# BICYCLE NETWORK

# STUDY

Engineering Department
Transportation Division
May 1992.

City of Vancouver

Inter-Office Correspondence

CITY ENGINEERING DEPARTMENT File #

June 1, 1992

MEMO TO: City Engineer

FROM: Assistant City Engineer, Transportation

SUBJECT: BICYCLE NETWORK STUDY

This report presents the results of a study to encourage more bicycling in Vancouver. The purpose of the study was to develop measures beyond the Vancouver Comprehensive Bicycle Plan, which promoted bicycle usage through Engineering, Education, Enforcement and Encouragement goals. This report formulates the basis for a bicycle network in Vancouver and recommends that integration on local streets be pursued as a priority. It also fulfills Recommendation 11a)iii) of the Clouds of Change report to increase the ease and accessibility of bicycle transportation and to make bicycling a better transportation alternative.

The Bicycle Network Study was conducted by the Transportation and Planning Branch of the Transportation Division. Public input was solicited in cooperation with the Vancouver Bicycle Advisory Committee. Mr. Doug Louie, P.Eng., was responsible for the completion of the report.

Yours truly,

Ian Adam, P. Eng.
Assistant City Engineer
Transportation

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M\EF2575

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## EXECUTIVE SUMMARY

The Bicycle Network Study was undertaken to determine methods of encouraging the use of bicycles as an alternate form of transportation to automobiles. The bicycle was first recognized as a legitimate form of transportation in the 1988 Vancouver Comprehensive Bicycle Plan. The fundamental approach of the plan is to integrate cyclists into the existing transportation network. The plan developed 45 recommendations that focussed on the 4 E's of cycling (engineering, education, encouragement and enforcement). The majority of the recommendations have been implemented and the outstanding recommendations are still actively pursued by the Vancouver Bicycle Advisory Committee and City staff. Following the Comprehensive Bicycle Plan, the Vancouver Seaside Bicycle Route was developed and a Bicycle Parking Standard was established for new developments.

Due to the growing awareness of the environment and the ever increasing traffic congestion, Vancouver City Council prioritized walking, cycling and public transit as preferred modes of transportation over the automobile. This was reaffirmed in the Council approved Clouds of Change Report which recommended the development of measures beyond the Vancouver Comprehensive Bicycle Plan. In 1991, Council endorsed another report called Creating Our Future which recommended the doubling of the number of bicycle commuters by 1995 through a variety of initiatives including a region-wide bicycle network. This region-wide network is currently being examined by the Greater Vancouver Regional District Bicycle Task Force.

The need for a Vancouver bicycle network was clear and this study was undertaken to develop a conceptual plan for this network. A public discussion paper titled Options for Cycling Improvements in Vancouver was written to solicit public input. The paper presented four basic options for providing additional bicycle facilities. These were:

