

THE CORPORATION OF THE DISTRICT OF BURNABY

TRAFFIC SAFETY COMMITTEE

HIS WORSHIP, THE MAYOR
AND ALDERMEN

REPORT OF THE TRAFFIC SAFETY COMMITTEE

A. "SAFE DRIVING WEEK"

RECOMMENDATIONS:

1. THAT His Worship, Mayor Copeland be requested to proclaim 1989 December 03 to 09 inclusive as "Safe Driving Week" in the Municipality of Burnaby.
2. THAT Council be requested to officially recommend that all Burnaby residents attend the Defensive Driving Course and pay special attention to their driving habits during the campaign.
3. THAT Burnaby's support for the "Safe Driving Week" Campaign be increased in 1989 to \$2,500.00 thus ensuring a productive and successful campaign.

R E P O R T

In the past three years, Council has awarded the following grants to the British Columbia Safety Council for its "Safe Driving Week" campaign:

| | |
|--------|---------|
| 1986 - | \$1,500 |
| 1987 - | \$1,500 |
| 1988 - | \$2,000 |

The Traffic Safety Committee, at its meeting held on 1989 November 07 heard a presentation from the B.C. Safety Council regarding the 1989 Safe Driving Week Campaign scheduled for December 03 to 09 inclusive. This campaign is held in conjunction with National Safe Driving Week which is sponsored by the Canada Safety Council.

This year's theme is "COURTESY IS" and the objective is to train five hundred more people in defensive driving with the main focus being new drivers.

The B.C. Safety Council has trained 160,000 students in the Defensive Driving course from 1968 to 1988. During that same period traffic fatalities in B.C. fell from 5.4 to 2.5 per ten thousand licenses issued and reported accidents declined from 7.5 to 5.0 per 100 licenses issued. The B.C. Safety Council strongly believe that driver education has played a major role in improving road safety.

Your Committee fully supports the safe driving initiative of the B.C. Safety Council and therefore recommends Council endorsement of the three recommendations submitted.

INTERNAL DISTRIBUTION:

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B. 1990 WESTERN CANADA TRAFFIC ASSOCIATION CONFERENCE

022

RECOMMENDATION:

1. THAT Council authorize the hosting of the 1990 Western Canada Traffic Association Conference in Burnaby from 1990 October 09 - 12 inclusive at the Sheraton Villa Inn.

R E P O R T

Background

Council, at the regular Council meeting held on 1988 October 18 received a report from the Traffic Safety Committee and adopted the recommendation contained therein authorizing Committee members and staff to attend the 1989 Western Canada Traffic Association (W.C.T.A.) Conference in Whitehorse, Yukon.

At that time, the possibility of Mr. Bill Bennett, B.C. Transit Representative to the Traffic Safety Committee being elected President of the W.C.T.A. for 1990 was also mentioned. Traditionally, the municipality which the President represents hosts the Conference for the following year during his term of office. Traffic Safety Committee members offered their support to Mr. Bennett, if he were elected, to organize the entire affair.

Prior to the 1989 Conference, several working meetings were held to discuss possible actions that should be taken in anticipation of hosting the 1990 Conference. As a result of those meetings an information package was put together and distributed to all delegates in Whitehorse at the close of the session. The package included tourism and informational literature on the District of Burnaby and His Worship, Mayor Copeland also kindly provided a letter of invitation and welcome, on behalf of Council and the citizens of Burnaby, to attend the 1990 Conference in Burnaby.

1989 W.C.T.A. Conference

Approximately 100 delegates from British Columbia, Alberta, Saskatchewan and Manitoba collectively attended the 1989 Conference in Whitehorse from 1989 September 26 to 29 inclusive. Delegates participated in two full days of seminars covering such topics as:

- "Point Your Way to Safety" - a safety program for pedestrian crosswalks
- The "Multanova" traffic radar system (discussion of pros and cons)
- Bridge strengthening for heavy trucks
- Accident investigation
- Bicycle safety
- Construction safety zones

One of the highlights of the session was an organized reconnaissance mission where delegates were bused to an intersection which has been causing numerous problems, particularly involving school children crossing a posted 80 kmh highway on their way to and from school. The intersection was examined from several points of view and notes were taken as to how to improve the situation. Delegates then separated into groups to discuss the alternatives and presentations were subsequently made the following day by each group. This exercise provided positive and productive dialogue amongst delegates and the exchange of ideas and/or suggestions was invaluable.

Mr. Bill Bennett was elected President of the Western Canada Traffic Association at the annual general meeting held on Friday, 1989 September 29. Several other Committee members were elected to positions on the 1990 Conference Committee.

Conclusion

Your Committee is of the opinion that a resolution to host the 1990 W.C.T.A. Conference would demonstrate a leadership role in the area of traffic safety and are confident that the process of interacting with colleagues from other jurisdictions will only serve to expand the Committee's ability to effectively approach the diverse traffic safety issues that our municipality often encounters.

In terms of budget for the 1990 Conference, the W.C.T.A. is basically self sufficient. However, there are two banquets held during the Conference, traditionally sponsored by the host municipality and by the provincial government. A further report will be submitted to Council at a later date addressing this subject.

It is your Committee's recommendation that Burnaby host the 1990 Western Canada Traffic Association Conference at the Sheraton Villa Inn from 1990 October 09 to 12 inclusive.

C. LANE SOUTH OF HASTINGS STREET AT WILLINGDON

RECOMMENDATION:

1. THAT Council receive this report for information.

R E P O R T

During the enquiry portion of the Traffic Safety Committee meeting of 1989 June 06, a concern was raised regarding traffic using the lane south of Hastings at Willingdon. In particular, the safety of lane traffic crossing Willingdon Avenue and of left-turns in or out of these lanes was discussed. It was agreed that these are not desirable maneuvers at this congested location and that movement to/from these lanes should be restricted to right-turns only.

Right-turn only signing is in place for traffic exiting the west lane (by the liquor store) and instructions to install similar signing in the east lane have been given. These restrictions should serve as an adequate interim measure. To effectively eliminate conflicts arising from left-turn lane traffic a physical restriction - a median - would be necessary. Such a median is currently being considered in the context of a wider design review of the Hastings/Willingdon intersection.

D. 6TH STREET AT ROSEWOOD STREET

RECOMMENDATIONS:

1. THAT Council approve the installation of a 2-way stop on 6th Street at Rosewood Street.
2. THAT Mrs. Michele Lavery of 7149-6th Street receive a copy of this report.

R E P O R T

A review of the intersection of 6th Street and Rosewood Street to determine the suitability of 4-way stop control was requested by Mrs. Michele Lavery of 7149-6th Street in a letter to the Engineering Department dated 1989 August 09.

During this review, it was found that the intersection of 6th Street and Rosewood Street did not meet the recommended warrants for the installation of a 4-way stop, but did meet the Committee adopted warrant for the installation of a 2-way stop.

Therefore, it is recommended that 6th Street be stop sign controlled in favour of Rosewood Street. In addition to increasing overall intersection safety, this may also serve to discourage motorists from using 6th Street between Burriss Street and Edmonds Street as a short-cut alternative to Canada Way.

Staff have discussed the content of this report with Mrs. Lavery and she agrees with the solution proposed.

E. REQUEST FOR EXTENDED "NO PARKING ZONES" ADJACENT DRIVEWAYS TO STRATA PLAN NW 603; 4100, 4200, 4300 BLOCKS GARDEN GROVE DRIVE

RECOMMENDATIONS:

1. THAT Council approve the recommended changes to the parking restrictions adjacent the driveways to Strata Plan NW 603; 4100, 4200, 4300 blocks Garden Grove Drive.
2. THAT J.P. Daem of Strataco/Bradson, 302 - 4180 Lougheed Highway, receive a copy of this report.

R E P O R T

Correspondence was received from J.P. Daem of Strataco/Bradson, on behalf of the Strata Council for Strata Plan NW 603, requesting an extension of 6 m to the existing "No Parking" zones on either side of their three entrance driveways on Garden Grove Drive. This was referred to Engineering for investigation and report. The conclusions based on the review are as follows:

1. The south driveway which accesses the complex's parking in the 4300 block Garden Grove Drive is currently not signed. To provide better visibility for exiting vehicles it is recommended that approximately 6 m on both sides of the driveway be signed "No Stopping Anytime".
2. The driveway accessing the complex's parking in the 4200 block Garden Grove Drive is signed with a fire zone. It is recommended that this fire zone be extended an additional 6 m on both sides of the driveway.
3. The north driveway accessing the complex's parking in the 4100 block Garden Grove Drive is signed with a fire zone. The ends of the zone are approximately 30 m north and 20 m south of the driveway. It is recommended that no changes to existing signing be made as sight distance exiting the driveway is sufficient.

A letter dated 1989 September 15 was sent to J.P. Daem of Strataco/Bradson explaining the recommended changes and inviting him to contact the Engineering Department if the changes proposed do not address his concerns. As we have not been contacted, it is presumed that he agrees with the findings in this matter.

F. 14TH AVENUE BETWEEN CANADA WAY AND KINGSWAY

RECOMMENDATIONS:

1. THAT Burnaby staff meet with the Ministry of Transportation and Highways to discuss and examine ways and means by which the signalized intersections on 10th Avenue at Canada Way and Kingsway and on Edmonds at Kingsway and Canada Way can be made to operate more efficiently to reduce delay and thereby encourage commuter traffic to maintain travel along the arterial routes rather than "shortcut" through the residential neighbourhood.

2. THAT following completion of the investigation mentioned in Recommendation No. 1, staff report back to the Traffic Safety Committee.
3. THAT the Parks and Recreation Commission be requested to provide appropriate fencing along the 14th Avenue frontage of Hilda Park for added safety and to separate the park from 14th Avenue.
4. THAT the RCMP be requested to implement, over the next six months, a phased program of enforcement in the playground zone on 14th Avenue with the objective of making all drivers aware of the presence of the Hilda Park playground and posted travel speed and thereafter report back to the Traffic Safety Committee.
5. THAT following the six month period mentioned in Recommendation No. 4, staff again monitor the traffic volumes in the area to identify any changes and report back to the Traffic Safety Committee.
6. THAT Mr. Ron Morey of 7608-14th Avenue and Mr. Paul Wilting of 7511-14th Avenue be sent a copy of this report.

R E P O R T

The Director Planning and Building Inspection reported as follows:

"1.0 INTRODUCTION

The issue raised initially by Ron and Leslie Morey of 7608-14th Avenue and subsequently by Mr. Paul Wilting of 7511-14th Avenue was that commuter traffic from Canada Way and Kingsway was using 14th Avenue to avoid the peak travel period congestion and delays that occur at the signalized intersections along the arterial routes surrounding the neighborhood. Further, that vehicles travel at speeds exceeding the posted speed in the playground zone at Hilda Park which extends northward from 14th Avenue. Also that some sort of traffic control was required at the 14th Avenue intersection with Davies Street due to the number of accidents which had occurred.

As possible solutions to reduce travel speeds and to discourage or redirect commuter traffic from 14th Avenue, suggestions were made for increased enforcement of the playground speed zone, installation of stop signs or barriers on 14th Avenue, or introduction of peak period turn restriction signs on Canada Way and Kingsway.

The Traffic Safety Committee subsequently requested:

"THAT staff investigate the feasibility of restricting turning movements as a means of controlling commuter traffic during peak periods along 14th Avenue between Kingsway and Canada Way; and further,

THAT staff provide a report on the outcome of the investigation of turning restrictions, the feasibility of a stop sign on Davies Street, the height and location of questionable hedge, parking along 14th, and traffic counts on both 16th and 12th Avenues; and further,

THAT Mr. Ron Morey be provided with a copy of the report when available."

2.0 SUMMARY

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Burnaby staff have conducted on-site investigations on 14th Avenue regarding peak period travel speeds, a licence plate study and traffic volume counts. Investigation also included current land use and street hierarchy information, arterial street traffic volume, as well as reported traffic accident statistics for the neighborhood and surrounding arterial street network. This information is shown graphically in the Appendix attached to this report.

The results of the investigation indicate the following:

- (i) Considering the area characteristics and residential development densities, the current street traffic volumes do not appear to be excessive but indicate a balanced distribution of use of the street network.
- (ii) Commuter traffic volume on 14th Avenue during the morning and evening peak travel times, although not large in absolute terms, was a substantial proportion of the total traffic on 14th Avenue entering and leaving the area during the periods studied.
- (iii) More than ninety percent of the traffic passing Hilda Park on 14th Avenue, both commuter and local traffic, exceeded the posted 30km/h playground zone speed limit.
- (iv) Installation of peak period turn restrictions on Canada Way and Kingsway at 14th Avenue would shift commuter and local traffic to 12th Avenue by the Twelfth Avenue Elementary School and Mary Avenue Park in the morning and to 13th Avenue and Mary Avenue or Davies Street in the evening and would limit the accessibility for residents of the area who would be required to use other streets.
- (v) The intersection of 14th Avenue with Davies Street does not meet the warrant criteria for "stop" sign control.
- (vi) The cedar hedge in front of 7562-14th Avenue meets the By-law requirement for height, however the hedge is located well into the roadway as shown on Figure 12 in the Appendix. Although the size of the hedge does not present a formidable view obstruction, its location within the roadway could be a contributing factor to accidents at this intersection and its removal or relocation to inside the property line is recommended.

