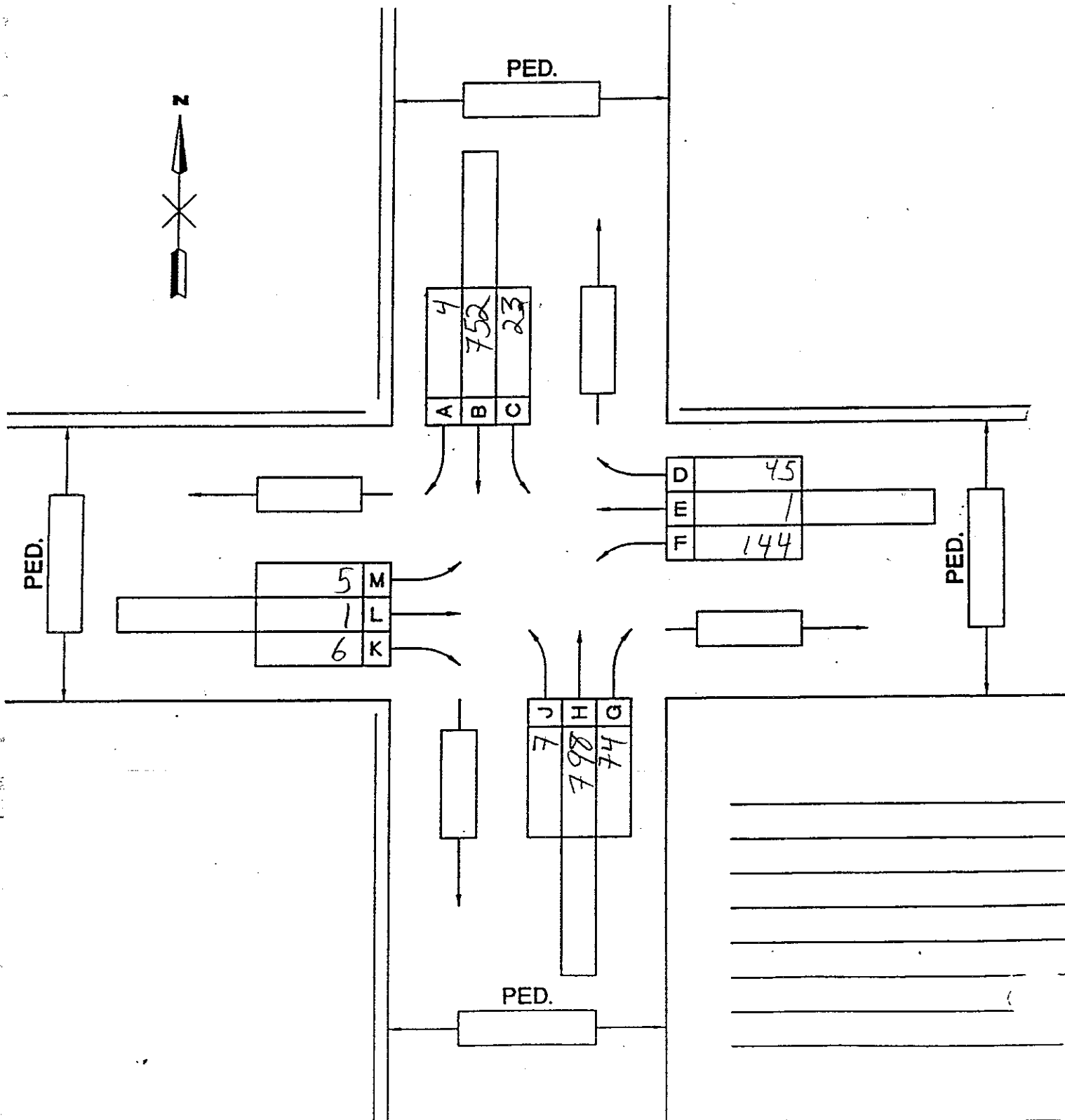
PROJECTED VOLUMES ALTERNATIVE A1, A2, B3

DATE _____ DAY _____ TIME 3PM TO 4PM SHEET _____ OF _____

LOCATION: DISTRICT 1 COUNTY DANE RURAL _____ CITY ✓

INTERSECTION MONONA DRIVE AND LOFTY AVENUE

WEATHER _____ ROAD CONDITION _____ OBSERVERS _____



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APPENDIX C
TRAFFIC ANALYSIS

C.0 Traffic Analysis

A. Existing Conditions

Existing Conditions were modeled using the Highway Capacity Manual Software.

B. Projected Alternatives Operation

Projected alternatives were modeled using the Highway Capacity Manual Software for unsignalized intersections and SIGNAL94 for signalized intersections. SIGNAL94 optimizes signal timing to assist in making consistent comparisons between alternatives. Delay and Level of Service are calculated in SIGNAL94 using Highway Capacity Manual criteria.

C. Recommended Gap

As stated in the I.T.E. Traffic Engineering Handbook, 4th. Edition, p. 78, the recommended pedestrian gap can be computed using the following formula:

$$G = W/S + R + (N-1)/2$$

where:

- G = adequate gap time in seconds
 W = width in feet of the roadway to be crossed
 S = pedestrian walking speed, (we assumed 4.0 ft/sec for this study)
 R = assumed to be 3 sec, the time which experience has shown for the typical pedestrian to look both ways, make a decision, and begin to walk across the roadway
 (N-1)/2 = the pedestrian clearance interval, N is the 85th percentile group size divided by 5, and 1 represents the first row and 2 the time interval in seconds between rows

For this study, we used the following values:

$$W = 48 \text{ ft}$$

$$S = 4.0 \text{ ft/sec}$$

$$(N-1)/2 = 0 \text{ (we used the minimum gap for one pedestrian to cross Monona Drive)}$$

$$R = 3$$

Then the calculated gap requirement is:

$$G = 48/4.0 + 0 + 3 = 15 \text{ sec}$$

Wisconsin Department of Transportation Traffic Signal Warrant Summary Sheet

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Section: MONONA DR & COLDSRING
City/Town/Village: MONONA / MADISON County: DANE

THIS INTERSECTION IS ANALYZED FOR URBAN WARRANTS. COMMENTS: _____
urban/rural

Note: The warrants for rural areas (70% of urban warrant) are used when the 85% speed on the major street exceeds 40 m.p.h. or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

THE ANALYSIS IS BASED ON COUNTS CONDUCTED ON 11/19 & 11/20, 1997, FROM 2:45 AM TO 2:45 AM
DATES DAYS

Warrants Satisfied

Warrant Evaluation Summary		YES	NO	NOT EVALUATED
Warrant 1	Minimum Vehicular Volume	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 2	Interruption of Continuous Traffic	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 3	Minimum Pedestrian Volume	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 4	School Crossings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warrant 5	Progressive Movement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 6	Accident Experience	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 7	Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 8	Combination of Warrants	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 9	Four Hour Volumes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Warrant 10	Peak Hour Delay	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 11	Peak Hour Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Left Turn Conflict Analysis	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This analysis was conducted by:

BILL PUTNAM
(Name)
STRAND ASSOCIATES, INC.
(Agency)
11/26/97
(Date)

URBAN

State of Missouri Department of Transportation

TRAFFIC CONTROL SIGNALS IN URBAN AREAS COMPARISON OF WARRANTS 1, 2, 6, 8, 9 AND 11

- WARRANT 1 MINIMUM VEHICULAR VOLUME
- WARRANT 2 INTERRUPTION OF CONTINUOUS TRAFFIC
- WARRANT 8 COMBINATION OF WARRANTS

WARRANT SATISFIED
 YES NO
 YES NO
 YES NO

	Number of Thru Lanes Per Approach	Vehicles on MAJOR STREET (Both Approaches) 8 Hours Minimum to Satisfy Warrant	SAME 8 HOURS		Right Turns Included	
			Hours Met	Vehicles on MINOR STREET (One Approach) 8 Hours Minimum to Satisfy Warrant	100 %	Hours Met
Minimum Vehicular Volume	One	500		150	0	
		*400		*120	1	
	Two or More	600	14	200		
		*480	17	*160		
Interruption of Traffic	One	750		75	2	
		*600		*60	3	
	Two or More	900	12	100		
		*720	14	*80		

To satisfy Warrant 8, Combination of Warrants, the 80% requirements need to be met for both Warrants 1 and 2. Volumes equal to 80% of the normal requirements which should be used for Warrant 6, Accident Experience and for Warrant 8, Combination of Warrants.

Check which hours satisfy warrants 1 and 2 (W1, W2) above:

Time	AM							PM									
	6:00	7:00	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00
W1																	
W2	X									X							

WARRANT 6 ACCIDENT EXPERIENCE YES NO

Requirement	Fulfilled
Adequate trials of less restrictive remedies has failed to reduce the accident frequency; and	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
5 or more reportable accidents, susceptible to correction by a traffic signal, within a 12-month period; and	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Warrant 1 - Min. Vehicular Volume <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Warrant 2 - Interruption of Continuous Traffic <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Warrant 3 - Min. Pedestrian Volume <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ONE or more of these warrants is 80% satisfied; and <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Signal installation will not seriously disrupt traffic flow	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

URBAN

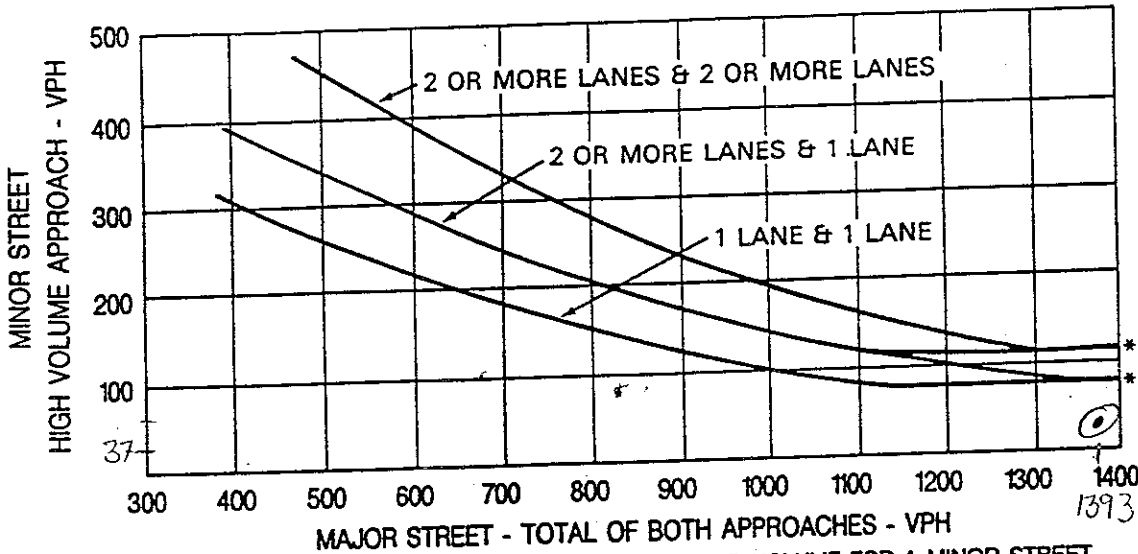
Check which conditions apply and record volumes for the highest four hours.
 To determine if warrant 9 and/or 11 is satisfied, plot the highest four hours on the figures below (4 hours minimum, 8 hours recommended).

	Number of Thru Lanes Per Approach		Time			
	One	Two or More				
MAJOR STREET (Both Approaches)						
MINOR STREET (One Approach)						

WARRANT SATISFIED
 YES NO

WARRANT 9 FOUR HOUR VOLUME URBAN

FIGURE 4-7. FOUR HOUR VOLUME WARRANT



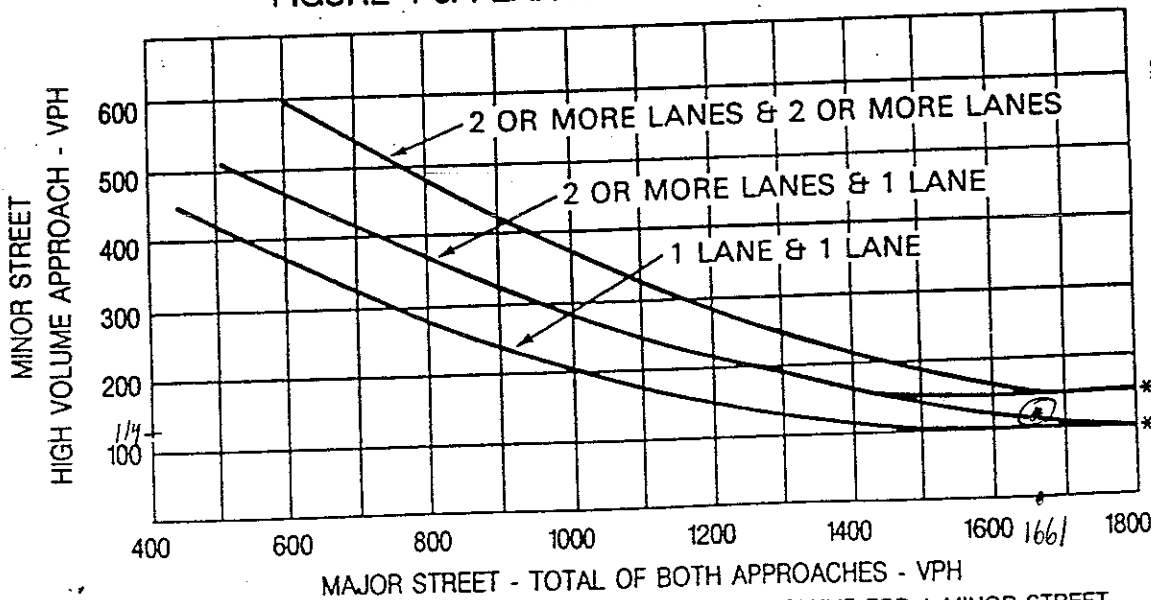
(FROM HOSE COUNT DATA 11/19-11/20/97)

*NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

WARRANT SATISFIED
 YES NO

WARRANT 11 PEAK HOUR VOLUME URBAN

FIGURE 4-5. PEAK HOUR VOLUME WARRANT



(FROM TURN COUNT DATA 7-8 AM 11/19/97)

*NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Wisconsin Department of Transportation
Traffic Signal Warrant Summary Sheet

Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Location: MONONA DRIVE / COLDSRING AVENUE

City/Town/Village: MONONA / MADISON County: DANE

THIS INTERSECTION IS ANALYZED FOR PROJECTED WARRANTS. COMMENTS: PROJECTED

VOLUMES ASSUMING REVISED SCHOOL SITE

Note: The warrants for rural areas (70% of urban warrant) are used when the 85% speed on the major street exceeds 40 m.p.h. or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

THE ANALYSIS IS BASED ON COUNTS CONDUCTED ON PROJECTED VOLUMES & PROJECTED VOLUMES, 19 , FROM AM TO AM
DATES DAYS

Warrant Evaluation Summary		Warrants Satisfied		
		YES	NO	NOT EVALUATED
Warrant 1	Minimum Vehicular Volume	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 2	Interruption of Continuous Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 3	Minimum Pedestrian Volume	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 4	School Crossings	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 5	Progressive Movement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 6	Accident Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 7	Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 8	Combination of Warrants	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 9	Four Hour Volumes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 10	Peak Hour Delay	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 11	Peak Hour Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Left Turn Conflict Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

This analysis was conducted by:

BILL PUTNAM
(Name)
STRAND ASSOCIATES, INC.
(Agency)
12/22/97
(Date)

Check which conditions apply and record volumes for the highest four hours.
 To determine if warrant 9 and/or 11 is satisfied, plot the highest four hours on the figures below (4 hours minimum, 8 hours recommended).