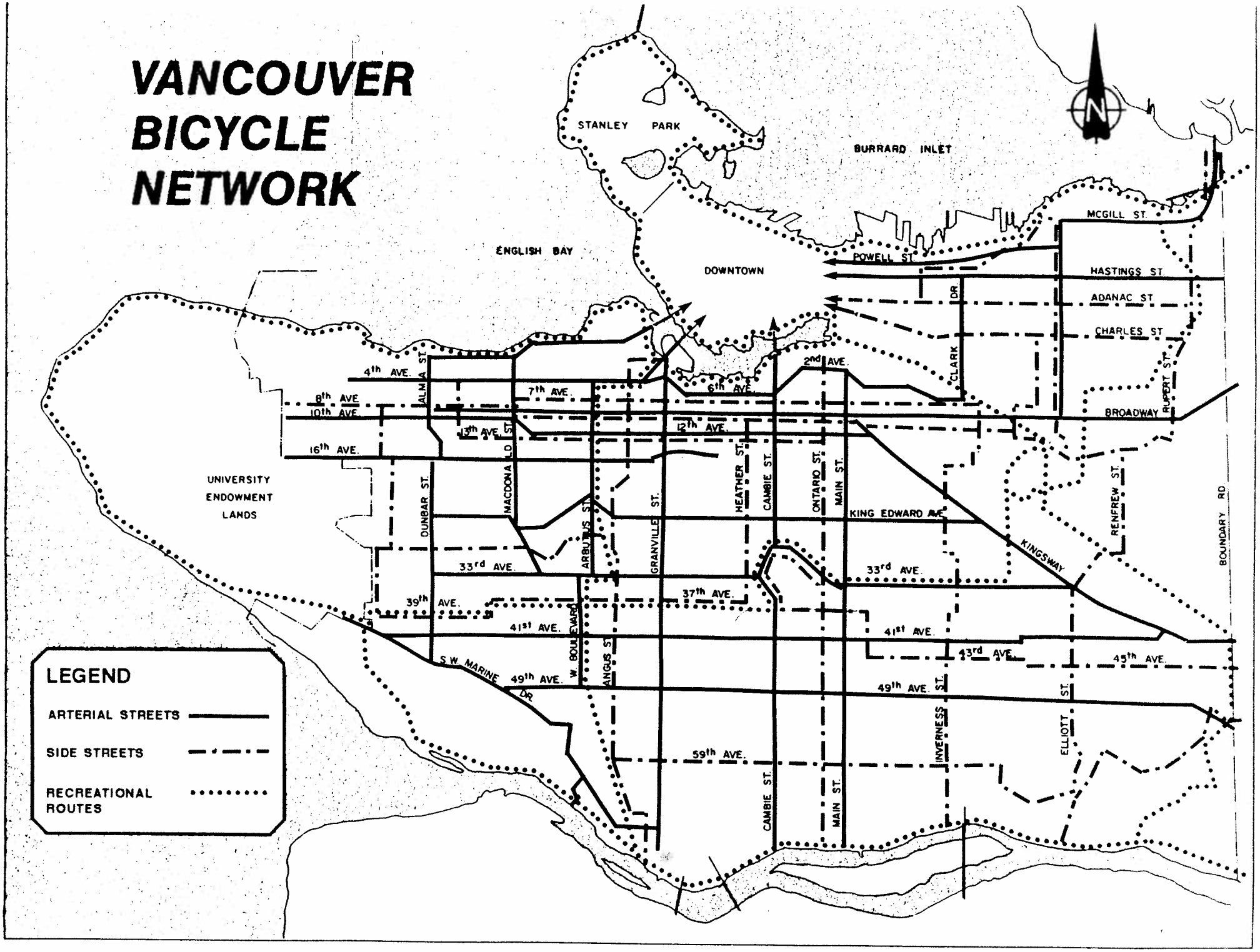
- Integration on Arterial Streets
- Enhanced Integration on Local Streets
- Bike Lanes
- Bike Paths.

The paper briefly explained each option and outlined some of their advantages and disadvantages. It was widely distributed through community centres and libraries for public input, and a public meeting was advertised through local papers and public notice boards for further presentations and discussions. The response to the discussion paper was very good. Over 100 written responses were received and approximately 30 presentations were made at the well-attended public meeting.

Many thoughtful suggestions were made from the written submissions and at the public meeting. Education was identified as an important component to encouraging more bicycling, but the majority agreed that more bicycle facilities need to be provided. Of the four option presented, most felt that all four options should be pursued where appropriate. However, it was clear that the concept of integrating bicycles along local streets was most favoured. Based on the response, a system of bicycle routes along local streets was developed in consultation with various cyclists and cycling organizations. In addition, an expanded system of recreational bicycle routes was developed based on the existing recreational routes. These two new bike route systems were added to the existing system of bike routes along arterial streets as outlined in the Vancouver Comprehensive Bicycle Plan. The result of all three systems, including the provision of bicycle lanes where appropriate, is the Vancouver Bicycle Network (see figure on page v).

To encourage more cycling, this study recommends that enhanced local integration along side streets parallel to arterial streets be pursued. This option appears to provide the most incentive for encouraging more people to cycle. It is achievable in the short term and has received the most support from the public. Four corridors along Adanac/Union, Broadway, Arbutus and Ontario streets have been identified as potential demonstration projects. It is recommended that further detailed study be made along these routes for implementation.

