

WASHINGTON AVENUE (STH 57) TRAFFIC STUDY IN THE CITY OF CEDARBURG

OZAUKEE COUNTY WISCONSIN

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**MEMORANDUM REPORT
NUMBER 48**

**WASHINGTON AVENUE (STH 57) TRAFFIC STUDY
IN THE CITY OF CEDARBURG
OZAUKEE COUNTY, WISCONSIN**

Prepared by the
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WASHINGTON AVENUE (STH 57) TRAFFIC STUDY IN THE CITY OF CEDARBURG

INTRODUCTION

Over the past several years, local officials and residents of the City of Cedarburg have become concerned about increasing traffic volumes and the attendant deterioration in motor vehicle operating conditions on, and in safe accessibility to land uses located adjacent to, the 0.5-mile-long segment of Washington Avenue (STH 57) from Lincoln Boulevard to Pioneer Road (CTH C). These problems have been exacerbated in recent years by the development of a number of vacant parcels abutting this roadway segment for commercial uses and the conversion of existing residential parcels to commercial use.

To help resolve these and related traffic problems, city officials on February 10, 1988, requested the Southeastern Wisconsin Regional Planning Commission to conduct a study of traffic operating conditions on Washington Avenue (STH 57), focusing on existing and future access from abutting parcels to Washington Avenue (STH 57), including potential extensions of Alyce and Fairfield Streets; the need for revisions in the existing speed limit and parking restrictions; and the need for an exclusive right-turn lane on the northbound approach to the intersection of Washington Avenue (STH 57) and Lincoln Boulevard to improve the operation of that intersection. In addition, the City of Cedarburg Plan Commission requested that the Regional Planning Commission staff provide as part of the study a driveway design which would eliminate the possibility of turning left out of the Washington Avenue (STH 57) driveway serving the Piggly Wiggly-Walgreen site. This memorandum report presents the findings and recommendations of that study.

An essential consideration in the implementation of any improvement measures recommended in this report for Washington Avenue (STH 57) is the level of government that has jurisdictional authority over, and would therefore be responsible for, the operation, maintenance, and improvement of Washington Avenue (STH 57). Washington Avenue (STH 57) is a connecting highway and, as such, is part of the State of Wisconsin trunk highway system. A connecting highway is the marked and signed route of a state highway through a municipality

over the streets and highways of the municipality to provide state trunk highway system continuity. The municipality bears the responsibility of maintenance and traffic control, subject to the review and approval of the State. Actions requiring approval include the implementation of traffic control measures, such as the prohibition of turning movements and the installation or modification of traffic control devices. The State bears the responsibility for improvement projects on connecting highways when state or federal monies are utilized to fund the project. However, a municipality may be required to fund certain elements of a state improvement project if the elements are not eligible for state or federal funding; or it may undertake an improvement project with its own funds. It should be noted that, while the State would typically be responsible for an improvement project, the State will not initiate an improvement project on a connecting highway without a specific request from the municipality.

EXISTING CONDITIONS

Essential to the identification of existing traffic problems is the collection of data concerning roadway geometrics, average weekday and peak-hour traffic volumes and turning movements, and a detailed history of motor vehicle accident patterns and frequencies. Detailed information regarding the location of driveways to abutting parcels is essential to the evaluation of existing access.

Roadway Geometrics

The study segment of Washington Avenue (STH 57) consists of an undivided four-lane urban roadway 52 feet wide from face of curb to face of curb. Two public streets and a total of 20 driveways on the west side of Washington Avenue (STH 57) and one public street and 13 driveways on the east side of Washington Avenue intersect Washington Avenue (STH 57) between Lincoln Boulevard and Pioneer Road (CTH C). Five of these driveways, all on the west side of Washington Avenue, serve residential land uses, and the remaining 28 driveways serve commercial land uses. The location of each driveway and the intersecting public streets between Lincoln Boulevard and Pioneer Road

along the study segment of Washington Avenue (STH 57) is shown in Figure 1. Provision of access to each abutting parcel has resulted in driveway centerline spacing ranging between 45 feet and 226 feet, compared to a minimum desirable centerline-to-centerline spacing of 150 feet based on the 35 mile per hour speed limit. In addition, the centerline of the driveways on the west side of the roadway are not properly offset from the centerline of driveways on the east side of the street. Driveways on opposite sides of a roadway ideally should have the same centerline or have centerlines offset by a minimum of 150 feet and, desirably, by 300 feet.

The driveway serving the Piggly Wiggly-Walgreen site on Washington Avenue (STH 57) was one of these driveways surveyed. At the Piggly Wiggly-Walgreen site driveway, the City of Cedarburg has installed regulatory signing, along with supplemental pavement markings, to prohibit left turns from the driveway to southbound Washington Avenue (STH 57). Commission staff have observed a number of motorists exiting this driveway and turning left onto Washington Avenue (STH 57) in violation of the traffic control at the driveway. Commission staff have also observed motorists entering what is intended to be the egress lane at this driveway.

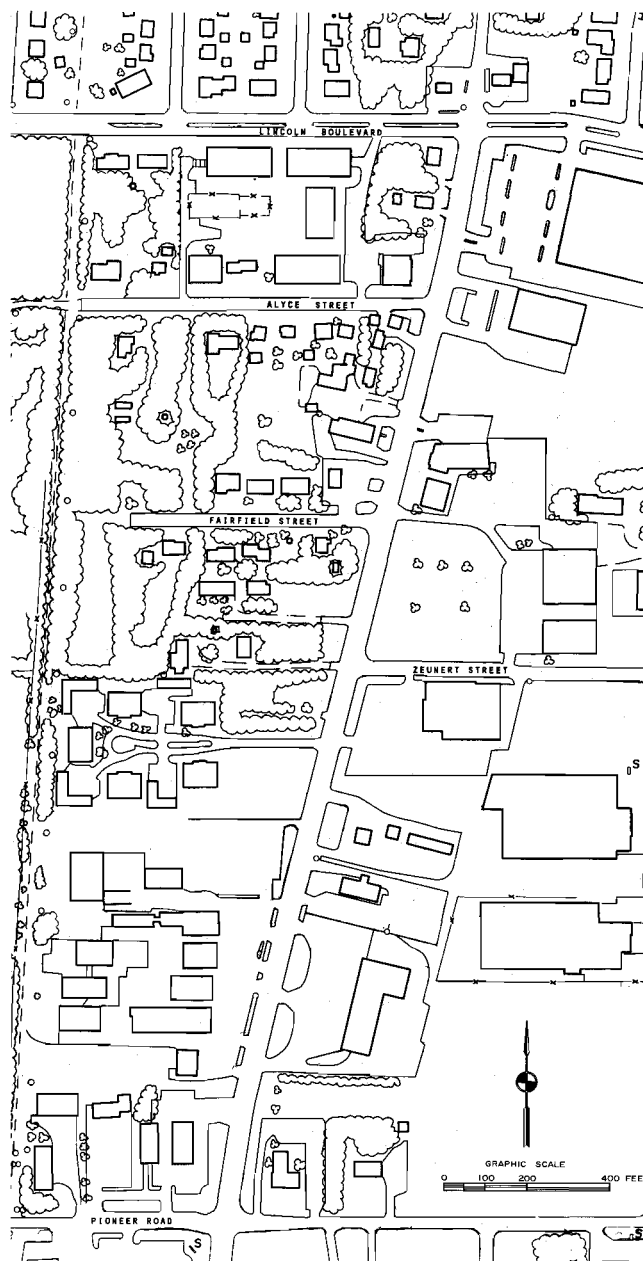
Traffic controls and regulations along the study segment of Washington Avenue (STH 57) consist of traffic controls at the intersections with Lincoln Boulevard and with Pioneer Road (CTH C). There is no control on Washington Avenue at the three public streets which intersect between Lincoln Boulevard and Pioneer Road (CTH C), but each intersecting public street is stop sign-controlled on its approach to Washington Avenue (STH 57). At the Washington Avenue (STH 57) intersections controlled by traffic signals, data regarding the permissible traffic movements for each lane were collected. These data are shown in Figure 2. Parking is not permitted at any time along the study segment; therefore, this roadway provides four traffic lanes.

Traffic Volumes

Among the more important data required for roadway planning are weekday 24-hour traffic volumes. Special traffic volume counts were taken by the Commission staff in July 1988. As shown in Figure 3, weekday traffic volumes on Washington Avenue (STH 57) ranged from a high of 20,540 vehicles between Fairfield and

Figure 1

STUDY SEGMENT OF WASHINGTON AVENUE (STH 57)



Source: SEWRPC.

Zeunert Streets to a low of 17,380 vehicles between Lincoln Boulevard and Alcyce Street. The existing traffic volumes exceed the typical design capacity of a four-lane undivided roadway, which is 17,000 vehicles per average weekday.

Figure 2

TRAFFIC MOVEMENTS BY LANE AT THE INTERSECTIONS OF WASHINGTON AVENUE (STH 57) WITH PIONEER ROAD (CTH C) AND WITH LINCOLN BOULEVARD

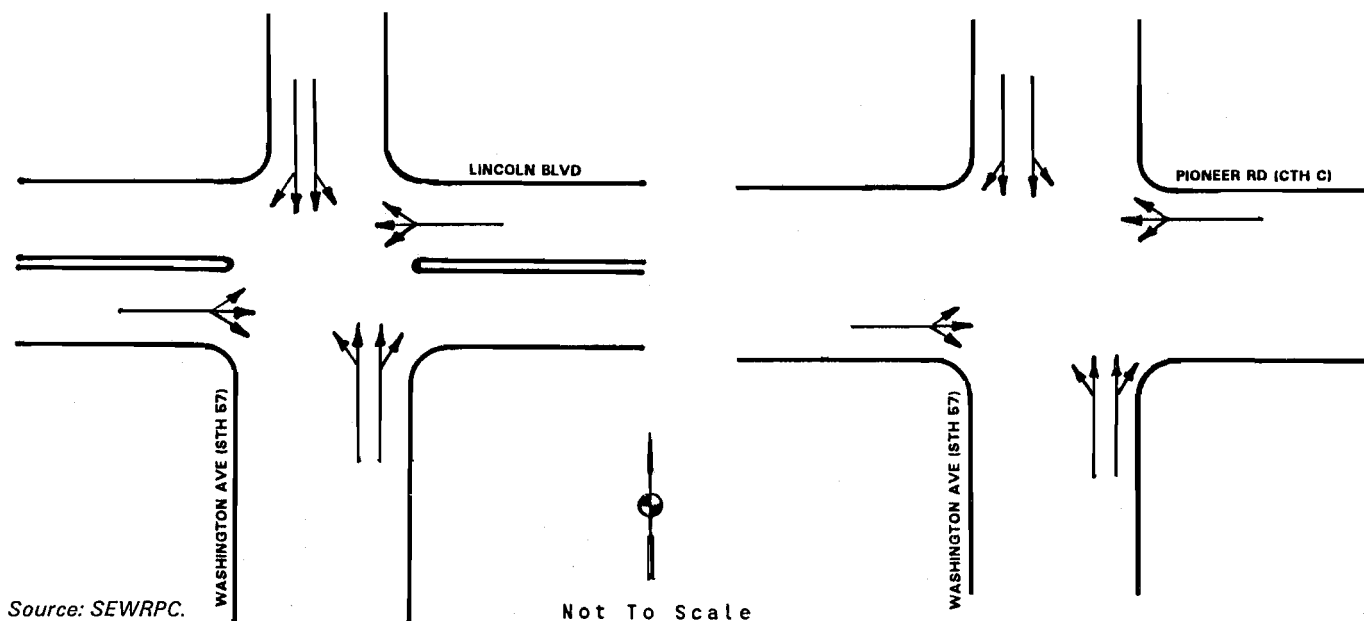
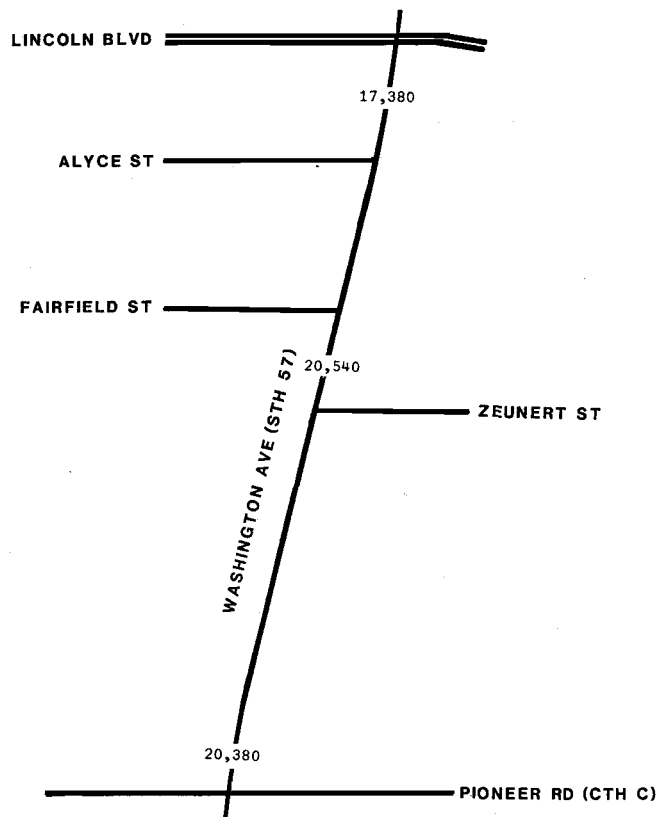


Figure 3

24-HOUR AVERAGE WEEKDAY TRAFFIC VOLUME ON WASHINGTON AVENUE (STH 57): 1988

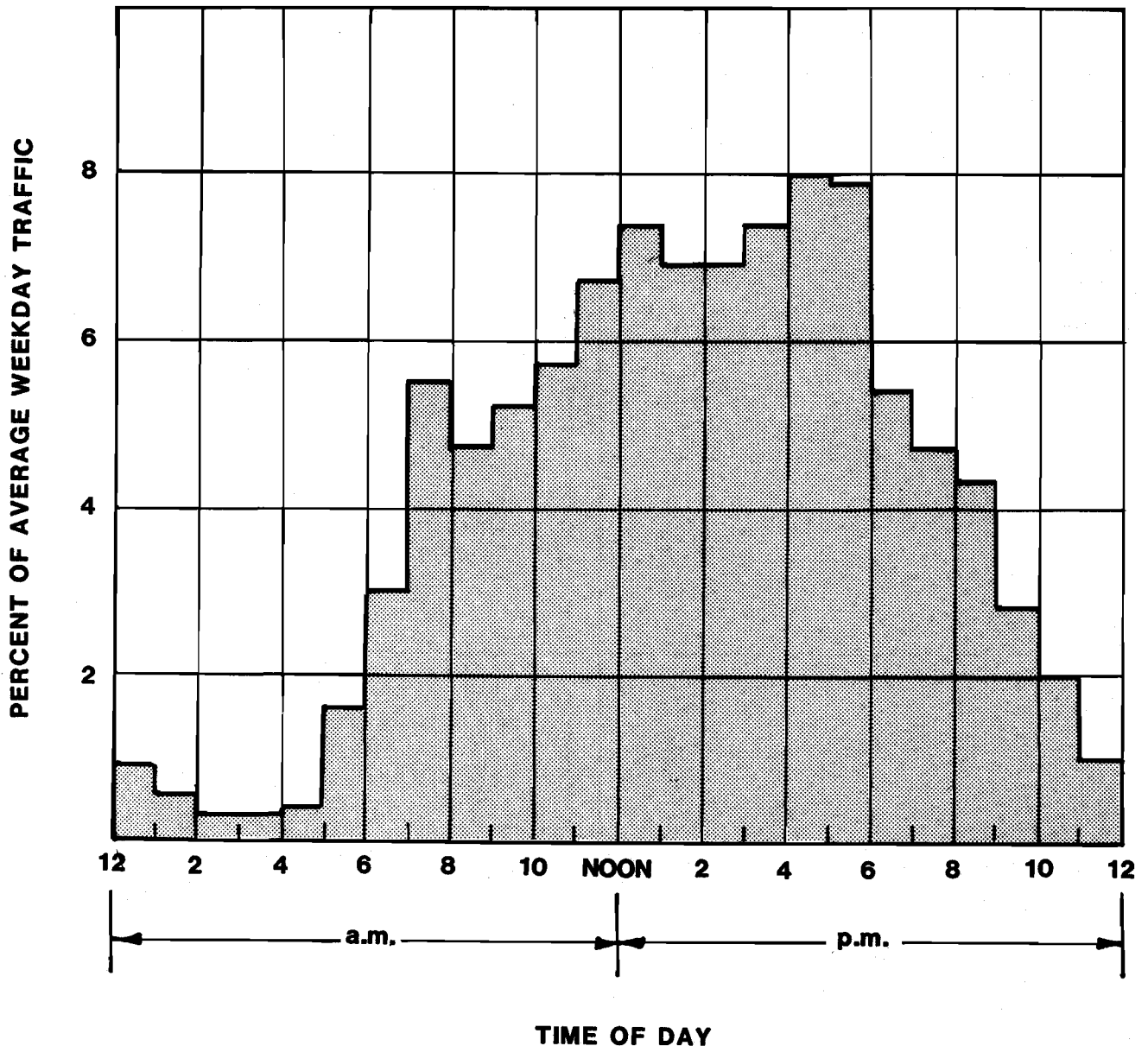


Source: SEWRPC.

Figure 4 indicates the hourly distribution of weekday traffic flow on Washington Avenue (STH 57) between Fairfield Street and Zeunert Street. Morning peak traffic demand occurs between 7:00 a.m. and 8:00 a.m., and constitutes about 5.5 percent of the daily traffic volume. Immediately following 8:00 a.m., hourly traffic volumes decline slightly, but by 10:00 a.m., an hour when the commercial establishments abutting Washington Avenue (STH 57) have opened for business, the traffic demand on an hourly basis is higher than demand observed in the 7:00 a.m. to 8:00 a.m. hour. The hourly demand continues to grow, fluctuating between approximately 6.5 and 7.5 percent of the daily traffic volume until 4:00 p.m. to 5:00 p.m., when the hourly volumes peak at 8 percent of the total daily volume. After 6:00 p.m., the hourly volumes decrease rapidly. This flow pattern is typical of urban traffic on an arterial in the vicinity of strip commercial development such as exists along this segment of Washington Avenue (STH 57). Based on these data, it may be concluded that traffic congestion and delay problems occur throughout the day between the hours of 7:00 a.m. and 7:00 p.m., with the most severe problems experienced between noon and 6:00 p.m.

Figure 4

HOURLY VARIATION IN WEEKDAY TRAFFIC VOLUME ON WASHINGTON AVENUE (STH 57) BETWEEN FAIRFIELD STREET AND ZEUNERT STREET: 1988



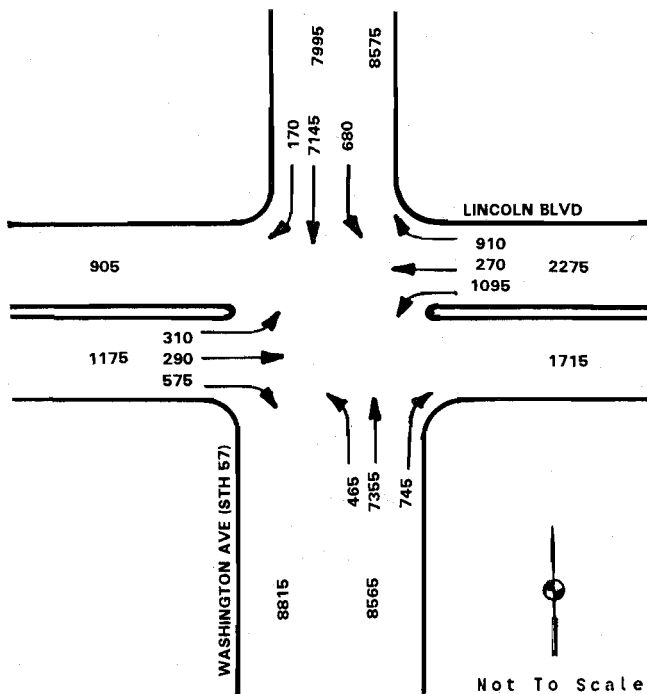
Source: SEWRPC.

In addition to the hourly traffic volume data collected, the Commission staff counted hourly turning-movement volumes at the intersection of Lincoln Boulevard at Washington Avenue (STH 57). This detailed count information was necessary to investigate intersection operating conditions and to evaluate the potential need for an exclusive right-turn lane on the northbound approach. The Commission staff also conducted hourly turning-movement counts at selected

driveways along Washington Avenue to determine the need for a fifth lane devoted to left-turning movements. Shown in Figure 5 are the 24-hour average weekday turning-movement volumes at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard as derived from the 7:00 a.m. to 6:00 p.m. count data. Figures 6 and 7 show the 7:00 a.m. to 8:00 a.m. and the 4:30 p.m. to 5:30 p.m. peak-hour turning-movement volumes, respectively.

Figure 5

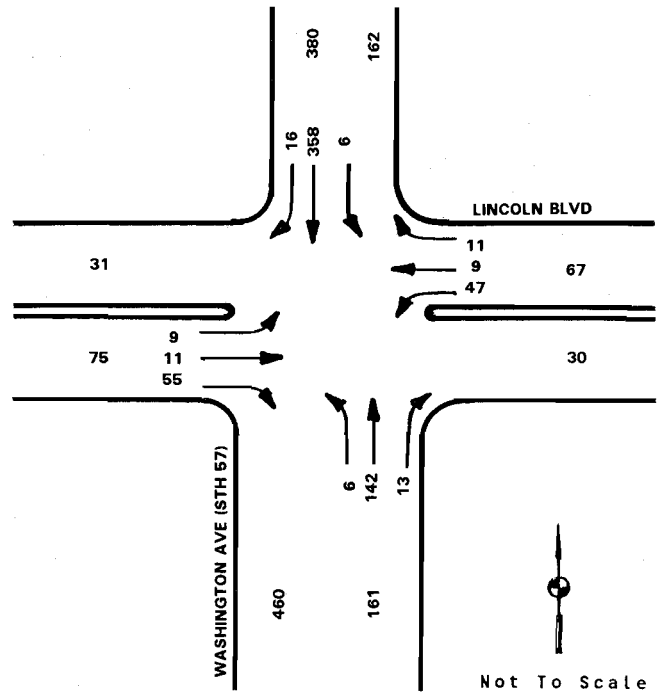
**24-HOUR AVERAGE WEEKDAY
TURNING-MOVEMENT VOLUMES AT THE
INTERSECTION OF WASHINGTON AVENUE
(STH 57) AND LINCOLN BOULEVARD: 1988**



Source: SEWRPC.

Figure 6

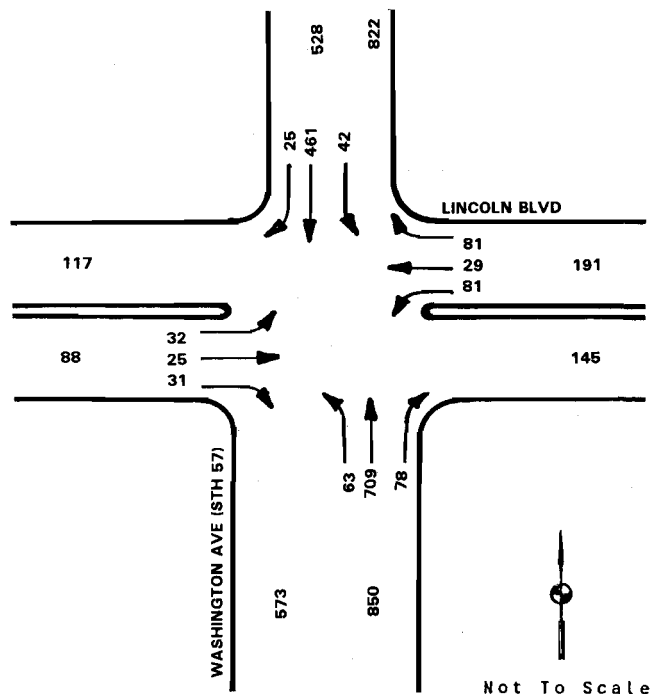
**7:00 A.M. TO 8:00 A.M. PEAK-HOUR
TURNING-MOVEMENT VOLUMES AT THE
INTERSECTION OF WASHINGTON AVENUE
(STH 57) AND LINCOLN BOULEVARD: 1988**



Source: SEWRPC.

Figure 7

**4:30 P.M. TO 5:30 P.M. PEAK-HOUR
TURNING-MOVEMENT VOLUMES AT THE
INTERSECTION OF WASHINGTON AVENUE
(STH 57) AND LINCOLN BOULEVARD: 1988**



Source: SEWRPC.

Through traffic on the northbound and southbound approaches to the intersection generally constitutes about 85 percent of the traffic demand throughout the day. Therefore, left turns being made from the northbound and southbound approaches encounter significant conflicting volumes. However, it must be noted that the number of left turns from these approaches does not exceed 72 vehicles per hour, which is well below the 100-vehicle-per-hour threshold necessary for the provision of an exclusive left-turn lane. The percentage of right-turning vehicles on these approaches reaches a maximum of 9 percent during the afternoon peak hour. However, this constitutes only 76 vehicles, which is well below the threshold of 300 vehicles per hour necessary to warrant the provision of an exclusive right-turn lane. Over a 24-hour period, about 12 percent of the traffic on the westbound approach to the intersection is through traffic, and about 25 percent of the traffic on the eastbound approach is through traffic. The remainder of the traffic on these approaches is traffic that turns either to the right or left. However, because the total demand on the eastbound and westbound approaches is mini-

mal, and because the proportion of through traffic on those approaches is minimal, turning traffic experiences little or no problem.