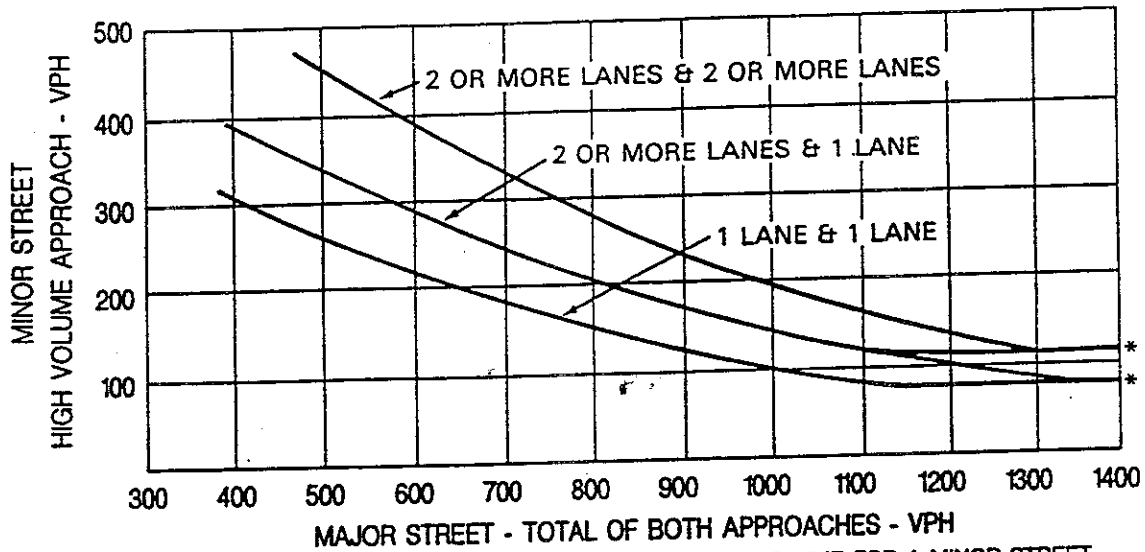
	Number of Thru Lanes Per Approach		Time			
	One	Two or More				
MAJOR STREET (Both Approaches)						
MINOR STREET (One Approach)						

WARRANT SATISFIED
 YES NO

WARRANT 9

FOUR HOUR VOLUME URBAN

FIGURE 4-7. FOUR HOUR VOLUME WARRANT



*NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

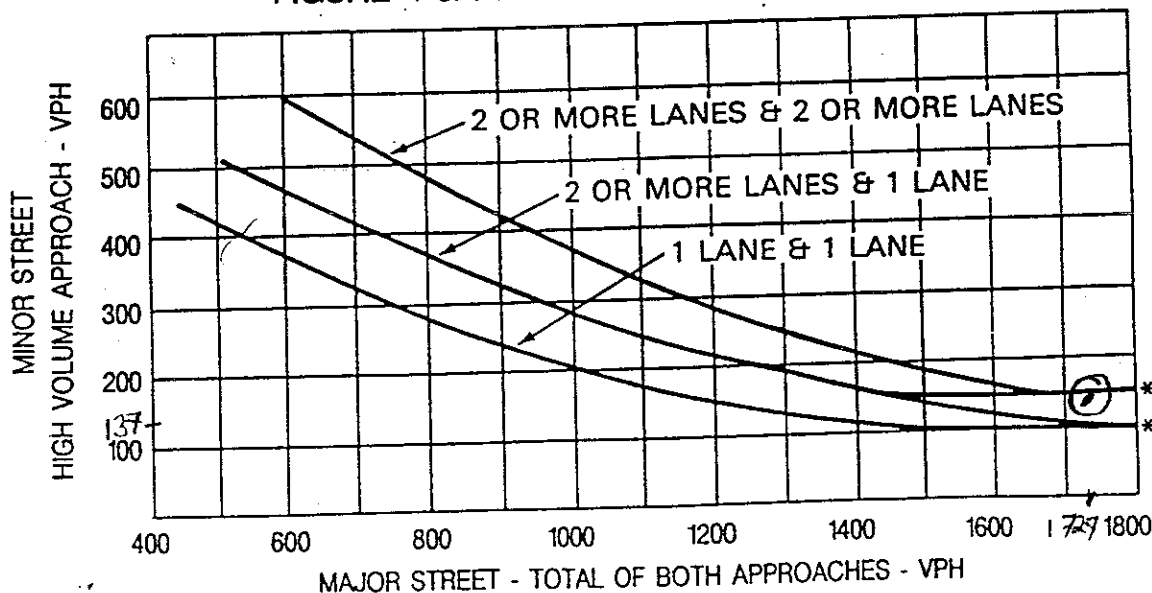
MONONA DRIVE/
 COLD SPRING AVENUE WITH PROJECTED VOLUMES

WARRANT 11

PEAK HOUR VOLUME URBAN

WARRANT SATISFIED
 YES NO

FIGURE 4-5. PEAK HOUR VOLUME WARRANT



*NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Wisconsin Department of Transportation Traffic Signal Warrant Summary Sheet

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Location: MONONA DRIVE / LOFTY AVENUE

City/Town/Village: MONONA / MADISON County: DANE

INTERSECTION IS ANALYZED FOR PROJECTED WARRANTS. COMMENTS: PROJECTED

VOLUMES ASSUMING REVISED SCHOOL SITE, ACCESS AT LOFTY ONLY

Note: The warrants for rural areas (70% of urban warrant) are used when the 85% speed on the major street exceeds 40 m.p.h. or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.

ANALYSIS IS BASED ON COUNTS CONDUCTED ON PROJECTED VOLUMES & _____, 19____, FROM _____ AM TO _____ AM
DATES DAYS

Warrant Evaluation Summary		Warrants Satisfied		
		YES	NO	NOT EVALUATED
Warrant 1	Minimum Vehicular Volume	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 2	Interruption of Continuous Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 3	Minimum Pedestrian Volume	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 4	School Crossings	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 5	Progressive Movement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 6	Accident Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 7	Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 8	Combination of Warrants	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 9	Four Hour Volumes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 10	Peak Hour Delay	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Warrant 11	Peak Hour Volume	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Left Turn Conflict Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Analysis was conducted by:

BILL PUTNAM
 _____ (Name)
STRAND ASSOCIATES, INC,
 _____ (Agency)
12/22/97
 _____ (Date)

Check which conditions apply and record volumes for the highest four hours.
 Determine if warrant 9 and/or 11 is satisfied, plot the highest four hours on the figures below (4 hours minimum, 8 hours recommended).

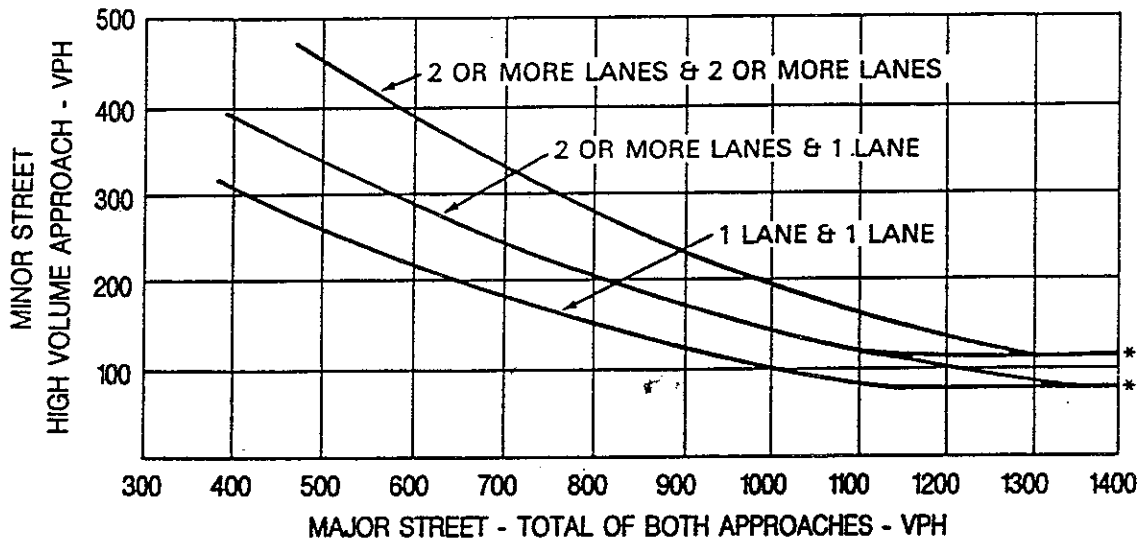
	Number of Thru Lanes Per Approach		Time			
	One	Two or More				
MAJOR STREET (Both Approaches)						
MINOR STREET (One Approach)						

WARRANT 9

FOUR HOUR VOLUME URBAN

YES NO

FIGURE 4-7. FOUR HOUR VOLUME WARRANT



*NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

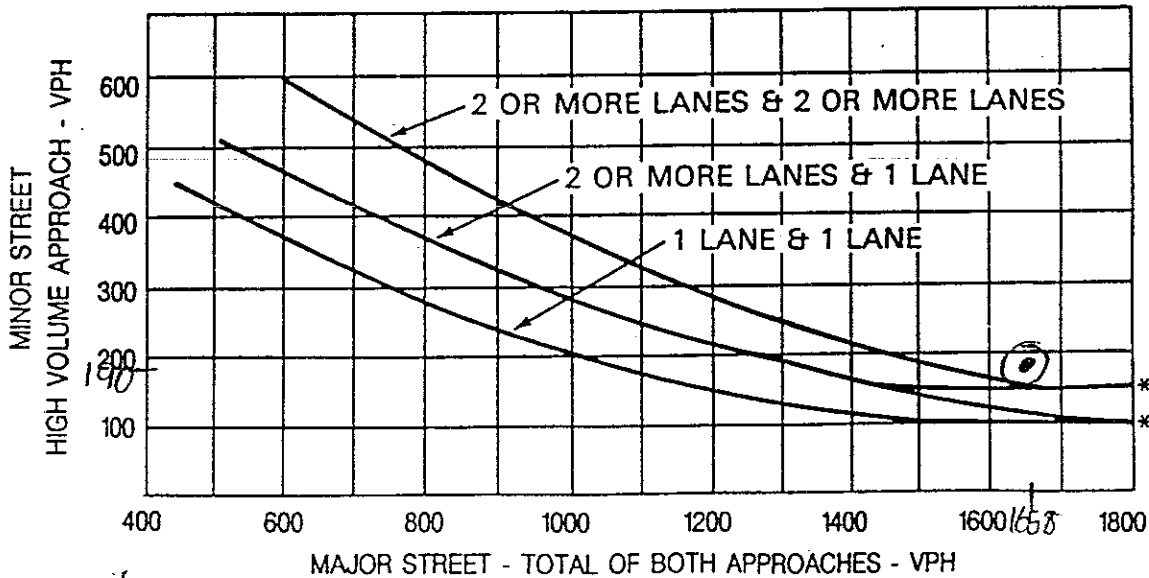
*COFTY AVENUE /
 COLDSPRING AVENUE WITH PROJECTED VOLUMES*

WARRANT 11

PEAK HOUR VOLUME URBAN

YES NO

FIGURE 4-5. PEAK HOUR VOLUME WARRANT



*NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

File Name MONCOLDP.HCO

(E-W) Coldspring Ave.

Streets: (N-S) Monona Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 11/26/97
 Other Information..... 7-8 am

EXISTING CONDITIONS

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	2	745	141	47	724	2	2	1	8	62	9	43
PHF	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77
Grade		-4			4			-2			1	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	5	5	5	5	5	5	0	0	0	0	0	0
PCE's	.8	.8	.8	1.3	1.3	1.3	1	1	1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB

Conflicting Flows: (vph)	443	363
Potential Capacity: (pcph)	826	907
Movement Capacity: (pcph)	826	907
Prob. of Queue-free State:	0.92	0.99

Step 2: LT from Major Street	SB	NB

Conflicting Flows: (vph)	886	726
Potential Capacity: (pcph)	573	699
Movement Capacity: (pcph)	573	699
Prob. of Queue-free State:	0.86	1.00
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.78	1.00

Step 3: TH from Minor Street	WB	EB

Conflicting Flows: (vph)	1590	1660
Potential Capacity: (pcph)	128	117
Capacity Adjustment Factor due to Impeding Movements	0.78	0.78
Movement Capacity: (pcph)	100	91
Prob. of Queue-free State:	0.87	0.99

Step 4: LT from Minor Street	WB	EB

Conflicting Flows: (vph)	1589	1524
Potential Capacity: (pcph)	102	112
Major LT, Minor TH Impedance Factor:	0.77	0.68
Adjusted Impedance Factor:	0.82	0.75
Capacity Adjustment Factor due to Impeding Movements	0.82	0.69
Movement Capacity: (pcph)	83	78

Intersection Performance Summary ^{AM}

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	3	78 >		48.0 >	>	
EB T	1	91 >	231	40.0 >	> C	16.6
EB R	10	907 >		4.0 >	>	
WB L	89	83 >		409.0 >	>	
WB T	13	100 >	128	41.4 >	> F	640.3
WB R	62	826 >		4.7 >	>	
NB L	2	699		5.2	B	0.0
SB L	79	573		7.3	B	0.4

Intersection Delay = 41.2

File Name MONCOLD.HC0
 Streets: (N-S) Monona Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 11/26/97
 Other Information..... 4-5 pm

(E-W) Coldspring Ave.