# VANCOUVER BICYCLE NETWORK



# BICYCLE NETWORK STUDY

## 1.0 INTRODUCTION

The growing awareness of the environment has led many cities to reexamine their transportation priorities. In the past, much effort and many resources were directed at moving automobiles as efficiently as possible along the road system. With increasing congestion in urban areas, public transit and high occupancy vehicles were then encouraged, to control the ever increasing demands on the existing road systems. At the same time, there has been concern for air quality due to pollutants created by the use of fossil fuels in automobiles. In response to these concerns, there was a shift in transportation priorities in Vancouver. Focus is now placed on creating a more livable environment as well as an efficient transportation system. To do this, Vancouver City Council has prioritized the various transportation modes in the following order:

1. Walking
2. Cycling
3. Public Transit
4. Movement of Goods
5. Automobiles

The above prioritization creates a challenge for most transportation engineers because the automobile is currently the most popular form of transportation for many people throughout North America. In Vancouver, one of our greatest challenges is to change people's dependence on the automobile. To accomplish this task, the other modes need to be promoted, especially the bicycle which now represents only 2% of commuters to Vancouver's business district.

### 1.1 Purpose

If cycling is to reach its potential for transportation purposes, more facilities for cyclists need to be provided. The purpose of this study is

to develop a conceptual plan for a city-wide bicycle route network to improve bicycling transportation for all cyclists. It examines four basic options for bike route facilities and identifies some priorities for bike route development. Based on the priorities, a number of potential routes are recommended for implementation after further detailed study.

The primary goal of a bicycle network is to encourage more cycling within the City by making it safer and more convenient. It will also serve to enhance Vancouver as a "bicycle friendly" city and help to promote a non-polluting form of transportation.

## 1.2 Vancouver Comprehensive Bicycle Plan

In 1988, Vancouver City Council approved the Vancouver Comprehensive Bicycle Plan prepared by the Engineering Department in consultation with the Bicycle Advisory Committee. As a result of the plan, many bicycling initiatives were pursued to integrate cyclists into the transportation network. These initiatives focussed on the four fundamental "E's" of cycling which are:

- Engineering
- Education
- Enforcement
- Encouragement

To achieve these, the plan sets out 45 recommendations as summarized in Appendix A. The fundamental approach in the plan is the integration of cyclists along arterial streets by providing wider curb lanes in which vehicles and bicycles can safely share. The pursuit of the 45 recommendations is one of the primary functions of the Bicycle Advisory Committee which is composed of 9 volunteer members, and staff liaisons from City Council, Engineering, Parks and Recreation, School Board, Police and B.C. Transit. To date, the majority of the recommendations have been completed. The outstanding education, enforcement and encouragement items continue to be pursued.

## 1.3 Vancouver Seaside Bicycle Route

In 1990, the Vancouver Seaside Bicycle Route was officially opened. This bike route is generally located along the False Creek waterfront connecting Stanley Park to Pacific Spirit Park (Figure 1). The bike path caters primarily to recreational cyclists and is generally located off-street wherever possible. However, it is also useful for some commuter-cyclists travelling to the central business district. Since the Seaside Route was opened, many cyclists have indicated that more routes should be provided. Experience with the route has shown that a number of adjustments and long term improvements are required. Most importantly, it showed that public consultation throughout the project is vital and that all types of cyclists with varying skill levels must be anticipated.

## 1.4 Council Direction

In 1990, Council approved the Clouds of Change Report prepared by the Task Force on Atmospheric Change. The Task Force was created by Vancouver City Council to study the issues surrounding atmospheric change, gather public input and recommend specific actions the City can take. One of the recommendations of the report [Recommendation 11a)iii)] called for the development of measures beyond the Vancouver Comprehensive Bicycle Plan. In accordance with this, the Engineering Department undertook the task of examining additional facilities that could be provided for cyclists. After discussions with the Bicycle Advisory Committee and other interested groups such as the Vancouver Bicycle Network Group, the desire for more bicycling routes for the average cyclist was identified.

In 1991, Council endorsed the Creating Our Future Report by the Greater Vancouver Regional District. This report is the first major policy plan for the Greater Vancouver area since 1976. The report identified a 54-step action plan for a more livable region through the development of an air quality and transportation strategy. Action #17 recommended the doubling of the number of bicycle commuters by 1995 through a variety of initiatives