- (vii) A specific recommendation should not be made at this time to implement any scheme which would affect travel patterns in the area until the results of Recommendation 1 are known. Nevertheless several alternative schemes were examined which could discourage commuter traffic. These are illustrated in the Appendix Figures 9 to 13 inclusive, along with applicable discussion.

NOTE:

The Traffic Safety Committee also considered a staff recommendation to remove or relocate the cedar hedge, which is located well within the road allowance along the frontage of 7562 - 14th Avenue, to inside the property line at the expense of the property owner.

The Committee did not feel it was necessarily the responsibility of the property owner to pay the expense of removal or relocation of the hedge or if in fact the hedge was a contributing factor, and therefore referred the recommendation back to staff to consider an alternate solution.

A. NEIGHBOURHOOD AREA

In order to assess the 14th Avenue traffic matters in terms relative to the neighborhood it is believed desirable firstly to obtain a broader perspective of some of the neighborhood characteristics and traffic related information before examining the feasibility of altering travel patterns into/from or within the neighborhood.

Figure 1 of the Appendix attached shows the arterial street network surrounding the neighborhood, the location of traffic signals and the constructed street/lane pattern in the area and indicates the streets having priority, i.e. streets which are protected with stop signs.

Figure 2 of the Appendix attached shows generally the existing land use pattern of the over-all neighborhood. In the area south from 16th Avenue to 12th Avenue between Kingsway and Canada Way (the area which would be most affected by any changes to neighborhood access and internal travel patterns) there are approximately 630 residential dwelling units. Forty seven percent of these are of the single and two family variety while 53 percent are of the multi-family, townhouse and low density apartment variety. It is estimated that the 630 dwelling units in this area would generate between 4300 and 4900 vehicle trips per average weekday.

Other properties yet remain for further multi-family residential development within this sector of the Community Plan Six area.

The neighborhood has two parks, Hilda park north of 14th Avenue and the larger Mary Avenue Park south of 12th Avenue located between two schools, the Twelfth Avenue Elementary School toward Canada Way and the St. Thomas More High School toward Kingsway. The Twelfth Avenue Elementary School currently has an enrollment of approximately 330 pupils from the catchment area which is bounded by 10th Avenue, 6th Street, 16th Avenue and Kingsway. The St. Thomas More High School draws students from several municipal jurisdictions.

Regarding commercial land use, there are commercial establishments along the west side of Kingsway and on all four corners of the 14th/Kingsway intersection which could be contributing factors for some of the traffic on 14th Avenue. Regarding the latter intersection the Hotel Burnaby is located on the S.E. corner with parking off 14th Avenue, the Burnaby Market across Kingsway on the N.W. corner (we understand that the Market is "For Sale"), an auto muffler shop on the N.E. corner and the offices of the Canadian Labor Congress on the S.W. corner.

On the Canada Way side there is a service station on the S.W. corner of the Canada Way/14th Avenue intersection.

Figure 3 of the Appendix attached illustrates graphically the traffic flow volumes on the arterial street network surrounding the neighborhood along with the 24 hour traffic volume counts for 12th, 14th, 16th and Mary Avenues. It is noted that the local streets, 12th, 14th and 16th Avenues, carry relatively equal volumes of daily traffic. The influence of traffic signals on Kingsway at 14th Avenue and on Edmonds Street at Mary Avenue (both are pedestrian actuated signals) is shown by the higher vehicle volumes on these street segments possibly because drivers perceive a lesser exposure to risk in entering or crossing at these intersections than offered at other streets connecting to the arterials.

2. Traffic Accidents

Figure 4 of the Appendix attached shows, on a relative comparison basis, the absolute number of reported traffic accidents which have occurred at the various intersections for the two and one-half year period from 1987 January to 1989 June.

It should be noted that discussion with a resident of the area indicated that more accidents have actually occurred at one specific intersection than are reported herein. This fact may be equally applicable to other intersections in the area because not all accidents are reported to the R.C.M.P.

3. Traffic Speed

Figure 5 of the Appendix attached shows the location on 14th Avenue of the standard "playground" signs with the 30 km/h speed "tab" relative to Hilda Park.

On 1989 July 13 (Thursday) Engineering Department staff, using radar, undertook a vehicle speed study on 14th Avenue at the Hilda park frontage. The study conducted between 07:30h and 08:30h recorded the speed of 81 vehicles; and between 16:00h and 18:00h recorded the speed of 124 vehicles.

The results of the speed study during both the morning and evening travel periods indicated the following:

- only 6 percent of the vehicles travelled at or below the posted playground zone speed of 30 km/h;
- approximately 33 percent of the vehicles travelled at 40 km/h or less;
- between 80 and 83 percent of the vehicles travelled at 50 km/h or less in the morning and evening travel periods respectively.

The results of the study clearly indicate that the majority (over 90 percent) of the drivers on 14th Avenue are exceeding the speed posted in the area of Hilda Park.

Notwithstanding the adequacy and appropriate location of the signs indicating the presence of the park area, a possible explanation of why most drivers exceed the posted speed, other than a tendency to disregard all signs, could be that the narrow width of Hilda Park fronting 14th Avenue, (approximately 40 meters) along with the private homes flanking both sides of the park frontage, reduces the exposure of the park. Further, because on-street parking is normally permitted along the frontage of residential properties the presence of parked vehicles in front of the homes further reduces the exposure of the park to drivers. The park presence therefore, is unconscionably overlooked by drivers who continue to travel at speeds perceived to be reasonable for the area. The average speeds for both the morning and evening periods were calculated to be 44.4 km/h and 44.9 km/h respectively.

4. License Plate Study

In order to determine the amount of commuter traffic on 14th Avenue, Engineering Department staff performed a license plate study to determine the amount of traffic that uses 14th Avenue to pass through the neighborhood between Canada Way and Kingsway during the morning and evening peak travel periods.

Figure 6 of the Appendix attached, illustrates in detail the results of the license plate study for the 07:00h to 09:00h and 15:00h to 18:00h travel periods respectively.

Although the absolute number of commuters on 14th Avenue was not large, the proportion of commuter traffic on the street was determined to be 60 percent of the total traffic using 14th Avenue to enter the neighborhood and 44 percent of the total traffic using 14th Avenue to leave the neighborhood during the morning rush hours. During the evening period commuter traffic on 14th Avenue was found to be 40 percent of the total traffic

Although the daily traffic volumes on the current street network indicate a balanced use of the streets the percentage of commuters indicates that, in future, measures may need to be taken to restrict or divert this traffic from 14th Avenue. It should be clear, however, that because these measures would equally affect the travel and access patterns of neighborhood traffic, contact with local residents would need to be made in order to obtain a consensus on the measures which would be least disruptive to the needs in the area and most acceptable to the residents.

C. DISCUSSION

The preceding notwithstanding, in order to examine the feasibility of reducing the attractiveness of 14th Avenue for through travel between Canada Way and Kingsway and reducing the travel speed adjacent Hilda Park, various alternatives were considered and the impact of each was examined.

The alternatives involved consideration of both passive controls, and physical controls.

1. Passive Controls.

Passive controls such as regulatory signs are intended to induce drivers to respond in a desired manner, whether it be to observe a designated speed, to not turn in a specific direction during certain hours of the day, or to stop, etc. To be effective continually, passive controls must receive a certain degree of enforcement.

The impact of passive controls on many commuter and some local drivers often does not "hit home" until enforcement of the control device is applied or, an accident situation occurs. If enforcement is not applied, the controls implemented will not achieve the purpose of their installation; and further, if disregarded by some drivers could create a hazard for others.

a) Turn Restrictions

The application of a left-turn restriction on Canada Way and Kingsway at 14th Avenue was considered for the morning and evening peak travel periods respectively.

Based upon the data obtained in the license plate study on the Canada Way side of 14th Avenue, the restriction would require that approximately 104 vehicles (25 percent of which were destined to the neighborhood) find another street to enter. It is anticipated, due to the limited choice of alternatives and because these vehicles were approaching from the South along Canada Way, that the street most likely to receive this left-turn traffic would be Twelfth Avenue and the north-south residential streets connecting with Twelfth Avenue. Twelfth Avenue borders a playground as well as an elementary school.

Similarly, a left-turn restriction on Kingsway for the evening travel period would prevent approximately 138 vehicles (62 percent of which are destined to the neighborhood) from entering their neighborhood via 14th Avenue. It is anticipated that a substantial number of the neighborhood traffic restricted from turning at 14th Avenue, depending upon where the traffic entered Kingsway and its destination within the neighborhood, would either use 16th Avenue and north-south connecting streets or, use the short section of Thirteenth Avenue through the higher density residential area. Commuters would either continue along the arterial route to the next point of congestion or, seek the next least congested, most direct, least restrictive, alternative route oriented to their travel direction.

b) Stop Signs

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Regarding the Committee's request that staff investigate the feasibility of installing stop signs on Davies Street to respond to the accidents which have occurred at that location, we would advise that staff's investigation indicated the warrant criteria for implementing stop sign control are not met. Further, if stop signs were located on Davies Street this would cater to the traffic on 14th Avenue and therefore would reinforce the use of that street.

However, the location of stop signs on 14th Avenue at Davies Street as a means to stop, slow, or discourage traffic from using 14th Avenue could not be supported because it would be an improper use of a stop sign and further, it would designate Davies Street as being the higher travel priority street in the area which is neither intended nor could be justified.

2. Physical Controls.

Physical controls provide 24 hour permanent traffic pattern alterations and control all traffic. Physical controls involve the erection of barriers, traffic diverters, street closures and alteration to the street geometry. The impact of physical controls is that travel patterns are forcibly altered both outside and inside the neighborhood. When physical controls are installed within a residential area both resident and commuter drivers will change their travel pattern outside the neighborhood. But, when commuters find that they cannot be easily accommodated on the street network surrounding the neighborhood due to traffic congestion and resulting delays, they will shift their travel pattern to the next street, or lane, closest to the desired direction of travel. This action can create or even compound, as in the case of accidents, a problem at another location(s) within the neighborhood.

a) Street Closure

The development of a cul-de-sac closure on almost any street in this area would require obtaining portions of private property to construct the turn around. Currently, there is little potential for closing any streets without seriously restricting or altering internal travel patterns and access or shifting traffic volumes to the next nearest neighborhood street or lane.

There is one street closure which could be achieved without property acquisition. This closure would not involve development of a cul-de-sac. Rather, a landscaped closure within the existing street allowance would create two right-angle corners. The closure location would extend across 14th Avenue aligning approximately with the front property line of the westside properties South of 14th Avenue as shown on Figure 7 of the Appendix attached.

An inherent disadvantage of this closure location is the close proximity of a parallel lane between Burgess and Hilda streets. The lane would undoubtedly be used as a bypass travel route in order to avoid the closure on 14th Avenue.

b) Partial Street Closure

The partial closure of a street restricts the street to a one-way operation (usually contrary to the travel direction of the traffic undesired) at the location of the partial closure as shown on Figure 8 of the Appendix attached. Two locations would be required in order to deal with both the morning and evening travel periods. The resulting travel patterns show that commuter traffic would still be able to pass through the area with little difficulty.

c) Traffic Circle

Traffic circles can be located at 3-way and multi-legged intersections. Traffic circles have been installed in residential areas of some cities in the U.S.A. and Canada with varying degrees of success in achieving a reduction in vehicle speed.

The success rate is generally high immediately following the initial installation, however, as drivers become familiar with the optimum speed at which they can negotiate the circle, speeds tend to increase along other sections of the travel route. Burnaby's experience with traffic circles along a street in North Burnaby was not encouraging and the temporary installation was subsequently removed. Although this device is ineffective for reducing commuter traffic it may be more effective as an accident reduction measure in certain locations. A candidate location for a traffic circle of suitable design might be on 14th Avenue at Davies Street as shown on Figure 9 of the Appendix attached. The configuration of the island would need to be more elliptical at this location because all the curbs are not equidistant from the center of the intersection yet all roadway clearances should be of uniform width.

d) Traffic Diverters

Traffic diverters are located at normal 4-way intersections. The location of traffic diverters within a neighborhood can change neighborhood travel to the point of confusion and frustration for visitors attempting to locate friends, increase travel distances for neighborhood residents and increase travel time for emergency vehicles. The orientation of a traffic diverter in an intersection forces vehicles to change direction of travel (a right-angle turn) from one street to another.

A possible location for a landscaped traffic diverter, which might prove to be effective for reducing commuter travel along 14th Avenue, would be at the 14th Avenue/Mary Avenue intersection as shown on Figure 10 of the Appendix attached. The orientation of the diverter should be N.E./S.W. which could require a small amount of property acquisition and would require reconstruction of the intersection to provide adequate room for two-way traffic to turn through the intersection. The orientation suggested is contrary to the desired travel direction of commuter traffic.

The most effective means by which all commuter traffic can be prevented from using the local streets south of 16th Avenue is by installing two traffic diverters in the neighborhood. One diverter would be located on 14th Avenue at Davies Street, the other on 13th Avenue at Mary Avenue as shown on Figure 11 of the Appendix attached.

Locating the diverters at these intersections will establish a double loop street pattern south of 16th Avenue. The south-eastern loop connects 12th and 14th Avenues to Canada Way while the north-westerly loop connects 13th and 14th Avenues to Kingsway with Mary Avenue and Davies Street connected to 16th Avenue.

Residents in the north-westerly loop area who usually drive their child(ren) to the Twelfth Avenue School would need to revise their travel pattern. Those from outside the neighborhood who drive their child(ren) to the Twelfth Avenue School or to the St. Thomas More High School would not be able to continue on through the neighborhood. Although this would reduce the total amount of "through" travel in the area it would increase the amount of vehicle movement in the 12th Avenue area.