A capacity analysis of the Washington Avenue (STH 57) and Lincoln Boulevard intersection was conducted to identify existing traffic congestion and delay problems. This intersection is controlled by traffic-actuated traffic signals. All traffic movements operate within design capacity, even though Washington Avenue (STH 57) carries traffic volumes which exceed its design capacity. This may be attributed to relatively low traffic volumes on Lincoln Boulevard, which permits most available green time in the traffic signal cycle to be allocated to Washington Avenue (STH 57).

North of this intersection, Washington Avenue (STH 57) narrows from a curb-to-curb width of 49 feet at Lincoln Boulevard to a curb-to-curb width of 30 feet within a distance of 160 feet, resulting in the dropping of a lane in the northbound direction. The taper for this lane drop is 16:1, or approximately half the typical 30:1 taper which should be used, and results in an inadequate merge length for the lane drop. There are four driveways within that 160 feet, two on the east side of the road and two on the west side of the road. Traffic utilizing these driveways has the potential to negatively impact traffic flow just north of the intersection, particularly in the northbound direction. A northbound vehicle turning left into either driveway must wait for an acceptable gap in the southbound traffic at the intersection. Because the roadway narrows, a queue may develop in the northbound direction behind any vehicle attempting to turn left during the peak hour, and can cause traffic to queue back south through the intersection.

Driveway Traffic Volumes

Strip commercial development abutting a roadway typically results in significant left-turning volumes. Unrestricted access permits the left turn to be made at every driveway, resulting in significant loss of capacity in the lane from which the left turn is made as well as delay for nonturning vehicles. In order to determine left-turn demand along the study segment of Washington Avenue (STH 57), the Commission staff conducted hourly traffic counts of left-turning and through volumes at 14 commercial driveways and at the intersection of Washington

Avenue and Alyce Street between the hours of 11:30 a.m. and 5:30 p.m. As shown in Figure 4, approximately 50 percent of the traffic volume on Washington Avenue occurs between the hours of 11:00 a.m. and 6:00 p.m., with the peak hour between 4:30 p.m. and 5:30 p.m. Therefore, left-turning movements during these hours will have a significant impact on the operating conditions experienced by motorists on Washington Avenue. Significant left-turning volumes in relation to through traffic tend to reduce roadway capacity and thereby increase congestion and delay on the roadway. Shown in Figure 8 is the number of left turns observed between the hours of 11:30 a.m. and 5:30 p.m., and during the evening peak hour, 4:30 p.m. to 5:30 p.m., at each driveway surveyed. The left-turning volume at these driveways represents approximately 17 percent of the through volume over the six-hour period from 11:30 a.m. to 5:30 p.m., and more than 15 percent of the total through volume during the 4:30 to 5:30 p.m. peak hour. The number of left-turning vehicles in the traffic stream therefore should be considered significant along the study segment.

Average Operating Speeds

Traffic studies conducted by Commission staff indicate that the average speed on the study segment of Washington Avenue (STH 57) was 33 miles per hour in October 1988. The study also indicated that the 85th percentile speed, that speed recognized nationally as the safe and reasonable speed limit, was 37 miles per hour. Further, 76 percent of the traffic was traveling in the "10 mile per hour pace," that 10 mile per hour speed range of the largest number of vehicles, between 30 and 39 miles per hour. Therefore, it may be concluded that motorist compliance with the 35 mile per hour speed limit is good and that the existing speed limit is appropriate.

Traffic Accidents

The incidence and location of traffic accidents provide another important measure of the efficiency and operating characteristics of an arterial facility such as Washington Avenue. The motor vehicle accident history for the years 1985 through 1987 for the study segment of Washington Avenue is shown in Table 1 and Figures 9, 10, and 11. A total of 19 accidents occurred on the study segment in 1985; 19 accidents occurred in 1986; and 18 accidents occurred in 1987. As shown in Figure 8 and in Table 1, of the 19 accidents reported on Wash-

ington Avenue in 1985, seven accidents occurred at the intersection of Lincoln Boulevard; four occurred at the intersection of Pioneer Road; and one occurred at Fairfield Street, with the remaining seven accidents reported as midblock accidents. Of the 19 accidents occurring in 1986, five occurred at the intersection of Lincoln Boulevard; four occurred at the intersection of Pioneer Road; three occurred at Fairfield Street; two occurred at Alyce Street; and one occurred at Zeunert Street. Four accidents in 1986 were midblock accidents. In 1987, six accidents occurred at the intersection of Pioneer Road and one accident occurred at each of the intersections of Lincoln Boulevard, Alyce Street, Fairfield Street, and Zeunert Street. Eight of the accidents in 1987 were midblock accidents. Collision diagrams for each intersection and two midblock segments within the study segment of Washington Avenue (STH 57) appear in Appendix A.

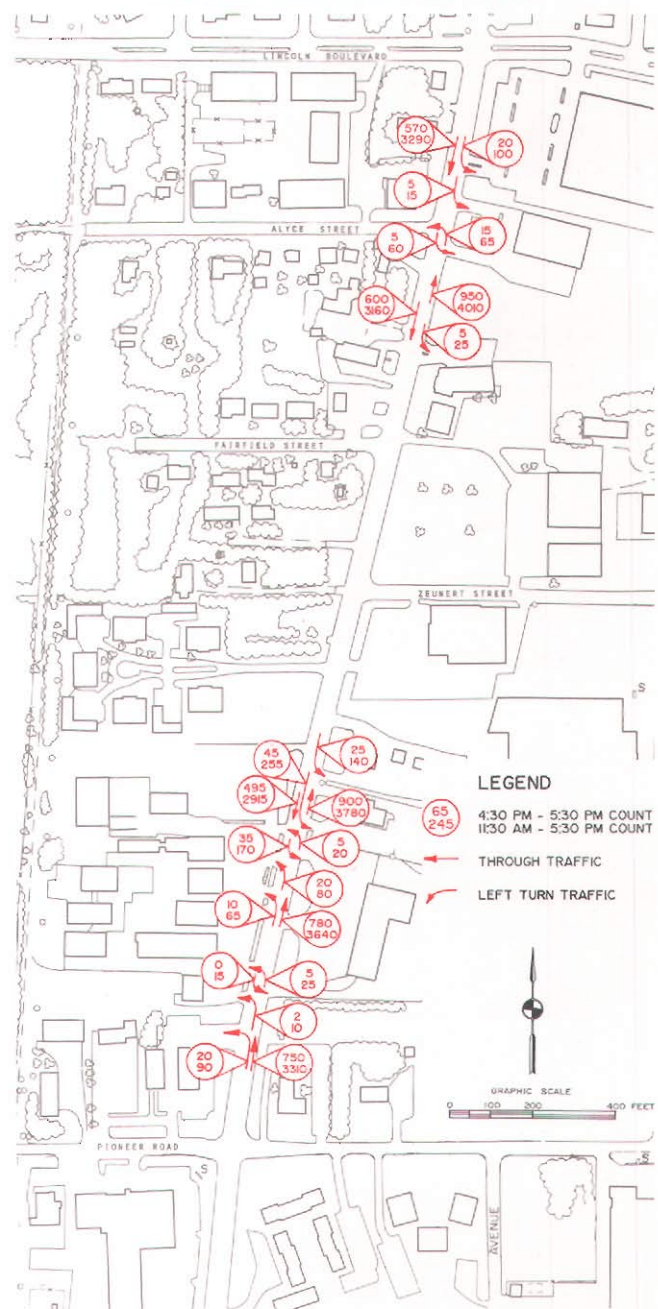
Another measure used to identify accident problem locations is the accident rate. This rate considers not only the incidence of accidents, but also the volume of traffic entering an intersection. The highest annual accident rate on the study segment of Washington Avenue occurred at the Lincoln Boulevard intersection in 1985: 1.12 accidents per million vehicles entering the intersection. The next highest accident rate occurred at the Pioneer Road (CTH C) intersection in 1987: 0.93 accident per million vehicles entering the intersection. It should be noted, however, that a significant decrease in both the incidence of accidents and, therefore, the accident rate at the Lincoln Boulevard and Washington Avenue intersection, occurred between 1985 and 1987.

The locations along the study segment which may be considered problem locations are those where the frequency and/or rate of accidents appear relatively high compared to the accident experience at the other locations, or at locations which experience significant increases in accident frequency from year to year. Therefore, the principal accident problem locations identified are at the Washington Avenue (STH 57) intersections with Lincoln Boulevard and with Pioneer Road, as well as the midblock stretch of the roadway between Pioneer Road and Zeunert Street.

Analysis of the accidents occurring at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard indicates that five of the

Figure 8

LEFT-TURNING VEHICLES AT SELECTED DRIVEWAYS ON THE STUDY SEGMENT OF WASHINGTON AVENUE (STH 57) BETWEEN 11:30 A.M. AND 5:30 P.M. AND BETWEEN 4:30 P.M. AND 5:30 P.M.: 1988



Source: SEWRPC.

13 accidents at this intersection during the 1985 through 1987 period occurred at night. No other discernible pattern to the accidents at this intersection exists; and it should be noted that

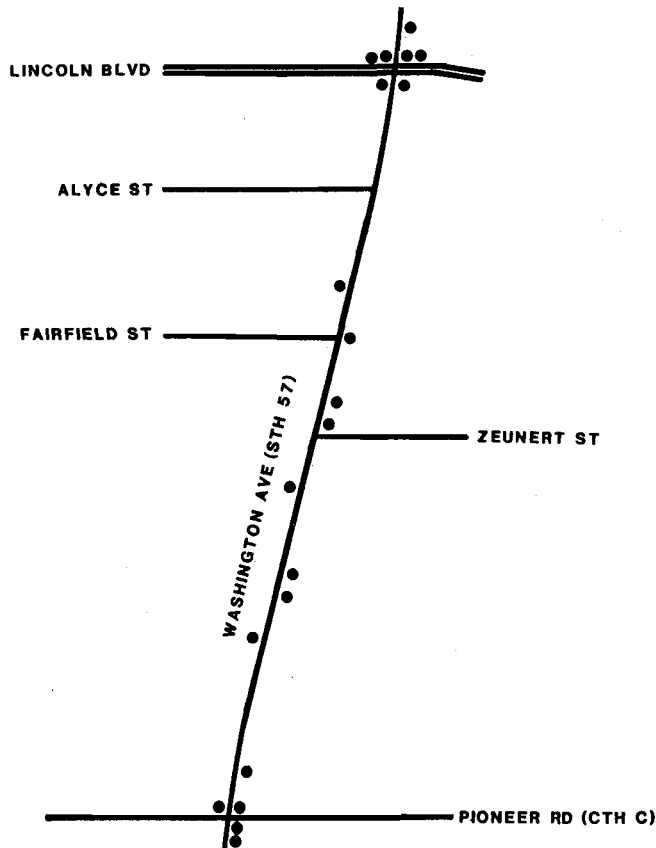
Table 1

ACCIDENT REPORTS FOR THE CITY OF CEDARBURG: 1985-1987

Arterials	1985			1986			1987			Total
	Injury	Property Damage Only	Total	Injury	Property Damage Only	Total	Injury	Property Damage Only	Total	
STH 57										
Lincoln Boulevard	1	6	7	1	4	5	0	1	1	13
Alyce Street	0	0	0	0	0	0	1	0	1	1
Fairfield Street	0	1	1	1	0	1	0	1	1	3
Zeunert Street	0	1	1	0	1	1	1	0	1	3
Pioneer Road	3	1	4	0	5	5	2	4	6	15
Midblock										
Lincoln Boulevard- Zeunert Street	0	2	2	0	4	4	0	2	2	8
Zeunert Street- Pioneer Road	1	3	4	1	2	3	1	5	6	13
Total	5	14	20	3	16	19	5	13	18	56

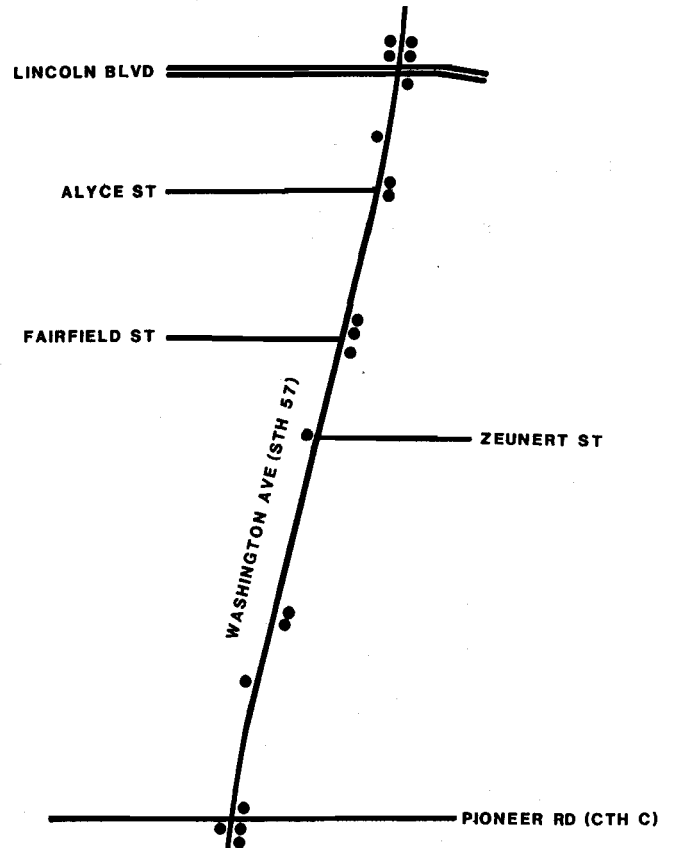
Source: City of Cedarburg Police Department and SEWRPC.

Figure 9

ON-STREET MOTOR VEHICLE ACCIDENT
LOCATIONS REPORTED ON THE STUDY SEGMENT
OF WASHINGTON AVENUE (STH 57): 1985

Source: SEWRPC.

Figure 10

ON-STREET MOTOR VEHICLE ACCIDENT
LOCATIONS REPORTED ON THE STUDY SEGMENT
OF WASHINGTON AVENUE (STH 57): 1986

Source: SEWRPC.

there has been a significant reduction in the incidence of accidents at this intersection over the three-year study period.

An analysis of the intersection of Washington Avenue (STH 57) and Pioneer Road indicates that eight of the 15 accidents reported between 1985 and 1987 involved vehicles making a left-turn or right-turn maneuver. Eight of the 15 accidents involved vehicles from the northbound approach and four of these eight involved rear-end collisions. Only two of the 15 total accidents reported occurred at night.

Analysis of the midblock accidents on Washington Avenue (STH 57) from Pioneer Road to Zeunert Street indicates that 11 of the 13 accidents which occurred during the 1985 through 1987 period involved vehicles maneuvering into or out of the driveways at Echo Plaza, Hardee's, or the Schnapps House. All accidents

involved vehicles making a right or left turn. Four of the accidents involved rear-end collisions, when a vehicle stopped or slowing to make a turn was struck in the rear; three of the 13 accidents occurred at night. The frequency of accidents on this stretch of the study segment has remained relatively stable for the three year period.

ANALYSIS AND RECOMMENDATIONS

The existing roadway conditions and the expected changes in those conditions as land development and traffic volumes increase indicate the need to prepare plans for both short-range and long-range roadway improvements for the study segment of Washington Avenue (STH 57). Accordingly, this memorandum includes a short-range element, consisting of traffic engineering improvements recommended to abate existing traffic conflict and accident problems along with modest changes in access to abutting properties; and a long-range plan, consisting of roadway improvements and changes in access to abutting properties recommended to serve probable future traffic volumes more efficiently and safety within reasonable cost.

Short-Range Highway Improvement Plan

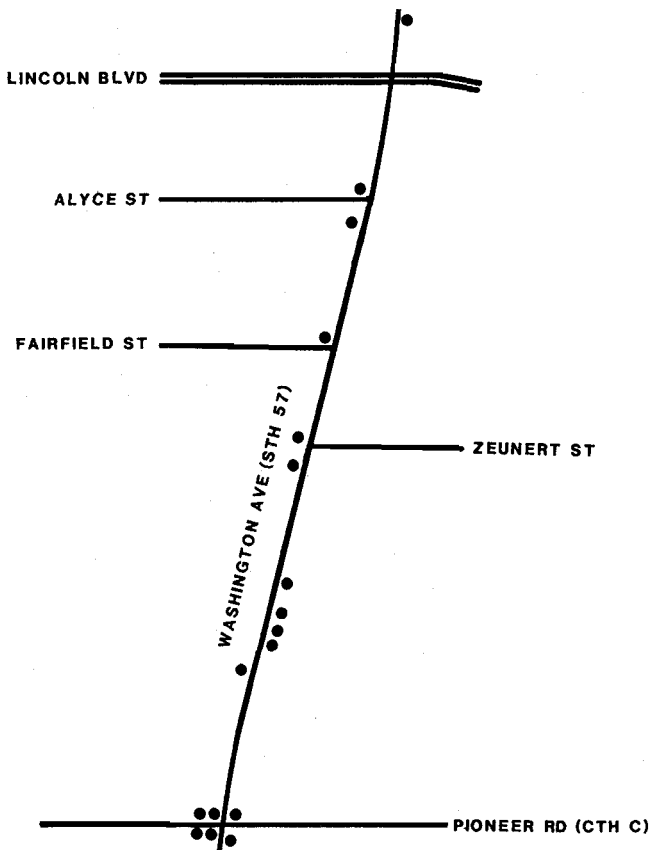
The short-range plan element for Washington Avenue (STH 57) consists primarily of low-cost traffic engineering improvement measures, such as traffic signing and pavement marking. The following analyses address the previously identified existing traffic problems along the study segment of Washington Avenue (STH 57) with respect to short-term actions.

Washington Avenue (STH 57) and Pioneer Road (CTH C) Intersection: Based on intersection capacity analyses and observation of peak-hour operating conditions, there is no capacity problem at this intersection. The principal problem identified at this intersection is an accident problem. As previously noted, the most discernible pattern of accidents at this intersection are the four rear-end accidents on the northbound approach.

The first alternative traffic management action considered to alleviate this problem is the installation of backboards on the pole-mounted traffic signal heads controlling northbound traffic. The advantage of installing backboards is to increase the signal indication visibility,

Figure 11

ON-STREET MOTOR VEHICLE ACCIDENT LOCATIONS REPORTED ON THE STUDY SEGMENT OF WASHINGTON AVENUE (STH 57): 1987



Source: SEWRPC.

thereby ensuring that all motorists approaching the intersection are aware of changes in the signal indication, and not simply the lead motorist. It is recommended that this alternative control measure be implemented, at an estimated cost of \$100.

The second traffic management action considered to alleviate the accident problem on this approach is prohibition of parking on the east side of Washington Avenue (STH 57) from a point 150 feet south of Pioneer Road (CTH C) north to the intersection of Washington Avenue (STH 57) and Pioneer Road. The advantage of this alternative control measure is to ensure that the northbound approach to the intersection will always have two traffic lanes. This will ensure that following motorists will have an opportunity to change lanes and proceed around vehicles stopped ahead of them in the roadway. Another advantage of this alternative is that it provides continuity with the two travel lanes provided in the northbound direction on Washington Avenue (STH 57) north of the intersection. It is recommended that this alternative traffic management action be implemented, at an estimated cost of \$200.

Other traffic management control actions considered at this intersection, but rejected, included the installation of pavement markings to further delineate the lanes on the northbound approach and the restriction of the northbound approach left lane to left turns only.

Washington Avenue (STH 57) and Lincoln Boulevard Intersection: The traffic problems identified at this intersection include inadequate merge length for the lane drop in the northbound direction north of Lincoln Boulevard, and traffic accidents. It should be noted, however, that the frequency of the traffic accidents significantly decreased between 1985 and 1987, and there is no discernible pattern in the accidents occurring at this intersection.

The first alternative traffic management control action considered was the closure of the first driveway and installation of "No Left Turn" signs to prohibit left turns into the second driveway north of Lincoln Boulevard on the west side of Washington Avenue (STH 57). One advantage of this traffic management action would be to eliminate northbound left turns into the first two driveways north of Lincoln Boule-

vard, thus ensuring the northbound lane is not blocked by left-turning vehicles. Another advantage is the reduction in interference to southbound traffic as a result of the driveway closure. Northbound left turns into these driveways can, because of the rapid loss of one lane in the northbound direction, cause a queue of vehicles southward into the intersection itself. The disadvantage of this alternative traffic management action is the reduction in access from Washington Avenue (STH 57) to the business located in the northwest quadrant of the intersection of Washington Avenue (STH 57) and Lincoln Boulevard. It should be noted that this business does have access on Lincoln Boulevard. It is recommended that this traffic management control action be implemented, at an estimated cost of \$400.

The second alternative traffic management action considered is the installation of a lane reduction transition sign on the east side of Washington Avenue (STH 57) just north of Lincoln Boulevard. The advantage of this alternative traffic management action is to warn motorists of a reduction in the number of traffic lanes in the northbound direction. It is recommended that this alternative control be implemented, at an estimated cost of \$100.

A third traffic management action considered was to improve the length of the merge area for northbound traffic from its current length of about 230 feet to 360 feet. This can be accomplished without construction through the installation of pavement markings to provide a 13-foot-wide southbound traffic lane measured from the existing face on the west side of Washington Avenue (STH 57), thus providing additional width for the northbound lanes; and by prohibiting additional on-street parking on the east side of Washington Avenue (STH 57), as shown in Figure 12. The advantage of this alternative traffic management action would be to lengthen the area in which northbound traffic can merge from two lanes to a single lane. The disadvantage of this alternative traffic management action is the loss of approximately six on-street parking stalls on the east side of Washington Avenue (STH 57) which serve residences on both sides of the street. Thus, no on-street parking would be allowed from the intersection of Washington Avenue (STH 57) and Lincoln Boulevard to a point approximately 360 feet north of the intersection. It is recom-

mended that this alternative traffic management action be implemented, at an estimated cost of \$3,400.

An alternative traffic control action considered but rejected was a modification in the traffic movements permitted from the two lanes on the northbound approach to the intersection. Currently, left turns and through movements are permitted from the left lane and right turns and through movements are permitted from the right lane. Under this alternative control action, one lane would be designated as an exclusive turn lane, the remaining lane to serve through traffic and the other turning movement. One advantage of this alternative control action would be to negate the need for a merge area on the north side of the intersection by reducing the number of lanes serving through traffic from two to one south of the intersection. The primary disadvantage of this alternative is that the area in which vehicles would be merging from two lanes to a single lane would be in the vicinity of the driveways serving the Piggly Wiggly-Walgreen site and the Baumann Hoffmann Hardware Store site and of the intersection of Alyce Street with Washington Avenue (STH 57). A number of problems can be identified with relocating the merge to this area, including the following:

- The potential for vehicles in the Washington Avenue (STH 57) traffic stream to bypass vehicles entering and exiting the driveways in a separate lane is eliminated.
- A queue of 20 vehicles, 10 per lane, could be accommodated before the driveway serving the Piggly Wiggly-Walgreen site would be blocked, given the two existing combined through and turning-movement lanes on the northbound approach. If one of the lanes were converted to an exclusive turn lane, the size of the queue which could be accommodated before the driveway would be blocked is 10 vehicles, exclusive of vehicles queued in the exclusive turn lane. Thus, the potential that the driveway may be blocked is substantially increased.
- The accident potential increases due to large speed differentials between the through traffic stream which is now concentrated in a single lane and the vehicles exiting the driveways or Alyce Street.

- If an exclusive left-turn lane were provided, virtually all vehicles on the northbound approach would be in the right lane, resulting in an average gap between vehicles of 4.25 seconds, or 1.25 seconds less than the 5.5 seconds required for a right-turning vehicle to enter the traffic stream and compared to an average gap between vehicles of approximately 10 seconds in the right lane under existing conditions.

Figure 12

**RECOMMENDED TRAFFIC CONTROL
MODIFICATIONS FOR THE INTERSECTION
OF WASHINGTON AVENUE (STH 57)
AND LINCOLN BOULEVARD**

LEGEND

PAVEMENT MARKINGS

- EDGELINE - WHITE
- LANE LINE - WHITE
- CENTERLINE - WHITE
- /// TRANSVERSE - YELLOW

REGULATORY SIGNING

- NO LEFT TURN
- ▣ NO PARKING AT ANYTIME
- ▣ NO PARKING HERE TO CORNER

WARNING SIGNING

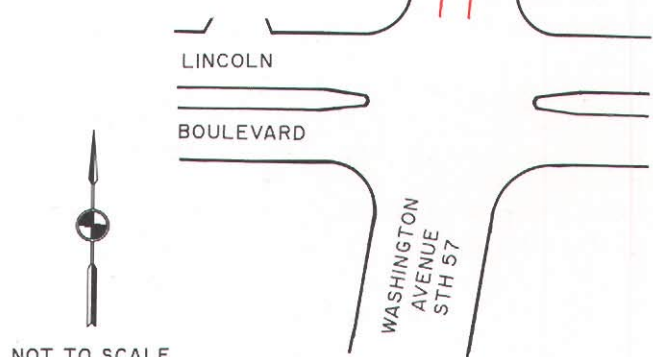
- ◇ RIGHT LANE ENDS

PARKING PROHIBITION

- ||||| ADDITIONAL ON-STREET PARKING PROHIBITION

DRIVEWAY TREATMENT

- \\ DRIVEWAY CLOSURE



NOT TO SCALE
Source: SEWRPC.