City of Vancouver

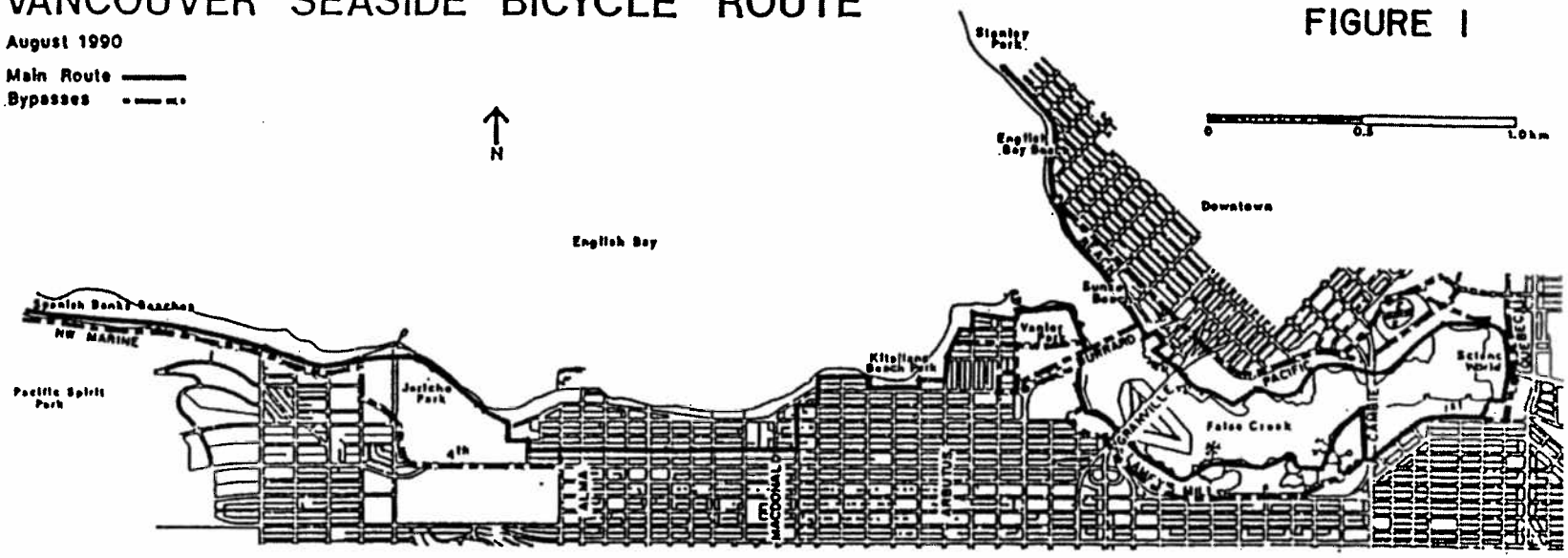
# VANCOUVER SEASIDE BICYCLE ROUTE

FIGURE 1

August 1990

Main Route ——

Bypasses - — - —




## Share the Path

*The Vancouver Seaside Bicycle Route is a continuous 15km bicycle route around False Creek between Stanley Park and Spanish Banks. The route uses pathways, seawalks, and roads, some of which are shared with pedestrians and motor vehicles.*

## Signage

*Main Bicycle Route*

*Shortcut / Commuter Route*

*Pedestrians and Bicyclists Share the Path*

## Courtesy Code

*To facilitate enjoyment by all users, please observe the following courtesy code:*

- *obey all signs and regulations*
- *show courtesy to other users*
- *exercise caution in congested areas*

*On Shared Pathways:*

- *pedestrians keep to the waterside of paths*
- *ride, walk or jog in a consistent and predictable manner*
- *don't block the path: others may have difficulty passing.*

## For Cyclists

- *avoid waterside of path*
- *give audible warning when passing (ring bell)*
- *signal before turning*
- *do not ride on sidewalks unless posted by signs*
- *use bypass routes if your speed and style endanger other users of shared pathways*
- *slow down and form a single file in congested areas and when visibility is limited*
- *remember, bicycles are subject to the Motor Vehicle Act*

*Enjoy the Route !*

including the development of a region-wide bicycle network. This reaffirmed the need for a comprehensive bicycle network for cyclists in Vancouver.

In addition to the Vancouver Bicycle Network proposed in this study, the Greater Vancouver Regional District Bicycle Task Force was recently formed to:

- promote a regional cycling network in cooperation with municipalities,
- publish a map of commuting and recreational regional cycling routes, and
- work with B.C. Transit to facilitate multi-modal travel.

## 2.0 BACKGROUND

On February 13, 1991, Dr. Lorne Whitehead of the Vancouver Bikeway Network Group (VBNG) presented a concept for future bicycle routes in Vancouver to the Bicycle Advisory Committee (BAC). The concept was to dedicate some side streets parallel to the arterial streets for cyclists. One of the features of this concept was to provide traffic signals at intersecting arterial streets to assist cyclist crossings. After presenting this concept to several bicycling organizations and the Engineering Department, it was refined to allow integration of both vehicles and bicycles on the parallel side streets, with bicycles receiving priority. A draft document titled The Bikeway Solution was then written by the VBNG in May of 1991 and presented to the BAC and the Engineering Department for consideration.