EXISTING CONDITIONS

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	8	863	48	22	892	4	2	2	12	18	3	7
PHF	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91
Grade		-4			4			-2			1	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	5	5	5	5	5	5	0	0	0	0	0	0
PCE's	.82	.82	.82	1.29	1.29	1.29	1	1	1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB

Conflicting Flows: (vph)	456	448
Potential Capacity: (pcph)	813	821
Movement Capacity: (pcph)	813	821
Prob. of Queue-free State:	0.99	0.98

Step 2: LT from Major Street	SB	NB

Conflicting Flows: (vph)	911	896
Potential Capacity: (pcph)	556	566
Movement Capacity: (pcph)	556	566
Prob. of Queue-free State:	0.94	0.99
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)*	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.91	0.98

Step 3: TH from Minor Street	WB	EB

Conflicting Flows: (vph)	1813	1835
Potential Capacity: (pcph)	95	92
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	85	82
Prob. of Queue-free State:	0.96	0.98

Step 4: LT from Minor Street	WB	EB

Conflicting Flows: (vph)	1810	1788
Potential Capacity: (pcph)	74	76
Major LT, Minor TH Impedance Factor:	0.87	0.86
Adjusted Impedance Factor:	0.90	0.90
Capacity Adjustment Factor due to Impeding Movements	0.89	0.89
Movement Capacity: (pcph)	66	67

Intersection Performance Summary ^{PM}

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	2	67	>	>	>	
EB T	2	82	> 243	> 15.9	> C	15.9
EB R	13	821	>	>	>	
WB L	22	66	>	>	>	
WB T	3	85	> 90	> 63.8	> F	63.8
WB R	9	813	>	>	>	
NB L	7	566		6.4	B	0.1
SB L	31	556		6.9	B	0.2

Intersection Delay = 1.2

File Name MONLOFAM.HCO
 Streets: (N-S) monona drive (E-W) Lofty
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 12/9/97
 Other Information..... School Access at Lofty only monlofam

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1	1
Stop/Yield			N			N						
Volumes	8	745	200	64	724	8	4	1	10	71	1	22
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB

Conflicting Flows: (vph)	472	366
Potential Capacity: (pcph)	798	903
Movement Capacity: (pcph)	798	903
Prob. of Queue-free State:	0.97	0.99

Step 2: LT from Major Street	SB	NB

Conflicting Flows: (vph)	945	732
Potential Capacity: (pcph)	533	694
Movement Capacity: (pcph)	533	694
Prob. of Queue-free State:	0.86	0.99
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.81	0.98

Step 3: TH from Minor Street	WB	EB

Conflicting Flows: (vph)	1649	1745
Potential Capacity: (pcph)	118	104
Capacity Adjustment Factor due to Impeding Movements	0.80	0.80
Movement Capacity: (pcph)	94	83
Prob. of Queue-free State:	0.99	0.99

Step 4: LT from Minor Street	WB	EB

Conflicting Flows: (vph)	1641	1545
Potential Capacity: (pcph)	95	109
Major LT, Minor TH Impedance Factor:	0.79	0.79
Adjusted Impedance Factor:	0.84	0.84
Capacity Adjustment Factor due to Impeding Movements	0.83	0.81
Movement Capacity: (pcph)	78	88

Intersection Performance Summary

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	4	88	>	>	>	
EB T	1	83	> 240	> 16.1	> C	16.1
EB R	12	903	>	>	>	
WB L	83	78	> 78	> 422.4	> F	
WB T	1	94	>	>	>	335.7
WB R	25	798		4.7	A	
NB L	9	694		5.3	B	0.0
SB L	74	533		7.8	B	0.6

Intersection Delay = 17.4

File Name MONLOFPM.HCO
 Streets: (N-S) monona drive (E-W) Lofty
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 12/9/97
 Other Information..... School Access at Lofty only monlofpm

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1	1
Stop/Yield			N			N						
Volumes	7	798	74	23	752	4	5	1	6	144	1	45
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	436	378
Potential Capacity: (pcph)	833	891
Movement Capacity: (pcph)	833	891
Prob. of Queue-free State:	0.94	0.99
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	872	756
Potential Capacity: (pcph)	583	673
Movement Capacity: (pcph)	583	673
Prob. of Queue-free State:	0.96	0.99
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.94	0.98
Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	1621	1656
Potential Capacity: (pcph)	123	117
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	114	108
Prob. of Queue-free State:	0.99	0.99
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1617	1582
Potential Capacity: (pcph)	98	103
Major LT, Minor TH Impedance Factor:	0.91	0.92
Adjusted Impedance Factor:	0.93	0.94
Capacity Adjustment Factor due to Impeding Movements	0.93	0.88
Movement Capacity: (pcph)	91	90

Intersection Performance Summary

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	6	90	>	>	>	
EB T	1	108	> 167	> 23.5	> D	23.5
EB R	7	891	>	>	>	
WB L	167	91	> 91	> *	> F	*
WB T	1	114	>	>	>	
WB R	52	833		4.6	A	
NB L	8	673		5.4	B	0.0
SB L	26	583		6.5	B	0.2

Intersection Delay = 132.9

* The calculated delay was greater than 999.9 sec.

File Name MONCOA2.HCO
 Streets: (N-S) Monona Drive (E-W) Coldspring Ave.
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 11/26/97
 Other Information..... 7-8 am option b or c moncoa2

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	2	745	191	63	724	2	2	1	8	79	9	49
PHF	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77
Grade		-4			4			-2			1	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	5	5	5	5	5	5	0	0	0	0	0	0
PCE's	.8	.8	.8	1.3	1.3	1.3	1	1	1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB

Conflicting Flows: (vph)	468	363
Potential Capacity: (pcph)	802	907
Movement Capacity: (pcph)	802	907
Prob. of Queue-free State:	0.91	0.99

Step 2: LT from Major Street	SB	NB

Conflicting Flows: (vph)	936	726
Potential Capacity: (pcph)	539	699
Movement Capacity: (pcph)	539	699
Prob. of Queue-free State:	0.80	1.00
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.69	1.00

Step 3: TH from Minor Street	WB	EB

Conflicting Flows: (vph)	1632	1726
Potential Capacity: (pcph)	121	107
Capacity Adjustment Factor due to Impeding Movements	0.69	0.69
Movement Capacity: (pcph)	83	73
Prob. of Queue-free State:	0.84	0.99

Step 4: LT from Minor Street	WB	EB

Conflicting Flows: (vph)	1630	1540
Potential Capacity: (pcph)	96	110
Major LT, Minor TH Impedance Factor:	0.68	0.58
Adjusted Impedance Factor:	0.75	0.67
Capacity Adjustment Factor due to Impeding Movements	0.74	0.61
Movement Capacity: (pcph)	71	67

Intersection Performance Summary

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	3	67	>	>	>	
EB T	1	73	> 201	> 19.3	> C	19.3
EB R	10	907	>	>	>	
WB L	113	71	>	>	>	
WB T	13	83	> 107	> *	> F	*
WB R	70	802	>	>	>	
NB L	2	699		5.2	B	0.0
SB L	107	539		8.3	B	0.7

Intersection Delay = 117.4

* The calculated delay was greater than 999.9 sec.

File Name MONCOP2.HC0
 Streets: (N-S) Monona Drive (E-W) Coldspring Ave.
 Major Street Direction.... NS
 Length of Time Analyzed... 60 (min)
 Analyst..... whp
 Date of Analysis..... 11/26/97
 Other Information..... 4-5 pm option b or c moncop2

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	2<	0	0>	2<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	6	798	79	28	752	1	3	2	8	71	2	28
PHF	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91
Grade		-4			4			-2			1	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	5	5	5	5	5	5	0	0	0	0	0	0
PCE's	.8	.8	.8	1.3	1.3	1.3	1	1	1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB

Conflicting Flows: (vph)	438	376
Potential Capacity: (pcph)	831	893
Movement Capacity: (pcph)	831	893
Prob. of Queue-free State:	0.96	0.99

Step 2: LT from Major Street	SB	NB

Conflicting Flows: (vph)	877	753
Potential Capacity: (pcph)	580	676
Movement Capacity: (pcph)	580	676
Prob. of Queue-free State:	0.93	0.99
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.90	0.99

Step 3: TH from Minor Street	WB	EB

Conflicting Flows: (vph)	1624	1664
Potential Capacity: (pcph)	122	116
Capacity Adjustment Factor due to Impeding Movements	0.89	0.89
Movement Capacity: (pcph)	108	103
Prob. of Queue-free State:	0.98	0.98

Step 4: LT from Minor Street	WB	EB

Conflicting Flows: (vph)	1624	1586
Potential Capacity: (pcph)	97	103
Major LT, Minor TH Impedance Factor:	0.87	0.87
Adjusted Impedance Factor:	0.90	0.90
Capacity Adjustment Factor due to Impeding Movements	0.89	0.87
Movement Capacity: (pcph)	87	89

Intersection Performance Summary

Movement	FlowRate v (pcph)	MoveCap Cm (pcph)	SharedCap Csh (pcph)	Avg.Total Delay	LOS	Delay By App
EB L	3	89	>	>	>	
EB T	2	103	> 222	> 17.3	> C	17.3
EB R	9	893	>	>	>	
WB L	86	87	>	>	>	
WB T	2	108	> 116	> 324.4	> F	324.4
WB R	34	831	>	>	>	
NB L	6	676		5.4	B	0.0
SB L	40	580		6.7	B	0.2

Intersection Delay = 18.7

onona Grove High School
 AM peak hour
 onlofam signal at lofty, access lofty only

12/19/97
 15:58:36

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters

ETROAREA	NONCBD
POSTTIME	3.0
LEVELOFSERVICE	C S
MODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	.0	.0	.0	.0
PEDLEVELS	0	0	0	0
PARKINGSIDES	NONE	NONE	NONE	BOTH
PARKVOLUMES	0	0	0	2
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	8	724	64	22	1	71	200	745	8	10	1	4
WIDTHS	.0	24.0	.0	.0	12.0	.0	.0	24.0	.0	.0	12.0	.0
LANES	0	2	0	0	1	0	0	2	0	0	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77
ARRIVALTYPES	3	3	3	3	3	3	2	2	2	3	3	3
ACTUATIONS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
REQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
DEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	2291	0	0	1465	0	0	3192	0	0	1241	0

Phasing Parameters

SEQUENCES	11	ALL			LEADLAGS	NONE	NONE
PERMISSIVES	NO	NO	NO	NO	OFFSET	.00	1
OVERLAPS	YES	YES	YES	YES	PEDTIME	.0	0
CYCLES	60	90	15				
GREENTIMES	42.04	9.96					
YELLOWTIMES	4.00	4.00					
CRITICALS	2	5					
EXCESS	0						

Monona Grove High School
 AM peak hour
 onlofam signal at lofty, access lofty only

12/19/97
 15:58:44

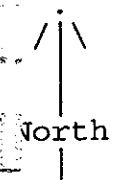
SIGNAL94/TEAPAC[V1 L1.4] - HCM Input Worksheet

Intersection # 0 - Area Location Type: NONCBD

										Key: VOLUMES -- >		
										WIDTHS		
										v LANES		
										/ \		
										22 .0 0		
										1 12.0 1		
										71 .0 0		
										North		
										Phasing: SEQUENCE 11		
										PERMSV N N N N		
										OVERLP Y Y Y Y		
										LEADLAG LD LD		
LOSTTIME = 3.0 sec.												