- If a separate right-turn lane is provided, vehicles exiting the driveways but desiring to proceed through the intersection or turn left may be forced to turn right instead if they cannot merge into the left lane prior to arriving at the intersection. Rather than turning right, motorists may stop in the right lane midway between the driveway and the intersection, waiting for a gap in the left lane, increasing the accident potential.
- If an exclusive right-turn lane is provided, a vehicle turning left from the left lane has the potential to reduce the through and left-turn capacity of the northbound approach to zero during a particular traffic signal cycle if that vehicle is the first in the queue and opposing traffic is sufficiently heavy to prevent the left-turn maneuver during the green portion of the cycle.
- In addition, the number of vehicles turning left in any hour, even during the afternoon peak hour, is well below the 100 vehicles per hour recognized as the threshold for provision of an exclusive left-turn lane. The number of vehicles turning right in any hour, even during the afternoon peak hour, is well below the 300 vehicles recognized as the threshold for providing an exclusive right-turn lane. Finally, implementation of an exclusive turn lane would not improve the operation of the intersection.

Also considered but rejected was the minor widening of Washington Avenue (STH 57) on the north side of Lincoln Boulevard to permit the installation of a longer merge area for the dropping of a lane in the northbound direction. The disadvantage of minor widening is that it would require the purchase of additional right-of-way. Moreover, a longer merge area could be attained through parking prohibition.

Washington Avenue (STH 57) Between Pioneer Road (CTH C) and Lincoln Boulevard: The traffic problems identified on this roadway segment include traffic congestion and accidents. The current traffic volume, 17,380 to 20,540 vehicles per average weekday, carried on this roadway segment exceeds the design capacity of a four-lane undivided urban roadway, which is 17,000 vehicles per average weekday. There is no low-cost, short-range traffic engineering action that can alleviate this significant

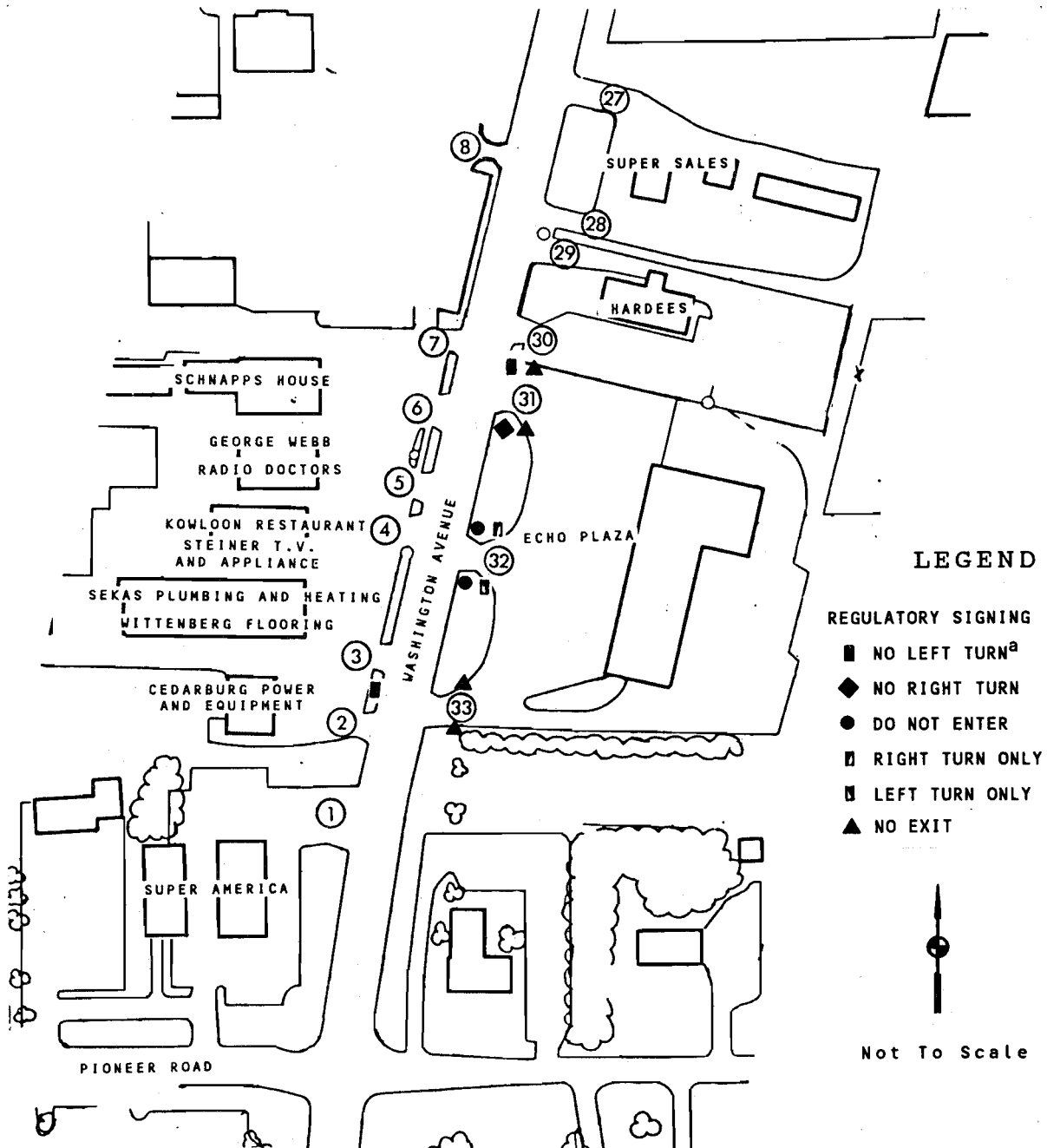
problem. It is recommended that the existing parking restrictions on Washington Avenue (STH 57) remain in effect as, otherwise, roadway design capacity would decrease to 13,000 vehicles per average weekday.

A traffic accident problem was identified on Washington Avenue (STH 57) between Zeunert Street and Pioneer Road. Eight of the 13 total accidents involved left-turning vehicles, although four of those eight accidents were actually rear-end collisions. The rear-end accident problem at driveway locations indicates that a speed differential exists between motorists slowing to enter a driveway and the through traffic stream. The four remaining left-turn accidents were accidents between a vehicle turning left and a vehicle traveling in the opposite direction. The problem at this location is due in part to inadequate spacing of adjacent driveways, improper offsets of opposing driveways, and the concentration of driveways along this portion of the study segment. This requires the driver of a through vehicle to monitor multiple driveways simultaneously; motorists entering and exiting driveways must monitor movements in and out of adjacent and offset opposing driveways, as well as the arterial street traffic.

The first alternative traffic management action considered is the prohibition of left turns from Washington Avenue (STH 57) to Driveway No. 7 through the installation of "No Left Turn" signs, as shown in Figure 13. The advantage of this alternative traffic management action is to relocate left turns from Driveway No. 7 to Driveway No. 6, thereby reducing the congestion and confusion in the areas of Driveways No. 7, 30, and 31. The disadvantage of this alternative control action is slightly impaired access for northbound traffic to businesses served by Driveway No. 7. This is offset by the fact that such access will remain at Driveway No. 6, and that the off-street parking lot is contiguously paved from the southern boundary of Driveway No. 2 to the northern boundary of Driveway No. 7. It should be noted that there would be no change in access for southbound motorists at Driveway No. 7. It is therefore recommended that this alternative traffic management action be implemented, at an estimated cost of \$200. City officials should seek the agreement of the owners of the impacted property prior to implementing this action.

Figure 13

**DRIVEWAYS ON WASHINGTON AVENUE (STH 57) BETWEEN
ZEUNERT STREET AND PIONEER ROAD (CTH C) AT WHICH ACCESS
MODIFICATIONS ARE RECOMMENDED UNDER THE SHORT-RANGE PLAN**



^a A single sign is shown; however, the actual installation should include one sign on each side of the roadway facing the traffic being prohibited from turning left.

Source: SEWRPC.

Another alternative traffic management action considered to alleviate the accident problem, particularly in the area of Driveways No. 7, 30, and 31, was the revision of the operation of selected driveways. Driveways No. 31 through 33 would be converted from the current two-way operation to one-way operation. Driveway No. 31 would be for ingress only and would serve only southbound Washington Avenue (STH 57) traffic. Driveway No. 33 would also be for ingress only and would service only northbound Washington Avenue (STH 57) traffic. Driveway No. 32 would provide for egress only, serving both the right-turn and left-turn movements from the parking lot. A "No Right Turn" sign would prohibit northbound traffic from entering Driveway No. 31, and "No Left Turn" signs would prohibit southbound traffic from entering Driveway No. 33. The principal advantage of this alternative traffic management action is to significantly reduce the number of movements motorists must monitor while driving this particular segment of Washington Avenue (STH 57). Attendant to the reduction in the number of movements at the subject driveways is a significant reduction in the number of vehicular conflict points at these driveways.

By restricting the allowable movements at Driveway No. 33 to ingress only for northbound traffic, the number of vehicular conflict points at this driveway would decrease from the 24 conflict points associated with a typical four-legged intersection to five conflict points, four of which are directly related to vehicles crossing Washington Avenue (STH 57) from a driveway on the west side of the street. At Driveway No. 31, there would only be six conflict points directly related to ingress, three of which would result from ingress by vehicles crossing Washington Avenue (STH 57) from the west side of the street. At Driveway No. 32, the total number of vehicular conflict points would be reduced from 24 to 12, five of which are directly related to the operation of the driveway. It is recommended that this traffic management action be implemented, at an estimated cost of \$650.

Consideration was also given to the prohibition of left turns from southbound Washington Avenue (STH 57) into Driveway No. 30. This traffic management action was rejected at this location, however, because Driveway No. 30 is the only ingress point for this parcel.

The lack of motorist compliance with regulatory signing deemed inappropriate or inconvenient by the motorist has been observed at the driveway on Washington Avenue (STH 57) serving the Piggly Wiggly-Walgreen site. As previously noted, Commission staff has observed many motorists violating a left-turn prohibition and, as well, has observed a number of motorists entering what is intended to be the egress half of the driveway. Figure 14 shows how this driveway may be reconstructed to discourage motorists from making left turns onto southbound Washington Avenue (STH 57). Such reconstruction would also eliminate the potential for entering the egress half of the driveway. Reconstruction of this driveway is estimated to cost \$4,750.

The current speed limit on the study segment of Washington Avenue (STH 57) is 35 miles per hour. The principal factor in determining the proper speed limit on a roadway is the 85th percentile speed of the existing traffic stream. Based on a spot speed study conducted by the Commission, the 85th percentile speed on the study segment is 37 miles per hour, which indicates that the existing speed limit is the proper limit. However, a number of other factors should be considered in determining the proper speed limit, including roadway and roadside characteristics, such as intersection and driveway spacing, accident experience, traffic volumes, and turning movements. The existing driveway spacing along the segment of arterial concerned is as little as 45 feet, far less than the 150-foot minimum recommended for a 35 mile per hour speed limit. This particular segment is also identified as having an accident problem which is partly caused by the differential in speed between through traffic and the vehicles turning into and out of driveways. The current average weekday traffic volume equals or exceeds the design capacity of the roadway, a problem exacerbated by the large number of left turns made into and out of the driveways along this portion of the study segment.

Because of the substandard driveway spacing, the accident experience, the high average weekday traffic volumes, and the large number of turning movements, a reduction in the existing speed limit should be considered on a trial basis. The advantage of reducing the speed limit is an

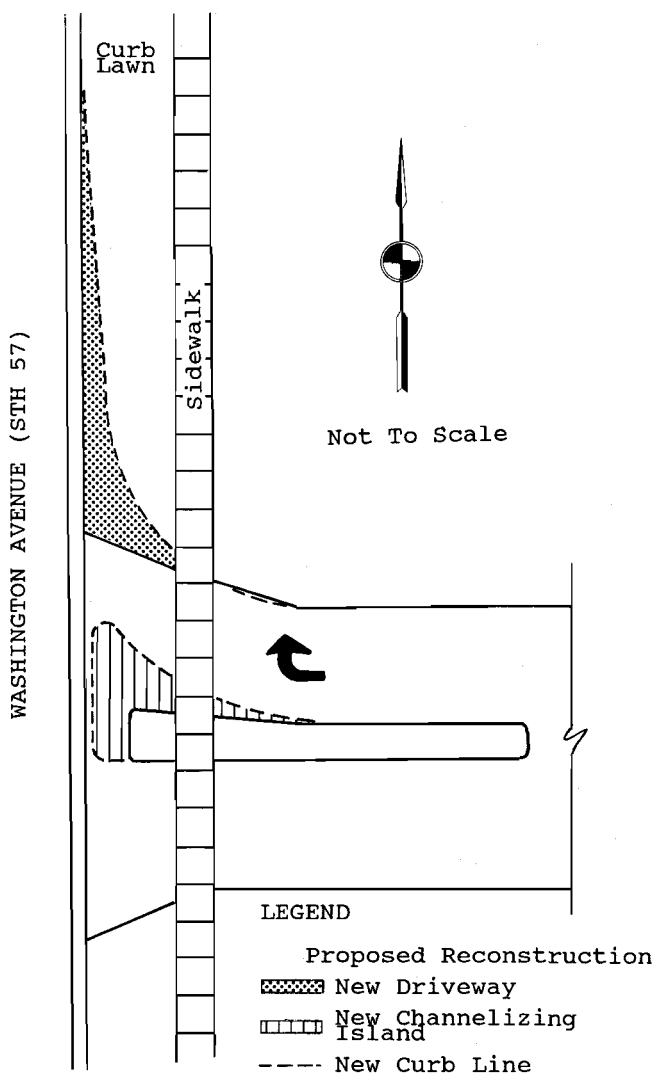
increase in traffic safety as a result of decreasing the speed differential between through traffic and traffic turning into and out of the driveways. In addition, the lower speed limit is more appropriate for the existing driveway spacing. The disadvantage of this traffic management action is a potential need for increased law enforcement activity to obtain compliance with the lower speed limit. Therefore, it is recommended that the speed limit on Washington Avenue (STH 57) between Alyce Street and Pioneer Road (CTH C) be reduced to 30 miles per hour on a trial basis, at an estimated cost of \$300. It is further recommended that vehicular speeds be closely monitored for motorist compliance. If the 85th percentile speed does not reflect the change in the speed limit, or if there is a substantial reduction in the percentage of motorists traveling within the 10 mile per hour pace speed, then the speed limit should be raised back to 35 miles per hour.

Reducing the speed limit from the existing 35 miles per hour to 25 miles per hour over the entire study segment was considered and rejected because STH 57 is an arterial highway and, therefore, the longer through trips should be encouraged to use this facility.

Other traffic management actions considered but rejected include designation of the left lane for left turns only, with the right lane serving the through and right-turn movements; construction of isolated left-turn bays; and construction of barrier curb median four feet in width. Designation of an existing lane for left turns only would significantly reduce the capacity of the roadway and increase congestion. It may be expected to result in a reduction in the number of rear-end accidents at driveways, but this reduction would be offset by rear-end accidents and sideswipe accidents as vehicles merged from two lanes to a single lane to avoid the left-turn area. Construction of isolated left-turn bays would require widening of the street at isolated locations, but the spacing of the driveways and their relative positions to one another would necessarily mean that either no storage could be provided for left-turning vehicles or an upstream or downstream driveway would be blocked by the channelizing island. Construction of a narrow barrier curb median would not provide any protection for left-turning vehicles and would result in a reduction in access to abutting parcels. It would also result in an increase in

Figure 14

DRIVEWAY RECONSTRUCTION RECOMMENDED TO ALLEVIATE THE ILLEGAL LEFT-TURN EGRESS PROBLEM AT THE PIGGLY WIGGLY-WALGREEN DRIVEWAY ON WASHINGTON AVENUE (STH 57)



Source: SEWRPC.

U-turns, since the absolute minimum spacing for median openings would be 240 feet, while the desirable spacing is 460 feet.

Concluding Remarks: To alleviate the existing traffic accident and congestion problems on Washington Avenue (STH 57) between Pioneer Road and Lincoln Boulevard, it has been recommended that backboards should be installed on the pole-mounted traffic signal heads for north-bound traffic at the intersection of Washington Avenue (STH 57) and Pioneer Road; that parking on the east side of Washington Avenue

(STH 57) from a point 150 feet south of Pioneer Road north to the intersection of Washington Avenue (STH 57) and Pioneer Road be prohibited; that the merge area for northbound Washington Avenue (STH 57) traffic just north of the intersection of Washington Avenue (STH 57) and Lincoln Boulevard be increased from its current length of 230 feet to 360 feet through the installation of pavement markings and the prohibition of on-street parking on the east side of Washington Avenue (STH 57); that left turns on northbound Washington Avenue (STH 57) be prohibited into the two driveways on the west side of Washington Avenue (STH 57) immediately north of Lincoln Boulevard through the closure of the southernmost driveway and by signing at the northern driveway; that turn prohibitions be initiated at selected driveways in the vicinity of Echo Plaza; that the operation of the driveways serving Echo Plaza be modified to provide one-way ingress at the northernmost and southernmost drives and one-way egress at the center driveway; and, finally, that the Washington Avenue (STH 57) driveway serving the Piggly Wiggly-Walgreen site be reconstructed to discourage left-turn egress movements. The total capital cost of these improvements is estimated at \$9,550.

Under the short-range highway improvement plan, a number of modifications have been proposed in the operation of selected driveways along the study segment of Washington Avenue (STH 57). These modifications have impact on the access to properties abutting Washington Avenue (STH 57). The recommended actions should only be implemented upon agreement with, and the cooperation of, the owners of abutting properties. It should be noted, however, that the short-term recommendations, while expected to provide some relief of accident and congestion problems, do not specifically address the problems of inadequate driveway spacing and inappropriate offsets between driveways on opposite sides of the roadway, or the number of access points currently permitted. These specific issues must be addressed as a part of the long-range highway improvement plan.

It is recommended that the existing 35 mile per hour speed limit be reduced to 30 miles per hour on a trial basis. However, if the 85th percentile speed does not reflect the reduced speed limit, or if there is a substantial reduction in the percent-

age of motorists traveling within the 10 mile per hour pace speed, then the speed limit should be raised back to 35 miles per hour.

Finally, it is also recommended that the existing on-street parking ban be retained along the study segment.

LONG-RANGE HIGHWAY IMPROVEMENT PLAN

Any determination of the need for roadway improvements should consider both existing and anticipated future traffic conditions. Based upon the city land use plan and the Commission-adopted design year 2000 regional land use plan and transportation system plan, average weekday traffic on the study segment of Washington Avenue (STH 57) may be expected to remain at approximately its current levels of about 18,000 to about 21,000 vehicles per average weekday. Traffic volumes may be expected to experience little growth by the year 2000, principally because the improvement of Wauwatosa Road from a two-lane cross-section to a divided four-lane cross-section between STH 60 and the Milwaukee-Ozaukee County line is expected to remove traffic from Washington Avenue.

The average weekday traffic volumes in the year 2000 are expected to exceed the design capacity of the existing four-lane undivided urban roadway on the study segment of Washington Avenue (STH 57). Significant left-turn volumes along the study segment reduce the roadway capacity by temporarily blocking a lane. It must be recognized that there is a limit to the improvement in the level of service attainable through the implementation of low cost-oriented traffic engineering actions. Ultimately, it becomes necessary to consider the implementation of more capital-intensive construction or reconstruction alternatives which will serve the existing and future travel demand. Given the significant left-turning volumes along the study segment and the resultant degradation of the design capacity, the need exists to initiate now the actions which will lead to implementation of capital-intensive construction projects which will preserve the necessary capacity to meet the travel demand. Consideration must also be given to the current level of access provided along the study segment of Washington Avenue (STH 57).

It may be noted that, on January 3, 1989, the City of Cedarburg Plan Commission modified the City's land use plan with respect to a 65-acre parcel located just west of Washington Avenue (STH 57) between Pioneer Road and Lincoln Boulevard. The change in the City's land use plan was the conversion of 42 acres of the 65-acre parcel from medium-density residential land uses to office, industrial, and warehousing land uses. The original land use plan for this site envisioned 122 single-family residences and 33 two-family residences, which would have added 188 households to the community. The modified land use plan for the site envisions a mix of residential, office, light industrial, and warehouse land uses. A total of 90 households would be added to the community in eight single-family residences and 41 two-family residences. The remaining land uses are expected to add approximately 185,000 square feet of office space; 230,000 square feet of manufacturing space; and 135,000 square feet of warehouse space to the community, or a total of approximately 550,000 square feet.

The land use plan change may be expected to result in an increase in traffic generation as the 65-acre parcel in residential land use may be expected to generate 1,900 vehicle trips per average weekday; the revised land uses, including office, industrial, and warehousing uses, may be expected to generate 5,000 vehicle trips per average weekday. This increase in traffic generation as a result of this change in the city land use plan may not be expected to increase traffic on the study segment of Washington Avenue (STH 57). Traffic generated by the land parcel and travel to and from the north on Washington Avenue (STH 57) may be expected to use, principally, Lincoln Boulevard to travel to and from the parcel. Traffic generated by the land parcel and traveling to and from the south on Washington Avenue (STH 57) may be expected to use, principally, Pioneer Road to travel to and from the parcel. Therefore, it is not anticipated that the modified land use plan will add substantially more trips to the study segment of Washington Avenue (STH 57) in comparison to the original land use plan. Alyce Street will be the only access point to and from this parcel to Washington Avenue (STH 57) between Lincoln Boulevard and Pioneer Road.

The principal traffic impact expected because of this change in the land use plan results from the substantially greater peak-hour trip generation characteristics of the modified land use plan compared to the original land use plan. While few of the 910 total vehicle trips estimated to be generated during the peak hour are expected to use the study segment of Washington Avenue (STH 57), it is estimated that 145 vehicle trips and 365 vehicle trips will enter the intersections at Lincoln Boulevard and Pioneer Road (CTH C) respectively. Sixty-five percent of these trips, or 95 trips and 235 trips, are expected to use the eastbound approach of the respective intersections during the evening peak hour. The remaining 50 trips and 130 trips are expected to utilize the other approaches at the respective intersections. Thus, it may be anticipated that exclusive left-turn lanes will be necessary on the eastbound approach of the intersection of Lincoln Boulevard and Washington Avenue (STH 57) and the northbound approach of the intersection of Pioneer Road (CTH C) and Washington Avenue (STH 57). In addition, traffic signal phasing changes may be warranted at these intersections as development of the site occurs.

Roadway Improvement Alternatives

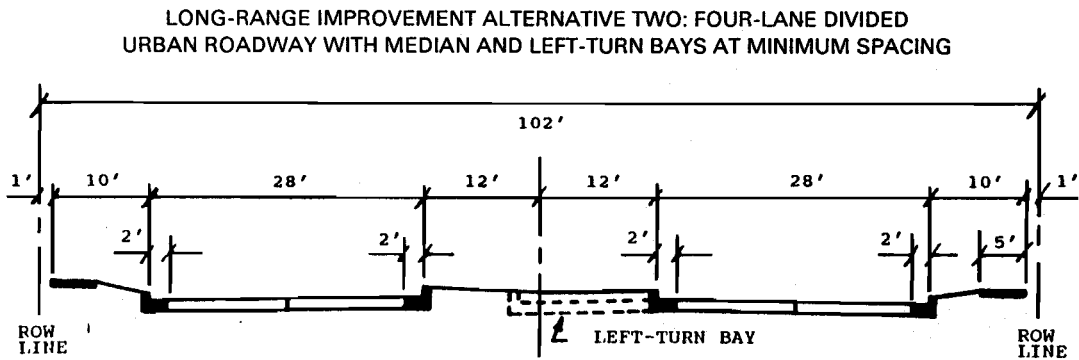
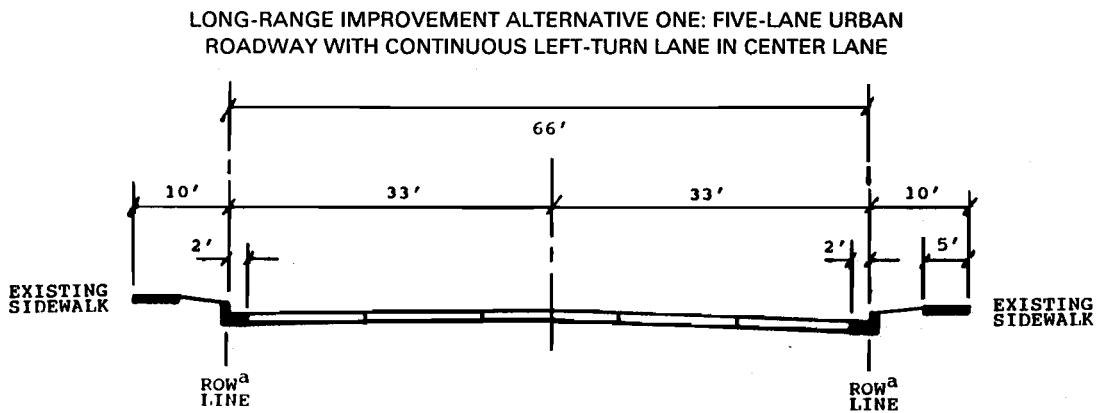
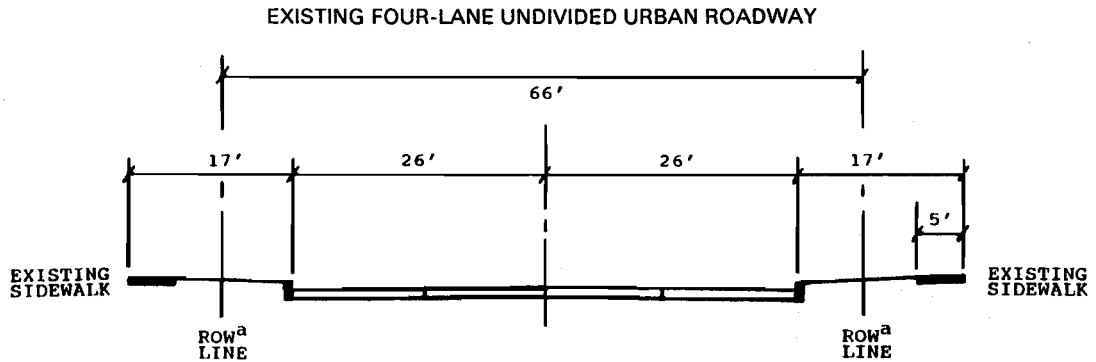
Two major roadway improvement alternatives were considered. The first alternative roadway improvement considered was a five-lane roadway with a 14-foot-wide fifth lane in the center of a 62-foot-wide roadway, as shown in Figure 15. The second alternative roadway improvement considered was a four-lane divided highway with a 24-foot-wide median and twin 24-foot-wide roadways, as shown in Figure 15. Each of these alternative roadway improvements would provide the required two lanes for travel in each direction. Parking would be prohibited on Washington Avenue (STH 57) over the study segment under both of the alternatives.