3. Parking

Regarding parking, the Hilda Park frontage along 14th Avenue does not have a parking restriction posted nor does the park have fencing along this frontage. It is believed desirable, considering the proximity of the Hilda Park playground equipment to 14th Avenue, to install suitable fencing for an increased measure of safety. Recent development of playground areas in other areas of Burnaby have been fenced.

The Parks & Recreation Department staff advise that, on the approval of the Parks Commission, the installation of fencing separating the park from the 14th Avenue roadway would cost approximately \$1300.

4. Hedge

Regarding the matter of the hedge in the S.E. quadrant of the 14th Avenue/Davies Street intersection, staff have again examined the cedar hedge and found it to be well maintained and within the Zoning Bylaw height requirement although it is located up to 3.3m (11ft.) inside the 14th Avenue road allowance as recently surveyed by Engineering staff and shown on Figure 12 of the Appendix attached.

Parks & Recreation Department staff advise that it would cost approximately \$1000 to carefully relocate the hedge back to inside the property line and restore the area from which the hedge was moved. However, should the hedge simply be removed, the cost could be one-half the relocation cost. These estimates do not include the relocation of the chain link fence which is well into the Davies Street road allowance extending toward the lane.

5. Guidelines

It is believed desirable to have certain criteria established as policy guidelines so that some uniform basis can be applied to neighborhood studies when residents request that action be taken to relieve an area of non-local traffic and thereby improve the livability of the area.

The Comprehensive Transportation Plan for Burnaby, adopted by Council in 1979 August, encompasses a policy framework and a conceptual transportation plan. Along with other major policies, traffic management, protection of the livability of residential neighborhoods and dealing with commuter traffic in residential areas rank as highly important elements of the Transportation Plan. Although no specific guidelines were established for determining what magnitude of commuter traffic would be the limiting or critical volume on residential streets that would prompt action to eliminate or limit commuter traffic on the street(s), our initial research in the matter has provided some criteria by which comparison can be made with the experience in other locales.

The following items relate to the type of information or criteria which have been used as a policy guideline by one other jurisdiction(*) concerning commuter traffic in residential neighborhoods. This policy permitted neighborhoods to restrict non-local traffic under certain conditions, e.g.:

- a) on secondary residential streets only
- b) that non-local traffic volume be greater than 200 vehicles per hour, per direction

- c) that two-thirds of the affected households supported the proposed action
- d) that the proposed scheme be endorsed by the civic association
- e) that the diverted traffic could be accommodated on adjacent arterial streets
- f) that there be no negative impact on adjacent neighborhoods.

Subsequently, this policy was updated to reflect more liberal warrants for intersection control within neighborhoods.

It is staff's intention to further research the matter and prepare specific parameters as guideline criteria which will establish a basis upon which neighborhood areas can be examined in connection with requests for traffic control. It is proposed that a preliminary report outlining the criteria and process which would involve the residents would be submitted to the Transportation Committee for consideration in the Spring 1990".

6. OAKLAND STREET AT ELGIN AVENUE

RECOMMENDATIONS:

1. THAT Ralph Kinross of 6089 Elgin Avenue receive a copy of this report.

R E P O R T

In a letter dated 1989 September 17 was received from Mr. Ralph Kinross of 6089 Elgin Avenue, expressing concerns about safety at the intersection of Oakland Street and Elgin Avenue. The writer requested multi-way stop control as a solution. This suggestion was referred to Engineering for investigation and report.

The Traffic Supervisor reported as follows:

"Oakland is a major collector street carrying approximately 9000 V.P.D. Elgin Avenue is a residential street carrying approximately 700 V.P.D and is stop sign controlled at Oakland. There is no traffic management warrant for added control at this intersection. However the intersection has poor sight distance characteristics due to the horizontal and vertical alignment of this stretch of Oakland Street. A parking prohibition was instituted in April, 1985 on the south side of Oakland Street west of Elgin Avenue to improve sight distance for motorists entering the intersection from Elgin Avenue.

Although there have recently been a couple of serious accidents along Oakland near Elgin the intersection does not meet the warrants for multi-way stop control. We understand that the major factor in these accidents has been excessive speed with alcohol a contributing factor. Staff recently installed advance curve warning signs and chevron arrows on Oakland Street eastbound to obviate visibility concerns. Staff further intend to post advisory 30 KMH and hidden intersection warning signs on Oakland Street (eastbound) in advance of the Elgin intersection.

To address the visibility problem of traffic exiting Elgin, we have recently ordered the extension of the no stopping prohibition on the Oakland eastbound approach to the intersection. This will insure that vision is not blocked by parked vehicles for traffic entering Oakland at Elgin. This also meets the needs of the adjacent resident who has experienced visibility problems backing out of her driveway. We are also proposing to use lane edge pavement markings along Oakland at Elgin. This will tend to throttle eastbound Oakland traffic and keep it closer to centre line so that Elgin traffic can nose into the intersection with greater confidence.

We have used this approach to solve a similar problem elsewhere with success. If these measures do not work, consideration should be given to banning left turn movements at the intersection.

Staff attempted, but were unable to contact Mr. Kinross by telephone to discuss the contents of this report. We did however encounter the residents of the corner homes on Elgin and Oakland during our site visit and discussed the problems and solutions with them at length".

H. EASTLAKE DRIVE AND PRODUCTION WAY

RECOMMENDATION:

1. THAT Council approve the installation of a traffic signal at Eastlake Drive and Production Way.

R E P O R T

The Traffic Supervisor reported as follows:

"On 1985 February 04 the intersection of Eastlake Drive and Production Way was converted to a 4-Way stop. Prior to then the intersection was controlled by a 2-Way stop with Eastlake Drive having to stop in favour of Production Way. Concerns over increased traffic volume and accident rate led to an investigation which indicated that a 4-Way stop control was warranted.

Since the installation of the 4-Way stop this intersection has continued to be monitored. We have been pleased with the decrease in accidents but an increase in traffic volume due to new industry in the Lake City area and commuter traffic has raised concerns over intersection congestion.

Total volume through the intersection has increase from 12,795 vehicles per day in November of 1984 to a current volume of 19,639. This is an increase of 53% over a 5 year period.

We have run the current statistical data through two separate warrant evaluations. Both the Roads and Transportation Association of Canada (RTAC) and the Institute of Transportation Engineers (ITE) warrants for signal installations have been met.

Although the priority ratings for the accident portions of these warrants are very low, (in fact a negative value under the RTAC warrant) traffic volume alone indicate that the operation of this intersection would improve with the installation of a traffic signal.

As we expect traffic volume and therefore congestion to increase we recommend the installation of a traffic signal at this intersection".

I. BURKE STREET AT SMITH AVENUE

RECOMMENDATION:

1. THAT the Burke Street and Smith Avenue intersection be converted to four-way stop control.

R E P O R T

The Traffic Supervisor reported as follows:

"Staff have recently received a number of complaints regarding the Smith Avenue and Burke Street intersection. Both streets function as local collectors but at their intersection Burke is stop controlled in favour of Smith reflecting Smith's greater importance at the time the stop control was implemented.

With the recent improvement of Boundary Road there appears to have been some restructuring of traffic patterns. The approach volumes are now almost equal - a prerequisite for consideration of multi-way stop control.

Although the intersection has two-way stop control it has had a moderate but consistent accident history. This pattern has recently changed with a surge of accident reports in 1989. We believe that this recent cluster of accident reflects the changes in traffic patterns discussed above rather than statistical chance. Most of these accidents are right-angle collisions and should be addressed by additional control. Given the specific conditions at this intersection we recommend its conversion to a four-way stop".

J. UNION STREET AT CLIFF AVENUE

RECOMMENDATIONS:

1. THAT Council approve the installation of a two-way stop on Union Street at Cliff Avenue.
2. THAT Mr. John A. Trafford of 856 Cliff Avenue receive a copy of this report.

R E P O R T

Mr. John A. Trafford of 856 Cliff Avenue has asked that consideration be given to the installation of a stop sign at the intersection of Cliff and Union.

A review of this intersection by Engineering staff indicates the following:

- an increase in accidents over the last three years;
- the intersection meets the Committee adopted warrant for the installation of a two-way stop;
- both streets are functioning as local residential collector routes serving the neighbourhood.

It is therefore recommended to install a two-way stop control and that the stop signs should be placed on Union Street giving right-of-way to Cliff Avenue. Volumes will be reduced on Cliff Avenue with the pending closure of the lane south of 7000 Hastings Street (eliminating access to Hastings) by stopping traffic on Union Street we will discourage its use by extraneous traffic.

K. 16TH AVENUE BETWEEN KINGSWAY AND CANADA WAY

RECOMMENDATIONS:

1. THAT the R.C.M.P. be requested to include the Hilda Park playground speed zone on 16th Avenue along with the phased program of speed enforcement on 14th Avenue recommended in Report Item F; the report on 14th Avenue between Canada Way and Kingsway.
2. THAT a copy of this report along with a copy of Report Item F, the report on 14th Avenue between Canada Way and Kingsway, be forwarded to Dean and Brenda Camfferman at 7390-16th Avenue, Burnaby, B.C. V3N 1P1.

R E P O R T

The Director Planning and Building Inspection reported as follows:

"1.0 INTRODUCTION

Correspondence was received from Dean and Brenda Camferman expressing their concerns regarding the speed and pedestrian safety problems associated therewith on 16th Avenue between Canada Way and Kingsway.

2.0 16TH AVENUE

16th Avenue, between Canada Way and Kingsway, is currently constructed to an interim standard with a capped pavement 20 ft. wide, gravel shoulders and a sidewalk along the northern side of the street. 16th Avenue functions as a local collector street carrying a two-way 24 hour traffic volume of approximately 1,530 vehicles per average week day (Thursday/Friday, 1988 October 13/14). 16th Avenue provides the collector function for residents north and south of 16th Avenue who are tributary to Humphries and Mary Avenues to the north as well as Humphries Court, Mary Avenue, Davies and Burgess Streets to the south. The street itself, between Canada Way and Kingsway, has a total of over 70 dwelling units flanking the street and over 40 driveways directly accessing the street as well as four lanes which connect to the street. 16th Avenue therefore performs a very important function in the street network because it provides the inter-connection between local residential streets and the adjacent Canada Way and Kingsway arterial streets.

In conclusion neither the Planning & Building Inspection Department nor the Engineering Department could support closure of any portion of this facility due to the important nature of this street. It is recognized however, despite its more local character, that its openness in appearance and its direct inter-connection between Canada Way and Kingsway could encourage or lead to higher travel speeds. Bearing in mind that the report on 14th Avenue between Canada Way and Kingsway, item 3(d) on the Traffic Safety Committee's Agenda, deals with a similar situation on 14th Avenue, it is recommended that the R.C.M.P. be requested to integrate and include 16th Avenue in the phased program of speed enforcement recommended for 14th Avenue".

L. TRAFFIC ON RUMBLE STREET

RECOMMENDATION:

1. THAT a copy of this report be forwarded to the Transportation Committee.

R E P O R T

At the Council meeting of 1989 October 30, Alderman Corrigan advised that he has received several complaints regarding the increase of commuter traffic on Rumble Street particularly in the areas of Nelson and Suncrest Schools.

It was moved by Alderman Corrigan and seconded by Alderman Young:

"THAT the increase in commuter traffic on Rumble Street be REFERRED to the Traffic Safety Committee for report."

This recommendation was Carried Unanimously. Subsequently we telephoned Alderman Corrigan who indicated that his concerns were twofold:

First, he was concerned about traffic safety on Rumble Street.

Second, he was seeking some consideration and review of the role of Rumble, relative to future travel patterns including through commuter traffic.

It would be appropriate for the Traffic Safety Committee to deal with the first concern (staff will be presenting a report to a future meeting). Alderman Corrigan agreed that his second concern, was a strategic one that would most appropriately be addressed by the Transportation Committee.

M. 10TH AVENUE AND CUMBERLAND

RECOMMENDATION:

1. THAT Council receive this report for information purposes.

R E P O R T

The Traffic Safety Committee have considered, on numerous occasions, traffic problems associated with the intersection of 10th Avenue and Cumberland Street. This intersection is a shared responsibility between Burnaby and the City of New Westminster.

At the 1989 November 07 Committee meeting two more letters were received from Burnaby residents who were concerned about a recent traffic fatality at the intersection and suggesting that the installation of a traffic signal is long overdue.

Arising out of the Committee's discussion, staff were requested to arrange a joint meeting between the Burnaby and New Westminster Traffic Safety Committees to initiate some constructive dialogue on how best to treat the intersection.

This matter will then be reported on to Council in the near future.

Respectfully submitted,

Alderman R.G. Begin
Acting Chairman

THE CORPORATION OF THE DISTRICT OF BURNABY

TRAFFIC SAFETY COMMITTEE

APPENDIX

Re: 14th Avenue between Canada Way and Kingsway

A. NEIGHBOURHOOD AREA

In order to assess the 14th Avenue traffic matters in terms relative to the neighborhood it is believed desirable firstly to obtain a broader perspective of some of the neighborhood characteristics and traffic related information before examining the feasibility of altering travel patterns into/from or within the neighborhood.

Figure 1 attached shows the arterial street network surrounding the neighborhood, the location of traffic signals and the constructed street/lane pattern in the area and indicates the streets having priority, i.e. streets which are protected with stop signs.