Appr	Grade	% Heavy Veh.			Adj. Pkg Bus			Pk.Hr.Factor			Conf. Ped peds/hr	Actuated			Arr.Type		
		RT	TH	LT	Loc	Nm	Nb	RT	TH	LT		RT	TH	LT	RT	TH	LT
N	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	3	3	3
E	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	3	3	3
S	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	2	2	2
W	.0	2.0	2.0	2.0	BO	2	0	.77	.77	.77	0-	N	N	N	3	3	3

Seq	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
11	* * *	^				
/	* * *	****				
	<* * * >	<****				
	v	****				
	^	v				
	<+ + + >	++++>				
	+ + +	++++				
	+ + +	v				
	G/C= .701	G/C= .166	G/C= .000	G/C= .000	G/C= .000	G/C= .000
	G= 42.0"	G= 10.0"	G= .0"	G= .0"	G= .0"	G= .0"
	Y+R= 4.0"	Y+R= 4.0"	Y+R= .0"	Y+R= .0"	Y+R= .0"	Y+R= .0"
	OFF= .0%	OFF=76.7%	OFF= .0%	OFF= .0%	OFF= .0%	OFF= .0%



C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

Monona Grove High School
 AM peak hour
 monofam signal at lofty, access lofty only

12/19/97
 15:58:44

SIGNAL94/TEAPAC[V1 L1.4] - HCM Volume Adjustment Worksheet

Appr	Mvt	PHF	Flow Rate	Lane Group	Group Flow	No. of Lanes	Lane Util	Adj Flow vph	Prop. of LT	Prop. of RT
N-RT	8	.77	10	--	0	0	1.00	0	.00	.00
N-TH	724	.77	940	LT+TH+RT	1033	2	1.05	1085	.08	.01
N-LT	64	.77	83	--	0	0	1.00	0	.00	.00
E-RT	22	.77	29	--	0	0	1.00	0	.00	.00
E-TH	1	.77	1	LT+TH+RT	122	1	1.00	122	.75	.24
E-LT	71	.77	92	--	0	0	1.00	0	.00	.00
S-RT	200	.77	260	--	0	0	1.00	0	.00	.00
S-TH	745	.77	968	LT+TH+RT	1238	2	1.05	1300	.01	.21
S-LT	8	.77	10	--	0	0	1.00	0	.00	.00
W-RT	10	.77	13	--	0	0	1.00	0	.00	.00
W-TH	1	.77	1	LT+TH+RT	19	1	1.00	19	.26	.68
W-LT	4	.77	5	--	0	0	1.00	0	.00	.00

SIGNAL94/TEAPAC[V1 L1.4] - HCM Saturation Flow Adjustment Worksheet

Appr	Lane Group	Ideal Satfl pcphg	No of Lns	Adjustment Factors	Adj Sat-flow vphg
				Lane Heavy	
				Width	
				Vehs	
				Grade	
				Parkg	
				Block	
				Loc	
				Right Turn	
				Left Turn	
				Adj Fact	
N-LT+TH+RT	1900	2	1.000	.980 1.000 1.000 1.000 1.0	.999 .616 1.00 2291
E-LT+TH+RT	1900	1	1.000	.980 1.000 1.000 1.000 1.0	.868 .906 1.00 1465
S-LT+TH+RT	1900	2	1.000	.980 1.000 1.000 1.000 1.0	.968 .885 1.00 3192
W-LT+TH+RT	1900	1	1.000	.980 1.000 .890 1.000 1.0	.808 .927 1.00 1241

Monona Grove High School
 AM peak hour
 monlofam signal at lofty, access lofty only

12/19/97
 15:58:45

SIGNAL94/TEAPAC[V1 L1.4] - HCM Supplemental LT-Factor Worksheet

Input/Calculation	Approach			
	N-LT	E-LT	S-LT	W-LT
C - Cycle Length	60.0000	60.0000	60.0000	60.0000
G - Actual Green Time	42.0389	9.9611	42.0389	9.9611
g - Effective Green Time	43.0389	10.9611	43.0389	10.9611
go - Opp. Effective Green Time	43.0389	10.9611	43.0389	10.9611
L - Number of Lanes	2.0000	1.0000	2.0000	1.0000
No - No. of Opp. Lanes (9-17)	2.0000	1.0000	2.0000	1.0000
vLT - Adjusted LT Flow Rate	83.0000	92.0000	10.0000	5.0000
PLT - Proportion of LT	.0803	.7541	.0081	.2632
PLTo - Prop. of Opp. LT (9-18)	.0081	.2632	.0803	.7541
vo - Adjusted Opp. Flow Rate	1300.0000	19.0000	1085.0000	122.0000
tL - Lost Time	3.0000	3.0000	3.0000	3.0000
LTC - Left Turns per Cycle	1.3833	1.5333	.1667	.0833
Volc - Opp. Flow /Lane /Cycle	10.8333	.3167	9.0417	2.0333
rho - Opposing Platoon Ratio	.6667	1.0000	1.0000	1.0000
gf - First LT Effect. Green	10.8122	.2330	29.9343	5.3187
qro - Opposing Queue Ratio	.5218	.8173	.2827	.8173
jq - Opp. Queue Effect. Green	11.8901	.0000	4.3172	3.8532
ju - Unsaturated Effect. Green	31.1488	10.7281	13.1046	5.6423
fs - LT Satur. Factor (9-17)	.0625	.8631	.1969	.7987
PL - Proportion of LT (9-17)	.6168	.7541	.0572	.2632
q - Max. Opp. Vehicles (9-18)	.5390	.0000	.0000	.0000
PTHo - Prop. TH in Opp. (9-18)	.9919	.7368	.9197	.2459
EL1 - TH Equivalent for LT	16.0000	1.1402	16.0000	1.6295
EL2 - Opp. TH Equiv. (9-18)	.5400	.0000	.0000	.0000
fmin - Minimum Value for fLT	.0751	.3201	.0491	.2305
fm - LT Factor for LT (9-17)	.3218	.9064	.8594	.9268
fLT - LT Factor for Lane Group	.6159	.9064	.8847	.9268

SIGNAL94/TEAPAC[V1 L1.4] - HCM Capacity Analysis Worksheet

Ap	Lane	LT	Adj	Adj	Flow	Green	Lane	V/C	Crit
pr	Group	Phase	Flow	Satfl	Ratio	Ratio	Group	Ratio	Lane
ch	Mvts	Type	Rate	Rate	v/s	g/C	Capac	v/c	Grp
--	--	--	vph	vphg	--	--	vph	--	--

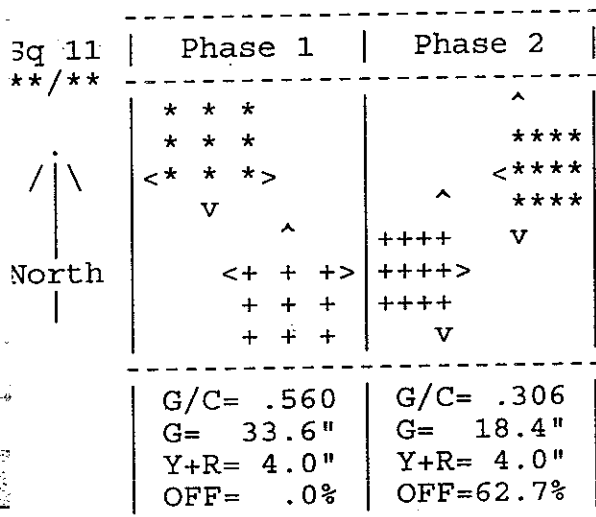
	B+		B		B+		B		B+				
Svc Lvl:LOS	.00	.53	.00	.00	.43	.00	.00	.53	.00	.00	.03	.00	.51
Deg Sat:v/c	.0	8.6	.0	.0	18.0	.0	.0	8.5	.0	.0	14.0	.0	9.5
vg Del:s/v	0	32	0	0	16	0	0	36	0	0	1	0	85
ot Del:min	0	137	0	0	41	0	0	154	0	0	2	0	334
# Stops:veh	0	13	0	0	5	0	0	14	0	0	0	0	32
ax Que:veh	0	160	0	0	119	0	0	181	0	0	25	0	181
max Que: ft	=====												

PPR TOTALS	N Approach		E Approach		S Approach		W Approach		Int	
Param:Units	=====									Total
AdjVol: vph	898		208		1014		13		2133	
Svc Lvl:LOS	B+		B		B+		B		B+	
Deg Sat:v/c	.53		.43		.53		.03		.51	
Avg Del:s/v	8.6		18.0		8.5		14.0		9.5	
Tot Del:min	32		16		36		1		85	
Stops:veh	137		41		154		2		334	
Max Que:veh	13		5		14		0		32	
Max Que: ft	160		119		181		25		181	
	=====									=====

Monona Grove High School
 4PM peak hour
 Monlofpm lofty pm with access only at lofty

12/19/97
 15:59:54

SIGNAL94/TEAPAC[V1 L1.4] - Evaluation of Intersection Performance



C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	4	868	26	49	1	158	85	921	8	7	1	5	2133
Wid/Ln:ft/#	0/0	24/2	0/0	0/0	12/1	0/0	0/0	24/2	0/0	0/0	12/1	0/0	
g/C Rqd@C:%	0	33	0	0	18	0	0	32	0	0	3	0	
g/C Used: %	0	58	0	0	32	0	0	58	0	0	32	0	
SV @E: vph	0	1696	0	0	483	0	0	1929	0	0	397	0	4505

Monona Grove High School
 ^M peak hour
 oncoam2 option b or c

12/19/97
 15:20:15

IGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters

RETROAREA		NONCBD
LOSTTIME		3.0
LEVELOFSERVICE	C	S
ODELOCATION	0	0

Approach Parameters

	N	E	S	W
PPLABELS				
GRADES	.0	.0	.0	.0
PEDLEVELS	0	0	0	0
PARKINGSIDES	NONE	NONE	NONE	BOTH
PARKVOLUMES	0	0	0	2
BUSVOLUMES	0	0	0	0
LIGHTTURNONREDS	0	0	0	0

Movement Parameters

	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
MOVLABELS												
VOLUMES	2	724	63	49	9	79	191	745	2	8	1	2
WIDTHS	.0	24.0	.0	.0	12.0	.0	.0	24.0	.0	.0	12.0	.0
LANES	0	2	0	0	1	0	0	2	0	0	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77	.77
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
REQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
INSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	2308	0	0	1493	0	0	3372	0	0	1245	0

Phasing Parameters

SEQUENCES	11	ALL			LEADLAGS	NONE	NONE
PERMISSIVES	NO	NO	NO	NO	OFFSET	.00	1
OVERLAPS	YES	YES	YES	YES	PEDTIME	.0	0
CYCLES	60	120	15				
GREENTIMES	39.28	12.72					
YELLOWTIMES	4.00	4.00					
CRITICALS	2	5					
EXCESS	0						

Monona Grove High School
 AM peak hour
 oncoam2 option b or c

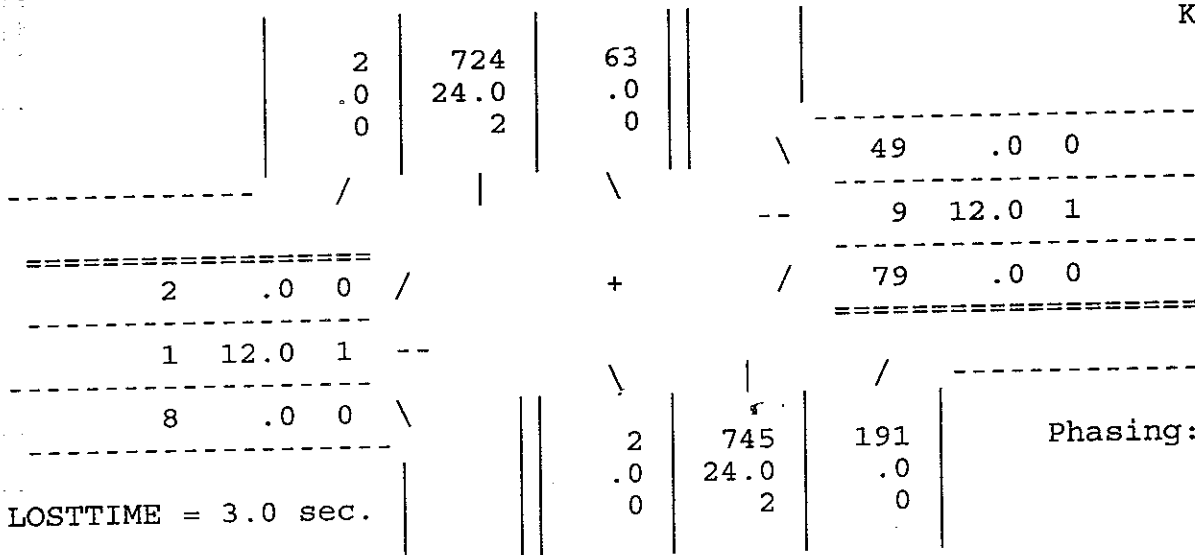
12/19/97
 15:20:25

IGNAL94/TEAPAC[V1 L1.4] - HCM Input Worksheet

Intersection # 0 -

Area Location Type: NONCBD

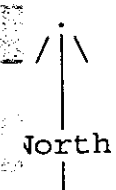
Key: VOLUMES -- >
 | WIDTHS
 v LANES



Phasing: SEQUENCE 11
 PERMSV N N N N
 OVERLP Y Y Y Y
 LEADLAG LD LD

Appr	Grade	% Heavy Veh.			Adj. Pkg Bus			Pk.Hr.Factor			Conf. Ped peds/hr	Actuated			Arr.Type		
		RT	TH	LT	Loc	Nm	Nb	RT	TH	LT		RT	TH	LT	RT	TH	LT
N	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	3	3	3
E	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	3	3	3
S	.0	2.0	2.0	2.0	NO	0	0	.77	.77	.77	0-	N	N	N	3	3	3
W	.0	2.0	2.0	2.0	BO	2	0	.77	.77	.77	0-	N	N	N	3	3	3

Seq	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
11	* * * * * * < * * * > v ^ < + + + > + + + + + +	^ **** < **** > **** v ++++ +++++ ++++ v				
	G/C= .655 G= 39.3" Y+R= 4.0" OFF= .0%	G/C= .212 G= 12.7" Y+R= 4.0" OFF= 72.1%	G/C= .000 G= .0" Y+R= .0" OFF= .0%	G/C= .000 G= .0" Y+R= .0" OFF= .0%	G/C= .000 G= .0" Y+R= .0" OFF= .0%	G/C= .000 G= .0" Y+R= .0" OFF= .0%



C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

Monona Grove High School
 AM peak hour
 Moncoam2 option b or c

12/19/97
 15:20:25

SIGNAL94/TEAPAC[V1 L1.4] - HCM Volume Adjustment Worksheet

Appr	Mvt	PHF	Flow Rate	Lane Group	Group Flow	No. of Lanes	Lane Util	Adj Flow	Prop. of LT	Prop. of RT
--	vph	--	vph	--	vph	-	--	vph	--	--
N-RT	2	.77	3	--	0	0	1.00	0	.00	.00
N-TH	724	.77	940	LT+TH+RT	1025	2	1.05	1076	.08	.00
N-LT	63	.77	82	--	0	0	1.00	0	.00	.00
E-RT	49	.77	64	--	0	0	1.00	0	.00	.00
E-TH	9	.77	12	LT+TH+RT	179	1	1.00	179	.58	.36
E-LT	79	.77	103	--	0	0	1.00	0	.00	.00
S-RT	191	.77	248	--	0	0	1.00	0	.00	.00
S-TH	745	.77	968	LT+TH+RT	1219	2	1.05	1280	.00	.20
S-LT	2	.77	3	--	0	0	1.00	0	.00	.00
W-RT	8	.77	10	--	0	0	1.00	0	.00	.00
W-TH	1	.77	1	LT+TH+RT	14	1	1.00	14	.21	.71
W-LT	2	.77	3	--	0	0	1.00	0	.00	.00