Five-Lane Roadway Improvement Alternative:

This alternative roadway improvement would provide two traffic lanes in each direction, with a fifth lane located between the northbound and southbound travel lanes to be utilized as a continuous two-way left-turn lane with a typical design capacity of about 19,000 vehicles per average weekday. Warrants for construction of a fifth lane for left-turning maneuvers include highway volumes in excess of 10,000 vehicles per average weekday; highway speeds in excess of

Figure 15

EXISTING AND PROPOSED ROADWAY CROSS-SECTIONS



^a The minimum right of way on the study segment of Washington Boulevard--STH 57--is 66 feet, and the maximum right of way is 120 feet.

Source: SEWRPC.

30 miles per hour; 60 or more driveways per mile, but fewer than 10 of which carry a high volume; and left-turn driveway maneuvers which constitute 20 percent of the through volume during the peak traffic flow. Five-lane roadways are typically utilized in areas of strip commercial development, where a divided roadway improvement would eliminate direct access from one direction of traffic to nearly all development on the opposite side of the roadway and, therefore, result in substantial U-turn traffic.

The study segment of Washington Avenue (STH 57) meets the warrants for construction of a two-way left-turn lane as a fifth traffic lane. The existing traffic volumes on the study segment of Washington Avenue (STH 57) are in excess of 17,000 vehicles per average weekday. The 85th percentile speed on the study segment is 37 miles per hour, and there are in excess of 30 driveways on the half-mile study segment. Left-turn movements represent at least 20 percent of the total traffic volume on the study segment, based on traffic counts at selected driveways.

The advantages of a continuous two-way left-turn lane are the reduction in traffic congestion and delay and improvement in traffic safety resulting from the removal of left-turning vehicles from the traffic stream. The fifth lane provides an area for deceleration and storage of left-turning vehicles entering driveways, as well as an acceleration area for vehicles exiting driveways along Washington Avenue (STH 57) prior to entering the through traffic stream. Another advantage of this alternative roadway improvement is that construction of the roadway could be accomplished largely within the existing right-of-way, as shown in Figures 15 and 16. It would, however, result in a significantly narrower curb lawn than currently exists. The principal disadvantage is the difficulty pedestrians will have in crossing the very wide pavement; its width will be compounded by the center lane, which will carry traffic in both directions. In addition, the very wide pavement will not be visually appealing. The estimated construction cost of a five-lane roadway improvement for the study segment is \$1.1 million.

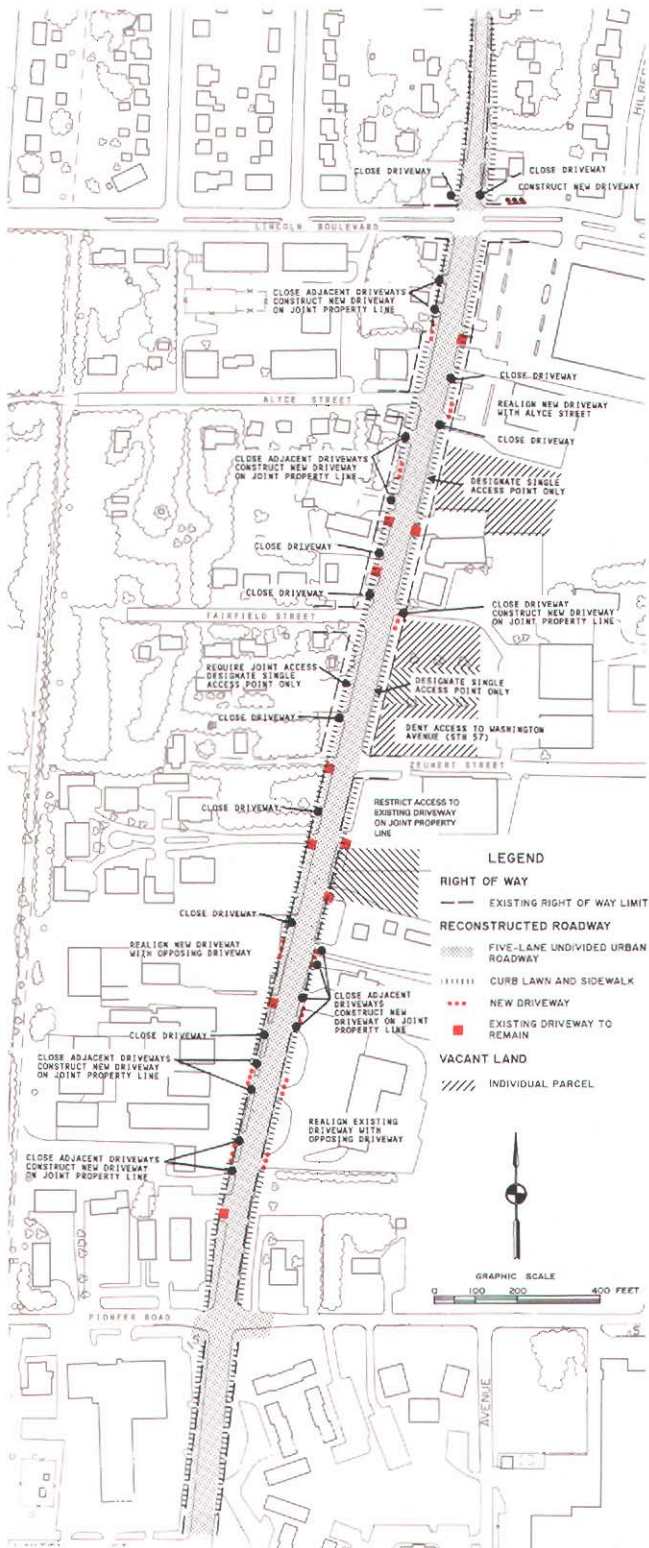
Four-Lane Divided Roadway Improvement Alternative: The other roadway improvement alternative which should be considered is a four-lane divided roadway. The design capacity of a four-lane divided roadway is 25,000 vehicles per

average weekday. Therefore, it may be expected to provide sufficient capacity for existing and future travel demand on the study segment. This alternative would minimize conflicts between through traffic and left-turning vehicles, reducing traffic congestion and delay and improving traffic safety. Left-turn bays provided at each median opening would remove left-turning vehicles from the through traffic stream. Also, each median opening would provide refuge for motorists making left turns as they exit driveways, permitting them to utilize gaps in the opposing traffic stream rather than waiting for a gap in the entire traffic stream. Left-turn bays would also be provided on the northbound and southbound approaches to Lincoln Boulevard and Pioneer Road (CTH C).

There are a number of disadvantages to this alternative roadway improvement, however, with respect to access. Only five median openings may be expected to be provided between Pioneer Road (CTH C) and Lincoln Boulevard. Three of the openings would be located at the cross streets and the other two openings would be located between Pioneer Road (CTH C) and Zeunert Street. This is the maximum number of openings that may be provided to accommodate the absolute minimum spacing between such openings. As shown in Figure 17, the access to many abutting properties along the study segment of Washington Avenue (STH 57) would be eliminated from one traffic direction. Realignment and/or consolidation of selected driveways may resolve this problem for selected properties; however, most properties may only be reached by U-turns. Another disadvantage of this alternative roadway improvement is the need to acquire additional right-of-way. As shown in Figure 17, the roadway would exceed the available right-of-way on the south side of Lincoln Boulevard for a distance of approximately 225 feet, and would generally exceed the right-of-way available between Zeunert Street and Pioneer Road. In addition, provision of the transition from a two-lane roadway to a four-lane divided roadway north of Lincoln Boulevard would require the acquisition of right-of-way, since the right-of-way on Washington Avenue (STH 57) north of Lincoln Boulevard is only three rods, 49.5 feet, wide. South of Pioneer Road, the existing right-of-way between Concord Street and Pioneer Road ranges from 115 to 90 feet in width and would, therefore, require minimal new right-of-way to accommodate the transition from

Figure 16

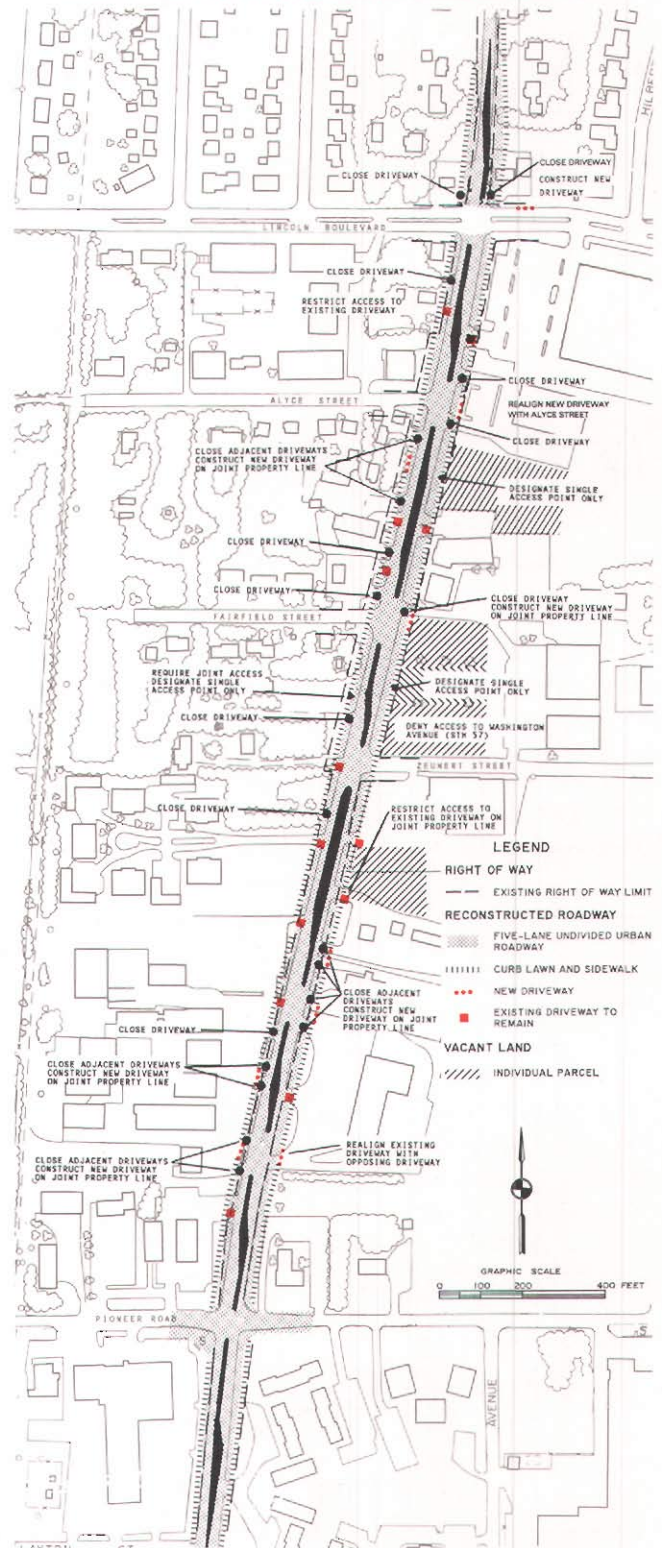
**LONG-RANGE IMPROVEMENT ALTERNATIVE ONE
FIVE-LANE UNDIVIDED URBAN ROADWAY WITH
CONTINUOUS LEFT-TURN LANE IN CENTER LANE**



Source: SEWRPC.

Figure 17

**LONG-RANGE IMPROVEMENT
ALTERNATIVE TWO: FOUR-LANE DIVIDED
URBAN ROADWAY WITH MEDIAN AND
LEFT-TURN BAYS AT MINIMUM SPACING**



Source: SEWRPC.

the existing cross-section to a four-lane divided urban roadway. The estimated construction cost of this four-lane divided roadway alternative is \$1.5 million.

Roadway Cross-Section Recommendations: The five-lane roadway alternative is recommended for implementation because it provides sufficient capacity to meet existing and future traffic demand and provides better access to the existing strip commercial development abutting Washington Avenue (STH 57) at a lower cost than the four-lane divided roadway. The recommended roadway improvement will reduce traffic congestion and delay and improve traffic safety by removing left-turning vehicles from the through traffic stream. A four-lane divided roadway will result in a substantial number of U-turns. The additional capacity of the four-lane divided roadway will not be required if the long-planned reconstruction of Wauwatosa Road (CTH N) between Mequon Road (STH 167) and STH 60 to provide four traffic lanes is implemented. Under the long-range regional transportation plan, jurisdictional responsibility for Wauwatosa Road (CTH N) should be transferred from Ozaukee County to the State of Wisconsin and, therefore, the State would be responsible for the reconstruction. Thus, it is also recommended that the City of Cedarburg work with Ozaukee County and the Wisconsin Department of Transportation to implement the jurisdictional transfer and the roadway reconstruction to provide four traffic lanes. It is also recommended that the City of Cedarburg manage the access to properties abutting the study segment to preserve arterial capacity. The following section identifies existing access problems and makes recommendations for each long-range roadway alternative considered consistent with the City of Cedarburg's adopted land use plan for the parcels abutting Washington Avenue (STH 57).

Access

Access management is a viable tool which may be utilized to preserve arterial capacity. Access along the study segment of Washington Avenue (STH 57) is currently unlimited and a degradation of its traffic-carrying capacity has resulted. The operational problems resulting from the provision of unlimited access include: 1) an increase in the number of vehicular conflict points in proportion to the number of driveways permitted; 2) a reduction in roadway capacity

caused by the temporary blockage of one of the two traffic lanes while a left-turning vehicle awaits a gap in opposing traffic of sufficient length to execute the maneuver; 3) the necessity for motorists to be cognizant of not only arterial street traffic and a single driveway, but of multiple driveways simultaneously; and 4) a potential for conflict between one motorist accelerating from one driveway and another motorist decelerating into an adjacent driveway.

The criteria in Table 2 were used to evaluate existing driveways and may be used by City of Cedarburg officials to review future access requests for properties abutting the study segment. Based on these criteria, there are an excessive number of driveways and a number of adjacent driveways with substandard spacing plus a number of driveways which are neither directly aligned nor situated with appropriate offsets. It may be anticipated that the existing access problems identified along the study segment will be exacerbated upon the development of the vacant parcels abutting the study segment and/or upon the redevelopment of other parcels, notably those currently in residential land use, abutting the study segment. Figure 18 shows the driveways which were identified as substandard along the study segment.

Additional traffic operational improvement may be gained through the relocation and/or consolidation of certain driveways along the study segment to provide either proper alignment with respect to opposing driveways or to ensure that proper spacing exists between driveways.

Two access plans were developed, one for each long-range roadway alternative considered. The access plan developed specifically for the staff-recommended five-lane roadway cross-section and the city-adopted land use plan which envisions all abutting properties in commercial uses are shown in Figure 16. This access control plan provides direct access to abutting properties on both sides of the study segment of Washington Avenue (STH 57) from both the northbound and southbound lanes of Washington Avenue (STH 57). Upon full implementation of this access plan, the access to properties abutting Washington Avenue (STH 57) will be in compliance with the criteria set forth in Table 2. The construction cost of implementing the driveway closures, consolidations, and realignments is estimated to be \$35,000.

Table 2

CRITERIA USED TO EVALUATE ACCESS ALONG STUDY SEGMENT OF WASHINGTON AVENUE (STH 57)

Access Element	Criteria																
Driveway Width	<ul style="list-style-type: none"> Without driveway channelizing island to separate ingress and egress, maximum 35 feet at the right-of-way line With driveway channelizing island to separate ingress and egress, range 16 to 24 feet for both ingress and egress separated by channelizing island four to 10 feet in width at right-of-way line 																
Driveway Location/Spacing	<ul style="list-style-type: none"> Spacing is variable, dependent upon speed limit <table> <tr> <th>Highway Speed</th><th>Minimum Centerline Driveway</th></tr> <tr> <td>20 mph</td><td>85 feet</td></tr> <tr> <td>25 mph</td><td>105 feet</td></tr> <tr> <td>30 mph</td><td>125 feet</td></tr> <tr> <td>35 mph</td><td>150 feet</td></tr> <tr> <td>40 mph</td><td>185 feet</td></tr> <tr> <td>45 mph</td><td>230 feet</td></tr> <tr> <td>50 mph</td><td>275 feet</td></tr> </table> Locate driveways at median openings or 150 feet from the nearest opening Locate driveway a minimum of three feet plus the return radius between the driveway and the abutting street from the property line^a The centerline of a single driveway shared by two adjacent properties should be located on the joint property line Upstream of an intersection, there should be a minimum of 10 feet between the end of the return radius between intersecting streets and the beginning of the return radius of the nearest driveway, but not less than 85 feet between the curb line of an intersecting street and the near side of the nearest driveway. Downstream of an intersection, there should be a minimum of 120 feet between the curb line of the intersecting street and the near side of the nearest driveway Directly aligned with an opposing driveway or the third leg of a three-legged intersection When opposing driveways are not directly aligned, the minimum offset between driveway centerlines should be 150 feet, with 300 feet desirable Properties shall be permitted a maximum of one driveway per property from each abutting street, except one additional driveway may be permitted for properties if the continuous frontage on one abutting street exceeds 300 feet; or two additional driveways if the continuous frontage on one abutting street exceeds 600 feet 	Highway Speed	Minimum Centerline Driveway	20 mph	85 feet	25 mph	105 feet	30 mph	125 feet	35 mph	150 feet	40 mph	185 feet	45 mph	230 feet	50 mph	275 feet
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Table 2 (continued)

Access Element	Criteria
Other Considerations	<ul style="list-style-type: none"> ● Left turns from a driveway within 200 feet of a major intersection should be prohibited ● Access should be consolidated whenever separate parcels are assembled under one purpose, plan, entity, or usage to increase the average spacing between adjacent driveways ● Access can be consolidated if adjacent property owners can be persuaded to construct joint-use driveways in lieu of separate driveways. The joint-use driveway shall be located on the centerline between adjacent properties ● Optimize driveway spacing between intersections or existing driveways; that is, driveway spacing should be as uniform as possible while meeting the spacing and number of driveways per property constraints identified above ● Deny access to small frontage if minimum driveway spacing constraints cannot be met ● Designate the number of driveways to existing properties and deny additional driveways regardless of future subdivision of the property ● Require access on intersecting street (when available) in lieu of additional driveways on primary street ● Driveway design should provide a throat with a minimum of 50 feet for vehicular storage in which no conflicting maneuvers are possible ● If opposing driveways are offset, the relative positions of the driveways should provide for left-turn egress to right-turn ingress

^aThe return radius should range between 20 and 40 feet.

Source: SEWRPC.

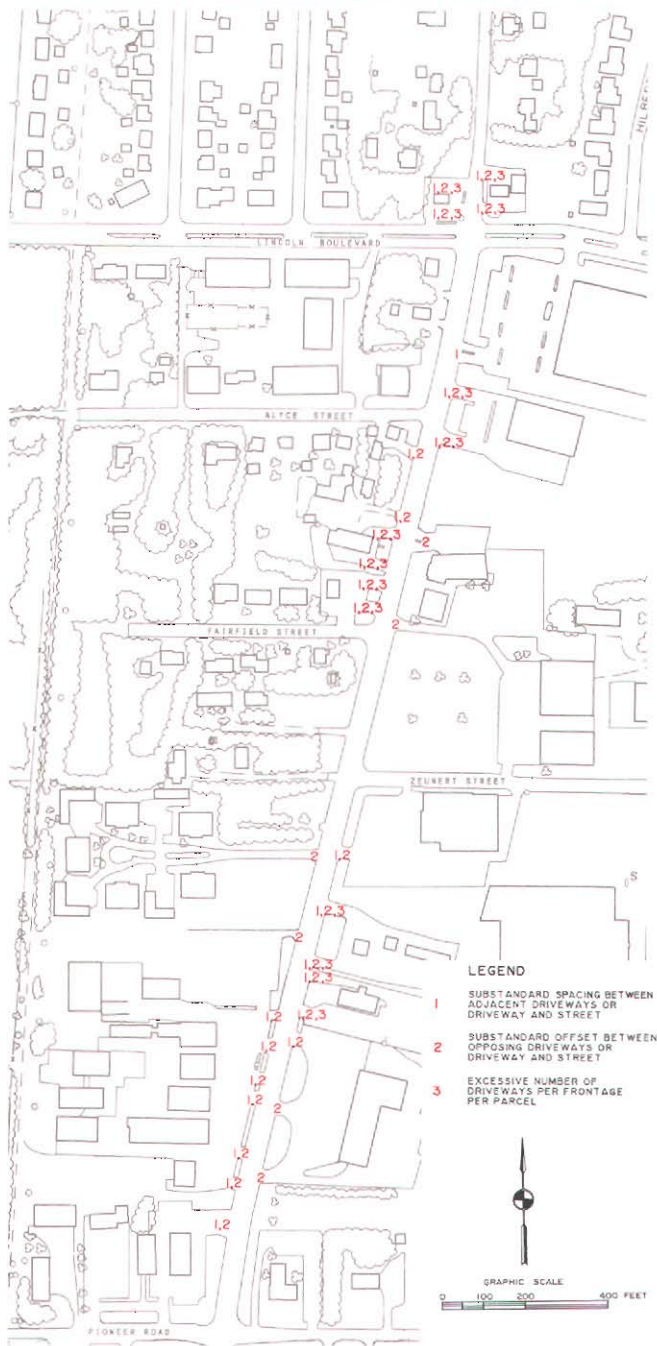
A second access plan for the four-lane divided roadway alternative was developed and is shown in Figure 17. It should be noted that, in order to achieve compliance with the criteria set forth in Table 2, nearly all the access recommendations made with respect to the five-lane roadway cross-section are included in the access plan developed for the four-lane divided roadway alternative. This reflects the need to provide proper driveway spacing even though direct left turns into and out of the driveways are eliminated by the median at as few as 17 driveways when the access plan is fully implemented, or at as many as 25 existing driveways. Proper driveway spacing remains essential to reduce

the area of overlap between deceleration for right turns into and acceleration for right turns out of adjacent driveways. The construction cost of implementing the driveway closures, consolidations, and realignments under this access plan is estimated to be \$31,000.

It is anticipated that, regardless which roadway cross-section and attendant access plan is selected, the access changes would be phased in over time as development occurs on vacant parcels, as existing residences are converted to commercial uses, and as existing commercial properties are expanded or redeveloped. It is also recommended that city officials, in the interim,

Figure 18

**LOCATION AND IDENTIFICATION OF EXISTING
POTENTIAL ACCESS PROBLEMS ON THE STUDY
SEGMENT OF WASHINGTON AVENUE (STH 57)**



Source: SEWRPC.

work with the owners of abutting properties to secure their cooperation in closing, consolidating, and realigning selected driveways as recommended by these plans.

These plans are based on the existing level of commercial development and the anticipated conversion of existing vacant land and residences to commercial purposes. However, not every potential development or redevelopment proposal can be anticipated and, therefore, each plan should be considered as a point of departure against which the provision of access for future development or redevelopment can be evaluated, depending upon the ultimate roadway cross-section. Thus, as plans for development are proposed, city officials should compare the proposed access to both the recommended access plan and the criteria in Table 2 to ensure that the proposed access complies with or improves upon the plan.

PUBLIC REACTION TO THE PLAN

The findings and recommendations of the traffic study for Washington Avenue (STH 57) between Lincoln Boulevard and Pioneer Road (CTH C) were presented at two public informational meetings. The first such meeting was held on July 26, 1989, at City Hall in Cedarburg, Wisconsin, to brief City of Cedarburg Chamber of Commerce members whose businesses would be directly impacted by recommendations contained in the study, and to provide the businessmen concerned and opportunity to ask questions about, and to comment on, the proposed plan. The second such meeting was held on July 31, 1989, at the City Hall in Cedarburg, Wisconsin, to brief public officials and interested citizens regarding the findings and recommendations of the traffic study, and to provide an opportunity to ask questions about, and comment on, the proposed traffic management plan.