Figure 2 attached shows generally the existing land use pattern of the over-all neighborhood. In the area south from 16th Avenue to 12th Avenue between Kingsway and Canada Way (the area which would be most affected by any changes to neighborhood access and internal travel patterns) there are approximately 630 residential dwelling units. Forty seven percent of these are of the single and two family variety while 53 percent are of the multi-family, town-house and low density apartment variety. It is estimated that the 630 dwelling units in this area would generate between 4300 and 4900 vehicle trips per average weekday.

Other properties yet remain for further multi-family residential development within this sector of the Community Plan Six area.

The neighborhood has two parks, Hilda park north of 14th Avenue and the larger Mary Avenue Park south of 12th Avenue located between two schools, the Twelfth Avenue Elementary School toward Canada Way and the St. Thomas More High School toward Kingsway. The Twelfth Avenue Elementary School currently has an enrollment of approximately 330 pupils from the catchment area which is bounded by 10th Avenue, 6th Street, 16th Avenue and Kingsway. The St. Thomas More High School draws students from several municipal jurisdictions.

Regarding commercial land use, there are commercial establishments along the west side of Kingsway and on all four corners of the 14th/Kingsway intersection which could be contributing factors for some of the traffic on 14th Avenue. Regarding the latter intersection the Hotel Burnaby is located on the S.E. corner with parking off 14th Avenue, the Burnaby Market across Kingsway on the N.W. corner (we understand that the Market is "For Sale"), an auto muffler shop on the N.E. corner and the offices of the Canadian Labor Congress on the S.W. corner.

On the Canada Way side there is a service station on the S.W. corner of the Canada Way/14th Avenue intersection.

B. TRAFFIC DATA

1. Traffic Volume

Figure 3 attached illustrates graphically the traffic flow volumes on the arterial street network surrounding the neighborhood along with the 24 hour traffic volume counts for 12th, 14th, 16th and Mary Avenues. It is noted that the local streets, 12th, 14th and 16th Avenues, carry relatively equal volumes of daily traffic. The influence of traffic signals on Kingsway at 14th Avenue and on Edmonds Street at Mary Avenue (both are pedestrian actuated signals) is shown by the higher vehicle volumes on these street segments possibly because drivers perceive a lesser exposure to risk in entering or crossing at these intersections than offered at other streets connecting to the arterials.

2. Traffic Accidents

Figure 4 attached shows, on a relative comparison basis, the absolute number of reported traffic accidents which have occurred at the various intersections for the two and one-half year period from 1987 January to 1989 June.

It should be noted that discussion with a resident of the area indicated that more accidents have actually occurred at one specific intersection than are reported herein. This fact may be equally applicable to other intersections in the area because not all accidents are reported to the R.C.M.P.

3. Traffic Speed

Figure 5 attached shows the location on 14th Avenue of the standard "playground" signs with the 30 km/h speed "tab" relative to Hilda Park.

On 1989 July 13 (Thursday) Engineering Department staff, using radar, undertook a vehicle speed study on 14th Avenue at the Hilda park frontage. The study conducted between 07:30h and 08:30h recorded the speed of 81 vehicles; and between 16:00h and 18:00h recorded the speed of 124 vehicles.

The results of the speed study during both the morning and evening travel periods indicated the following:

- only 6 percent of the vehicles travelled at or below the posted playground zone speed of 30 km/h;
- approximately 33 percent of the vehicles travelled at 40 km/h or less;
- between 80 and 83 percent of the vehicles travelled at 50 km/h or less in the morning and evening travel periods respectively.

The results of the study clearly indicate that the majority (over 90 percent) of the drivers on 14th Avenue are exceeding the speed posted in the area of Hilda Park.

Notwithstanding the adequacy and appropriate location of the signs indicating the presence of the park area, a possible explanation of why most drivers exceed the posted speed, other than a tendency to disregard all signs, could be that the narrow width of Hilda Park fronting 14th Avenue, (approximately 40 meters) along with the private homes flanking both sides of the park frontage, reduces the exposure of the park. Further, because on-street parking is normally permitted along the frontage of residential properties the presence of parked vehicles in front of the homes further reduces the exposure of the park to drivers. The park presence therefore, is unconsciously overlooked by drivers who continue to travel at speeds perceived to be reasonable for the area. The average speeds for both the morning and evening periods were calculated to be 44.4 km/h and 44.9 km/h respectively.

4. License Plate Study

In order to determine the amount of commuter traffic on 14th Avenue, Engineering Department staff performed a license plate study to determine the amount of traffic that uses 14th Avenue to pass through the neighborhood between Canada Way and Kingsway during the morning and evening peak travel periods.

Figure 6 attached, illustrates in detail the results of the license plate study for the 07:00h to 09:00h and 15:00h to 18:00h travel periods respectively.

Although the absolute number of commuters on 14th Avenue was not large, the proportion of commuter traffic on the street was determined to be 60 percent of the total traffic using 14th Avenue to enter the neighborhood and 44 percent of the total traffic using 14th Avenue to leave the neighborhood during the morning rush hours. During the evening period commuter traffic on 14th Avenue was found to be 40 percent of the total traffic entering and 46 percent of the total traffic leaving the neighborhood via 14th Avenue.

Although the daily traffic volumes on the current street network indicate a balanced use of the streets the percentage of commuters indicates that, in future, measures may need to be taken to restrict or divert this traffic from 14th Avenue. It should be clear, however, that because these measures would equally affect the travel and access patterns of neighborhood traffic, contact with local residents would need to be made in order to obtain a consensus on the measures which would be least disruptive to the needs in the area and most acceptable to the residents.

C. DISCUSSION

The preceding notwithstanding, in order to examine the feasibility of reducing the attractiveness of 14th Avenue for through travel between Canada Way and Kingsway and reducing the travel speed adjacent Hilda Park, various alternatives were considered and the impact of each was examined.

The alternatives involved consideration of both passive controls, and physical controls.

1. Passive Controls.

Passive controls such as regulatory signs are intended to induce drivers to respond in a desired manner, whether it be to observe a designated speed, to not turn in a specific direction during certain hours of the day, or to stop, etc. To be effective continually, passive controls must receive a certain degree of enforcement.

The impact of passive controls on many commuter and some local drivers often does not "hit home" until enforcement of the control device is applied or, an accident situation occurs. If enforcement is not applied, the controls implemented will not achieve the purpose of their installation; and further, if disregarded by some drivers could create a hazard for others.

a) Turn Restrictions

The application of a left-turn restriction on Canada Way and Kingsway at 14th Avenue was considered for the morning and evening peak travel periods respectively.

Based upon the data obtained in the license plate study on the Canada Way side of 14th Avenue, the restriction would require that approximately 104 vehicles (25 percent of which were destined to the neighborhood) find another street to enter. It is anticipated, due to the limited choice of alternatives and because these vehicles were approaching from the South along Canada Way, that the street most likely to receive this left-turn traffic would be Twelfth Avenue and the north-south residential streets connecting with Twelfth Avenue. Twelfth Avenue borders a playground as well as an elementary school.

Similarly, a left-turn restriction on Kingsway for the evening travel period would prevent approximately 138 vehicles (62 percent of which are destined to the neighborhood) from entering their neighborhood via 14th Avenue. It is anticipated that a substantial number of the neighborhood traffic restricted from turning at 14th Avenue, depending upon where the traffic entered Kingsway and its destination within the neighborhood, would either use 16th Avenue and north-south connecting streets or, use the short section of Thirteenth Avenue through the higher density residential area. Commuters would either continue along the arterial route to the next point of congestion or, seek the next least congested, most direct, least restrictive, alternative route oriented to their travel direction.

b) Stop Signs

Regarding the Committee's request that staff investigate the feasibility of installing stop signs on Davies Street to respond to the accidents which have occurred at that location, we would advise that staff's investigation indicated the warrant criteria for implementing stop sign control are not met. Further, if stop signs were located on Davies Street this would cater to the traffic on 14th Avenue and therefore would reinforce the use of that street. However, the location of stop signs on 14th Avenue at Davies Street as a means to stop, slow, or discourage traffic from using 14th Avenue could not be supported because it would be an improper use of a stop sign and further, it would designate Davies Street as being the higher travel priority street in the area which is neither intended nor could be justified.

2. Physical Controls.

Physical controls provide 24 hour permanent traffic pattern alterations and control all traffic. Physical controls involve the erection of barriers, traffic diverters, street closures and alteration to the street geometry. The impact of physical controls is that travel patterns are forcibly altered both outside and inside the neighborhood. When physical controls are installed within a residential area both resident and commuter drivers will change their travel pattern outside the neighborhood. But, when commuters find that they cannot be easily accommodated on the street network surrounding the neighborhood due to traffic congestion and resulting delays, they will shift their travel pattern to the next street, or lane, closest to the desired direction of travel. This action can create or even compound, as in the case of accidents, a problem at another location(s) within the neighborhood.

a) Street Closure

The development of a cul-de-sac closure on almost any street in this area would require obtaining portions of private property to construct the turn around. Currently, there is little potential for closing any streets without seriously restricting or altering internal travel patterns and access or shifting traffic volumes to the next nearest neighborhood street or lane.

There is one street closure which could be achieved without property acquisition. This closure would not involve development of a cul-de-sac. Rather, a landscaped closure within the existing street allowance would create two right-angle corners. The closure location would extend across 14th Avenue aligning approximately with the front property line of the westside properties South of 14th Avenue as shown on Figure 7 attached.

An inherent disadvantage of this closure location is the close proximity of a parallel lane between Burgess and Hilda streets. The lane would undoubtedly be used as a bypass travel route in order to avoid the closure on 14th Avenue.

b) Partial Street Closure

The partial closure of a street restricts the street to a one-way operation (usually contrary to the travel direction of the traffic undesired) at the location of the partial closure as shown on Figure 8 attached. Two locations would be required in order to deal with both the morning and evening travel periods. The resulting travel patterns show that commuter traffic would still be able to pass through the area with little difficulty.

c) Traffic Circle

Traffic circles can be located at 3-way and multi-legged intersections. Traffic circles have been installed in residential areas of some cities in the U.S.A. and Canada with varying degrees of success in achieving a reduction in vehicle speed. The success rate is generally high immediately following the initial installation, however, as drivers become familiar with the optimum speed at which they can negotiate the circle, speeds tend to increase along other sections of the travel route. Burnaby's experience with traffic circles along a street in North Burnaby was not encouraging and the temporary installation was subsequently removed. Although this device is ineffective for reducing commuter traffic it may be more effective as an accident reduction measure in certain locations. A candidate location for a traffic circle of suitable design might be on 14th Avenue at Davies Street as shown on Figure 9 attached. The configuration of the island would need to be more elliptical at this location because all the curbs are not equidistant from the center of the intersection yet all roadway clearances should be of uniform width.

d) Traffic Diverters

Traffic diverters are located at normal 4-way intersections. The location of traffic diverters within a neighborhood can change neighborhood travel to the point of confusion and frustration for visitors attempting to locate friends, increase travel distances for neighborhood residents and increase travel time for emergency vehicles. The orientation of a traffic diverter in an intersection forces vehicles to change direction of travel (a right-angle turn) from one street to another.

Traffic Safety Committee
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A possible location for a landscaped traffic diverter, which might prove to be effective for reducing commuter travel along 14th Avenue, would be at the 14th Avenue/Mary Avenue intersection as shown on Figure 10 attached. The orientation of the diverter should be N.E./S.W. which could require a small amount of property acquisition and would require reconstruction of the intersection to provide adequate room for two-way traffic to turn through the intersection. The orientation suggested is contrary to the desired travel direction of commuter traffic.

The most effective means by which all commuter traffic can be prevented from using the local streets south of 16th Avenue is by installing two traffic diverters in the neighborhood. One diverter would be located on 14th Avenue at Davles Street, the other on 13th Avenue at Mary Avenue as shown on Figure 11 attached.

Locating the diverters at these intersections will establish a double loop street pattern south of 16th Avenue. The south-eastern loop connects 12th and 14th Avenues to Canada Way while the north-westerly loop connects 13th and 14th Avenues to Kingsway with Mary Avenue and Davles Street connected to 16th Avenue.

Residents in the north-westerly loop area who usually drive their child(ren) to the Twelfth Avenue School would need to revise their travel pattern. Those from outside the neighborhood who drive their child(ren) to the Twelfth Avenue School or to the St. Thomas More High School would not be able to continue on through the neighborhood. Although this would reduce the total amount of "through" travel in the area it would increase the amount of vehicle movement in the 12th Avenue area.

3. Parking

Regarding parking, the Hilda Park frontage along 14th Avenue does not have a parking restriction posted nor does the park have fencing along this frontage. It is believed desirable, considering the proximity of the Hilda Park playground equipment to 14th Avenue, to install suitable fencing for an increased measure of safety. Recent development of playground areas in other areas of Burnaby have been fenced.

The Parks & Recreation Department staff advise that, on the approval of the Parks Commission, the installation of fencing separating the park from the 14th Avenue roadway would cost approximately \$1300.

4. Hedge

Regarding the matter of the hedge in the S.E. quadrant of the 14th Avenue/Davies Street intersection, staff have again examined the cedar hedge and found it to be well maintained and within the Zoning Bylaw height requirement although it is located up to 3.3m (11ft.) inside the 14th Avenue road allowance as recently surveyed by Engineering staff and shown on Figure 12 attached.