SIGNAL94/TEAPAC[V1 L1.4] - HCM Saturation Flow Adjustment Worksheet

Appr	Lane Group	Ideal Satfl	No of Lns	Adjustment Factors							Adj Sat-flow		
--	--	pcphg	-	Lane Width	Heavy Vehs	Grade	Parkg	Bus Block	Ar Right Loc	Left Turn	Adj Fact	vphg	
N-LT+TH+RT	1900	2	1.000	.980	1.000	1.000	1.000	1.000	1.0	1.000	.620	1.00	2308
E-LT+TH+RT	1900	1	1.000	.980	1.000	1.000	1.000	1.000	1.0	.852	.941	1.00	1493
S-LT+TH+RT	1900	2	1.000	.980	1.000	1.000	1.000	1.000	1.0	.969	.934	1.00	3372
W-LT+TH+RT	1900	1	1.000	.980	1.000	.890	1.000	1.000	1.0	.804	.934	1.00	1245

Monona Grove High School
 AM peak hour
 moncoam2 option b or c

12/19/97
 15:20:26

SIGNAL94/TEAPAC[V1 L1.4] - HCM Supplemental LT-Factor Worksheet

Input/Calculation	Approach			
	N-LT	E-LT	S-LT	W-LT
C - Cycle Length	60.0000	60.0000	60.0000	60.0000
G - Actual Green Time	39.2771	12.7229	39.2771	12.7229
g - Effective Green Time	40.2771	13.7229	40.2771	13.7229
go - Opp. Effective Green Time	40.2771	13.7229	40.2771	13.7229
N - Number of Lanes	2.0000	1.0000	2.0000	1.0000
No - No. of Opp. Lanes (9-17)	2.0000	1.0000	2.0000	1.0000
vLT - Adjusted LT Flow Rate	82.0000	103.0000	3.0000	3.0000
PLT - Proportion of LT	.0800	.5754	.0025	.2143
PLTo - Prop. of Opp. LT (9-18)	.0025	.2143	.0800	.5754
vo - Adjusted Opp. Flow Rate	1280.0000	14.0000	1076.0000	179.0000
tL - Lost Time	3.0000	3.0000	3.0000	3.0000
LTC - Left Turns per Cycle	1.3667	1.7167	.0500	.0500
Volc - Opp. Flow /Lane /Cycle	10.6667	.2333	8.9667	2.9833
Rpo - Opposing Platoon Ratio	1.0000	1.0000	1.0000	1.0000
gf - First LT Effect. Green	10.0296	.8010	32.4347	8.1645
qro - Opposing Queue Ratio	.3287	.7713	.3287	.7713
gq - Opp. Queue Effect. Green	7.8816	.0000	5.4080	5.6307
gu - Unsaturated Effect. Green	30.2474	12.9219	7.8424	5.5584
fs - LT Satur. Factor (9-17)	.0750	.8662	.2025	.7631
PL - Proportion of LT (9-17)	.5560	.5754	.0187	.2143
Ln - Max. Opp. Vehicles (9-18)	.0000	.0000	.0000	.0000
PTHo - Prop. TH in Opp. (9-18)	.9975	.7857	.9200	.4246
EL1 - TH Equivalent for LT	16.0000	1.1165	16.0000	1.9002
EL2 - Opp. TH Equiv. (9-18)	.0000	.0000	.0000	.0000
fmin - Minimum Value for fLT	.0773	.2296	.0506	.1770
fm - LT Factor for LT (9-17)	.3294	.9408	.9573	.9345
fLT - LT Factor for Lane Group	.6197	.9408	.9336	.9345

SIGNAL94/TEAPAC[V1 L1.4] - HCM Capacity Analysis Worksheet

Ap Lane LT Adj Adj Flow Green Lane V/C Crit

Port ch	Group Mvts	Phase Type	Flow Rate vph	Satfl Rate vphg	Ratio v/s	Ratio g/C	Group Capac vph	Ratio v/c	Lane Grp
N-LT+TH+RT			1076	2308	.466	.671	1549	.695	*
E-LT+TH+RT			179	1493	.120	.229	341	.525	*
S-LT+TH+RT			1280	3372	.380	.671	2264	.565	
W-LT+TH+RT			14	1245	.011	.229	285	.049	
Cycle Length, C 60 sec						Sum(v/s) =		.586	
Post Time Per Cycle, L 6.0 sec						Xc =		.651	

Monona Grove High School
 AM peak hour
 moncoam2 option b or c

12/19/97
 15:20:26


SIGNAL94/TEAPAC[V1 L1.4] - HCM Level-of-Service Worksheet

Port ch	Lane Group Mvts	Vol Ratio v/c	Green Ratio g/C	Unif Delay d1 sec/v	Delay Fact DF	Lane Group Capac vph	Cal Term m	Incr Delay d2 sec/v	Lane Group Delay sec/v	Lan Grp LOS	Appr Delay sec/v	Appr LOS	
N-LT+TH+RT		.695	.671	4.6	1.00	1549	16	.96	5.6	B+	5.6	B+	
E-LT+TH+RT		.525	.229	15.4	1.00	341	16	1.20	16.6	C+	16.6	C+	
S-LT+TH+RT		.565	.671	4.0	1.00	2264	16	.25	4.2	A	4.2	A	
W-LT+TH+RT		.049	.229	13.7	1.00	285	16	.00	13.7	B	13.7	B	
Cycle= 60"											5.7	B+	
Int Total		.614	=====									5.7	B+

Monona Grove High School
 AM peak hour
 Moncoam2 option b or c

12/19/97
 15:20:26

SIGNAL94/TEAPAC[V1 L1.4] - Evaluation of Intersection Performance

sq 11	Phase 1	Phase 2
*/**		
 North	* * *	^
	* * *	****
	<* * * >	<****
	v	****
	^	v
	<+ + + >	++++>
	+ + +	++++
	+ + +	v
	G/C= .655	G/C= .212
	G= 39.3"	G= 12.7"
	Y+R= 4.0"	Y+R= 4.0"
	OFF= .0%	OFF=72.1%

C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	3	987	86	64	12	103	260	1017	3	10	1	3	2549
Wid/Ln:ft/#	0/0	24/2	0/0	0/0	12/1	0/0	0/0	24/2	0/0	0/0	12/1	0/0	
g/C Rqd@C:%	0	48	0	0	17	0	0	40	0	0	3	0	

v/c Used: %	0	67	0	0	23	0	0	67	0	0	23	0	
SV @E: vph	0	1549	0	0	341	0	0	2264	0	0	285	0	4439
svc Lvl:LOS		B+			C+			A			B		B+
Deg Sat:v/c	.00	.69	.00	.00	.52	.00	.00	.56	.00	.00	.05	.00	.61
Avg Del:s/v	.0	7.9	.0	.0	23.6	.0	.0	6.0	.0	.0	18.4	.0	8.1
tot Del:min	0	35	0	0	18	0	0	32	0	0	1	0	86
# Stops:veh	0	166	0	0	39	0	0	170	0	0	3	0	378
Max Que:veh	0	12	0	0	5	0	0	14	0	0	0	0	31
Max Que: ft	0	149	0	0	116	0	0	177	0	0	25	0	177

PPR TOTALS	N Approach	E Approach	S Approach	W Approach	Int Total
Param:Units					
AdjVol: vph	1076	179	1280	14	2549
svc Lvl:LOS	B+	C+	A	B	B+
Deg Sat:v/c	.69	.52	.56	.05	.61
Avg Del:s/v	7.9	23.6	6.0	18.4	8.1
tot Del:min	35	18	32	1	86
# Stops:veh	166	39	170	3	378
Max Que:veh	12	5	14	0	31
Max Que: ft	149	116	177	25	177

Monona Grove High School
 PM peak hour
 oncopm2 option b or c

12/19/97
 15:21:44

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters

RETROAREA	NONCBD
LOSTTIME	3.0
LEVELOFSERVICE	C S
MODELOCATION	0 0

Approach Parameters

PPLABELS	N	E	S	W
GRADES	.0	.0	.0	.0
PEDLEVELS	0	0	0	0
MARKINGSIDES	NONE	NONE	NONE	BOTH
MARKVOLUMES	0	0	0	2
BUSVOLUMES	0	0	0	0
LIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	1	752	28	28	2	71	79	798	6	8	2	3
WIDTHS	.0	24.0	.0	.0	12.0	.0	.0	24.0	.0	.0	12.0	.0
LANES	0	2	0	0	1	0	0	2	0	0	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
REQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	2851	0	0	1499	0	0	3359	0	0	1288	0

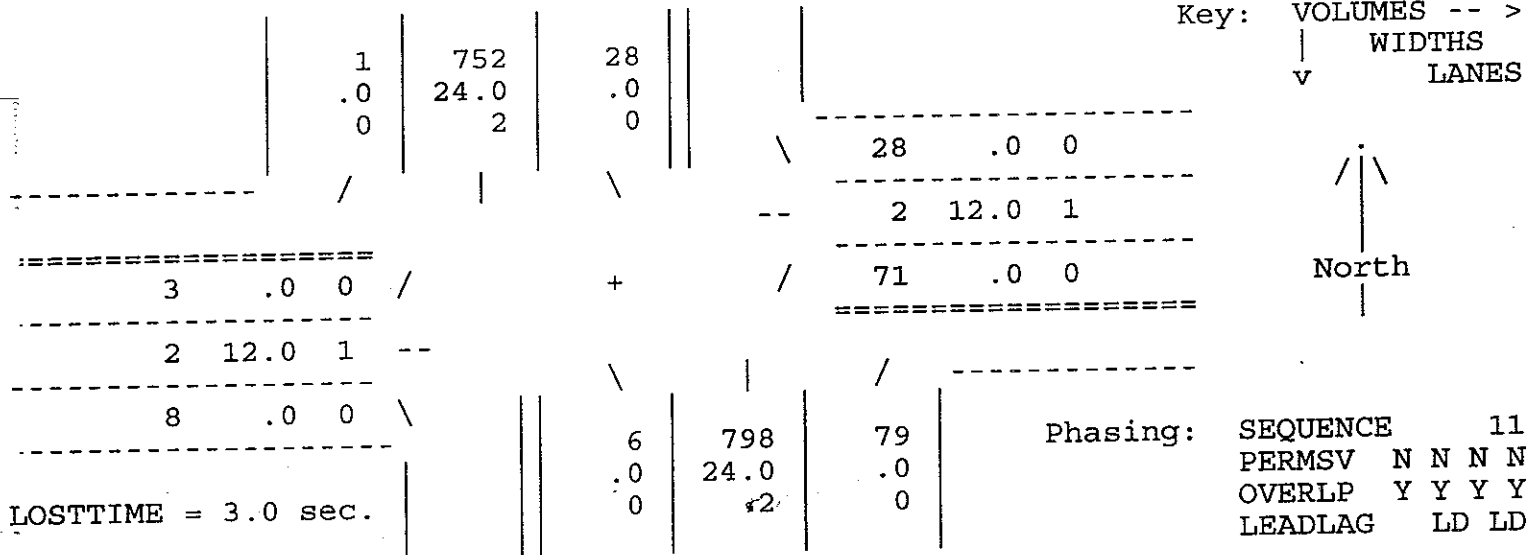
Phasing Parameters

SEQUENCES	11	ALL			LEADLAGS	NONE	NONE
PERMISSIVES	NO	NO	NO	NO	OFFSET	.00	1
OVERLAPS	YES	YES	YES	YES	PEDTIME	.0	0
CYCLES	60	90	15				
GREENTIMES	39.44	12.56					
YELLOWTIMES	4.00	4.00					
CRITICALS	2	5					
EXCESS	0						

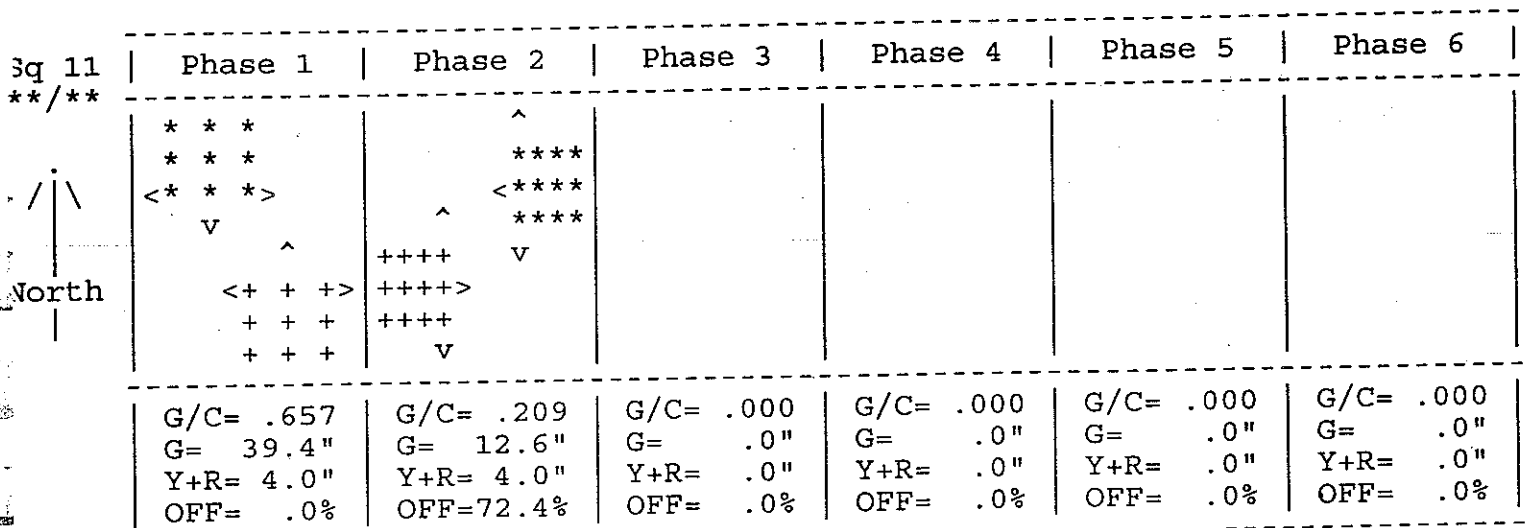
SIGNAL94/TEAPAC[V1 L1.4] - HCM Input Worksheet