At these meetings, concern was expressed about existing and future traffic problems on this stretch of Washington Avenue (STH 57) and a need was expressed to implement improvements in both the short and long range, including those recommended in the recommended plan. The need to address the question of access to be provided to abutting properties as such properties are developed and redeveloped was particularly cited. In addition, representatives of a number of existing businesses expressed concerns over, and opposition to, certain of the specific recommendations with respect to access contained in the plan, and some suggested additional alternatives for consideration. These access concerns and suggested new alternatives

Table 3

**ADDITIONAL ALTERNATIVES SUGGESTED AND CONCERNS EXPRESSED
WITH RESPECT TO LONG-RANGE ACCESS MANAGEMENT PLANS^a**

<p><u>Concerns</u></p> <ul style="list-style-type: none"> ● Gas delivered to Union 76 station by tractor-trailer truck must use south driveway to enter; therefore, do not close ● Supplies delivered to Cedarburg Dry Cleaners by tractor-trailer trucks use south driveway; 60 to 70 percent of customers use drive-through window; therefore, do not close driveway ● Stock delivered to Schnapps House by tractor-trailer trucks; therefore, do not close driveway ● Echo Plaza constructed on two parcels of land and the northern parcel has only a single driveway; therefore, northern driveway cannot be closed
<p><u>Additional Alternatives</u></p> <ul style="list-style-type: none"> ● Relocate Schnapps House driveway south ● Consolidate Union 76 north driveway and Cedarburg Dry Cleaners south driveway ● Consolidate Cedarburg Dry Cleaners north driveway and private residence driveway to north ● Convert Community Printing and Schnapps House driveway to one-way operation ● Close driveway to Vinyl Impressions ● Convert Community Printing and Schnapps House driveways

^aMany of the driveways listed in this table are shown in Figure 13, including Vinyl Impressions (Driveway No. 5); Schnapps House (Driveway No. 6); and Community Printing (Driveway No. 7).

Source: SEWRPC.

are listed in Table 3. Additional alternatives were also listed regarding the traffic engineering and highway improvements recommended in the plan by public officials, representatives of businesses, and citizens. These are listed in Table 4.

Access Plan Element

With respect to the element of the plan which addresses access and recommends driveway closures, consolidations, and new driveway locations, it is important to note that the plan provides these recommendations as proposals to be implemented in the long term, with respect to the access to be provided to both new development and redevelopment. It is intended to serve as a guide for city officials for use in the review of new access proposed by developers for existing vacant land proposed for development and for existing development proposed for redevelopment. The long-range access plan is based upon

accepted driveway spacing standards necessary to promote traffic safety and efficiency. The long-range access plan is based upon the changes in land use proposed in the city land use plan.

It is important to recognize that the long-range access plan does not recommend immediate changes in any access to existing development but, rather, proposes the new access to be considered for provision upon development of a vacant parcel and redevelopment of an existing parcel, such as conversion from residential land use to a commercial land use.

Mr. Richard N. Hamilton, owner-operator of the Schnapps House, indicated to staff that he had reviewed the proposed access plan with the owners of the businesses on the west side of Washington Avenue (STH 57) from his business south to Pioneer Road. He indicated that reaction was favorable to the consolidation of

Table 4

ADDITIONAL ALTERNATIVES SUGGESTED AND CONCERNS EXPRESSED AT PUBLIC INFORMATIONAL MEETINGS WITH RESPECT TO TRAFFIC ENGINEERING AND HIGHWAY IMPROVEMENT PLAN ELEMENT

Additional Alternatives
<p><u>Additional Alternatives</u></p> <ul style="list-style-type: none"> ● Reduce Washington Avenue speed limit ● Synchronize Washington Avenue traffic signal red indications at Pioneer Road and Lincoln Boulevard ● Prohibit right turns on red for eastbound Lincoln Boulevard and westbound Pioneer Road at Washington Avenue ● Install traffic signal at Zeunert Street ● Install crosswalk at Zeunert Street with signing and flashing lights ● Construction of service/frontage roads on Washington Avenue ● Consider three-lane roadway alternative (one traffic lane in each direction and a two-way left-turn lane)
<p><u>Concerns</u></p> <ul style="list-style-type: none"> ● Traffic safety of proposed five-lane roadway ● Need to modify zoning ordinance to permit recommended consolidated driveways ● Need for Wisconsin Department of Transportation review of traffic signal timing and phase changes ● Loss of parking and access if south driveway to Dairy Queen is closed; customers lining up at windows extend to sidewalk, inhibiting internal circulation

Source: SEWRPC.

Driveways No. 2 and 3, and the consolidation of Driveways No. 4 and 5. The location of these driveways and the businesses that they serve is shown in Figure 13. Indeed, Mr. Hamilton indicated that there seemed to be sufficient interest to implement the driveway consolidation recommended in the near term, rather than waiting until a specific parcel was developed. This represents a departure from the staff-recommended access plan in that that plan envisioned implementation of these driveway consolidations when the parcels served by these driveways were redeveloped.

Mr. Hamilton objected to the closure of Driveway No. 6 because it is necessary to allow

deliveries to the rear of his business by tractor-trailer trucks. It should be noted that this particular closure was recommended to reduce the number of northbound left-turn maneuvers in the area of the study segment with the greatest number of accidents. A disadvantage of this alternative is the inaccessibility to tractor-trailer trucks of the rear of the parcel on which the Schnapps House building is located. The closure of Driveway No. 6 would not occur unless Mr. Hamilton voluntarily concurred with that recommendation, or at such time as redevelopment of the parcel was being proposed, although the problem may potentially be alleviated by modification of the existing parking lot-building layout. For example, access could be provided

from Driveway No. 7 to Driveway No. 6 at the rear of the Schnapps House building. Mr. Hamilton has indicated that this would necessitate a degree of cooperation between owners of abutting properties which is not currently enjoyed.

Mr. Hamilton suggested that the driveway serving the Schnapps House, Driveway No. 6, be moved to the south to align directly with the alley between the building on his property and the building on the property to the south. It should be noted that such an alternative would result in inadequate spacing between adjacent driveways, as well as inadequate offsets between driveways on the east side of the roadway and driveways on the west side of the roadway, and, therefore, this alternative should not be adopted. It should be reiterated that no change in the existing access would occur until such time as properties abutting Washington Avenue (STH 57) are either developed or redeveloped, or until such time as the property owners would voluntarily implement the access control measures recommended.

Another alternative suggested was that Driveway No. 5 be closed, given its proximity to Driveway No. 4, without regard to possible consolidation with Driveway No. 4 on the joint property line. The centerline-to-centerline spacing between these driveways is approximately 45 feet, which is substantially less than the desired centerline-to-centerline distance of 150 feet. Closure of this driveway without the concurrent consolidation with Driveway No. 4 and location of the consolidated driveway on the joint property line would, however, leave the businesses on the parcel of property served by Driveway No. 5 without direct access to Washington Avenue (STH 57), relying on the good will of the owners of abutting property for access via a driveway from an adjacent property. The advantages of this alternative include the elimination of the driveway which is currently located too close to adjacent driveways on either side and the improvement of traffic safety in the vicinity of Driveway No. 5. The potential disadvantage of this driveway closure is the possibility of unilateral revocation of access rights via a common driveway by the owner of an abutting property. Thus, the consolidation of Driveways No. 4 and 5 on the joint property line between the parcels to which these driveways provide access should continue to be recommended.

Mr. Gus W. Wirth noted that the Echo Plaza Shopping Center is constructed on two parcels of

land. The northern parcel has a single driveway, which Mr. Wirth contends should not be closed as recommended by the staff in the long range. The staff notes that the recommended closure would be done in conjunction with consolidation of an adjacent driveway on the property to the north, with the joint driveway located on the common property line. Thus, direct access would be retained to the northern parcel of the shopping center, even under the staff recommendation. It must further be noted that there is an existing 25-foot-wide driveway easement centered on the subject joint property line which guarantees access via a consolidated driveway. Finally, the staff reiterates that modifications to access would not occur until there is redevelopment or until there is voluntary agreement to implement the recommended changes.

Mr. Colin van Sluys, owner of Corky's Union 76, Inc., expressed concern over the recommendation to close the southern driveway into his business because this driveway is utilized for the delivery of gasoline products by tractor-trailer trucks. He expressed concern over rerouting these deliveries into the northern driveway because the trucks would then drive over the underground storage tanks, and he is uncertain as to the structural integrity of the storage tanks under such heavy loads. Delivery via the driveway located on Fairfield Street is difficult because of the lack of maneuverability of the delivery vehicle and the relative location of the receptacles for off-loading gasoline from the tanker to the ground storage tanks. Thus, Mr. van Sluys contended that the southern driveway from Washington Avenue (STH 57) cannot be closed. Again, it should be noted that there is no change recommended in the current access to this property. The access changes are proposed for consideration only at such time as the property may be redeveloped.

Mr. Ronald Semmann expressed concern over the recommendation to close the southern driveway into the Cedarburg Dry Cleaner property. He noted that approximately two-thirds of his customers utilize the business's drive-through window and must be able to enter the property via the southern driveway and exit via the northern driveway. He also stated that, approximately once a week, deliveries are made by a tractor-trailer truck into the southern driveway. He noted that such deliveries would not be possible if the southern driveway were closed. Once again, it

should be noted that there would be no change in the existing access to this property until such time as it may be redeveloped.

After the public informational meeting, the Commission staff met with Mr. van Sluys and spoke by telephone with Mr. Semmann to discuss the plan recommendations. An alternative driveway treatment was suggested which would involve consolidation of the northern driveway into the Union 76, Inc., property and the southern driveway into the Cedarburg Dry Cleaners property on the joint property line. The advantage of this alternative would be to eliminate one of a pair of driveways which is currently located approximately 40 feet apart. The consolidated driveway would be located approximately 25 feet further north, thus reducing the offset between the consolidated driveway on the west side of Washington Avenue (STH 57) and the driveway serving the Mutual Savings Bank just to the north on the east side of the roadway. Although this alternative would represent a substantial improvement over the existing access with respect to these two properties, it would be less desirable than the access proposal in the plan because the consolidated driveway would be moved closer to a driveway to the north on the east side of the roadway. Once again, it should be reiterated that no change in access is proposed until such time as these properties are redeveloped or until such time as these property owners voluntarily implement changes.

A suggestion was also made to consolidate the northern driveway serving the Cedarburg Dry Cleaners property and the driveway serving the Edwin C. Filter residence immediately to the north. Such driveway consolidation would represent an improvement in the existing access to these parcels. However, the consolidated driveway would be offset from the driveway serving the Mutual Savings Bank on the east side of W. Washington Avenue (STH 57), whereas the existing northern driveways serving the Cedarburg Dry Cleaners property is directly aligned with the driveway on the east side of W. Washington Avenue (STH 57) serving the Mutual Savings Bank. Thus, a consolidated driveway would, in fact, be between the Mutual Savings Bank driveway and the plan-recommended access point to a vacant parcel immediately north of the Mutual Savings Bank property on the east side of Washington Avenue (STH 57) and would not be properly offset from either the

Mutual Savings Bank driveway or the access point designed for this vacant parcel. In this respect, it should be noted that the Commission staff was asked to review a development proposal for this vacant parcel and has recommended a driveway be located to conform with the access location identified on the proposed plan. Therefore, even though consolidation of these two driveways would represent an improvement in the access in this area, the Commission staff does not recommend it at this time. Once again, it should be reiterated that access changes proposed for these parcels would not occur until such time as the parcels were redeveloped or until such time as the property owners voluntarily agree to implement the recommended changes.

It should be noted that there is also a short-range access plan which recommends changes in access proposed to be implemented in the short term. These changes are proposed only with respect to the high-accident stretch of Washington Avenue (STH 57) between Pioneer Road (CTH C) and Zeunert Street. The changes do not propose any driveway closings, consolidations, or relocations. Only selected turn restrictions are recommended for implementation to improve traffic safety. There was one concern expressed at the public meeting regarding those short-range access plan proposals. Mr. Elroy Bruss, owner of Community Printing, Inc., objected to the recommendation that northbound left turns be prohibited into Driveway No. 7, which provides access to his business. Mr. Bruss stated that deliveries were made to this business by tractor-trailer trucks and that, therefore, a northbound left turn from Washington Avenue (STH 57) into his property could not be prohibited. The Commission staff, in proposing the ban on northbound left turns at this driveway, did note that access to Mr. Bruss's property would be impaired. However, the existing access to the driveway remains for southbound Washington Avenue (STH 57) traffic. Indeed, full access to the property is maintained, although it may be necessary for a tractor-trailer truck making a delivery to the property and approaching the property from the south on Washington Avenue (STH 57) to approach circuitously by heading east on Pioneer Road (CTH C) to Cardinal Avenue, turning left onto Cardinal Avenue and proceeding northerly to Zeunert Street, turning left again on Zeunert Street to Washington Avenue (STH 57), turning left once more and

proceeding southerly to the property. The plan as proposed does not recommend any changes in egress at this driveway and, therefore, anyone leaving the site may turn either left or right out of the driveway. It should be further noted that automobiles proceeding northbound on Washington Avenue (STH 57) would be able to turn left at Driveway No. 6, proceed through the contiguously paved parking lots between Driveways No. 6 and 7, and enter the property in that manner. The locations of these driveways and the businesses they serve are shown in Figure 13.

Thus, the net impact of prohibiting left turns for northbound Washington Avenue (STH 57) traffic at this driveway is to force tractor-trailer trucks to utilize a more circuitous route than they currently utilize if they approach the property from the south initially. The advantage of prohibiting northbound left turns at this driveway is to reduce the number of turning movements and, therefore, the number of vehicular conflicts in the vicinity of Driveways No. 7, 30, and 31. The locations of these driveways and the businesses they serve are shown in Figure 13. It should be noted that this particular area is the location of the greatest number of accidents within the study segment. It should also be noted that, upon implementation of the long-range access plan, Driveways No. 30 and 31 would be consolidated and that, once consolidation had been implemented, it would be possible to reinstate the northbound left turn into Driveway No. 7 from Washington Avenue (STH 57). Finally, the staff-recommended revisions in short-term access are envisioned to be implemented only with the agreement and cooperation of the owners of impacted property.

Traffic Engineering and Highway Improvement Plan Element

It was suggested that consideration be given to synchronizing the red indications at the signalized intersection of Lincoln Boulevard and Pioneer Road (CTH C) and to prohibiting right turns on red as a means of providing additional gaps in the traffic stream on Washington Avenue (STH 57) to facilitate turning movements into and out of driveways along the study segment. Given the spacing between Lincoln Boulevard and Pioneer Road (CTH C) of approximately one-half mile, the number of driveways along the study segment and the unsignalized intersecting public streets, it may be expected that any impact of synchronized red signals on

increasing the number and length of gaps would be minimal. Moreover, the suggested synchronization of red signals would have the potential of increasing delay for Washington Avenue (STH 57) traffic and Pioneer Road traffic. The cross-street volumes on Pioneer Road (CTH C) are twice as high as the average weekday traffic volumes on Lincoln Boulevard. Thus, if the duration of the red signals is timed to reflect traffic at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard, the Pioneer Road (CTH C) approaches would not receive sufficient green time to accommodate the existing average weekday traffic volumes, and motorists on the Pioneer Road (CTH C) approaches would experience unnecessary delay. Conversely, if the red signal timings were designed to reflect the cross-street average weekday traffic on Pioneer Road (CTH C), traffic on Washington Avenue (STH 57) at Lincoln Boulevard would receive significantly less green time than currently and, as a result, would experience unwarranted increased delay.

Also, it should be noted that the traffic signal operation at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard is traffic-actuated to minimize the overall delay incurred at the intersection. As a result of the traffic actuation, the amount of red time on any of the approaches at the intersection is variable, dependent on the actual traffic volumes. This variability is essential to the efficient movement of traffic on Washington Avenue (STH 57). The Commission staff does not recommend synchronization of the red signal indications on Washington Avenue (STH 57) at the intersections of Lincoln Boulevard and Pioneer Road (CTH C). However, the prohibition of right turns on red from the westbound approach of Pioneer Road (CTH C) and the eastbound approach of Lincoln Boulevard may be expected to provide additional gaps in the traffic stream at those driveways located near the traffic signals, and may be expected to have minimal impact on traffic movement and delay at the intersection. Therefore, it is recommended that the City of Cedarburg install regulatory signage on the westbound approach at the intersection of Pioneer Road (CTH C) with Washington Avenue (STH 57) and the eastbound approach of Lincoln Boulevard to Washington Avenue (STH 57) to prohibit right turns on red, at an estimated cost of \$200.

It was suggested that consideration be given to installation of traffic signals at the intersection of Washington Avenue (STH 57) and Zeunert Street. The Commission staff conducted 24-hour average weekday traffic counts over a three-day period in September 1989. Based on these traffic counts, it was determined that the traffic volume on the Zeunert Street approach, 1,280 vehicles per average weekday, is insufficient to warrant the installation of traffic signals at this intersection at this time. The installation of traffic signals would substantially increase delays to traffic on Washington Avenue (STH 57) and may be expected to increase the number of accidents.

It was suggested that consideration be given to installing a pedestrian crosswalk across Washington Avenue (STH 57) at its intersection with Zeunert Street, particularly in view of the re-opening of the Westlawn School for the elementary grades. Accordingly, the Commission staff conducted a special pedestrian and vehicular traffic counts to evaluate the need for a pedestrian crosswalk at this location. The counts indicated that, on a typical weekday during the school year, seven pedestrian crossings of Washington Avenue (STH 57) may be expected at its intersection of Zeunert Street between 8:00 a.m. and 5:00 p.m. None of the pedestrians observed was under the age of 13; three were between 13 and 60 years of age; and four were over 60 years of age. Gaps in the traffic stream were also measured between 8:00 a.m. and 9:00 a.m., 11:30 a.m. to 12:30 p.m., and from 3:30 p.m. to 4:30 p.m., which times correspond with beginning of the classes at Westlawn School at 8:55 a.m. and the end of classes, with kindergarten classes ending at 11:35 a.m. and the remaining classes ending at 3:35 p.m. The number of gaps exceeding 18 seconds, the minimum length of gap in traffic to permit pedestrians to cross Washington Avenue (STH 57) safely, was 12 between 8:00 a.m. and 9:00 a.m., two between 11:30 a.m. and 12:30 p.m.; and was two between 3:30 p.m. and 4:30 p.m. Although the number of gaps in the traffic stream adequate to permit a safe crossing of the roadway was insufficient, there were very few pedestrians. Based on the very low number of pedestrian crossings of Washington Avenue (STH 57) observed at this location, and since none of the pedestrians observed were students, it may be concluded that a pedestrian crossing to serve students is not warranted at this time. Moreover, Westlawn School is located north of Lincoln Boulevard.

Therefore, students residing south of Lincoln Boulevard and east of Washington Avenue (STH 57) should be directed to cross Washington Avenue (STH 57) at the trafficsignalized intersection of Lincoln Boulevard and Washington Avenue (STH 57). Students living west of Washington Avenue (STH 57) or south of Pioneer Road (CTH C) are currently bused to school because of a lack of sidewalks along Pioneer Road (CTH C) and a lack of a safe place to cross the facility.

Concern was expressed about the impact of the five-lane roadway on traffic accidents. Available data indicate that implementation of a two-way left-turn lane is characterized by a decrease in accidents. Available data for 30 such roadway cross-sections indicated an annual reduction in total accidents of about 28 percent, as shown in Table 5. At the same time, traffic volumes on the 30 segments studied increased by 13 percent. In addition, the Commission staff gathered before-and-after accident data for five-lane roadways in the City of West Bend and the City of Rhineland. These data are summarized in Table 6. The traffic volumes on these segments ranged from about 13,500 to about 14,800 vehicles per average weekday. These data also indicate that implementation of a two-way left-turn lane may be expected to result in a decrease in traffic accidents.

It was suggested that, rather than widening the existing roadway, consideration be given to construction of frontage roads to provide access to abutting parcels and to separate through traffic from traffic with destinations along the study segment. Accepted design standards would require that the frontage road be 38 feet wide from curb to curb, with two traffic lanes and a 10-foot-wide parking lane. A frontage road should be separated from the existing curb line of Washington Avenue (STH 57) by at least 20 feet, except at those locations where the frontage road would intersect with local streets, which, in turn, would intersect with Washington Avenue (STH 57). At these locations, accepted design standards would recommend that the frontage road be separated from Washington Avenue (STH 57) by at least 150 feet. Construction of a frontage road would entail the closure of all Washington Avenue (STH 57) driveways to businesses where the frontage road is located within 20 feet of Washington Avenue (STH 57). Access to these businesses would be restricted to

Table 5

**ACCIDENT EXPERIENCE ON SELECTED ROADWAYS BEFORE AND AFTER CONSTRUCTION OF
FIVE-LANE ROADWAY SEGMENTS WITH CONTINUOUS TWO-WAY LEFT-TURN LANES IN CENTER LANE**

Accident Type		Total Accidents	Number of Roadways	Average Accidents per Roadway	Percent Reduction
Left Turn from Road	Before	130	14	9.29	36
	After	83	--	5.93	
Left Turn onto Road	Before	59	13	4.54	22
	After	46	--	3.54	
Left Turn on Road with Left Turn off Road	Before	174	18	9.67	36
	After	112	--	6.22	
No Left-Turning Vehicles	Before	187	21	38.90	38
	After	513	--	24.43	
Overall	Before	2,479	30	82.60	28
	After	1,788	--	59.60	

Source: *ITE Journal*, March 1985.

Table 6

**ACCIDENT EXPERIENCE ON SELECTED WISCONSIN ROADWAYS BEFORE AND AFTER CONSTRUCTION
OF FIVE-LANE ROADWAY SEGMENTS WITH CONTINUOUS TWO-WAY LEFT-TURN LANES IN CENTER LANE**

Facility		Three-Year Average Accident Frequencies		
		Intersection	Nonintersection	Total
STH 17	Before	4	5	9
	After	3	2	5
	Difference	1	3	4
	Percent reduction	25.0	60.0	44.4
USH 8	Before	8	12	20
	After	7	5	12
	Difference	1	7	8
	Percent reduction	12.5	58.3	40.0
Main Street	Before	5	29	34
	After	1	20	21
	Difference	4	9	13
	Percent reduction	80.0	31.0	38.2
Total	Before	17	46	63
	After	11	27	38
	Difference	6	19	25
	Percent reduction	35.3	41.3	39.7

Source: City of West Bend, Wisconsin Department of Transportation, and SEWRPC.

the frontage road. Further, construction of a frontage road would significantly reduce the amount of off-street parking available in front of the existing business places. Because 150 feet is required between the intersection of local streets with Washington Avenue (STH 57) and the intersection of the frontage roads with those local streets, the businesses on the parcels which abut the local streets at their intersection with Washington Avenue (STH 57) would have to be relocated. Therefore, the implementation of a system of frontage roads is not recommended.

It was noted at the second informational meeting that the current City of Cedarburg zoning ordinance does not permit the consolidation of driveways. Indeed, the existing zoning ordinance requires that driveways be located at least three feet from the lot line, except at the street end of the driveway approach, where driveways may be located within two feet of the lot line. Thus, the existing zoning ordinance would require amendment to permit the implementation of the recommended driveway consolidation. Comments were also made with respect to the potential width of consolidated driveways. Recommendations were made with respect to driveway width in Table 2 of this report. Specifically, it is recommended that driveways without a channelizing island to separate entrance from exit movements be limited to a maximum of 35 feet at the right-of-way line, and that driveways with a channelizing island to separate entrance from exit movements could range between 16 and 24 feet for both the entrance and exit sides, separated by a channelizing island four to 10 feet in width at the right-of-way line, for a total width of 36 to 58 feet.

A question was raised as to whether or not the Wisconsin Department of Transportation had the authority to review and approve or disapprove signal timing modifications and the addition of traffic signal cycle phases, or whether its authority is limited to the review of new traffic signal installations on connecting streets. The Department of Transportation's authority is dependent on the signal agreement entered into between the Department and the local municipality for a specific intersection. The more recent the agreement between the Department and the local municipality, the more likely that the agreement does not extend to review of signal timing or modifications, or the addition of new phases. The

existing signal agreement between the City of Cedarburg and the Wisconsin Department of Transportation provides the Wisconsin Department of Transportation with the right to review signal cycle timing modifications and the implementation of additional cycle phases.

A question was also raised as to whether or not sufficient traffic may be expected to be diverted from Washington Avenue (STH 57) to Wauwatosa Road (CTH N) to consider as an alternative to the proposed five-lane roadway improvement, consisting of four traffic lanes and a two-way left-turn lane, a three-lane roadway consisting of two traffic lanes and a two-way left-turn lane. It is important to note that traffic diversion may be expected to occur when Wauwatosa Road (CTH N) is reconstructed to a four-lane divided cross-section from STH 60 to Mequon Road (STH 167), as recommended in the long adopted regional transportation system plan. A three-lane roadway should be considered only if existing and forecast design year weekday traffic volumes are equal to or less than 13,000 to 16,000 vehicles per average weekday. The forecast year 2000 average weekday traffic volumes on this segment of Washington Avenue (STH 57) are 18,000 to 21,000 vehicles per average weekday. These traffic forecasts are made within the context of the adopted year 2000 regional land use and transportation plans, and assume implementation of the Wauwatosa Road improvement, as well as key nonarterial roadway improvements, such as the westerly extension of Lincoln Boulevard to Wauwatosa Road. Based upon the forecast year 2000 traffic volumes, a five-lane roadway alternative is required. The Commission staff has estimated that, under current conditions, the improvement of Wauwatosa Road to a divided four-traffic-lane cross-section may be expected to reduce traffic on this segment of Washington Avenue (STH 57) from between 17,400 to 20,400 to between 13,500 and 17,000 vehicles per average weekday. Thus, even if Wauwatosa Road (CTH N) were fully improved in the short term, a three-lane section on Washington Avenue (STH 57) would be marginally adequate, and a five-lane section would be desirable for traffic safety and efficiency. It may be noted that, if Lincoln Boulevard is not extended westerly from its present terminus to Wauwatosa Road, between 600 and 800 fewer vehicles per average weekday would be expected to be diverted from the study segment of Washington Avenue (STH 57). Thus, the

ability of a three-lane section to serve demand would be further reduced.