Parks & Recreation Department staff advise that it would cost approximately \$1000 to carefully relocate the hedge back to inside the property line and restore the area from which the hedge was moved. However, should the hedge simply be removed, the cost could be one-half the relocation cost. These estimates do not include the relocation of the chain link fence which is well into the Davies Street road allowance extending toward the lane.

5. Guidelines

It is believed desirable to have certain criteria established as policy guidelines so that some uniform basis can be applied to neighborhood studies when residents request that action be taken to relieve an area of non-local traffic and thereby improve the livability of the area.

The Comprehensive Transportation Plan for Burnaby, adopted by Council in 1979 August, encompasses a policy framework and a conceptual transportation plan. Along with other major policies, traffic management, protection of the livability of residential neighborhoods and dealing with commuter traffic in residential areas rank as highly important elements of the Transportation Plan. Although no specific guidelines were established for determining what magnitude of commuter traffic would be the limiting or critical volume on residential streets that would prompt action to eliminate or limit commuter traffic on the street(s), our initial research in the matter has provided some criteria by which comparison can be made with the experience in other locales.

The following items relate to the type of information or criteria which have been used as a policy guideline by one other jurisdiction(*) concerning commuter traffic in residential neighborhoods. This policy permitted neighborhoods to restrict non-local traffic under certain conditions, e.g.:

- a) on secondary residential streets only
- b) that non-local traffic volume be greater than 200 vehicles per hour, per direction
- c) that two-thirds of the affected households supported the proposed action
- d) that the proposed scheme be endorsed by the civic association

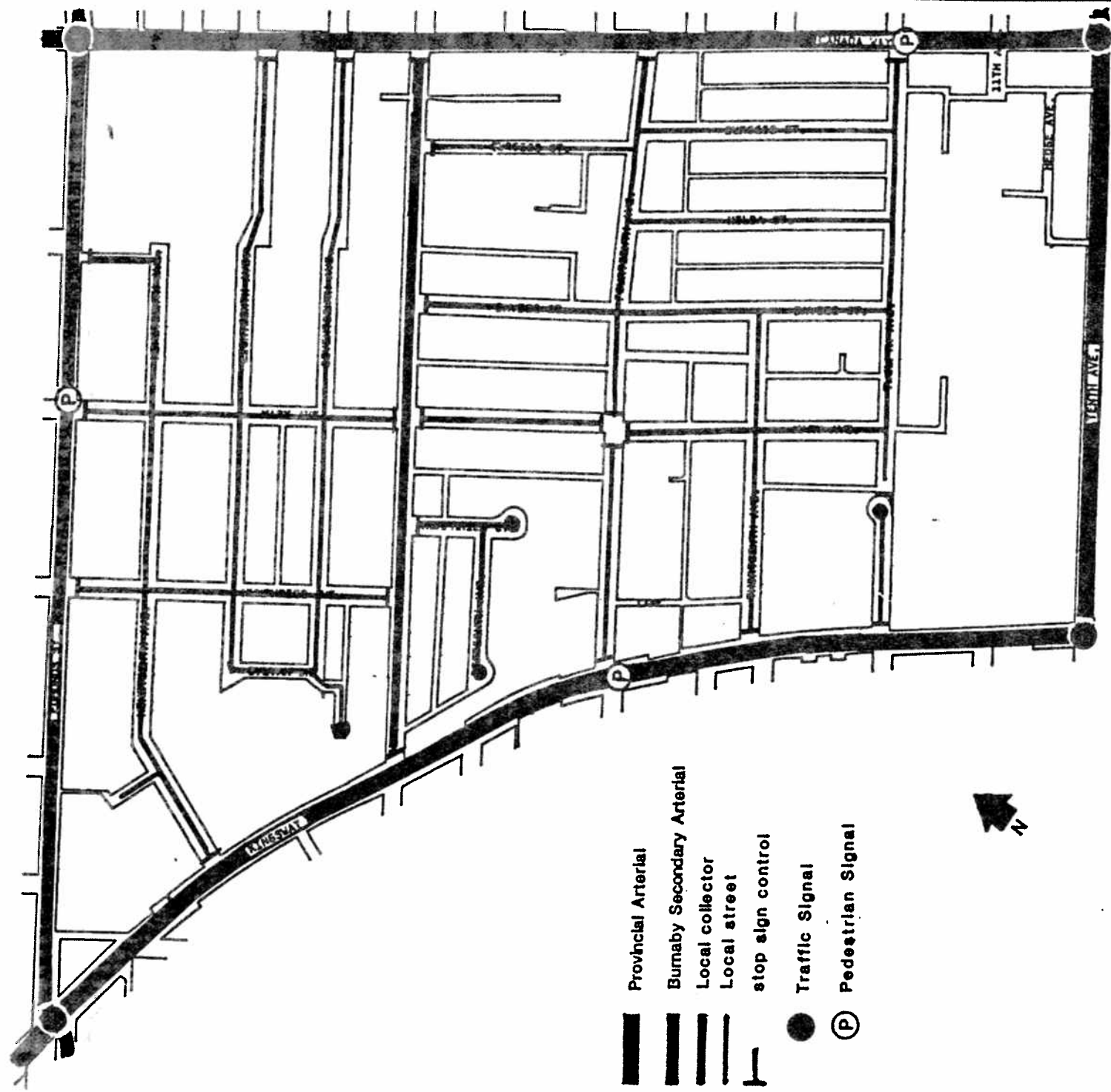
Traffic Safety Committee
Re: 14th Avenue (Appendix)
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- e) that the diverted traffic could be accommodated on adjacent arterial streets
- f) that there be no negative impact on adjacent neighborhoods.


Subsequently, this policy was updated to reflect more liberal warrants for intersection control within neighborhoods.

It is staff's intention to further research the matter and prepare specific parameters as guideline criteria which will establish a basis upon which neighborhood areas can be examined in connection with requests for traffic control. It is proposed that a preliminary report outlining the criteria and process which would involve the residents would be submitted to the Transportation Committee for consideration in the Spring 1990.

* Welke; Ronald C. and Navld; Sarah R. "Residential Traffic Control Initiatives", ITE 1988 Compendium of Technical Papers, pp 92-95.



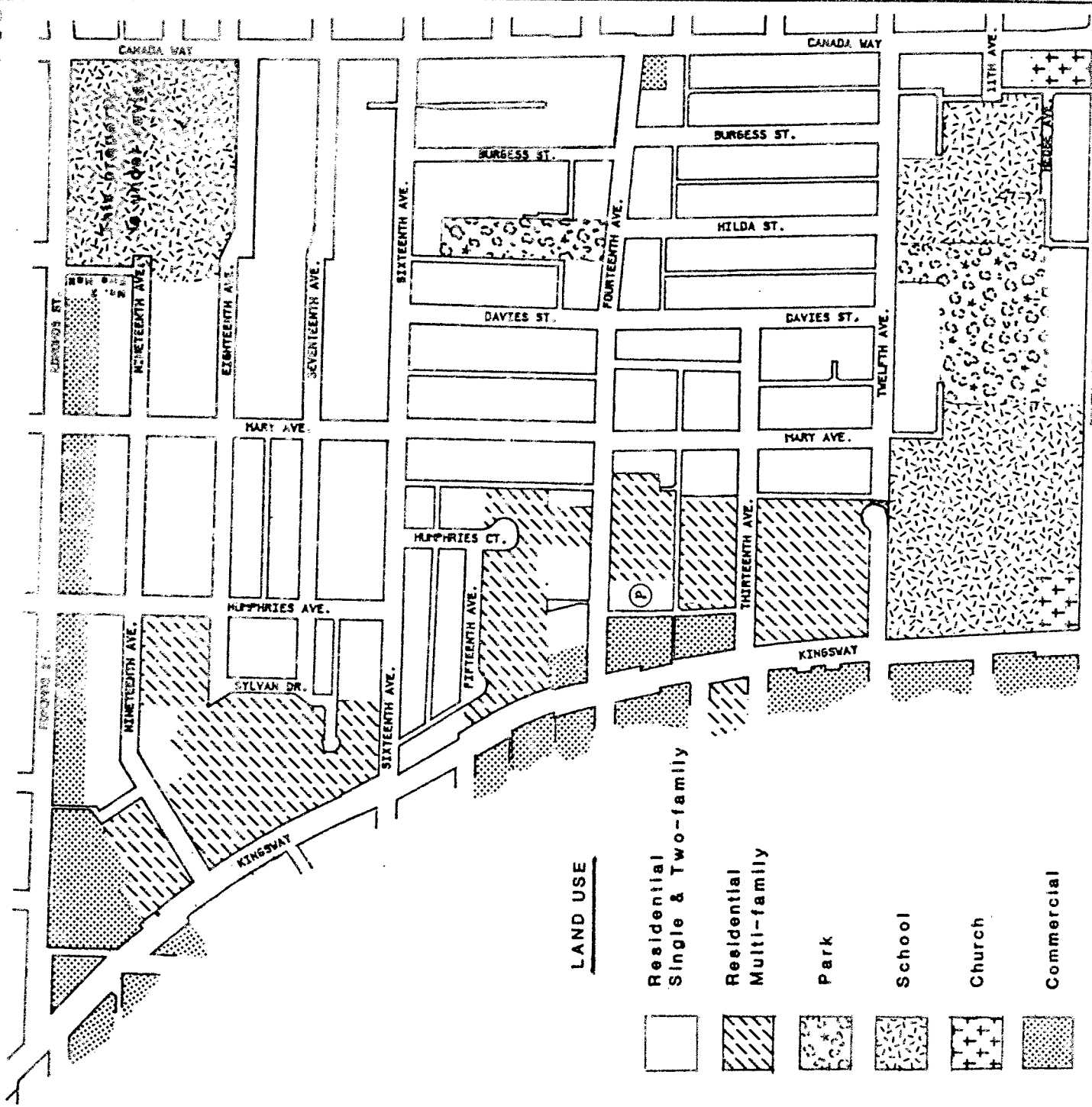
-  Provincial Arterial
-  Burnaby Secondary Arterial
-  Local collector
-  Local street
-  stop sign control
-  Traffic Signal
-  Pedestrian Signal


BURNABY
 Planning &
 Building Inspection
 Department

Arterial Routes, Traffic Signals and Neighborhood Street Hierarchy

Figure 1

| | | | |
|-----------|-----------|--------|--------|
| Date: | 1989 July | Scale: | N.T.S. |
| Drawn By: | | | |



LAND USE

Residential Single & Two-family

Residential Multi-family

Park

School

Church

Commercial



Date: 1989 July

Scale: N.T.S.

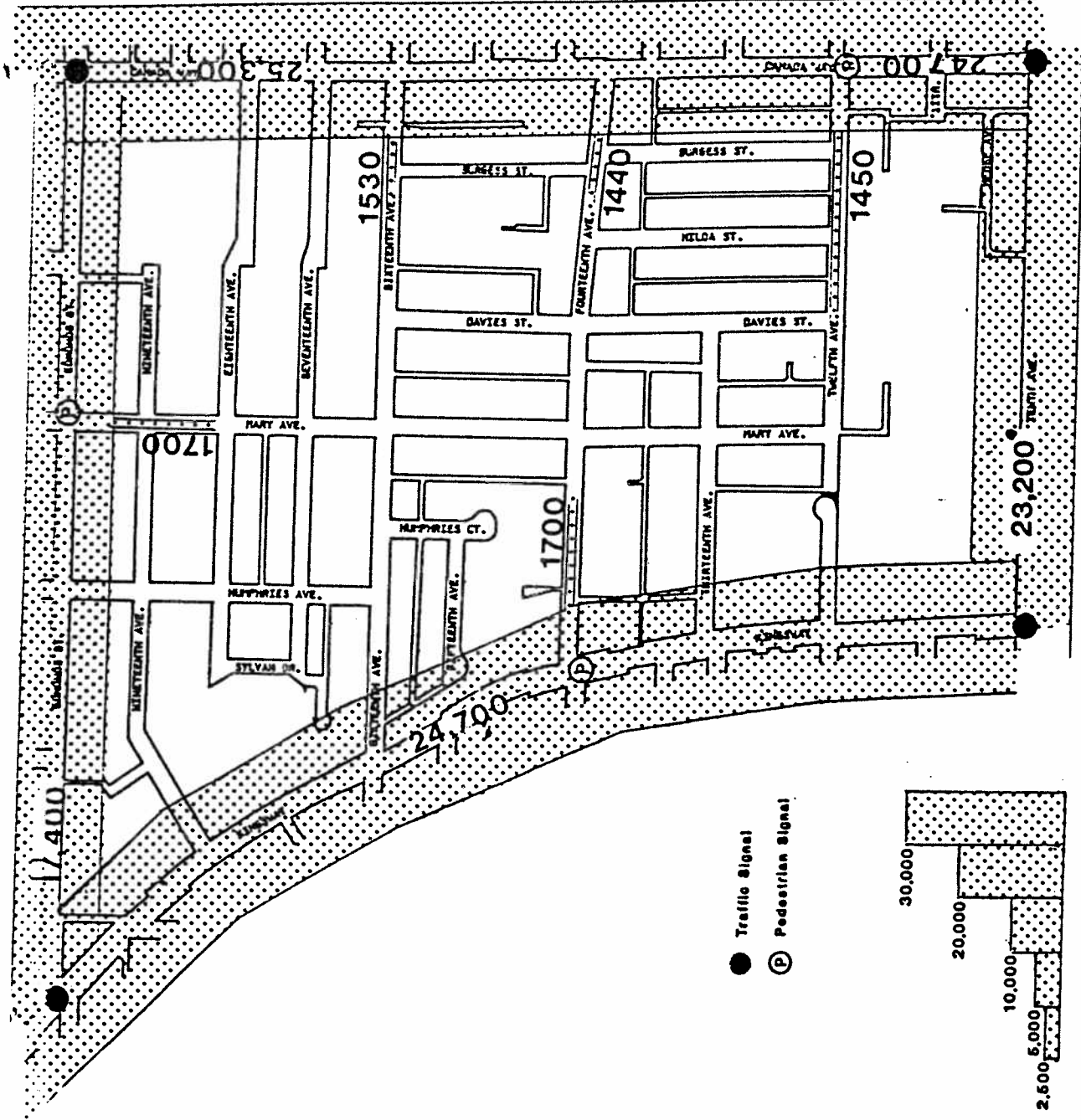
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Neighborhood Land Use Pattern