Intersection # 0 -

Area Location Type: NONCBD



Appr	Grade	% Heavy Veh.			Adj. Pkg Bus			Pk.Hr.Factor			Conf. Ped	Actuated			Arr.Type		
		RT	TH	LT	Loc	Nm	Nb	RT	TH	LT		peds/hr	RT	TH	LT	RT	TH
N	.0	2.0	2.0	2.0	NO	0	0	.91	.91	.91	0-	N	N	N	3	3	3
E	.0	2.0	2.0	2.0	NO	0	0	.91	.91	.91	0-	N	N	N	3	3	3
S	.0	2.0	2.0	2.0	NO	0	0	.91	.91	.91	0-	N	N	N	3	3	3
W	.0	2.0	2.0	2.0	BO	2	0	.91	.91	.91	0-	N	N	N	3	3	3



C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

Monona Grove High School
 PM peak hour
 oncopm2 option b or c

12/19/97
 15:21:54

SIGNAL94/TEAPAC[V1 L1.4] - HCM Volume Adjustment Worksheet

Appr	Mvt	PHF	Flow Rate	Lane Group	Group Flow	No. of Lanes	Lane Util	Adj Flow	Prop. of LT	Prop. of RT
--	vph	--	vph	--	vph	-	--	vph	--	--
N-RT	1	.91	1	--	0	0	1.00	0	.00	.00
N-TH	752	.91	826	LT+TH+RT	858	2	1.05	901	.04	.00
N-LT	28	.91	31	--	0	0	1.00	0	.00	.00
E-RT	28	.91	31	--	0	0	1.00	0	.00	.00
E-TH	2	.91	2	LT+TH+RT	111	1	1.00	111	.70	.28
E-LT	71	.91	78	--	0	0	1.00	0	.00	.00
S-RT	79	.91	87	--	0	0	1.00	0	.00	.00
S-TH	798	.91	877	LT+TH+RT	971	2	1.05	1020	.01	.09
S-LT	6	.91	7	--	0	0	1.00	0	.00	.00
W-RT	8	.91	9	--	0	0	1.00	0	.00	.00
W-TH	2	.91	2	LT+TH+RT	14	1	1.00	14	.21	.64
W-LT	3	.91	3	--	0	0	1.00	0	.00	.00

SIGNAL94/TEAPAC[V1 L1.4] - HCM Saturation Flow Adjustment Worksheet

Ap	Lane	No	Adjustment Factors										Adj
pr	Group	Ideal	of	Lane	Heavy	Bus	Ar	Right	Left	Adj	Sat-		
ch	Mvmts	Satfl	Lns	Width	Vehs	Grade	Parkg	Block	Loc	Turn	Turn	Fact	flow
--	--	pcphg	-										vphg
N-LT+TH+RT	1900	2	1.000	.980	1.000	1.000	1.000	1.0	1.000	.765	1.00	2851	
E-LT+TH+RT	1900	1	1.000	.980	1.000	1.000	1.000	1.0	.862	.933	1.00	1499	
S-LT+TH+RT	1900	2	1.000	.980	1.000	1.000	1.000	1.0	.987	.914	1.00	3359	
W-LT+TH+RT	1900	1	1.000	.980	1.000	.890	1.000	1.0	.813	.955	1.00	1288	

Monona Grove High School
 PM peak hour
 moncopm2 option b or c

12/19/97
 15:21:54

SIGNAL94/TEAPAC[V1 L1.4] - HCM Supplemental LT-Factor Worksheet

Input/Calculation	Approach			
	N-LT	E-LT	S-LT	W-LT
- Cycle Length	60.0000	60.0000	60.0000	60.0000
G - Actual Green Time	39.4418	12.5582	39.4418	12.5582
g - Effective Green Time	40.4418	13.5582	40.4418	13.5582
go - Opp. Effective Green Time	40.4418	13.5582	40.4418	13.5582
L - Number of Lanes	2.0000	1.0000	2.0000	1.0000
No - No. of Opp. Lanes (9-17)	2.0000	1.0000	2.0000	1.0000
LT - Adjusted LT Flow Rate	31.0000	78.0000	7.0000	3.0000
LT - Proportion of LT	.0361	.7027	.0072	.2143
PLTo - Prop. of Opp. LT (9-18)	.0072	.2143	.0361	.7027
vo - Adjusted Opp. Flow Rate	1020.0000	14.0000	901.0000	111.0000
L - Lost Time	3.0000	3.0000	3.0000	3.0000
LTC - Left Turns per Cycle	.5167	1.3000	.1167	.0500
Volc - Opp. Flow /Lane /Cycle	8.5000	.2333	7.5083	1.8500
Oppo - Opposing Platoon Ratio	1.0000	1.0000	1.0000	1.0000
gf - First LT Effect. Green	19.7710	1.5543	29.6493	8.0200
pro - Opposing Queue Ratio	.3260	.7740	.3260	.7740
q - Opp. Queue Effect. Green	4.7323	.0000	3.5290	3.0193
gu - Unsaturated Effect. Green	20.6708	12.0039	10.7925	5.5382
fs - LT Satur. Factor (9-17)	.2375	.8662	.3119	.8056
L - Proportion of LT (9-17)	.1914	.7027	.0443	.2143
n - Max. Opp. Vehicles (9-18)	.0000	.0000	.0000	.0000
PTHo - Prop. TH in Opp. (9-18)	.9928	.7857	.9639	.2973
EL1 - TH Equivalent for LT	16.0000	1.1165	11.0500	1.5773
EL2 - Opp. TH Equiv. (9-18)	.0000	.0000	.0000	.0000
fmin - Minimum Value for fLT	.0589	.2512	.0516	.1791
fm - LT Factor for LT (9-17)	.6209	.9330	.9178	.9550
LT - LT Factor for Lane Group	.7655	.9330	.9139	.9550

SIGNAL94/TEAPAC[V1 L1.4] - HCM Capacity Analysis Worksheet

Approach	Lane Group	LT Phase	Adj Flow Rate	Adj Satfl Rate	Flow Ratio v/s	Green Ratio g/C	Lane Group Capac vph	V/C Ratio v/c	Crit Lane Grp
--	--	--	vph	vphg	--	--	vph	--	-

N-LT+TH+RT	901	2851	.316	.674	1922	.469	*
E-LT+TH+RT	111	1499	.074	.226	339	.327	*
S-LT+TH+RT	1020	3359	.304	.674	2264	.451	
W-LT+TH+RT	14	1288	.011	.226	291	.048	
Cycle Length, C 60 sec				Sum(v/s) =		.390	
Lost Time Per Cycle, L 6.0 sec				Xc =		.433	

Monona Grove High School
M peak hour
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12/19/97
15:21:55

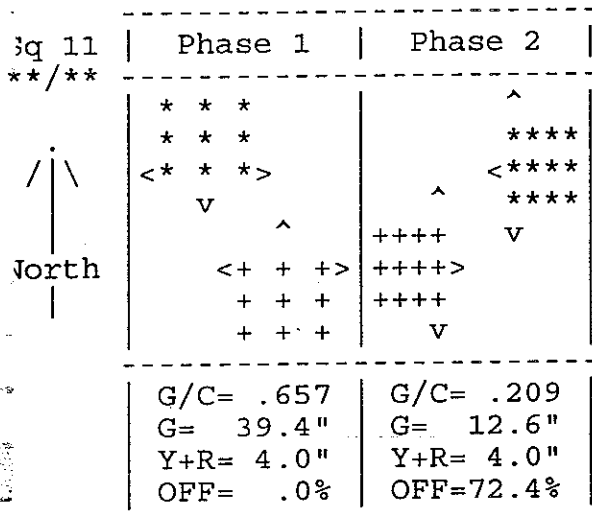
SIGNAL94/TEAPAC[V1 L1.4] - HCM Level-of-Service Worksheet

Approach	Lane Group	Vol Ratio v/c	Green Ratio g/C	Unif Delay d1 sec/v	Delay Fact DF	Lane Group Capac vph	Cal Term m	Incr Delay d2 sec/v	Lane Group Delay sec/v	Lane Grp LOS	Appr Delay sec/v	Appr LOS	
N-LT+TH+RT		.469	.674	3.5	1.00	1922	16	.14	3.7	A	3.7	A	
E-LT+TH+RT		.327	.226	14.8	1.00	339	16	.21	15.0	B	15.0	B	
S-LT+TH+RT		.451	.674	3.5	1.00	2264	16	.10	3.6	A	3.6	A	
W-LT+TH+RT		.048	.226	13.8	1.00	291	16	.00	13.8	B	13.8	B	
Cycle= 60"													
Total											.449	4.3	A

Monona Grove High School
 PM peak hour
 Moncopm2 option b or c

12/19/97
 15:21:55

SIGNAL94/TEAPAC[V1 L1.4] - Evaluation of Intersection Performance



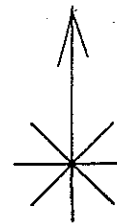
C= 60 sec G= 52.0 sec = 86.7% Y= 8.0 sec = 13.3% Ped= .0 sec = .0%

MVMT TOTALS Param:Units	N Approach			E Approach			S Approach			W Approach			Int Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
AdjVol: vph	1	867	33	31	2	78	91	922	7	9	2	3	2046
Wid/Ln:ft/#	0/0	24/2	0/0	0/0	12/1	0/0	0/0	24/2	0/0	0/0	12/1	0/0	
y/C Rqd@C:%	0	34	0	0	11	0	0	33	0	0	3	0	
y/C Used: %	0	67	0	0	23	0	0	67	0	0	23	0	
SV @E: vph	0	1922	0	0	339	0	0	2264	0	0	291	0	4816

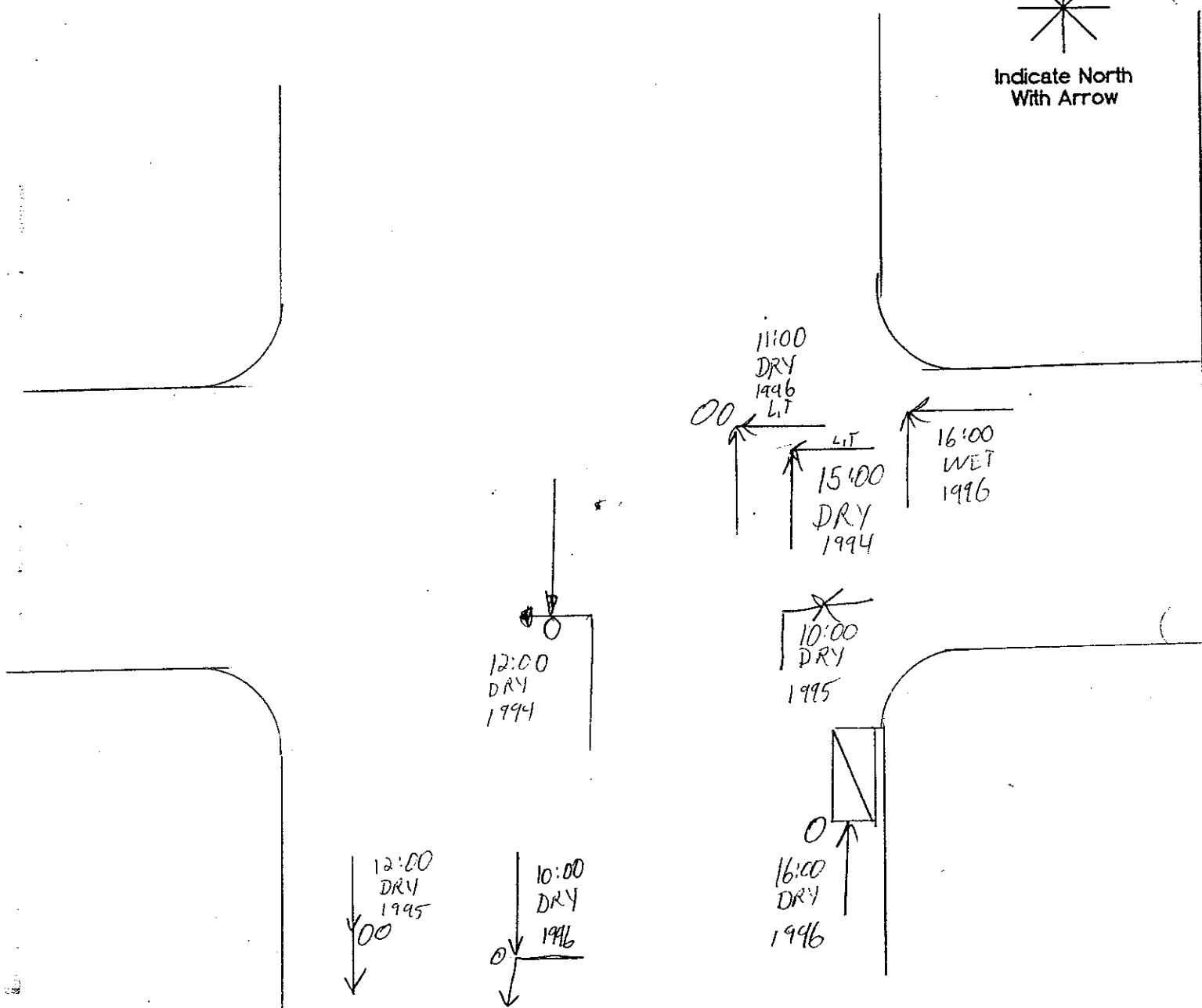
	A		B		A		B		A				
Svc Lvl:LOS	.00	.47	.00	.00	.33	.00	.00	.45	.00	.00	.05	.00	.45
Deg Sat:v/c	.0	5.4	.0	.0	21.2	.0	.0	5.1	.0	.0	18.5	.0	6.2
Avg Del:s/v	0	20	0	0	10	0	0	22	0	0	1	0	53
Tot Del:min	0	107	0	0	23	0	0	119	0	0	3	0	252
# Stops:veh	0	10	0	0	3	0	0	11	0	0	0	0	24
Max Que:veh	0	124	0	0	72	0	0	140	0	0	25	0	140
Max Que: ft													