It should be noted that it would probably take at least several years to implement the improvement of Wauwatosa Road (CTH N) as the jurisdictional transfer of Wauwatosa Road (CTH N) from Ozaukee County to the Wisconsin Department of Transportation may first be required and the required preliminary and final engineering would need to be conducted, followed by right-of-way acquisition and construction. During those years, additional development and redevelopment of parcels abutting the study segment of Washington Avenue (STH 57) and in the remainder of the City of Cedarburg may be expected to occur. The three-lane alternative may be expected to have insufficient capacity to safely and efficiently carry the additional traffic generated by the land development and redevelopment. Thus, a three-lane roadway alternative would provide sufficient traffic-carrying capacity in the short and long range only upon the reconstruction of Wauwatosa Road (CTH N) to a four-lane divided roadway and if actions are taken by the City to substantially limit future land development and redevelopment within the City of Cedarburg and, in particular, with respect to those parcels abutting the study segment of Washington Avenue (STH 57).

The City requested that a cost estimate be prepared for a subalternative of the five-lane roadway alternative which would use 11-foot-wide rather than 12-foot-wide through traffic lanes. The subalternative would also differ in that the existing pavement would be widened by adding new pavement, approximately seven feet, to only one side of the existing roadway. The cross-section for this subalternative is shown in Figure 19. This alternative would utilize a substandard lane width of 11 feet, rather than the provision of the standard 12-foot width. Providing an 11-foot lane width rather than a 12-foot lane width results in approximately a 3 percent reduction in capacity per lane. It should be noted that, under this alternative, the face-of-curb on the east side of the facility would be as close to the existing sidewalk as the face-of-curb of the original five-lane roadway alternative would be on both sides of the facility. This new subalternative, however, would be less disruptive because construction would be limited to one side of the existing roadway. It is esti-

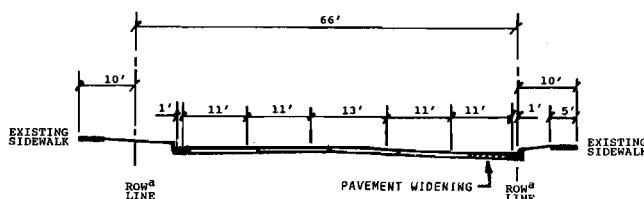
mated that construction of the seven-foot-wide strip of additional pavement and the necessary pavement marking and signing for the five-lane roadway improvement subalternative would cost approximately \$300,000. It should be noted that the estimated cost of the original five-lane alternative of \$1.1 million included the cost of reconstructing the existing roadway, as it assumed that roadway widenings would occur at the time of reconstruction.

A question was raised as to whether or not the five-lane roadway improvement alternative, through the provision of additional traffic-carrying capacity, may be expected to generate additional traffic not only on the study segment of Washington Avenue (STH 57) but on that portion of Washington Avenue (STH 57) immediately north of Lincoln Boulevard in the City of Cedarburg as well. The proposed new fifth lane would be limited to use by turning traffic and, thus, would not add an additional through traffic lane to the existing cross-section. As a result, the new fifth lane would not be expected to significantly increase the capacity of that existing cross-section. Rather, the fifth lane may be expected to improve traffic efficiency and safety by removing left-turning vehicles from the through traffic lanes. The improvement in traffic efficiency may be expected to result in a very modest increase in roadway capacity because left-turning vehicles would no longer completely block a through traffic lane while awaiting a gap in the opposing traffic stream. It should be noted that, if the five-lane roadway alternative identified above were to be implemented, the reduction in capacity caused by the narrower through lane widths would offset any nominal increase in capacity provided by the left-turn lane.

Also, it should be noted that the traffic-carrying capacity of the segment of Washington Avenue (STH 57) between Pioneer Road and Lincoln Boulevard is controlled primarily by the signalized intersections at each end of the segment. It may be expected that the design of a five-lane cross-section for Washington Avenue (STH 57) would provide for the section to be tapered on the approach to Lincoln Boulevard to match the existing four-lane cross-section at Lincoln Boulevard. Therefore, no increase in traffic-carrying capacity would be provided at the intersection of Lincoln Boulevard and Washington Avenue (STH 57) even if a fifth lane were provided between Pioneer Road and Lincoln Boulevard.

Figure 19

**LONG-RANGE IMPROVEMENT
ALTERNATIVE ONE: FIVE-LANE URBAN
ROADWAY WITH CONTINUOUS LEFT-TURN LANE
IN CENTER LANE, SUBALTERNATIVE ONE**



^a The minimum right of way on the study segment of Washington Boulevard--STH 57--is 66 feet; the maximum right of way is 120 feet.

Source: City of Cedarburg and SEWRPC.

It is important to note that, while the provision of a fifth lane may not be expected to generate additional traffic on Washington Avenue (STH 57), continued land development and redevelopment in accordance with the City's land use plan, particularly of those parcels abutting the study segment, will generate additional traffic on Washington Avenue (STH 57). However, if the regional transportation system plan is implemented as recommended, particularly with respect to the widening of Wauwatosa Road (CTH N) between Mequon Road (STH 167) and STH 60, planned Cedarburg area land development could occur and anticipated year 2000 traffic volumes on the study segment of Washington Avenue (STH 57) would remain at about existing levels and be within design capacity. Furthermore, it may be expected that the existing capacity and traffic safety problems on Washington Avenue (STH 57) north of Lincoln Boulevard caused by current traffic volumes of 15,000 to 16,000 vehicles per average weekday on a roadway segment with a design capacity of 13,000 vehicles per average would not be exacerbated, as year 2000 traffic volumes on this roadway segment would also be expected to remain at current levels.

It was suggested that the need be reconsidered for a separate left-turn phase on the northbound approach to the intersection of Washington Avenue (STH 57) and Lincoln Boulevard without an exclusive left-turn lane; and that the provision be reconsidered of an exclusive left-turn lane on the northbound approach at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard. The Commission staff accordingly, in September 1989, conducted another peak-period

turning-movement count at the intersection of Lincoln Boulevard and Washington Avenue (STH 57). The number of northbound left-turning vehicles counted remained fewer than 100 per hour, and the percentage of the total approach volume during the peak hour making the left-turn movement remained substantially less than 10 percent. Thus, the left-turning volume does not meet warrants for either an exclusive phase or an exclusive lane. Converting an existing lane to an exclusive lane or adding an exclusive left-turn phase, therefore, may be expected to increase delay at the intersection.

Existing peak-hour average vehicular delay at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard is estimated to be about seven seconds. The Commission staff also estimated the average vehicular delay during the peak hour under three alternate scenarios in which traffic movements from the left lane on the northbound intersection approach were restricted to left turns only and/or an exclusive left-turn phase was added to the traffic signal cycle. The first alternative scenario analyzed involved a modification to the existing traffic signal cycle, going from the current two-phase operation to a three-phase operation. Under this new method of operation, the first phase would provide a left-turn arrow along with a simultaneous green signal indication for northbound traffic only. This phase would be very short in duration; approximately six seconds of green indication. The two remaining phases would permit movements on the north- and southbound approaches and on the east- and westbound approaches, respectively. Under this alternative average delay for all vehicles entering the intersection would increase to approximately eight seconds per vehicle.

The second alternative examined was to restrict the left lane on the northbound approach to left turns only and the right lane to through traffic and right turns. The existing traffic signal timing and phasing was not altered under this scenario. The disadvantage of this alternative is a substantial increase in the average vehicular delay to more than 14 seconds per vehicle.

The final alternative considered was the designation of the left lane as an exclusive left-turn lane and a modification of the traffic signal cycle to include three phases, one of which would be a northbound left-turn arrow and simultane-

ous green signal indication for the northbound approach. This alternative would result in an increase in the average delay per vehicle at the intersection to more than 15 seconds.

Thus, because the number of left turns does not warrant an exclusive left-turn lane and because all three additional alternative scenarios considered would result in additional traffic delay at the intersection, the Commission staff continues to recommend that no change in the traffic signal cycle be implemented at this intersection based on existing conditions.

Mr. Robert Sauer expressed concern over potential change in parking lot circulation resulting from the proposed closure in the short range of the southern driveway into the Dairy Queen property. He noted specifically the potential loss of two parking spaces the potential increase in pedestrian/vehicular conflicts between customers queued at the building and vehicles entering and leaving the parking lot. This change in access was recommended as an essential part of providing sufficient taper length for northbound vehicles to merge from two lanes to one lane at the intersection of Washington Avenue (STH 57) and Lincoln Boulevard. The Dairy Queen building is located approximately 33 feet west of the sidewalk on Washington Avenue (STH 57). This area currently has two marked parking stalls, shown in Figure 20, and serves as storage for customers queued at the service windows. The location of these stalls and the existing unlimited internal vehicular circulation patterns create a potential for pedestrian/vehicular conflicts today. Closure of the southern driveway would permit relocation of one of these parking stalls into the area of the vacated driveway. Closure of that driveway would require that vehicles use the area between the Dairy Queen and Washington Avenue (STH 57) for internal circulation, which would potentially increase the number of pedestrian/vehicular conflicts, depending upon the size of the customer queue. A simple barrier system could be constructed which would define a customer queueing area separated from vehicular traffic and which may be expected to alleviate this problem. One potential barrier system, constructed of posts linked by chain or rails, is shown in Figure 20. Thus, the recommendation to close the driveway could be implemented without the loss of parking spaces and without degradation of pedestrian customer safety.

Figure 20

EXISTING DAIRY QUEEN PARKING LOT TRAFFIC PATTERNS: 1988

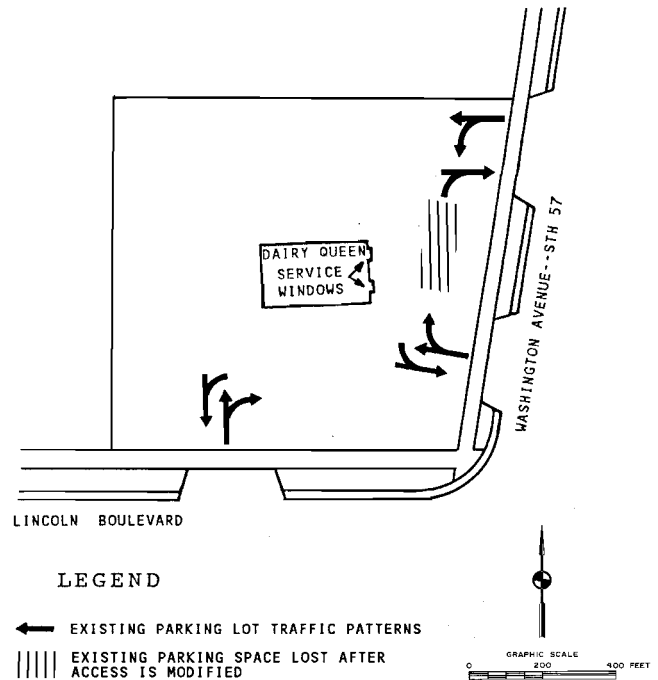
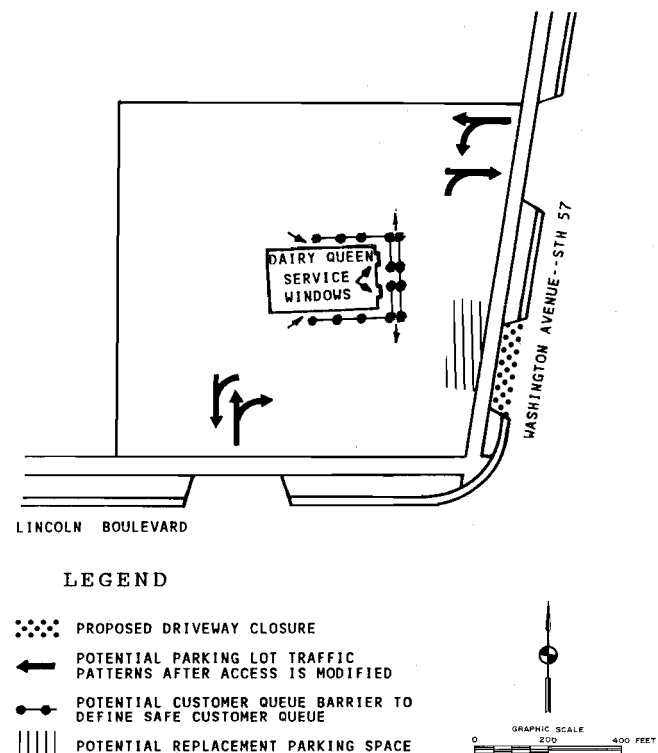


Figure 20 (continued)

POTENTIAL DAIRY QUEEN PARKING LOT TRAFFIC PATTERNS FOLLOWING IMPLEMENTATION OF RECOMMENDED DRIVEWAY CLOSURE



At the request of City of Cedarburg officials, the Commission staff contacted those property owners whose land abuts the study segment of Washington Avenue (STH 57) and who would be impacted by the recommended long-range access plan via a letter. The letter identified not only the proposed access modifications for each driveway, but the recommended short-range traffic engineering actions and the long-range highway improvements as well. Each impacted property owner was invited to contact the Commission staff with questions or concerns regarding the recommendations. A copy of the letter is found in Appendix B. This letter generated a single response, which came from Mr. Edwin C. Filter, owner of the property located at W62 N263 Washington Avenue. Mr. Filter noted that his property is not solely residential, as identified by the Commission staff, but is also the site of a business. He further stated opposition to the proposed relocation and consolidation of the access serving his property. A copy of Mr. Filter's letter is shown in Appendix C.

On January 17, 1990, the Commission staff presented the findings and recommendations of the traffic engineering study to interested members of the City of Cedarburg Chamber of Commerce. At this meeting, Mr. Elroy Bruss, owner of the property located at W623 N161 Washington Avenue, stated his opposition to any change in access to his property. Further, it was the consensus of the eight Chamber members present that the improvement of Wauwatosa Road from two lanes to four lanes be implemented and its impacts determined prior to implementing the staff-recommended addition of a fifth lane to the study segment of Washington Avenue (STH 57).

On January 22, 1990, the Commission staff presented the findings and recommendations of the traffic engineering study to the City of Cedarburg Plan Commission set forth in Table 7. With respect to the short-range traffic engineering plan recommendations, the Plan Commission adopted the staff recommendations set forth in Table 8.

The Plan Commission did not adopt the staff-recommended traffic engineering actions intended to address the lack of an adequate merge area for northbound traffic on Washington Avenue (STH 57) immediately north of Lincoln Boulevard. Rather, to address the

perceived northbound left-turn problem at the Washington Avenue (STH 57) and Lincoln Boulevard intersection, the Plan Commission instead elected to recommend that the left lane be restricted to left turns only. Thus, through traffic would be restricted to a single lane, the right hand lane, and the need to merge north of the intersection is shifted to the south of the intersection, obviating the need for staff recommendations. The Commission staff had considered this action, but had not recommended it because: 1) it may be expected to decrease the capacity of the northbound intersection approach and, thus increase average delay at the intersection, and 2) the necessity for traffic to merge is not eliminated but, rather, is relocated to an area with additional traffic conflicts.

On February 23, 1990, the City of Cedarburg Plan Commission considered the long-range highway improvements recommended in the traffic engineering study. The Plan Commission adopted the staff recommendations to seek the jurisdictional transfer and improvement of Wauwatosa Road and the long-range access plan set forth in Table 8. The Plan Commission elected to recommend that action on reconstruction of the study segment to provide a five-lane roadway with the center lane a continuous two-way left-turn lane be held in abeyance until such time as the impacts of the improvement of Wauwatosa Road on Washington Avenue (STH 57) could be assessed.

SUMMARY

On February 10, 1988, City of Cedarburg officials requested that the Southeastern Wisconsin Regional Planning Commission conduct a study of traffic operating conditions on Washington Avenue (STH 57) between Pioneer Road and Lincoln Boulevard. The study was to focus on existing and future access from parcels abutting Washington Avenue (STH 57); examine the existing speed limit and parking restrictions; and analyze the need for an exclusive right-turn lane on the northbound approach to the intersection of Washington Avenue (STH 57) and Lincoln Boulevard.

In order to address these issues, the Commission staff undertook a number of inventories to determine the physical and operational characteristics which exist today. These inventories found that the half-mile study segment is a four-

lane undivided urban roadway 52 feet in curb-to-curb width, intersected by five cross streets and 33 driveways. Traffic control consists of traffic signals at the intersections of Lincoln Boulevard and Pioneer Road, and stop signs at the intersection of Alyce Street, Fairfield Street, and Zeunert Street. Of the 33 driveways, 28 serve commercial land uses and five serve residential land uses. Parking is prohibited on the study segment in order to accommodate average weekday traffic volumes, which range from slightly over 17,000 vehicles per average weekday to over 20,500 vehicles per average weekday. Spot speed studies indicate that the 85th percentile speed, or that speed at or below which 85 percent of the motorists are traveling, is 33 miles per hour, which is virtually the same as the posted speed limit of 35 miles per hour. Manual traffic counts at the intersection of Lincoln Boulevard and Washington Avenue (STH 57) and at selected driveways along the study segment provided turning-movement data. Finally, a three-year accident history was reviewed, with 20 accidents occurring in 1985, of which 14 occurred at intersections and six occurred at a midblock location; 19 accidents occurred in 1986, of which 12 occurred at an intersection and seven were midblock locations; and 18 accidents occurred in 1987, of which 12 occurred at intersections and six occurred at midblock locations.

A number of short-term, low-cost traffic management actions were considered to alleviate accident and/or congestion problems along the study segment, and at the intersections of Washington Avenue (STH 57) and Pioneer Road and Lincoln Boulevard. These actions are intended to preserve existing roadway capacity and enhance the operating characteristics without the expenditure of a significant amount of dollars, and include such actions as signing and pavement marking. The specific actions recommended and their estimated costs are shown in Table 7. The staff also recommended that the existing parking prohibition be retained and that the speed limit be reduced to 30 miles per hour on a trial basis, to be made permanent only if there was a corresponding reduction in the 85th percentile speed. It should be noted that a number of traffic management actions were rejected as being inappropriate.

Traffic volumes on the study segment of Washington Avenue (STH 57) are currently exceeding, and may be expected to exceed, the design

capacity of the roadway as the community grows. All the traffic management actions recommended in the short term are intended to preserve existing capacity and enhance the existing operation of the roadway. It must be noted that the large number of left turns to and from the study segment significantly degrades the capacity of the roadway and thus it may be expected that a large capital investment may be required to meet the future traffic demand, particularly as the vacant abutting parcels are developed. Two long-range alternative improvements were considered, the first being construction of a fifth lane to provide for a two-way left-turn lane, and the second being a four-lane divided roadway on the study segment. The long-range alternative roadway improvement recommended is the construction of a fifth lane to provide for a two-way left-turn lane in the center of the roadway. This alternative roadway improvement will reduce traffic congestion and delay and improve traffic safety, and the roadway can largely be constructed within the existing right-of-way. It is estimated that this alternative roadway improvement will cost \$1.1 million.

Construction of a four-lane divided roadway was rejected because of the decrease in access to abutting parcels and the need to acquire additional right-of-way, not only within the study segment, but particularly on Washington Avenue (STH 57) north of Lincoln Boulevard in order to provide transition from a four-lane divided roadway to a two-lane urban roadway.

The existing access to abutting parcels was reviewed and recommendations with respect to driveway closures, consolidations, and realignments were made for each of the alternative long-range highway improvement alternatives considered. These recommendations maintain, to the extent possible, the existing level of access to each abutting parcel while simultaneously reducing the accident potential and preserving roadway capacity along the study segment. It is estimated that the cost of implementing the driveway closures, consolidations, and realignments associated with the staff-recommended five-lane roadway improvement alternative will be approximately \$35,000. It is estimated that the cost of implementing the driveway closures, consolidations, and realignments associated with a four-lane divided roadway alternative will be approximately \$31,000.

The findings and recommendations of the traffic study for Washington Avenue (STH 57) between

Table 7

**SUMMARY OF TRAFFIC ENGINEERING AND ROADWAY IMPROVEMENT ACTIONS
RECOMMENDED TO SOLVE EXISTING AND FUTURE TRAFFIC PROBLEMS ON WASHINGTON
AVENUE (STH 57) FROM PIONEER ROAD TO LINCOLN BOULEVARD: 1985 THROUGH 2000**

Plan/Location	Recommendation	Estimated Cost	Responsibility for Implementation
Short-Range Plan Washington Avenue (STH 57) and Pioneer Road (CTH C)	<ul style="list-style-type: none"> ● Westbound approach, "No Right Turn on Red" ● Install backboards on pole-mounted traffic signal heads on northbound approach ● Prohibit parking on the northbound approach from Pioneer Road (CTH C) to a point 150 feet south of the intersection 	\$ 100 200	Wisconsin Department of Transportation City of Cedarburg
Lincoln Boulevard	<ul style="list-style-type: none"> ● Eastbound approach, "No Right Turn on Red" ● Install lane reduction transition sign on the northbound approach 150 feet north of the intersection ● Close the driveway nearest Lincoln Boulevard on the southbound approach and prohibit northbound left turns into the second driveway north of the intersection on the southbound approach ● Install pavement markings and prohibit additional parking to improve merge from two lanes to a single lane for northbound traffic just north of the intersection 	\$ 100 600 3,600	City of Cedarburg City of Cedarburg City of Cedarburg
Between Pioneer Road (CTH C) and Lincoln Boulevard	<ul style="list-style-type: none"> ● Reduce speed limit from 35 miles per hour to 30 miles per hour ● Prohibit left turns at selected driveways on the west side of Washington Avenue (STH 57) in the vicinity of the Schnapps Haus ● Convert selected driveways from two-way to one-way operation on the east side of Washington Avenue (STH 57) in the vicinity of Echo Plaza ● Reconstruct driveway on the east side of Washington Avenue (STH 57) in the vicinity of the Piggly Wiggly-Walgreen stores 	\$ 200 650 4,750	City of Cedarburg City of Cedarburg City of Cedarburg
Long-Range Plan Washington Avenue (STH 57) Between Pioneer Road (CTH C) and Lincoln Boulevard	<ul style="list-style-type: none"> ● Construction of an additional fifth lane for continuous left turns; geometric improvements at the intersections of Pioneer Road (CTH C) and Lincoln Boulevard; driveway realignments 	\$1,100,000	Wisconsin Department of Transportation and City of Cedarburg

Source: SEWRPC.

Lincoln Boulevard and Pioneer Road (CTH C) were presented at a total of four public informational meetings and then again at a special City of Cedarburg Plan Commission meeting. The first such meeting was held on July 26, 1989, to brief City of Cedarburg Chamber of Commerce members whose businesses would be directly impacted by the recommendations contained in the study. The second such meeting was held on July 31, 1989, to brief public officials and interested citizens regarding the findings and recommendations of the traffic study and to provide an opportunity to ask questions about and comment on the proposed traffic management plan. The third such meeting was held on December 4, 1989, to brief the City of Cedarburg Plan Commission and interested citizens on the staff analyses of questions and concerns raised at the previous public informational meetings. The fourth such meeting was held on January 17, 1990, to brief City of Cedarburg Chamber of Commerce members of the final staff recommendations. Finally, on January 22, 1990, the staff presented to the City of Cedarburg Plan Commission a summary of the findings and recommendations of the traffic engineering study. It was at this meeting that the City of Cedarburg Plan Commission reviewed and adopted a number of the staff-recommended short-term traffic engineering actions to abate the problems identified in the traffic engineering study. It may be noted that interested citizens were afforded the opportunity to comment on the final staff recommendations at this meeting.

Initial public reaction to the study findings and recommendations focused on the proposed access modifications contained in both the short-range and long-range plan elements. A number of citizens suggested alternative access modifications. The Commission staff evaluated those alternative access modifications and concluded that they could be expected to represent an improvement with respect to existing conditions, primarily because such implementation may be expected to result in the consolidation of adjacent driveways and, thus, a reduction in the number of driveways along the study segment. However, the citizen-suggested driveway consolidations typically did not consider the alignment of a proposed joint driveway with driveways on the opposite side of the street and, thus, would not be expected to provide the full benefits of the staff-recommended access consolidations.

Another major concern of the owners of property abutting the segment was that the proposed access changes would be implemented in the near term. The staff reiterated that the proposed changes in access were envisioned only to occur upon the development of vacant parcels or redevelopment of existing properties, or through the voluntary cooperation of the impacted property owners. The staff further pointed out that the recommended access plan should only be considered as a point of departure as not every development scenario could be anticipated. The Commission staff noted that the proposed access modifications should not be viewed as rigidly and inflexibly establishing which specific driveways should be consolidated or the specific location of each joint driveway. Rather, it represents one possible access plan based on the existing development. However, as development or redevelopment proposals are brought before the City's Plan Commission, they should be evaluated using the criteria set forth in the study for the purpose of improving traffic safety and preserving the capacity of the roadway by requiring a minimum driveway centerline-to-centerline spacing of 150 feet; offsetting driveways on opposite of the street by a minimum of 150 feet; and reducing the overall number of driveways through consolidation.