Figure 2



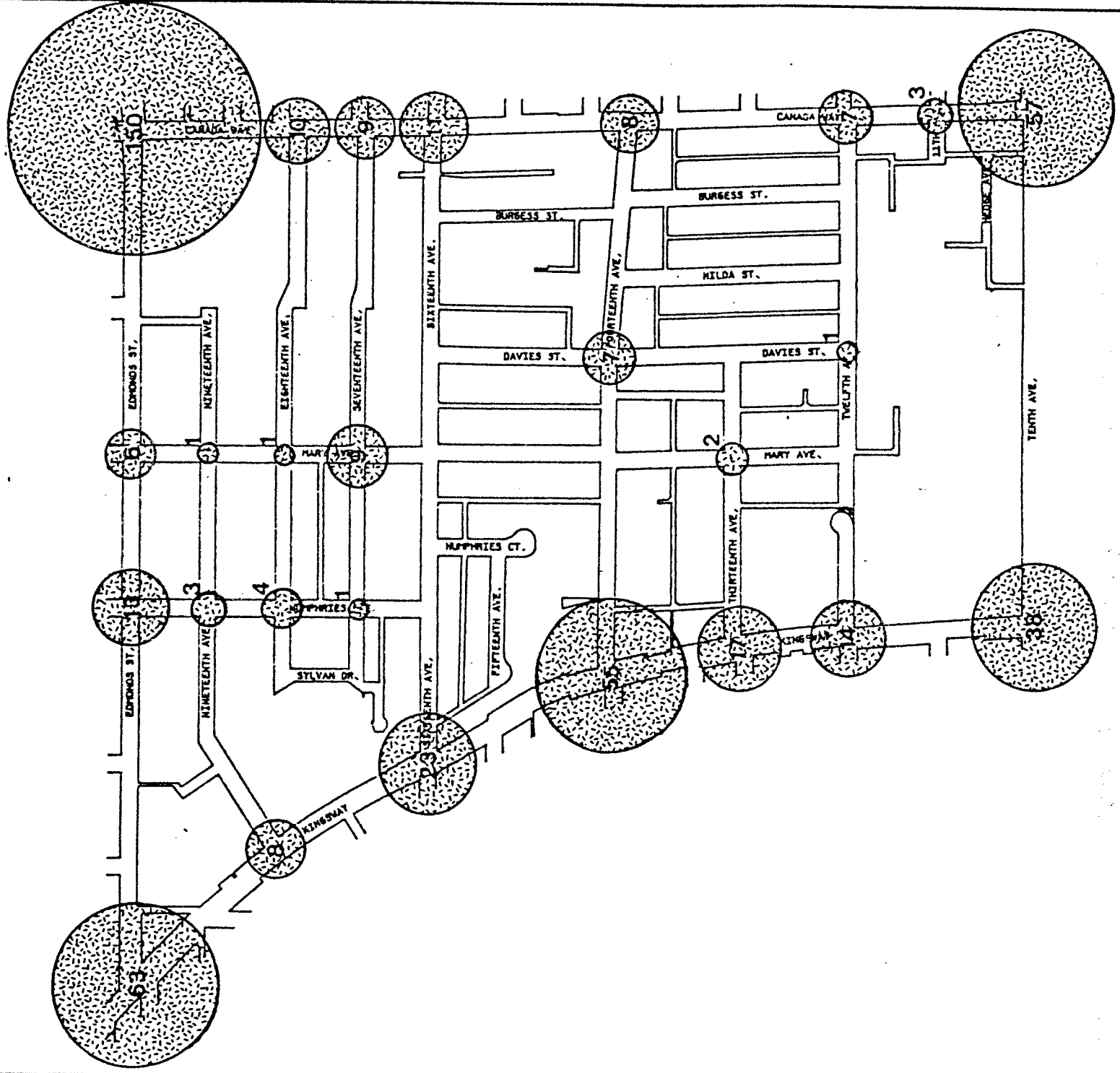
24 hr. traffic volume scale


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24 Hour Traffic Flow Volumes

Figure 3



Date:
1989 July

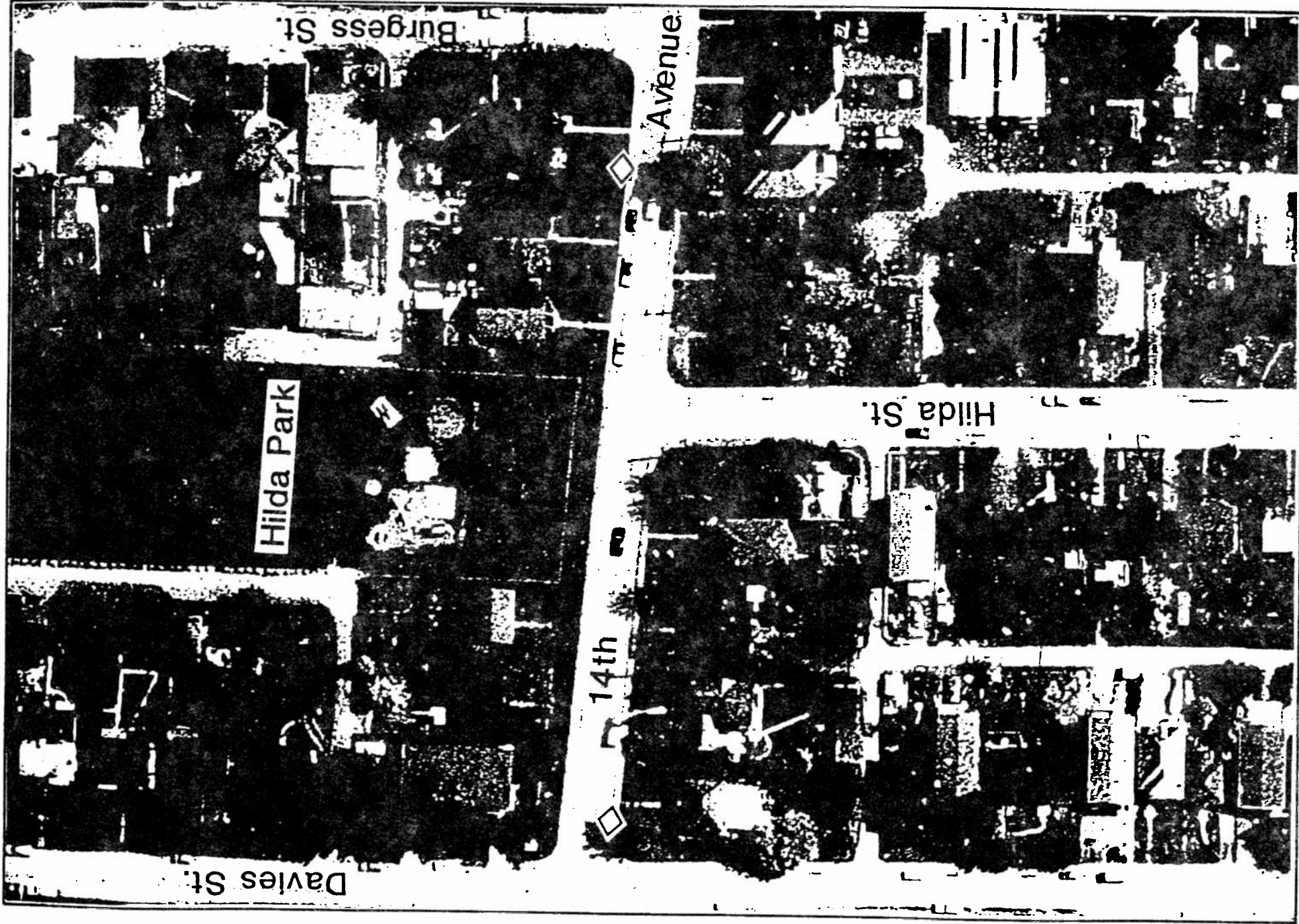
Scale:
Relative

Drawn By:

Total Number Accidents Reported

1987 January to 1989 June

Figure 4



Date:

1989 July

Scale:

not to scale

Drawn By:



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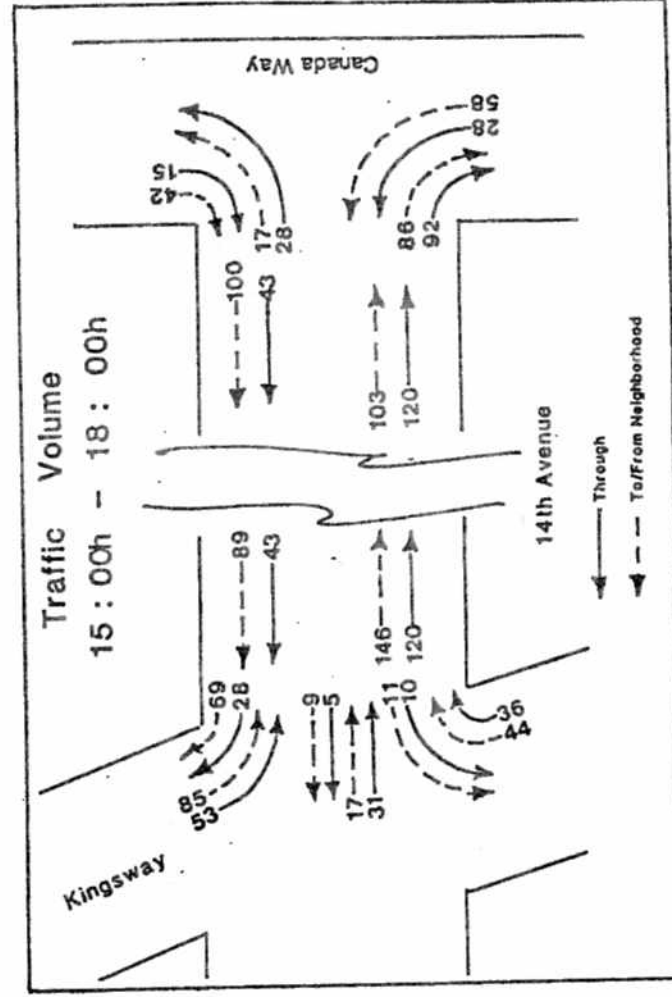
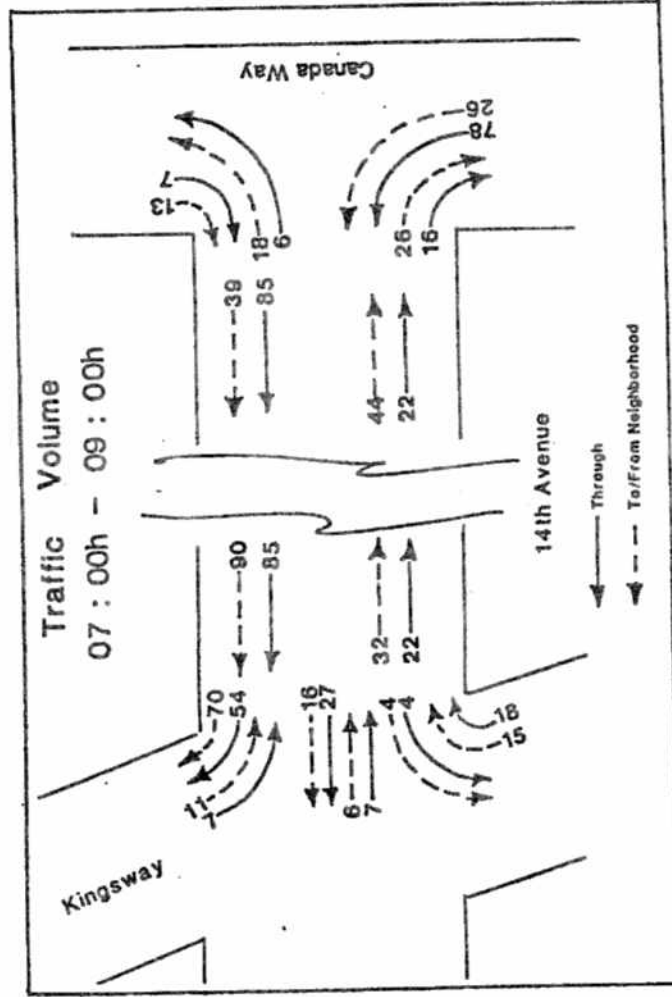