PPR TOTALS	N Approach		E Approach		S Approach		W Approach		Int
Param:Units									Total
AdjVol: vph	901		111		1020		14		2046
Svc Lvl:LOS	A		B		A		B		A
Deg Sat:v/c	.47		.33		.45		.05		.45
Avg Del:s/v	5.4		21.2		5.1		18.5		6.2
Tot Del:min	20		10		22		1		53
# Stops:veh	107		23		119		3		252
Max Que:veh	10		3		11		0		24
Max Que: ft	124		72		140		25		140

COLLISION DIAGRAM



Indicate North
With Arrow



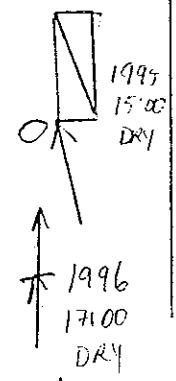
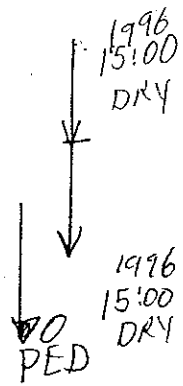
SYMBOL	COLLISION	SYMBOL	COLLISION	SHOW FOR EACH ACCIDENT
	Moving Vehicle		Rear End	1. Date and Time 2. Weather and Road Surface (if unusual condition existed...)
	Backing Vehicle		Head On	
	Pedestrian		Side Swipe	
	Parked Vehicle		Off Road	
	Fixed Object		Left Turn	
	Fatal Accident		Right Angle	
	Injury Accident			

INTERSECTION MONONA DRIVE and COLDSRING
 FROM 1994 TO 1996
 BY WMP DATE 11/26/97

COLLISION DIAGRAM



Indicate North
With Arrow



SYMBOL	COLLISION	SYMBOL	COLLISION	SHOW FOR EACH ACCIDENT
	Moving Vehicle		Rear End	1. Date and Time 2. Weather and Road Surface (if unusual condition existed...)
	Backing Vehicle		Head On	
	Pedestrian		Side Swipe	
	Parked Vehicle		Off Road	
	Fixed Object		Left Turn	
	Fatal Accident		Right Angle	
	Injury Accident			

INTERSECTION MONONA DRIVE and LOFTY

FROM _____ TO _____

BY _____ DATE _____

ON	NH	WY	YD	HT	PR	RR	SI	AI	IN	NT	TO	NR	RO	LA	CG	AD	TC	A	M	T	R	D	T	M	
1	CTH	BB	M	0	NON	S	2	PANTHER	N	17	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	S	SL/STP	NONE	94190961050	
2	CTH	BB	M	0	NON	0	0	PANTHER	N	8	FT	ST	WET	DAY	PD	0	0	M.V.I.T.	SSS	?	LT	TRN	UNK	94130610161	
3	CTH	BB	M	0	NON	0	0	PANTHER	N	9	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	RT	STR	NONE	94422550635
4	CTH	BB	M	0	NON	0	0	PANTHER	N	12	FT	ST	DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	94422550641
5	CTH	BB	M	0	NON	0	0	PANTHER	N	13	FT	ST	DRY	DAY	PD	0	0	UTLI POLE	NO COL	1	S	GO	STR	NONE	94402411005
6	CTH	BB	M	0	NON	0	0	PANTHER	N	13	FT	ST	DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	E	SL/STP	NONE	94462781169	
7	CTH	BB	M	0	NON	0	0	PANTHER	N	7	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N	LT	TRN	NONE	94030120774
8	CTH	BB	M	0	NON	2	1	PANTHER	N	17	FT	ST	DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	STOPPED	NONE	94231310731	
9	CTH	BB	M	0	INT	S	1	PANTHER	N	9	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	94603491321
10	CTH	BB	M	0	NON	N	0	BW BROADWAY	N	16	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	N	CHG LN	TRF SIG	94573361701	
11	CTH	BB	M	0	NON	N	0	BW BROADWAY	N	15	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	LT	TRN	NONE	95070320095
12	CTH	BB	M	0	INT	N	0	BUCKEYE	N	16	FT	CU	WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	LT	TRN	TRF SIG	94603491371
13	CTH	BB	M	0	NON	S	0	COTTAGE	N	0	FT	ST	WET	DAY	INJ	1	0	M.V.I.T.	ANGL	2	N	LT	TRN	NONE	94603490643
14	CTH	BB	M	0	NON	S	7	BB	N	0	FT	ST	WET	DAY	INJ	1	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	946030120780
15	CTH	BB	M	0	INT	0	0	DEAN AVE	N	15	FT	ST	ICE	DAY	PD	0	0	OT FIX OBJ	HEAD	1	N	LT	TRN	TRF SIG	94050202213
16	CTH	BB	M	0	INT	0	0	DEAN AVE	N	17	FT	ST	ICE	DUSK	PD	0	0	TRF SIGNAL	ANGL	3	S	GO	STR	TRF SIG	94070280390
17	CTH	BB	M	0	INT	0	0	DEAN AVE	N	12	FT	ST	WET	DAY	INJ	6	0	M.V.I.T.	ANGL	2	?	LT	TRN	TRF SIG	94130610165
18	CTH	BB	M	0	INT	E	1	DEAN AVE	N	15	FT	ST	SNOW	DAY	INJ	1	0	M.V.I.T.	ANGL	2	E	GO	STR	TRF SIG	94030120790
19	CTH	BB	M	0	NON	S	20	DEAN AVE	N	21	FT	ST	DRY	LIGHT	PD	0	0	M.V.I.T.	ANGL	2	S	RT	TRN	NONE	94030120792
20	CTH	BB	M	0	NON	S	20	DEAN AVE	N	15	FT	ST	WET	DAY	INJ	1	0	OTHR RDWY	ANGL	2	S	GO	STR	NONE	94241430041
21	CTH	BB	M	0	INT	S	2	E BROADW	N	15	FT	ST	WET	DAY	PD	0	0	M.V.I.T.	REAR	2	N	STOPPED	TRF SIG	94321920063	
22	CTH	BB	M	0	NON	N	2	FEMRITE	N	16	FT	ST	SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	S	SL/STP	NONE	94271590970	
23	CTH	BB	M	0	INT	0	0	FEMRITE	N	16	HL	ST	SNOW	DAY	PD	0	0	M.V.I.T.	ANGL	2	E	LT	TRN	NONE	94110520241
24	CTH	BB	M	0	INT	0	0	FEMRITE	N	13	HL	ST	BLNK	DAY	PD	0	0	M.V.I.T.	ANGL	2	N	GO	STR	NONE	94492980912
25	CTH	BB	M	0	NON	N	1	FEMRITE	N	15	FT	ST	BLNK	DAY	PD	0	0	M.V.I.T.	REAR	2	S	STOPPED	NONE	94190961040	
26	CTH	BB	M	0	NON	N	1	FEMRITE	N	17	HL	ST	DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	S	GO	STR	NONE	94231310625
27	CTH	BB	M	0	NON	N	4	FROSTWOO	N	13	BLNK	BLNK	WET	DAY	INJ	1	0	M.V.I.T.	ANGL	2	E	LT	TRN	NONE	94130610155
28	CTH	BB	M	0	NON	N	1	FROSTWOO	N	17	HL	ST	WET	DUSK	PD	0	0	M.V.I.T.	ANGL	2	S	GO	STR	UNK	94190961038
29	CTH	BB	M	0	INT	0	0	FROSTWOO	N	17	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	GO	STR	TRF SIG	94271590933
30	CTH	BB	M	0	NON	0	0	FROSTWOO	N	7	FT	ST	ICE	DAY	INJ	2	0	M.V.I.T.	ANGL	2	N	GO	STR	NONE	94110520227
31	CTH	BB	M	0	INT	0	0	FROSTWOO	N	12	BLNK	ST	SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	N	SL/STP	TRF SIG	94050202211	
32	CTH	BB	M	0	INT	0	0	FROSTWOO	N	16	FT	ST	BLNK	DUSK	INJ	1	0	M.V.I.T.	ANGL	2	E	LT	TRN	TRF SIG	94603491323
33	CTH	BB	M	0	NON	N	2	FROSTWOO	N	11	HL	ST	WET	DAY	PD	0	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	94201080328
34	CTH	BB	M	0	NON	N	6	FROSTWOO	N	13	FT	ST	SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	N	STOPPED	NONE	94100451063	
35	CTH	BB	M	0	NON	S	1	FROSTWOO	N	12	FT	ST	BLNK	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	GO	STR	NONE	94110520223
36	CTH	BB	M	0	NON	S	1	FROSTWOO	N	14	FT	ST	WET	DAY	PD	0	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	94462781171
37	CTH	BB	M	0	NON	S	3	FROSTWOO	N	9	FT	ST	BLNK	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	BLNK	NONE	94110520225	
38	CTH	BB	M	0	INT	S	5	FROSTWOO	N	11	FT	ST	DRY	DAY	INJ	3	0	M.V.I.T.	REAR	3	S	STOPPED	NONE	94241430037	

AN ACCIDENT HAPPENS ON A STREET(ONSTR) OR HIGHWAY(ONHWY) A GIVEN DISTANCE(INTDIS) AND A GIVEN DIRECTION(INTDIR) FROM A STREET(ATSTR) OR HIGHWAY(ATHWY)
 INTDIS= IS IN HUNDRETHS OF A MILE 50= .5 MILE , 5 = .05 MILE
 ACCDLOC ACCIDENT LOCATION INT= INTERSECTION, NON= NON-INTERSECTION
 NTFYHOUR NOTIFY HOUR = 01 TO 12 IS AM, 12 THRU 24 IS PM(MILITARY TIME)
 ACCDTYPE ACCIDENT TYPE M.V.I.T = MOTOR VEHICLE IN TRANSPORT OTHER RDWY = M.V.I.T IN ANOTHER ROADWAY
 OBJ NT FX = OTHER OBJECT NOT FIXED IMPT ATTN = IMPACT ATTENUATOR
 MNR COLL MANNER OF COLLISION SSS=SIDE SWIPE SAME, SSO=SIDE SWIPE OPPOSITE NO COLL= NO COLLISION WITH M.V.I.T
 GEOMETRICS FT = FLAT HL = HILL CU = CURVE FT = FLAT SH
 DRVRODIN SL/STP=SLOWING OR STOPPING LG PRK= LEGALLY PARKED NO PASSING ZONE OVT LT=OVERTURN LEFT RTOR=RIGHT TURN ON RED

115	MONONA D		NON S 0	PELAUM R N 17 FT	ST BLNK DAY	INJ 1 0	M.V.I.T.	ANGL 2 N	GO STR NONE	W LT TRN NONE	95251420511
116	MONONA D		NON S 4	PELAUM R N 17 FT	ST WET DAY	PD 0 0	M.V.I.T.	REAR 2 N	SL/STP NONE	N STOPED NONE	95251420509
117	MONONA D		INT 0	PLAUM RD N 11 FT	ST DRY DAY	INJ 2 0	M.V.I.T.	ANGL 3 S	LT TRN TRF SIG	N GO STR TRF SIG	95241361829
118	MONONA D		NON N 2	SPRING H N 12 FT	ST DRY DAY	PD 0 0	M.V.I.T.	ANGL 2 N	LT TRN NONE	S GO STR NONE	95070331576
119	MONONA D		NON N 1	SPRING H N 16 FT	ST DRY DAY	INJ 2 0	M.V.I.T.	REAR 2 N	LT TRN NONE	S GO STR NONE	95452780774
120	MONONA D		NON S 1	SPRINGHA N 16 FT	ST DRY DAY	PD 0 0	M.V.I.T.	REAR 4 S	STOPED NONE	S STOPED NONE	95211161411
121	MONONA D		INT 0	TOMPKINS N 16 FT	ST DRY DAY	INJ 2 0	M.V.I.T.	ANGL 2 N	GO STR NONE	W LT TRN STOP	95472970170
122	MONONA D		INT 0	TOMPKINS N 17 FT	ST WET DAY	PD 0 0	M.V.I.T.	ANGL 2 N	GO STR NONE	W GO STR STOP	9521241101
123	MONONA D		INT 0	TOMPKINS N 15 FT	ST DRY DAY	INJ 1 0	M.V.I.T.	ANGL 2 W	LT TRN STOP	N GO STR NONE	95281590076
124	MONONA D		INT 0	TOMPKINS N 13 FT	ST DRY DAY	PD 0 0	M.V.I.T.	ANGL 2 N	GO STR NONE	S LT TRN NONE	95372070256
125	MONONA D		INT 0	TOMPKINS N 17 FT	ST DRY DAY	PD 0 0	M.V.I.T.	ANGL 2 E	LT TRN NONE	N GO STR NONE	95412540568
126	MONONA D		INT 0	TOMPKINS N 7 FT	ST WET DAY	INJ 2 0	M.V.I.T.	ANGL 2 N	GO STR NONE	W LT TRN STOP	95573470839
127	MONONA D		NON N 0	TOMPKINS N 21 BLNK	ST DRY LGT PD	0 0	M.V.I.T.	SSS 2 N	GO STR NONE	N RT TRN NONE	95291630676
128	MONONA D		INT N 2	BW W BROADW N 9 FT	ST WET DAY	PD 0 0	M.V.I.T.	REAR 2 S	SL/STP TRF SIG	S STOPED TRF SIG	95251420521
129	MONONA D		NON N 3	BW W BROADW N 6 FT	ST WET DAY	PD 0 0	M.V.I.T.	REAR 2 S	STOPED TRF SIG	S SL/STP TRF SIG	95251420489

AN ACCIDENT HAPPENS ON A STREET(ONSTR) OR HIGHWAY(OHWHY) A GIVEN DISTANCE(INTDIS) AND A GIVEN DIRECTION(INTDIR) FROM A STREET(ATSTR) OR HIGHWAY(ATHWY)