A number of additional alternative actions were suggested for staff consideration with respect to the traffic engineering and highway improvement plan elements. The staff analyzed each of the actions suggested and recommended for implementation the prohibition of right turns on red on the eastbound approach of the Washington Avenue (STH 57) and Lincoln Boulevard intersection, and on the westbound approach to the Washington Avenue (STH 57) and Pioneer Road (CTH C) intersection. The staff also analyzed, but did not recommend, the synchronization of the red indications of the traffic signals at the intersections of Washington Avenue (STH 57) with Pioneer Road (CTH C) and Lincoln Boulevard; the installation of a traffic signal at the intersection of Washington Avenue (STH 57) and Zeunert Street; the installation of a crosswalk with advisory signing and flashing lights at Zeunert Street; the construction of frontage roads paralleling the study segment of Washington Avenue (STH 57); and the implementation of a three-lane roadway alternative with one traffic lane in each direction and a two-way left-turn lane in the center.

**SUMMARY OF TRAFFIC ENGINEERING AND ROADWAY IMPROVEMENTS ACTIONS
RECOMMENDED TO ABATE EXISTING AND FUTURE TRAFFIC PROBLEMS ON WASHINGTON
AVENUE (STH 57) FROM PIONEER ROAD TO LINCOLN BOULEVARD: 1989 THROUGH 2000**

Source: SEWRPC.

There was concern expressed over the safety of the proposed five-lane roadway, particularly with respect to the potential for head-on accidents in the center lane. Based on the experience of the Wisconsin Department of Transportation, which has implemented a number of five-lane roadway segments throughout the State, and based on review of literature which analyzed five-lane roadway improvements throughout the nation, the Commission staff concluded that it may be expected that a substantial improvement in traffic safety will result from the implementation of a five-lane roadway segment, and that head-on accidents have not been a problem elsewhere.

At its January 22, 1990, meeting the City of Cedarburg Plan Commission adopted those traffic engineering actions shown in Table 8. The traffic engineering actions may be expected to abate existing traffic problems on Washington Avenue (STH 57) from Pioneer Road

(CTH C) to Lincoln Boulevard. The City of Cedarburg Plan Commission also adopted a modification in the lane use configuration on the northbound approach to the intersection of Washington Avenue (STH 57) and Lincoln Boulevard. This modification would restrict the left lane to left turns only and restrict the right lane to the through movement and right turns. At its February 23, 1990, meeting the City of Cedarburg Plan Commission adopted the staff-recommended long-range plan actions to request a change in jurisdiction of Wauwatosa Road from the County to the State and also the construction of a four-lane divided section from STH 167 to STH 60. The Plan Commission also adopted the long-range access plan. Finally, the Plan Commission decided to delay the reconstruction of the study segment of Washington Avenue (STH 57) until after Wauwatosa Road is improved to a four-lane divided section and the impacts of that implementation can be assessed.

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APPENDICES

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Appendix A

COLLISION DIAGRAMS

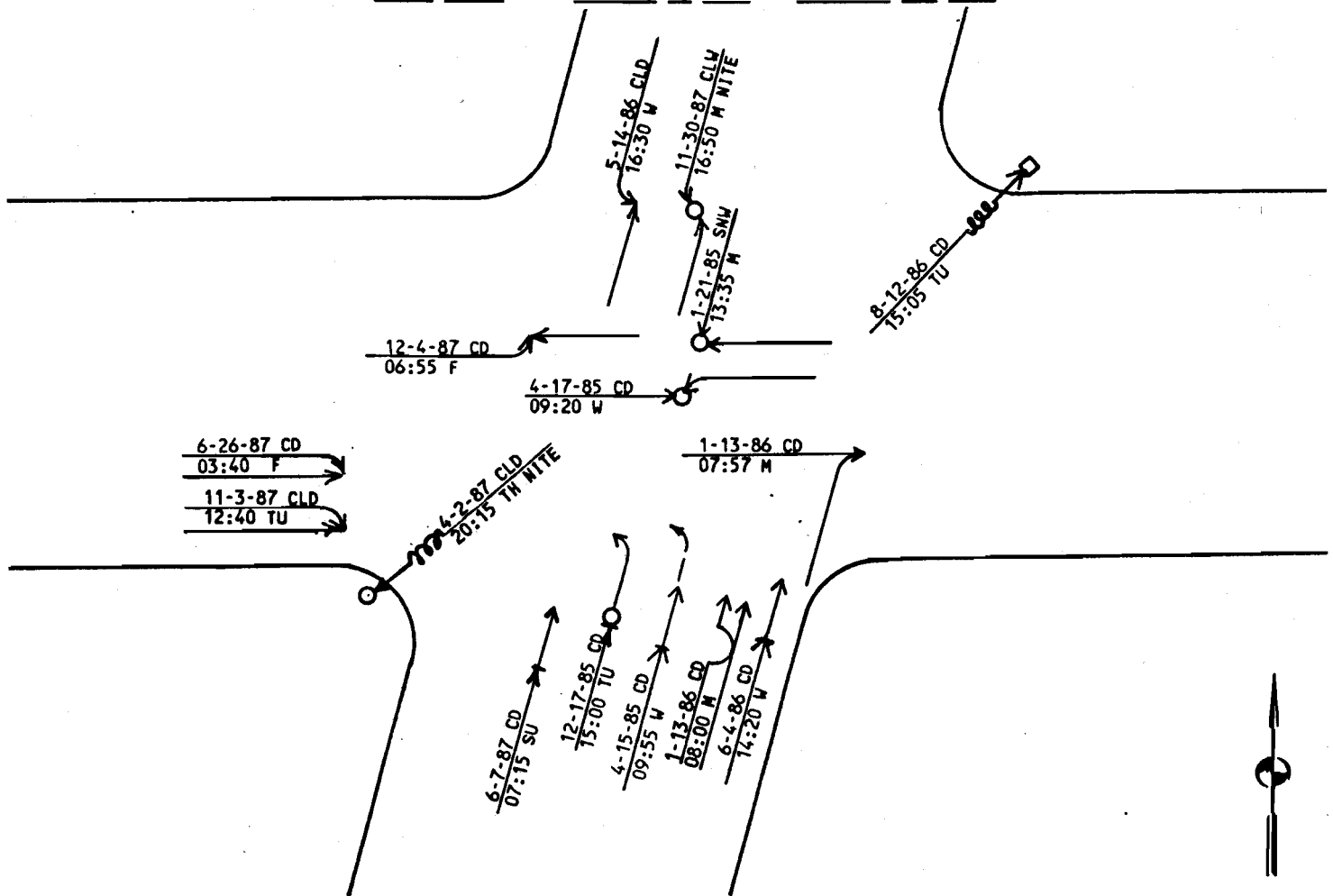
A-1
COLLISION DIAGRAM

Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURG PREPARED BY SEWRPC

INTERSECTION WASHINGTON AVENUE (STH 57) AT PIONEER ROAD

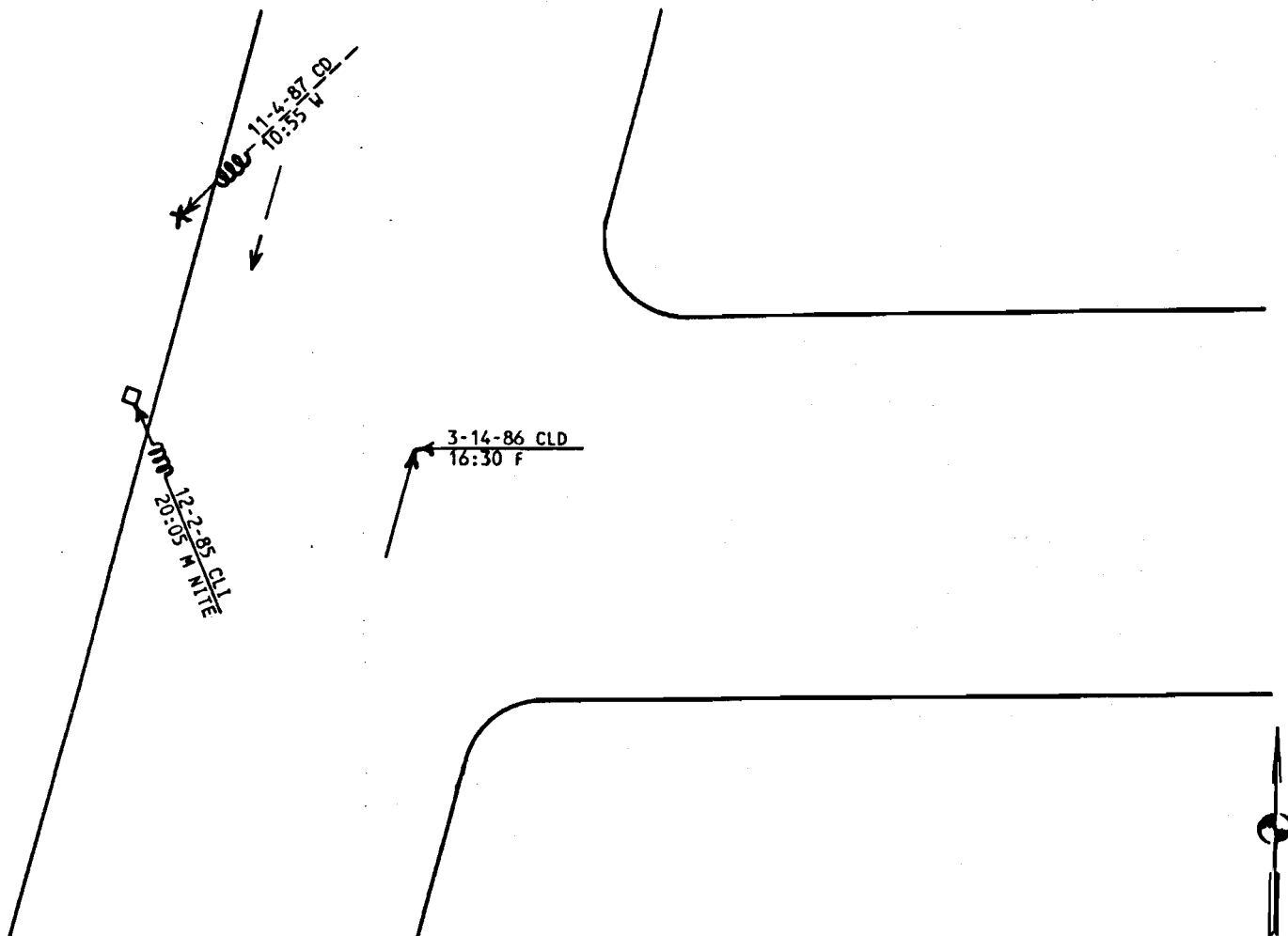
PERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987


















SHOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
	SYMBOLS	TYPES OF COLLISION	Type	Day	Night	Total
1. Time, Day & Date	← Moving vehicle	← ← Rear end	Fatal			
2. Pavement: D = Dry I = Icy W = Wet	← ← ← Backing vehicle	← ← Head on	Pedestrian Injury			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy	← Non-involved vehicle	← Side swipe	Other Injury	3	2	5
4. NITE - If between dusk and dawn.	X ← Pedestrian	← Out of control	Property Damage Only	10		10
	○ Bicycle	← Left turn	Total	13	2	15
	◻ Parked vehicle	← Right angle				
	◻ Fixed object					
	● Fatal accident					
	○ Injury accident					

COLLISION DIAGRAM

Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURGPREPARED BY SEWRPCINTERSECTION WASHINGTON AVENUE (STH 57) AT ZEUNERT STREETPERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987

SHOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
1. Time, Day & Date 2. Pavement: D = Dry I = Icy W = Wet 3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy 4. NITE - If between dusk and dawn.	SYMBOLS	TYPES OF COLLISION	Type	Day	Night	Total
	 Moving vehicle	 Rear end	Fatal			
	 Backing vehicle	 Head on	Pedestrian Injury	1		1
	 Non-involved vehicle	 Side swipe	Other Injury			
	 Pedestrian	 Out of control	Property Damage Only	1	1	2
	 Bicycle	 Left turn	Total	2	1	3
	 Parked vehicle	 Right angle				
	 Fixed object					
	 Fatal accident					
	 Injury accident					

A-3

COLLISION DIAGRAM

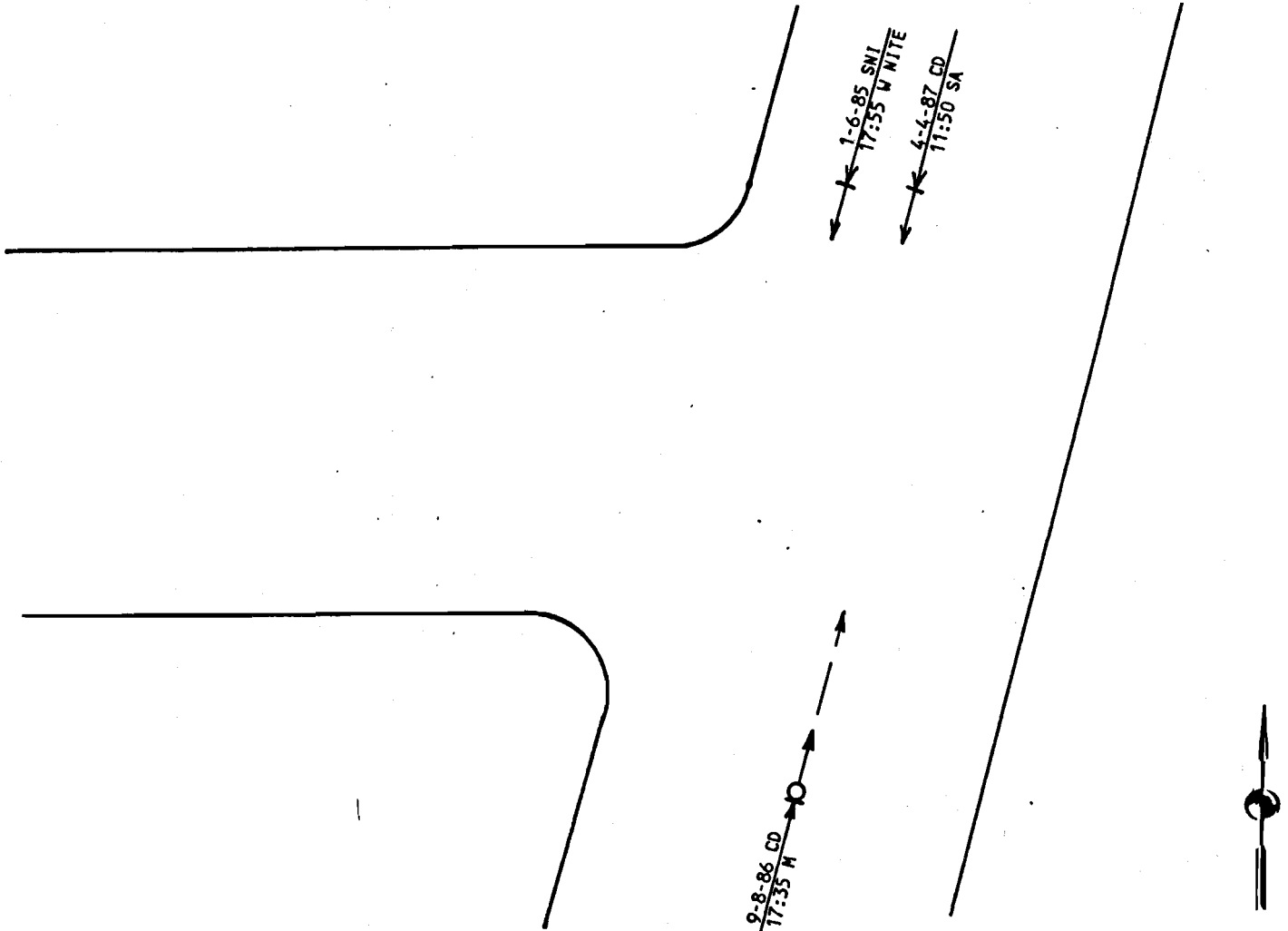
Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURG

PREPARED BY SEWRPC

INTERSECTION WASHINGTON AVENUE (STH 57) AT FAIRFIELD STREET

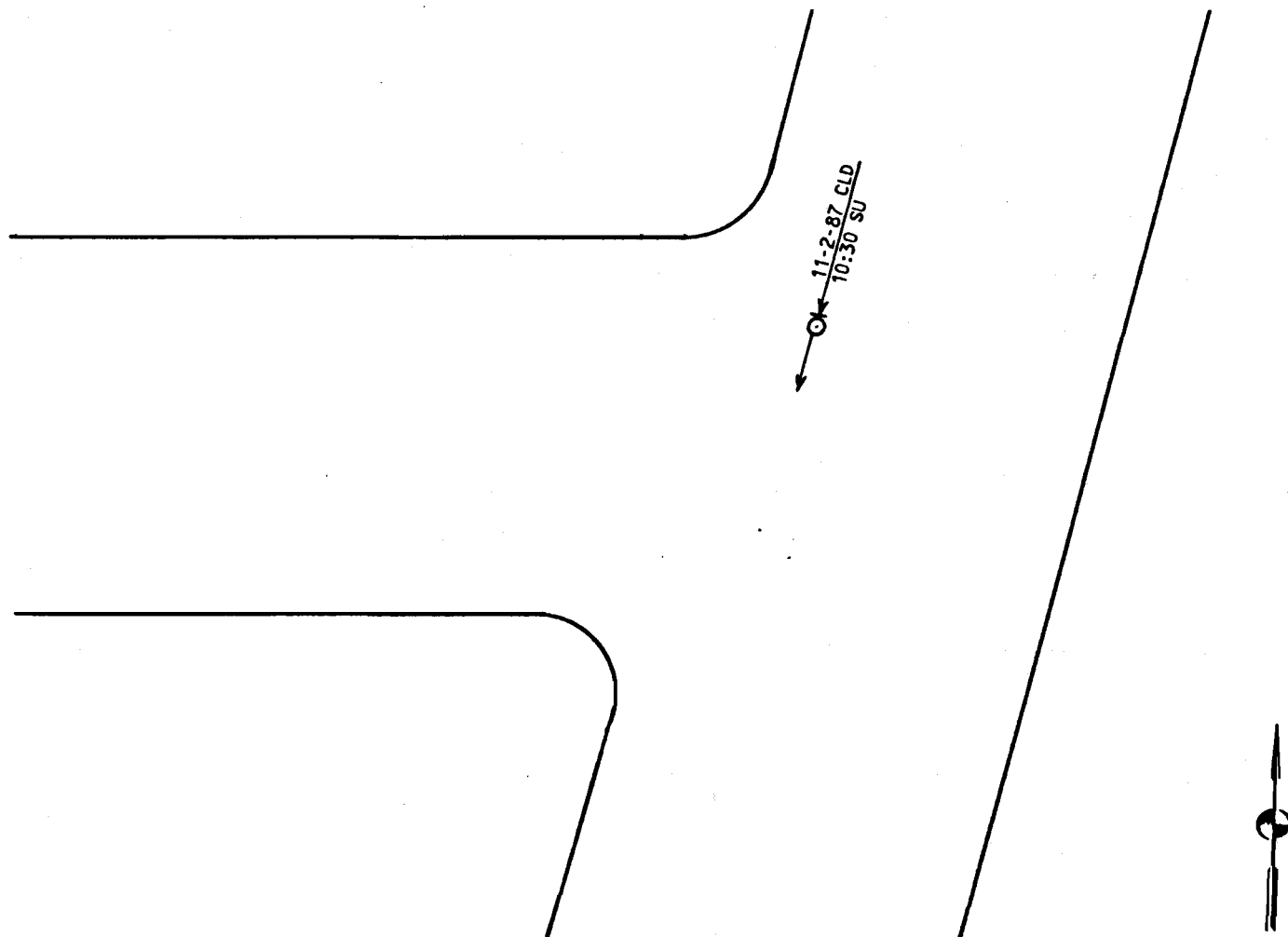
PERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987



SHOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
	SYMBOLS	TYPES OF COLLISION	Type	Day	Night	Total
1. Time, Day & Date	<p>← Moving vehicle</p> <p>←→→→ Backing vehicle</p> <p>— Non-involved vehicle</p> <p>X←--- Pedestrian</p> <p>○ Bicycle</p> <p>◻ Parked vehicle</p> <p>◻ Fixed object</p> <p>● Fatal accident</p> <p>○ Injury accident</p>	<p>← ← Rear end</p> <p>← → Head on</p> <p>← Side swipe</p> <p>← Out of control</p> <p>← Left turn</p> <p>← Right angle</p>	Fatal			
2. Pavement: D = Dry I = Icy W = Wet			Pedestrian Injury			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy			Other Injury	1		1
4. NITE - If between dusk and dawn.			Property Damage Only	1	1	2
			Total	2	1	3

COLLISION DIAGRAM

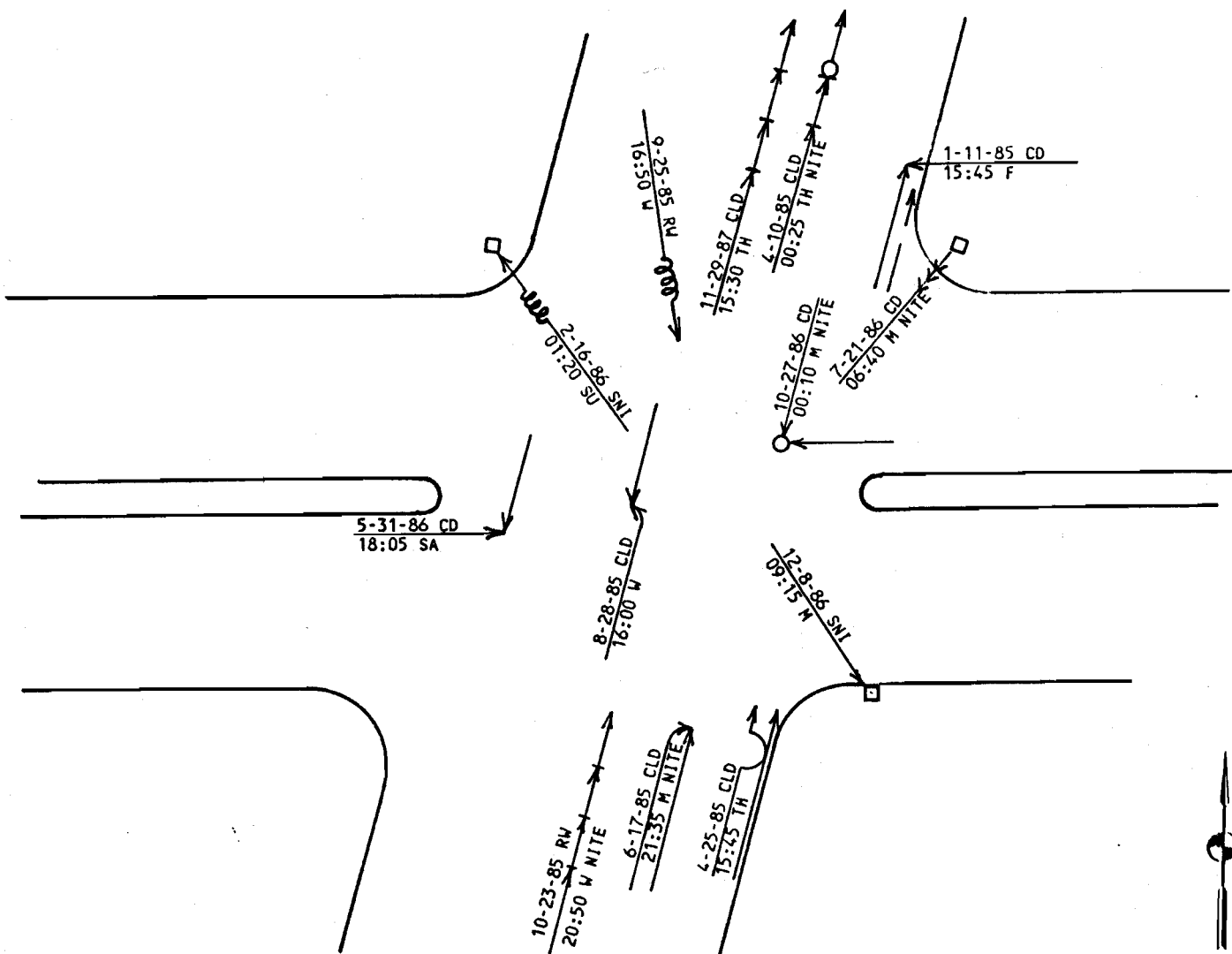
Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURGPREPARED BY SEWRPCINTERSECTION WASHINGTON AVENUE (STH 57) AT ALYCE STREETPERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987

SNOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
1. Time, Day & Date	SYMBOLS Moving vehicle Backing vehicle Non-involved vehicle Pedestrian Bicycle Parked vehicle Fixed object Fatal accident Injury accident	TYPES OF COLLISION Rear end Head on Side swipe Out of control Left turn Right angle	Type	Day	Night	Total
2. Pavement: D = Dry I = Icy W = Wet			Fatal			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy			Pedestrian Injury			
4. NITE - If between dusk and dawn.			Other Injury	1		1
			Property Damage Only			
			Total	1		1