30 km/h

Playground Zone at Hilda Park

051

Figure 5

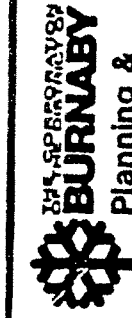
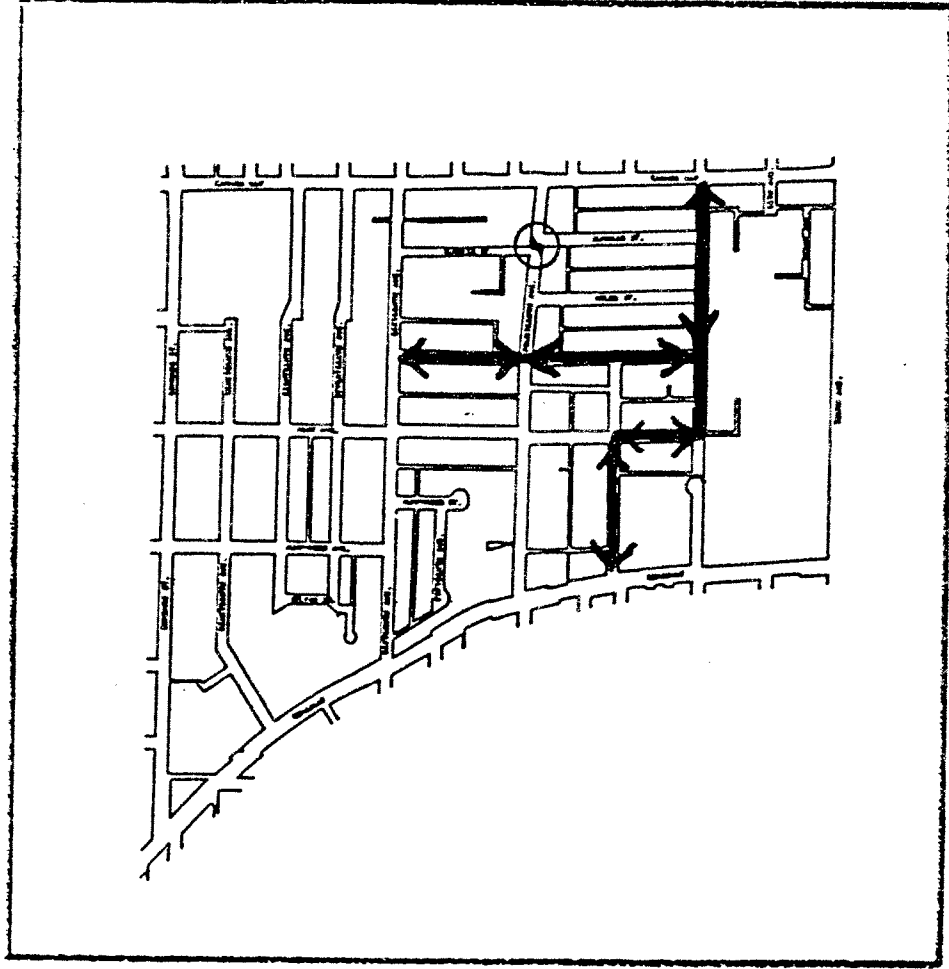
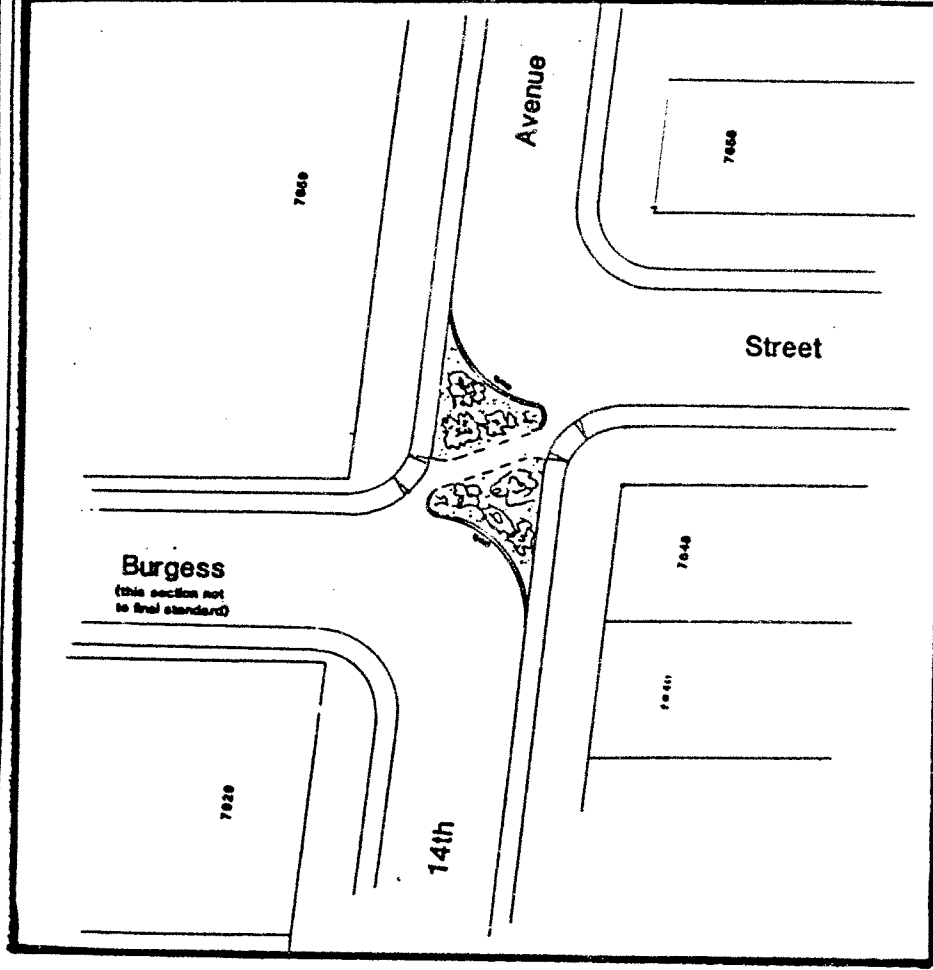


City of BURNABY
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License Plate Study Results

| | |
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Figure 6



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Street Closure

14th Avenue at Burgess Street

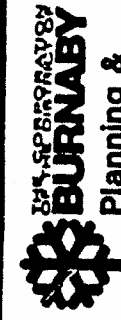
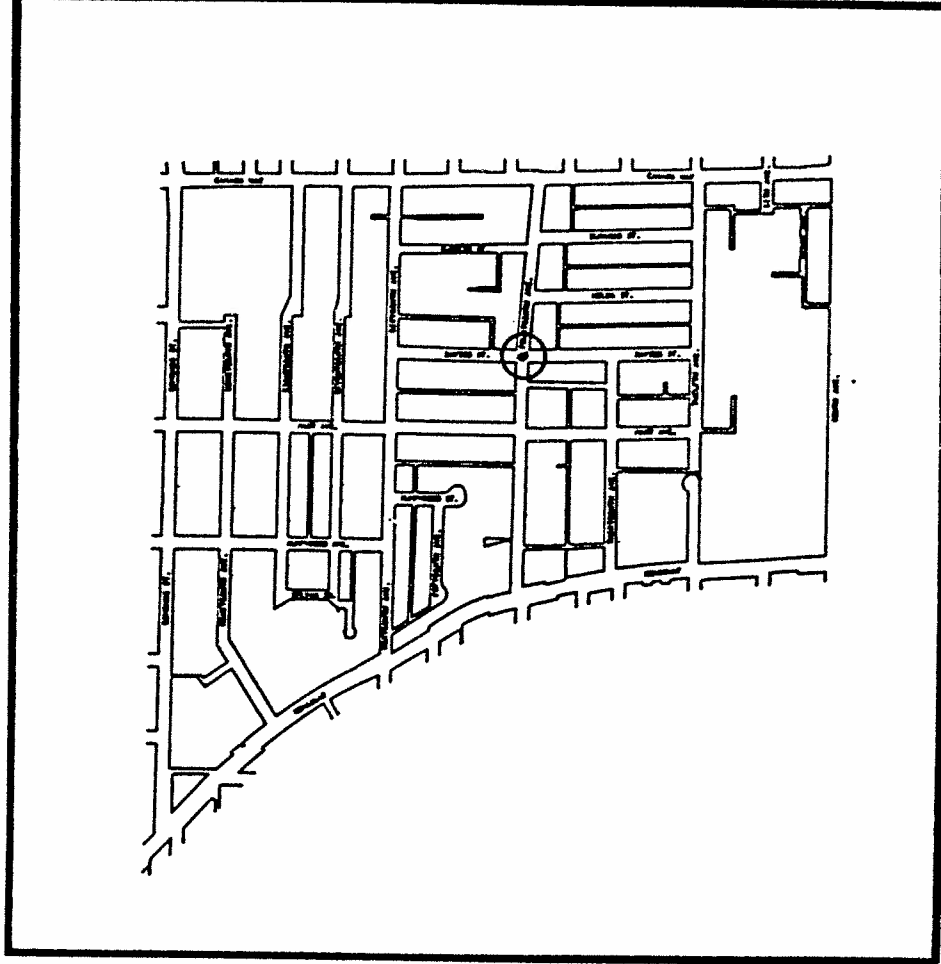
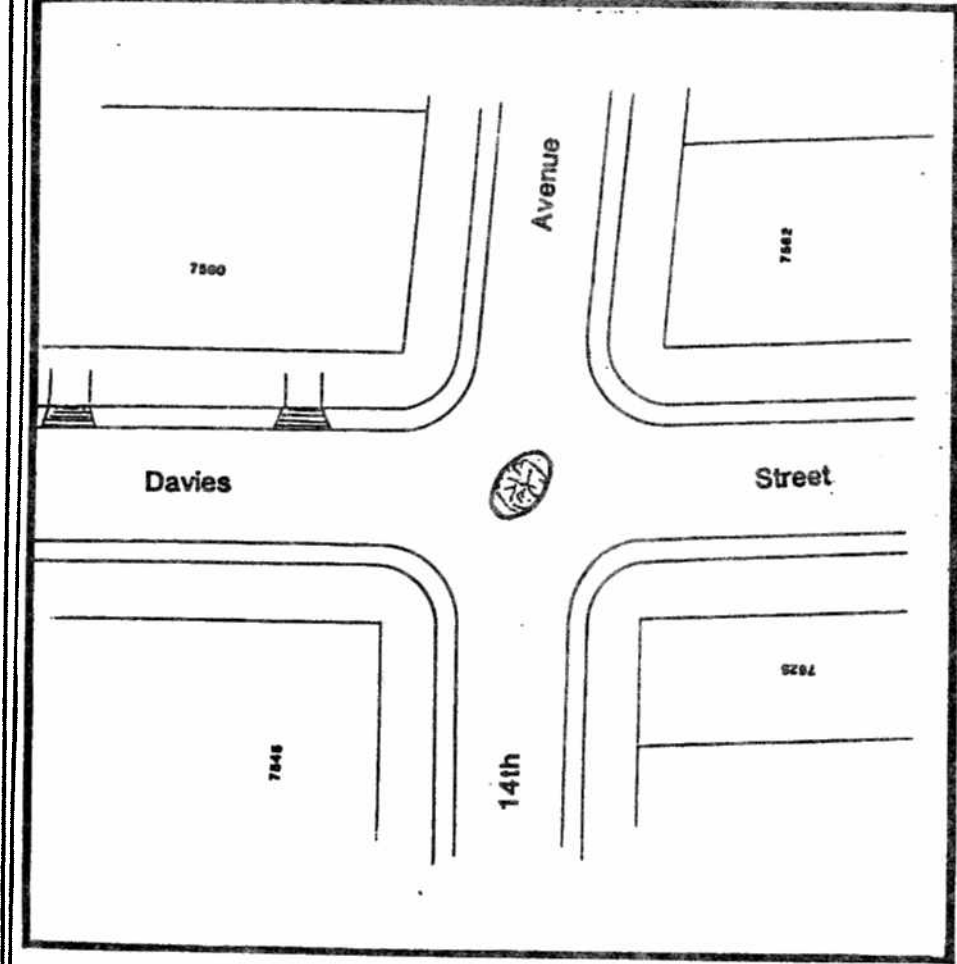
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Figure 7

Date:
1989 August

Scale:
N.T.S.