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39	CTH BB M	NON N 1	LOFTY AV N 15 HL	ST DRY	DAY	INJ	1	0	PED	NO COL	1	N GO STR	NONE	BLNK	96493461176
40	CTH BB M	NON S 4	LOFTY AV N 17 HL	ST DRY	LIGHT	PD	0	0	M.V.I.T.	REAR	2	N STOPPED	NONE	N GO STR	96433190675
41	CTH BB M	INT	NICHOLS N 16 FT	ST BLNK	DAY	INJ	1	0	M.V.I.T.	NO COL	1	W LT TRN	TRF SIG	BLNK	96402921930
42	CTH BB M	NON S 4	NICHOLS N 11 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	1	N GO STR	NONE	OTHER	96513650418
43	CTH BB M	NON S 10	NICHOLS N 15 BLNK	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	N CHG LN	NONE	N STOPPED	96201310160
44	CTH BB M	INT	OWEN RD N 18 FT	ST WET	LIGHT	PD	0	0	M.V.I.T.	REAR	2	N GO STR	NONE	N GO STR	96160950154
45	CTH BB M	INT	OWEN RD N 13 BLNK	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S LT TRN	NONE	N LT TRN	96201310170
46	CTH BB M	NON	OWEN RD N 11 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S GO STR	NONE	N GO STR	96271850916
47	CTH BB M	INT	OWEN RD N 9 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	? LT TRN	NONE	S GO STR	96342470575
48	CTH BB M	INT	OWEN RD N 14 FT	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	N GO STR	NONE	S LT TRN	96402921946
49	CTH BB M	INT E 1	OWEN RD N 16 FT	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	N GO STR	NONE	N GO STR	96120680726
50	CTH BB M	INT E 1	OWEN RD N 11 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	S LT TRN	NONE	N GO STR	96402921932
51	CTH BB M	NON N 2	OWEN RD N 12 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N STOPPED	NONE	N GO STR	96453310122
52	CTH BB M	INT S 0	OWEN RD N 20 HL	ST DRY	LIGHT	INJ	1	0	M.V.I.T.	ANGL	2	S GO STR	NONE	W LT TRN	96352500753
53	CTH BB M	NON S 0	OWEN RD N 11 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N GO STR	NONE	S LT TRN	96453310119
54	CTH BB M	NON S 1	OWEN RD N 7 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	1	E RT TRN	NONE	N GO STR	96231570061
55	CTH BB M	NON S 5	OWEN RD N 13 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	N GO STR	NONE	N GO STR	96201310152
56	CTH BB M	NON S 9	OWEN RD Y 14 BLNK	ST DRY	DAY	INJ	3	0	M.V.I.T.	REAR	2	N GO STR	NONE	N STOPPED	96402920069
57	CTH BB M	INT	PANTHER N 15 FT	ST DRY	DAY	INJ	2	0	M.V.I.T.	ANGL	2	S GO STR	NONE	E LT TRN	96493461186
58	CTH BB M	NON N 1	PANTHER N 16 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	S LT TRN	NONE	N GO STR	96201310197
59	CTH BB M	INT	PARKWAY N 15 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	E LT TRN	POLICE	S GO STR	96271850918
60	CTH BB M	NON S 8	PFLAUM R N 18 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N STOPPED	NONE	N GO STR	96271850914
61	CTH BB M	NON S 8	ST TERES N 15 FT	ST SNOW	LIGHT	INJ	2	0	M.V.I.T.	REAR	2	S GO STR	NONE	S SL/STP	96312150120
62	CTH BB M	NON S 1	ST THERE N 18 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S GO STR	NONE	N LT TRN	96493461182
63	CTH BB M	INT	TOMPKINS Y 22 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N GO STR	NONE	W LT TRN	96150850327
64	CTH BB M	INT	W BROADW Y 8 FT	ST WET	LIGHT	INJ	1	0	M.V.I.T.	REAR	2	S GO STR	TRF SIG	S STOPPED	96453310128
65	CTH MM M	INT	E COLDSP N 16 FT	ST WET	DAY	INJ	1	0	M.V.I.T.	ANGL	2	N GO STR	NONE	W GO STR	96231571274
66	MONONA D	NON	MONONA D	ST ICE	LIGHT	INJ	1	0	M.V.I.T.	ANGL	1	N GO STR	NONE	? RT TRN	96312150086
67	MONONA D	NON	MONONA D	ST WET	DAY	INJ	1	0	M.V.I.T.	SSS	2	N RT TRN	NONE	N SL/STP	96463340811
68	MONONA D	NON	BROADWAY N 10 HL	CU DRY	LIGHT	INJ	1	0	OT FIX OBJ	NO COL	1	E LT TRN	TRF SIG	N GO STR	96271850966
69	MONONA D	INT	BUCKEYE Y 1 FT	ST DRY	UNKN	PD	0	0	TRF STGNL	NO COL	1	S GO STR	TRF SIG	N GO STR	96292050949
70	MONONA D	INT	BUCKEYE N 21 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	S GO STR	NONE	S STOPPED	96271850952
71	MONONA D	NON S 8	BUCKEYE N 15 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N STOPPED	NONE	N GO STR	96271900099
72	MONONA D	NON S 20	BUCKEYE N 9 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N STOPPED	NONE	? STOPPED	96382820199
73	MONONA D	INT N 2	COLDSPRI N 16 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N GO STR	TRF SIG	W GO STR	96070330720
74	MONONA D	INT	COTTAGE N 7 FT	ST BLNK	DAY	PD	0	0	MED BARRI	NO COL	1	S GO STR	TRF SIG	W GO STR	96150870256
75	MONONA D	INT	COTTAGE N 16 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	E LT TRN	TRF SIG	E LT TRN	96150870256
76	MONONA D	INT	COTTAGE N 22 FT	ST WET	LIGHT	PD	0	0	M.V.I.T.	SSOP	2	N GO STR	TRF SIG	E LT TRN	96191200523

AN ACCIDENT HAPPENS ON A STREET(ONSTR) OR HIGHWAY(ONHWY) A GIVEN DISTANCE(INTDIS) AND A GIVEN DIRECTION(INTDIR) FROM A STREET(CATSTR) OR HIGHWAY(CATHWY)
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ON	NR	A	R	RO	L	A	TCC	M	T	D	T	S	GO	STR	TRF	SIG	97020080958	
MONONA D	0	COTTAGE	Y	10 FT	ST SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	S	STOPED	TRF	SIG	97020080958	
MONONA D	4	COTTAGE	N	17 FT	ST DRY	DUSK	PD	0	0	M.V.I.T.	ANGL	2	W	LT	TRN	NONE	96463390695	
MONONA D	10	COTTAGE	N	17 HL	ST DRY	DARK	PD	0	0	M.V.I.T.	BLNK	2	S	STOPED	NONE	NONE	96100470987	
MONONA D	0	DAVIDSON	N	17 FT	ST WET	DAY	INJ	3	0	M.V.I.T.	REAR	3	S	STOPED	NONE	NONE	96251691038	
MONONA D	0	DEAN AVE	Y	17 FT	ST DRY	DAY	INJ	2	0	M.V.I.T.	REAR	2	N	GO	STR	TRF	SIG	96362640545
MONONA D	0	DEAN AVE	N	19 FT	ST DRY	LIGHT	PD	0	0	M.V.I.T.	BLNK	2	W	LT	TRN	TRF	SIG	96433190677
MONONA D	11	DEAN AVE	N	16 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	SSS	3	N	GO	STR	TRF	SIG	96271850926
MONONA D	0	E DEAN A	N	10 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	N	STOPED	TRF	SIG	96322290698	
MONONA D	0	E DEAN A	N	9 FT	ST WET	DAY	INJ	2	0	M.V.I.T.	ANGL	2	N	GO	STR	TRF	SIG	97030101052
MONONA D	2	E DEAN A	N	13 FT	ST DRY	DAY	INJ	3	0	M.V.I.T.	SSS	2	N	CHG	LN	NONE	96251720454	
MONONA D	6	FENRITE	N	15 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	4	S	RT	TRN	NONE	96312150088	
MONONA D	0	FENRITE	N	13 HL	ST WET	DAY	PD	0	0	M.V.I.T.	REAR	2	S	LT	TRN	NONE	96271850934	
MONONA D	0	FENRITE	N	18 HL	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	LT	TRN	NONE	96312150084	
MONONA D	2	FENRITE	N	13 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	96271850946	
MONONA D	20	FENRITE	N	7 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	2	N	GO	STR	NONE	96271850962	
MONONA D	2	FROSTWOO	N	16 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	GO	STR	NONE	96271850930	
MONONA D	0	FROSTWOO	N	13 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	LT	TRN	TRF	SIG	96120680768
MONONA D	0	FROSTWOO	N	18 HL	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	GO	STR	TRF	SIG	96271850948
MONONA D	3	FROSTWOO	N	17 FT	ST WET	LIGHT	INJ	1	0	M.V.I.T.	REAR	2	E	GO	STR	NONE	96433190673	
MONONA D	6	FROSTWOO	Y	21 FT	ST WET	DAY	INJ	1	0	M.V.I.T.	ANGL	2	S	CHG	LN	NONE	96231570835	
MONONA D	0	KINGS RO	Y	16 FT	ST DRY	DAY	INJ	1	0	M.V.I.T.	ANGL	2	S	GO	STR	NONE	96312150108	
MONONA D	10	KINGS RO	N	13 HL	ST DRY	DAY	INJ	1	0	M.V.I.T.	REAR	3	N	STOPED	NONE	NONE	96433190689	
MONONA D	8	KINGS RO	N	16 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	3	S	SL/STP	NONE	NONE	96312150104	
MONONA D	2	LAKE EDG	N	17 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	REAR	4	N	STOPED	NONE	NONE	96281940531	
MONONA D	1	LAKE EDG	N	11 FT	ST SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	N	IL	PRK	NONE	96110580016	
MONONA D	2	OLBRICH	Y	16 FT	ST DRY	DAY	INJ	3	0	M.V.I.T.	REAR	4	S	STOPED	NONE	NONE	96271850936	
MONONA D	0	OWEN RD	N	11 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	SSOP	2	W	LT	TRN	NONE	96271850940	
MONONA D	0	OWEN RD	N	19 HL	ST DRY	LIGHT	PD	0	0	M.V.I.T.	SSS	2	N	GO	STR	NONE	96433190687	
MONONA D	1	OWEN RD	N	12 FT	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	N	GO	STR	NONE	96342420255	
MONONA D	3	OWEN RD	N	15 FT	ST WET	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	SL/STP	NONE	NONE	96402921942	
MONONA D	4	PFLAUM R	N	10 FT	ST DRY	DAY	INJ	1	0	PED	NO COL	1	N	GO	STR	NONE	96251710455	
MONONA D	0	SPRINGH	N	17 FT	ST DRY	DAY	INJ	2	0	M.V.I.T.	HEAD	2	S	GO	STR	NONE	96271850944	
MONONA D	0	ST TERES	N	7 FT	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	GO	STR	NONE	96271850958	
MONONA D	0	ST TERES	N	7 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	3	N	GO	STR	NONE	96362670479	
MONONA D	0	ST TERES	N	8 FT	ST SNOW	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	STOPED	NONE	NONE	96503520509	
MONONA D	0	TOMPKINS	N	11 FT	ST WET	DAY	PD	0	0	M.V.I.T.	ANGL	2	W	RT	TRN	UNK	96241620881	
MONONA D	0	TOMPKINS	N	17 FT	ST DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N	GO	STR	NONE	96372740407	
MONONA D	0	TOMPKINS	N	19 FT	ST SNOW	LIGHT	INJ	1	0	M.V.I.T.	ANGL	3	W	LT	TRN	STOP	96483440822	

AN ACCIDENT HAPPENS ON A STREET(CONSTR) OR HIGHWAY(ONHWY) A GIVEN DISTANCE(INTDIS) AND A GIVEN DIRECTION(INTDIR) FROM A STREET(ATSTR) OR HIGHWAY(ATHWY)

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ONH	MONONA D	NON N	0	TOMPKINS	N	16	FT	ST	DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	BLNK	NONE	N	GO	STR	NONE	96261771697		
NHW	MONONA D	NON N	2	TOPKINS	N	8	BLNK	ST	WET	DAY	INJ	1	0	M.V.I.T.	REAR	3	N	RT	TRN	NONE	W	SL/STP	NONE	96402921813		
NWYN	MONONA D	INT	0	W BROADW	N	17	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	HEAD	2	W	LT	TRN	TRF	S	GO	STR	TRF	SIG	96413020468
HYDS	MONONA D	INT	1	WINNEQUA	Y	22	FT	CU	WET	LIGHT	INJ	2	0	OT	FIX	OBJ	1	N	OTHER	NONE	W	GO	STR	NONE	96110580280	
WRIT	MONONA D	NON S	2992	WINNEQUA	N	12	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	SSS	2	N	LT	TRN	NONE	W	GO	STR	NONE	96362670521	
YPRR	MONONA D	NON	0	OLBRICH	N	16	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	N	OVT	LT	NONE	N	LT	TRN	NONE	96160950156	

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1997 ACCIDENTS

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ON	R	A	I	N	A	A	L	F	A	N	T	O	R	O	R	A	L	G	D	R	O	A	L	A	T	O	C	A	M	T	R	D	R	O	M
77	MONONA D	.	NON	N	2	PANTHER	N	22	FT	ST	DRY	LIGHT	PD	0	0	M.V.I.T.	SSS	2	N	CHG	LN	NONE	N	GO	STR	NONE	97261840101								
78	MONONA D	.	INT	0	PARKWAY	N	16	FT	ST	BLNK	DAY	INJ	1	0	M.V.I.T.	REAR	2	N	LT	TRN	STOP	N	GO	STR	NONE	97302130528									
79	MONONA D	.	INT	0	ST TERES	N	15	FT	ST	DRY	DAY	INJ	1	0	M.V.I.T.	REAR	2	S	GO	STR	NONE	S	SL/STP	NONE	97110650148										
80	MONONA D	.	INT	0	ST TERES	N	8	FT	ST	SNOW	DAY	PD	0	0	M.V.I.T.	REAR	2	N	STOPED	NONE	NONE	N	GO	STR	NONE	97090511326									
81	MONONA D	.	INT	0	TOMPKINS	N	7	FT	ST	WET	DAY	INJ	1	0	M.V.I.T.	REAR	3	W	LT	TRN	STOP	S	GO	STR	NONE	97090520002									
82	MONONA D	.	INT	0	TOMPKINS	N	12	FT	ST	DRY	DAY	PD	0	0	M.V.I.T.	ANGL	2	S	LT	TRN	NONE	N	GO	STR	NONE	97060340530									

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