COLLISION DIAGRAM

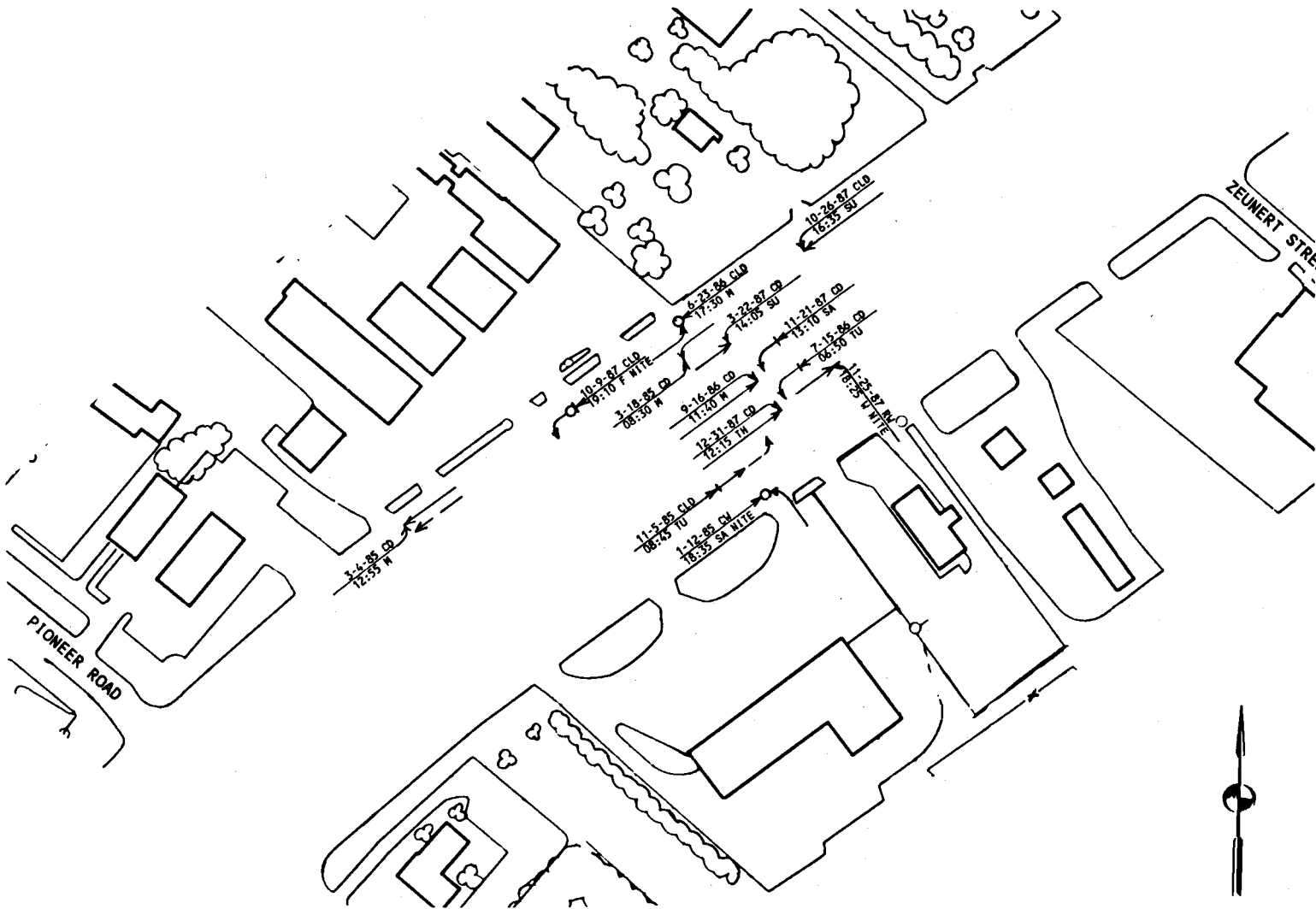
Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURGPREPARED BY SEWRPCINTERSECTION WASHINGTON AVENUE (STH 57) AT LINCOLN BOULEVARDPERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987

SHOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
	SYMBOLS	TYPES OF COLLISION	Type	Day	Night	Total
1. Time, Day & Date	← Moving vehicle	← → Rear end	Fatal			
2. Pavement: D = Dry I = Icy W = Wet	←>>> Backing vehicle	→ → Head on	Pedestrian Injury			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy	← Non-involved vehicle	← Side swipe	Other Injury		2	2
4. NITE - If between dusk and dawn.	X Pedestrian	← Out of control	Property Damage Only	8	3	11
	○ Bicycle	← Left turn	Total	8	5	13
	◻ Parked vehicle	← Right angle				
	◻ Fixed object					
	● Fatal accident					
	○ Injury accident					

COLLISION DIAGRAM

Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURGPREPARED BY SEWRPCMIDBLOCK WASHINGTON AVENUE (STH 57) FROM PIONEER ROAD TO ZEUNERT STREETPERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987

SHOW FOR EACH ACCIDENT	LEGEND		SUMMARY			
1. Time, Day & Date	SYMBOLS Moving vehicle Backing vehicle Non-involved vehicle Pedestrian Bicycle Parked vehicle Fixed object Fatal accident Injury accident	TYPES OF COLLISION Rear end Head on Side swipe Out of control Left turn Right angle	Type	Day	Night	Total
2. Pavement: D = Dry I = Icy W = Wet			Fatal			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy			Pedestrian Injury			
4. NITE - IF between dusk and dawn.			Other Injury	1	2	3
			Property Damage Only	9	1	10
			Total	10	3	13

A-7
COLLISION DIAGRAM

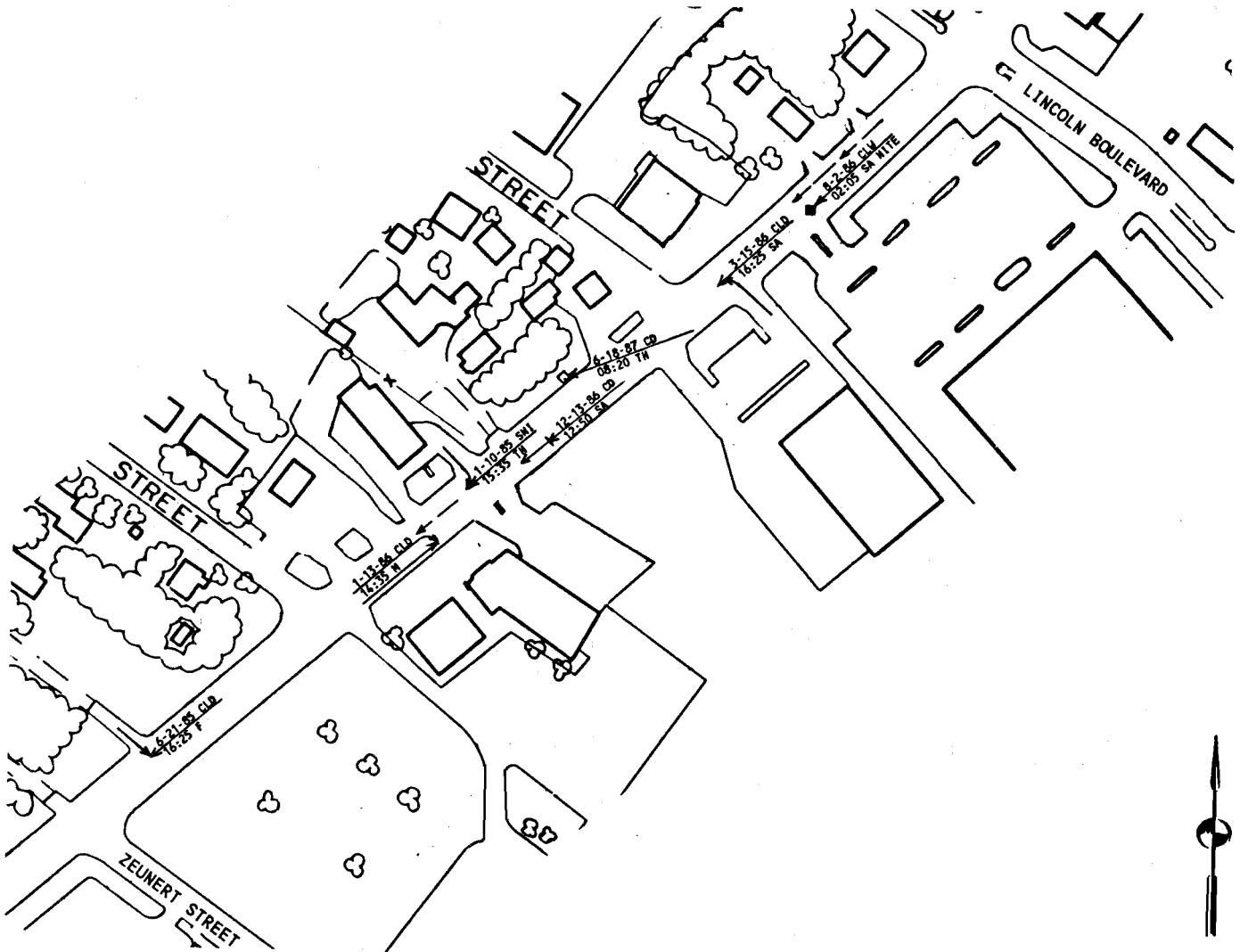
Southeastern Wisconsin Regional Planning Commission

MUNICIPALITY CEDARBURG

PREPARED BY SEWRPC

MIDBLOCK WASHINGTON AVENUE (STH 57) FROM ZEUNERT STREET TO
LINCOLN BOULEVARD

PERIOD THREE YEARS FROM January 1, 1985 TO December 31, 1987



SHOW FOR EACH ACCIDENT		LEGEND		SUMMARY			
1. Time, Day & Date		SYMBOLS	TYPES OF COLLISION	Type	Day	Night	Total
2. Pavement: D = Dry I = Icy W = Wet		← Moving vehicle	← ← Rear end	Fatal			
3. Weather C = Clear; F = Fog; R = Rain; SL = Sleet; SN = Snow; CL = Cloudy		←>>> Backing vehicle	← → Head on	Pedestrian Injury			
4. NITE - If between dusk and dawn.		— Non-involved vehicle	← Side swipe	Other Injury			
		X --- Pedestrian	← Out of control	Property Damage Only	6	1	7
		○ Bicycle	← Left turn	Total	6	1	7
		◻ Parked vehicle	← Right angle				
		◻ Fixed object					
		● Fatal accident					
		○ Injury accident					

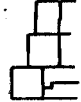
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Appendix B

LETTER TO PROPERTY OWNERS AND LIST OF ADDRESSEES SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

916 N. EAST AVENUE • P.O. BOX 1607 • WAUKESHA, WISCONSIN 53187-1607 • TELEPHONE (414) 547-6721

Serving the Counties of: KENOSHA
MILWAUKEE
OZAUKEE
RACINE
WALWORTH
WASHINGTON
WAUKESHA



January 4, 1990

To: Owners of Property Abutting Washington Avenue--STH 57--Between
Pioneer Road--CTH C--and Lincoln Avenue in the City of Cedarburg

Subject: Traffic Engineering Study for Washington Avenue--STH 57--Between
Pioneer Road--CTH C--and Lincoln Boulevard in the City of Cedarburg

At the request of the City of Cedarburg, the Southeastern Wisconsin Regional Planning Commission has prepared a traffic engineering study for Washington Avenue--STH 57--between Pioneer Road--CTH C--and Lincoln Boulevard in the City of Cedarburg. The findings and recommendations of this study are set forth in a draft SEWRPC Memorandum Report entitled Washington Avenue--STH 57--Traffic Study in the City of Cedarburg. The draft memorandum report has been the subject of three public meetings and has been revised to respond to the comments received from the public on the draft report.

The report recommends a short-term plan which includes a number of low cost traffic engineering actions intended to reduce existing traffic congestion and safety problems, and are listed in Exhibit 1 attached to this letter. It should be noted that the short-term recommendations are not expected to fully resolve the existing traffic problems. The report also recommends a long-term plan with major capital improvements intended to resolve both existing and potential future traffic problems on the study segment, as summarized in Exhibit 2 attached to this letter.

It should be noted that elements of both the short-term and the long-term plans, at the specific request of the City of Cedarburg, address access to abutting properties. The recommended plan proposes that existing access to abutting parcels be modified over the long term primarily through the consolidation of a number of existing driveways in an attempt to improve traffic safety on, and to protect the traffic carrying capacity of, this important arterial street. It is important to recognize that these proposed changes in access are envisioned to occur only as existing occupied properties are substantially redeveloped and as existing vacant properties are developed, unless the affected property owners choose to voluntarily implement the access control measures recommended prior to such redevelopment or development. The recommended access changes may be expected to improve traffic safety and operating conditions on the arterial over the long term by increasing the distance between adjacent driveways from an average of 80 feet to an average of 150 feet, and by directly aligning driveways on opposite sides of the street. Exhibit 3 identifies the access modifications currently proposed in the plan.

This letter and the attached information are being provided to you for your information as the owner of an abutting property. Should you have any

Page 2
January 4, 1990

questions or comments on the study recommendations, desire a copy of the revised draft report, or desire to discuss the study recommendations with Commission staff, please do not hesitate to call Mr. Robert E. Beglinger of the Commission staff at 414 547-6721, Extension 250.

Sincerely,



Kurt W. Bauer
Executive Director

KWB/jms
Attachments
cc (w/attachments)

David M. Drew, P. E., Director of
Engineering and Development, City of Cedarburg

Exhibit 1

SUMMARY OF TRAFFIC ENGINEERING AND ROADWAY IMPROVEMENT ACTIONS
RECOMMENDED TO ABATE EXISTING AND FUTURE TRAFFIC PROBLEMS ON WASHINGTON AVENUE
(STH 57) FROM PIONEER ROAD TO LINCOLN BOULEVARD: 1989 THROUGH 2000

Plan/Location	Recommendation	Estimated Cost	Responsibility for Implementation
Short-Range Plan Washington Avenue (STH 57) and Pioneer Road (CTH C)	o Westbound approach, "No Right Turn on Red"	\$ 100	City of Cedarburg
	o Install backboards on pole-mounted traffic signal heads on northbound approach	100	Wisconsin Department of Transportation
	o Prohibit parking on the northbound approach from Pioneer Road (CTH C) to a point 150 feet south of the intersection	200	City of Cedarburg
Lincoln Boulevard	o Eastbound approach, "No Right Turn on Red"	\$ 100	City of Cedarburg
	o Install lane reduction transition sign on the northbound approach 150 feet north of the intersection	100	City of Cedarburg
	o Close the driveway nearest Lincoln Boulevard on the southbound approach and prohibit northbound left turns into the second driveway north of the intersection on the southbound approach	600	City of Cedarburg
	o Install pavement markings and prohibit additional parking to improve merge from two lanes to a single lane for northbound traffic just north of the intersection	3,600	City of Cedarburg
Between Pioneer Road, (CTH C) and Lincoln Boulevard	o Reduce speed limit from 35 miles per hour to 30 miles per hour	\$ 300	City of Cedarburg
	o Prohibit left turns at selected driveways on the west side of Washington Avenue (STH 57) in the vicinity of the Schnapp's Haus	200	City of Cedarburg
	o Convert selected driveways from two-way to one-way operation on the east side of Washington Avenue (STH 57) in the vicinity of Echo Plaza	650	City of Cedarburg
	o Reconstruct driveway on the east side of Washington Avenue (STH 57) in the vicinity of the Piggly-Wiggly/Walgreen stores	4,750	City of Cedarburg

Source: SEWRPC.

Exhibit 2

**SUMMARY OF TRAFFIC ENGINEERING AND ROADWAY IMPROVEMENT ACTIONS
RECOMMENDED TO ABATE EXISTING AND FUTURE TRAFFIC PROBLEMS ON WASHINGTON AVENUE
(STH 57) FROM PIONEER ROAD TO LINCOLN BOULEVARD: 1989 THROUGH 2000**

Plan/Location	Recommendation	Estimated Cost	Responsibility for Implementation
Long-Range Plan Washington Avenue (STH 57) Between Pioneer Road (CTH C) and Lincoln Boulevard	o Construction of an additional fifth lane for continuous left turns; geometric improvements at the intersections of Pioneer Road (CTH C) and Lincoln Boulevard; driveway realignments	\$ 1,100,000	Wisconsin Department of Transportation and City of Cedarburg
	o Change in jurisdiction of Wauwatosa Road from County to State; and construction of four-lane divided section from STH 167 to STH 60	12,000,000	WisDOT and Ozaukee County
	o Implementation of long-range access plan upon land development and redevelopment	--	City of Cedarburg

Source: SEWRPC.

c2001.a
1/3/90

Exhibit 3

SUMMARY OF LONG-RANGE ACCESS CONTROL MEASURES
RECOMMENDED TO ABATE EXISTING AND FUTURE TRAFFIC PROBLEMS
ON WASHINGTON AVENUE--STH 57--BETWEEN PIONEER ROAD--CTH C--
AND LINCOLN BOULEVARD: 1989 THROUGH YEAR 2000

Location	Commission Recommendation
Echo Plaza.....	<ul style="list-style-type: none">o Realign the southernmost and center drive-ways with driveways on the opposite side of Washington Avenue--STH 57o Close the northern Echo Plaza driveway and the southern driveway to the Hardee's Restaurant, and construct a new driveway on the joint property line
Hardee's Restaurant.....	<ul style="list-style-type: none">o Close the northern Echo Plaza driveway and the southern driveway to the Hardee's Restaurant, and construct a new driveway on the joint property lineo Close the northern driveway to the Hardee's Restaurant and the southern driveway to Super Sales USA and construct a new driveway on the joint property line
Super Sales USA.....	<ul style="list-style-type: none">o Close the northern driveway to the Hardee's Restaurant and the southern driveway to Super Sales USA and construct a new driveway on the joint property lineo Close the north driveway to Super Sales USA and construct a new driveway on the joint property line between Super Sales USA and the vacant parcel abutting Super Sales USA on the north
Vacant Parcel Between Super Sales USA and Colonial Pontiac....	<ul style="list-style-type: none">o Restrict access to a driveway constructed on the joint property line between Super Sales USA and this parcel
Vacant Parcel in the Northeast Quadrant of Washington Avenue --STH 57--and Zeunert Street.....	<ul style="list-style-type: none">o Limit access to this vacant parcel to Zeunert Street.

-continued-

Location	Commission Recommendation
Vacant Parcel on the East Side of Washington Avenue--STH 57--Immediately North of the Vacant Parcel in the Northeast Quadrant of Washington Avenue--STH 57--and Zeunert Street.....	<ul style="list-style-type: none"> o Designate a single access point for this parcel aligned with a designated access point on the opposite side of Washington Avenue
Vacant Parcel Abutting the Cedarburg Square Office Complex on the South.....	<ul style="list-style-type: none"> o Close the existing driveway serving the Cedarburg Square office complex and construct a new driveway on the joint property line between the vacant parcel and the Cedarburg Square office complex
Cedarburg Square Office Complex.....	<ul style="list-style-type: none"> o Close the existing driveway serving the Cedarburg Square office complex and construct a new driveway on the joint property line between the vacant parcel and the Cedarburg Square office complex
Vacant Parcel Located Between a Mutual Savings Bank and Baumann Hoffmann Hardware.....	<ul style="list-style-type: none"> o Designate a single access point aligned with a new joint driveway on the opposite side of Washington Avenue
Baumann Hoffmann Hardware.....	<ul style="list-style-type: none"> o Close the existing driveways and construct a new driveway directly aligned with Alyce Street on the opposite side of the road
Cedarburg Power Equipment.....	<ul style="list-style-type: none"> o Close the driveway to Cedarburg Power Equipment and the driveway to Wittenberg Flooring and construct a new driveway on the joint property line

Location	Commission Recommendation
Wittenberg Flooring and Steiner TV and Appliance.....	<ul style="list-style-type: none"> o Close the driveway between Wittenberg Flooring and Cedarburg Power Equipment and construct a new driveway on the joint property line
Sekas Plumbing and Heating and Kowloon Restaurant.....	<ul style="list-style-type: none"> o Close the driveway serving the Sekas Plumbing and Heating and Kowloon Restaurant and the driveway serving the Vinyl Impressions and George Webb businesses and construct a new driveway on the joint property line
Vinyl Impressions and George Webb.....	<ul style="list-style-type: none"> o Close the driveway serving the Sekas Plumbing and Heating and Kowloon Restaurant and the driveway serving the Vinyl Impressions and George Webb businesses and construct a new driveway on the joint property line
Schnapps Haus.....	<ul style="list-style-type: none"> o Close the driveway to the Schnapps Haus and reconstruct the driveway between the Schnapps Haus and Community Printing on the joint property line
Community Printing.....	<ul style="list-style-type: none"> o Close the driveway to the Schnapps Haus and reconstruct the driveway between the Schnapps Haus and Community Printing on the joint property line
Vacant Parcel Abutting Residence at W62 N209 Washington Avenue on the South.....	<ul style="list-style-type: none"> o Close the driveway and provide access via entrance to Carriage Trace Apartments
Private residence at W62 N209 Washington Avenue.....	<ul style="list-style-type: none"> o Close the driveway and require a single joint access point with the parcels located at W62 N215 and W62 N225 Washington Avenue

-continued-

Location	Commission Recommendation
Private Residence at W62 N215 Washington Avenue.....	o Close the driveway and require a single joint access point with the parcels located at W62 N209 and W62 N225 Washington Avenue
Private Residence at W62 N225 Washington Avenue.....	o Close the driveway and require a single joint access point with the parcels located at W62 N209 and W62 N215 Washington Avenue
Corky's Union 76, Inc....	o Close the southern driveway to Washington Avenue--STH 57
Cedarburg Dry Cleaners, Inc.....	o Close the southern driveway
Private Residence at W62 N263 Washington Avenue.....	o Close the existing driveway and construct a new driveway on the joint property line between this parcel and the Jiffy Lube immediately to the north
Jiffy Lube.....	o Close the existing driveway and construct a new driveway on the joint property line between the Jiffy Lube and the property at W62 N263 Washington Avenue--STH 57
National Glass/Private Residence at W61 N279 Washington Avenue.....	o Close the driveway to the private residence and to National Glass on this property and construct a single driveway on the south property line

Source: SEWRPC.

Mr. George Scherer, Trustee
N28 W6408 Alyce Street
Cedarburg, Wisconsin 53012

Robert R. Marquardt
and Diane M. Marquardt
W62 N209 Washington Avenue
Cedarburg, Wisconsin 53012

Craig Nelson, Real Estate Representative
Jiffy Lube International
10 Maple Tree Court
Elmhurst, Illinois 60126

Kenneth P. Walters
and Kay R. Walters
9716 Pleasant Valley Road
Cedarburg, Wisconsin 53012

Edwin C. Filter
and Alverna M. Filter
W62 N263 Washington Avenue
Cedarburg, Wisconsin 53012

Richard N. Hamilton
and Violet N. Hamilton
1014 Highway 143
Cedarburg, Wisconsin 53012

Cedarburg Village Investment
7365 N. Braeburn Lane
Milwaukee, Wisconsin 53209

JCW Restaurants
6181 S. Howell Avenue
Milwaukee, Wisconsin 53207

Colin Van Sluys
and Carol A. Van Sluys
242 High Forest Drive
Cedarburg, Wisconsin 53012

William Sekas
N90 W5443 Alpine Drive
Cedarburg, Wisconsin 53012

Donald W. Voigt
and Janice S. Voigt
W62 N225 Washington Avenue
Cedarburg, Wisconsin 53012

John Wittenberg
and Christine Wittenberg
P. O. Box 112
Cedarburg, Wisconsin 53012

Marion Weidman
N24 W6292 Fairfield Street
Cedarburg, Wisconsin 53012

Gerald B. Halaska
9502 Harding Boulevard
Wauwatosa, Wisconsin 53226

K-M Company
8502 Highway 60
Cedarburg, Wisconsin 53012

Ozaukee Development Corporation
c/o Super Sales USA
P. O. Box 493
Cedarburg, Wisconsin 53012

Larry W. Baumann
W61 N278 Washington Avenue
Cedarburg, Wisconsin 53012

Lane Development Corporation
P. O. Box 265
Cedarburg, Wisconsin 53012

Edward R. Straszewski
and Mary M. Straszewski
P. O. Box 187
Cedarburg, Wisconsin 53012

Gus Wirth Jr.
N54 W5989 Portland Road
Cedarburg, Wisconsin 53012

Mutual Savings Bank
17100 W. Capitol Drive
Brookfield, Wisconsin 53005

Robert H. Biegert
4901 Timbercrest Drive
Cedarburg, Wisconsin 53012

S. K. Mehta
9939 N. Valley Hill Drive
Mequon, Wisconsin 53092

Russ Darrow Group
4524 Dollar Drive
West Bend, Wisconsin 53095

Appendix C
CORRESPONDENCE RECEIVED

January 13, 1990

Robert E. Beglinger
Southeastern Wisconsin Regional Planning Commission
916 N. East Avenue
P.O. Box 1607
Waukesha, Wisconsin 53187-1607

Dear Mr. Beglinger:

In your letter of January 4, 1990 it was noticed that the property at W62 N263 Washington Avenue is listed only as residential. The property is the business home of Visual Sports Network, and potential home of an additional business , and a residential property.

For the size of this property I feel that this address needs its own driveway. Where the proposed driveway is to be there is a telephone box and electric pole. Also I do not wish to share a driveway if we remain or sell the property.

Also I want it to be noted that I was not notified of your next meeting on the future planning of Washington Avenue. We were told about the meeting from some the other business's on this road.

Sincerely,

Edwin Filter

Edwin Filter