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Planning &
Building Inspection
Department

Traffic Circle

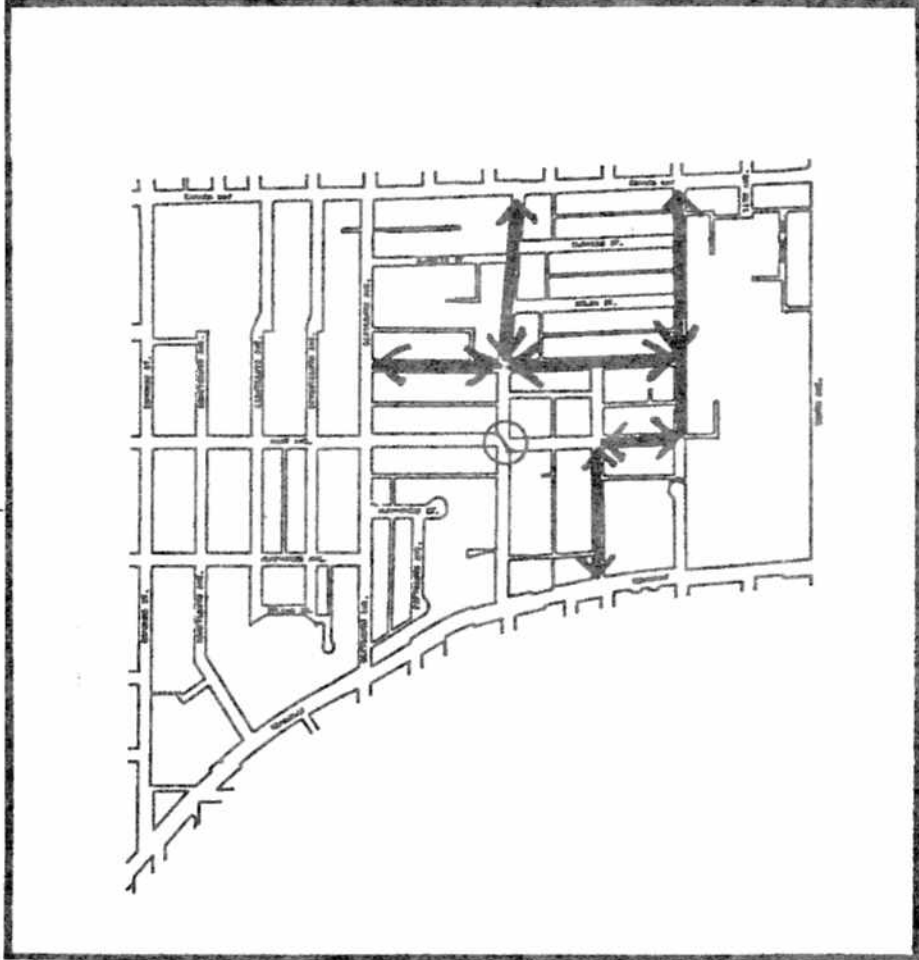
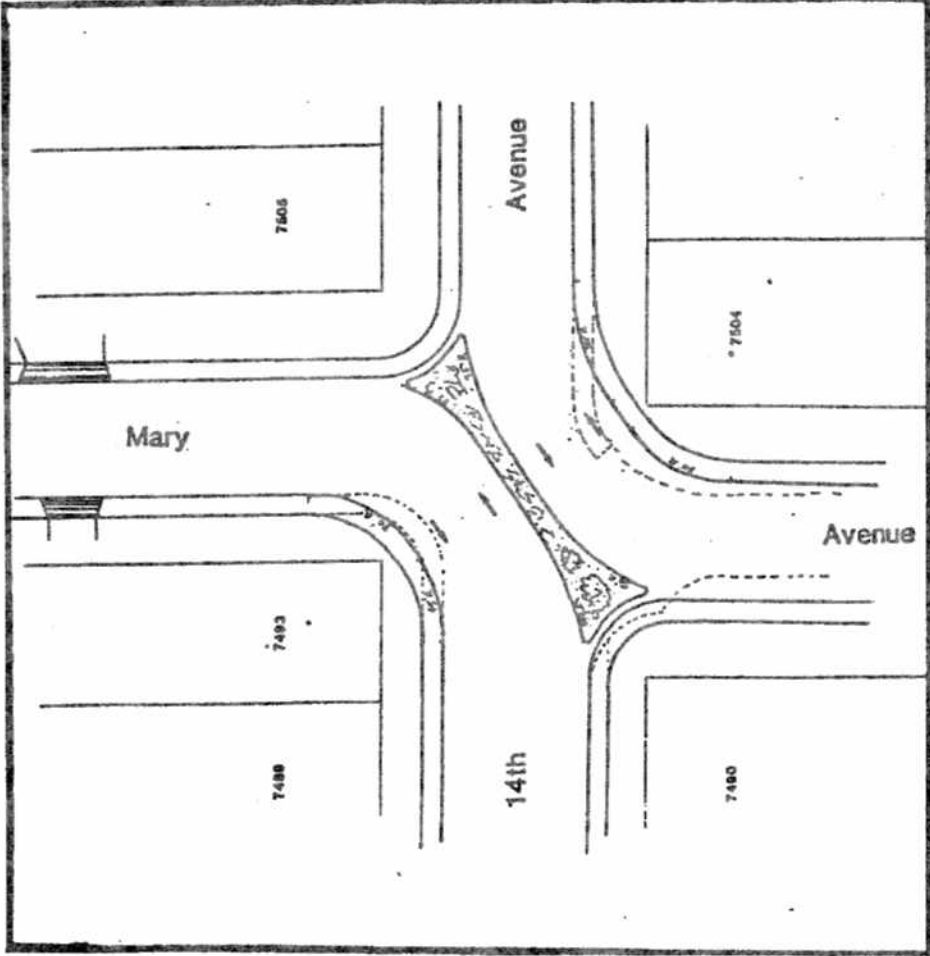
14th Avenue at Davies Street

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Figure 9

| | | |
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|------------------------------|--------------------------|------------------|

056



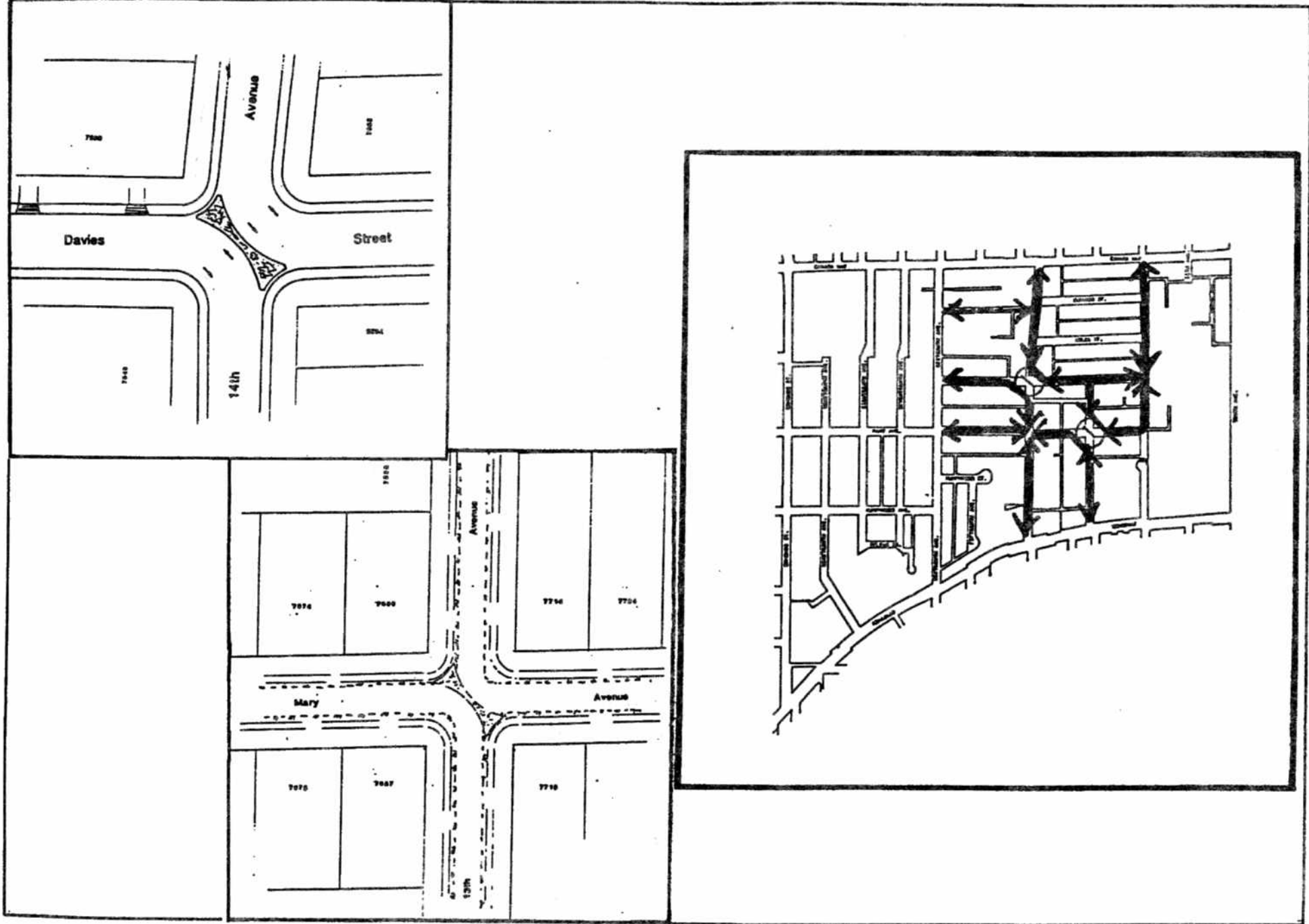
Planning &
Building Inspection
Department

Traffic Diverter

14th Avenue at Mary

| | |
|------------------|----------------|
| Date: | 1989 September |
| Scale: | N.T.S. |
| Drawn By: | |

Figure 10



City of Burnaby
BURNABY
 Planning &
 Building Inspection
 Department

Traffic Diverters

14th Avenue at Davies Street

13th Avenue at Mary

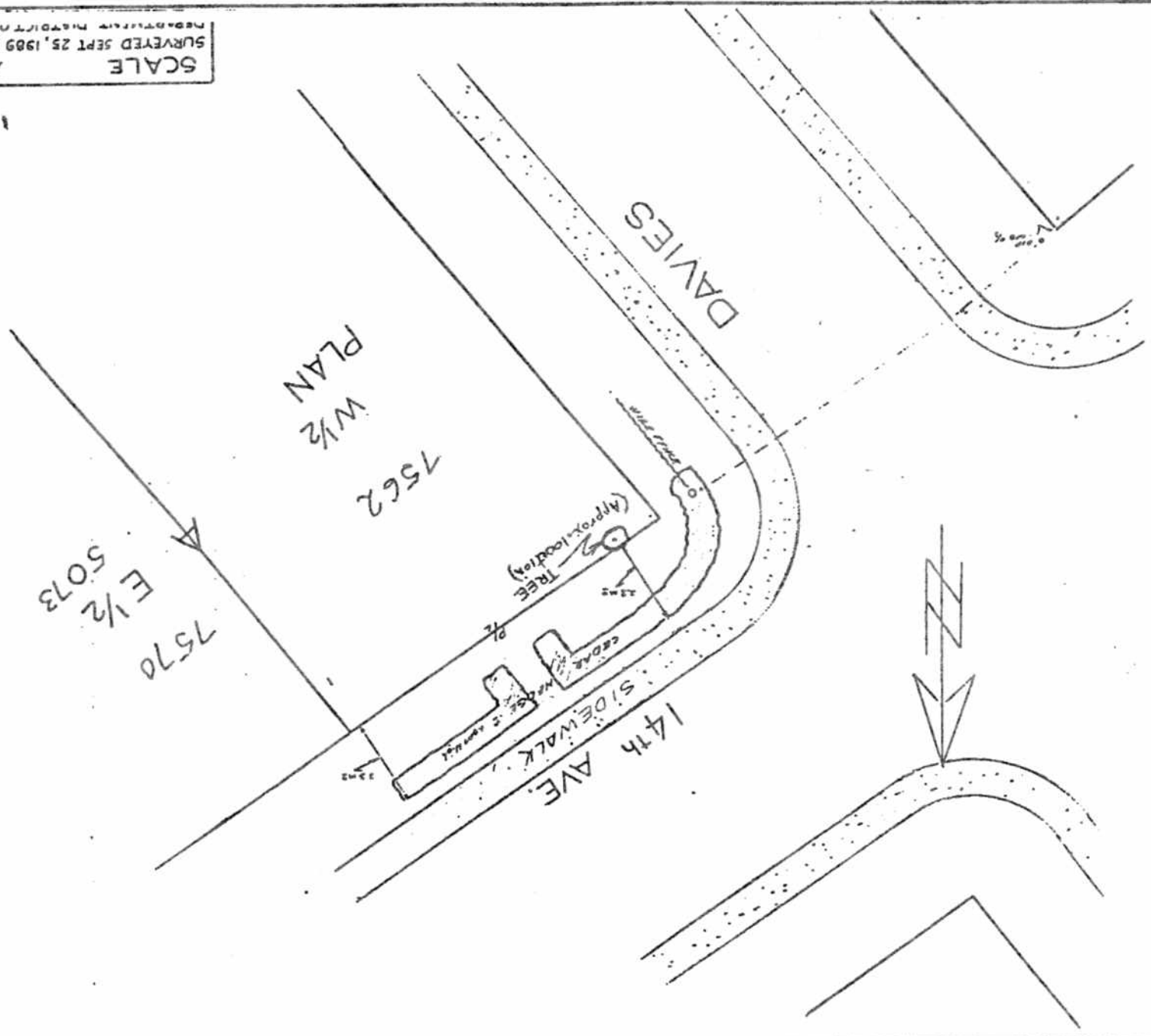
057

Figure 11

| | | |
|---------------------------------|--------------------------|------------------|
| <p>Date: 1989 September</p> | <p>Scale: N.T.S.</p> | <p>Drawn By:</p> |
|---------------------------------|--------------------------|------------------|

058

SCALE 1"=20'
SURVEYED SEPT 25, 1989 BY ENGINEERING
NEEDHAM HIGHLAND MASSACHUSETTS



201-551-0900
BURNABY
 Planning &
 Building Inspection
 Department

Location of hedge on 14th Avenue

Figure 12

| | | |
|---------------------------------|------------------------------------|------------------|
| <p>Date: 1989 September</p> | <p>Scale: 1 inch = 20 feet</p> | <p>Drawn By:</p> |
|---------------------------------|------------------------------------|------------------|