On April 10, 1991, a network subcommittee of the BAC was established to pursue a bicycle network concept with the Engineering Department. The membership of the network subcommittee consisted of most members of the VBNG and both became synonymous.

The idea of integrating cyclists on local streets parallel to the arterial streets received support from many cycling organizations and some local neighbourhood committees. Of particular appeal was the fact that signals would be provided to assist cyclists in crossing arterial streets and traffic calming devices would be used to reduce automobile traffic along the local streets.

## 3.0 OPTIONS

In August 1991, a discussion paper titled Options for Cycling Improvements in Vancouver was prepared to solicit input from the general public. About 700 copies of this document were distributed to the public through the City Clerk's Office, public libraries and community centres. The discussion paper was advertised on public notice boards and in local community papers. A public meeting on October 2, 1991 was also scheduled to hear presentations regarding the discussion paper. A copy of the paper is enclosed as Appendix B.

The discussion paper outlines four basic options for providing additional bike routes. These are:

- Integration on Arterial Streets
- Enhanced Integration on Local Streets
- Bike Lanes
- Bike Paths

The definition, background, advantages and disadvantages of each option are described in the options document. Each will be briefly presented here again. A summary of the advantages and disadvantages of each option is shown on Table 1.

## TABLE 1

### SUMMARY OF OPTIONS FOR CYCLING IMPROVEMENTS

| OPTION | PROS | CONS |
|---|---|---|
| Integration on Arterial Streets | ° fast, convenient, direct<br>° educates motorists and cyclists to share road<br>° legitimizes bike as a vehicle on the road<br>° uses existing facilities | ° pollution, noise<br>° perceived as unsafe by some cyclists<br>° limited success in increasing the number of cyclists<br>° may require street widening |
| Integration on Local Streets | ° fewer cars<br>° quiet, less pollution<br>° perceived as safe<br>° easy to implement (no widening is necessary) | ° likely indirect/slower<br>° increased activity on residential streets<br>° changes traffic patterns in neighbourhoods<br>° may require new traffic signals |
| Bike Lanes | ° fast, direct<br>° perceived as safe<br>° guarantee space for bikes | ° pollution, noise<br>° false sense of security<br>° motorists expect cyclists to stay in lane<br>° may require street widening<br>° conflicts at intersections, driveways, and bus stops. |
| Bike Paths | ° no cars<br>° quiet, very little pollution<br>° perceived as safe<br>° guarantees space for bikes | ° indirect/slower<br>° may be difficult to build<br>° no educational value for road sharing<br>° may require land acquisition |

## 3.1 Integration on Arterial Streets

Integration implies that bicycles share the roads with automobiles. On arterial streets this is achieved with a wider curb lane without any visual or physical separation, as shown in Figures 2 and 3. This type of integration is the current policy of Vancouver for commuter cyclists, as outlined in the Vancouver Comprehensive Bicycle Plan. The Engineering Department has incorporated minimum curb lane widths on arterial streets, where practical, to accommodate cyclists.

Integration on arterial streets offers a direct, quick and convenient means to get to a destination through the use of any existing streets. This option helps to legitimize the bicycle as a form of transportation by allowing cyclists to assert their legal rights on the road. Also, it has the benefit of educating motorists and cyclists about each others' rights and responsibilities, which will increase safety for all in the long term. Integration can take advantage of existing roads that have sufficient width. It also does not require an excessive right-of-way (disproportionate share of the streets).

One disadvantage is that cyclists should be well-educated in cycling techniques and confident in cycling amongst traffic. Some people may find arterial streets too dangerous or too intimidating. Arterial street integration has had limited success so far in increasing the number of cyclists because it generally caters to those who already cycle. Another disadvantage of arterial integration is the exposure of cyclists to high levels of noise and automobile exhaust along the busy street.

## 3.2 Enhanced Integration on Local Streets

Enhanced integration on local streets also implies that bicycles share the roads with automobiles. In this case it is done along quieter side streets away from the majority of automobile traffic. Again there is no visual or physical separation between bicycles and automobiles; however,

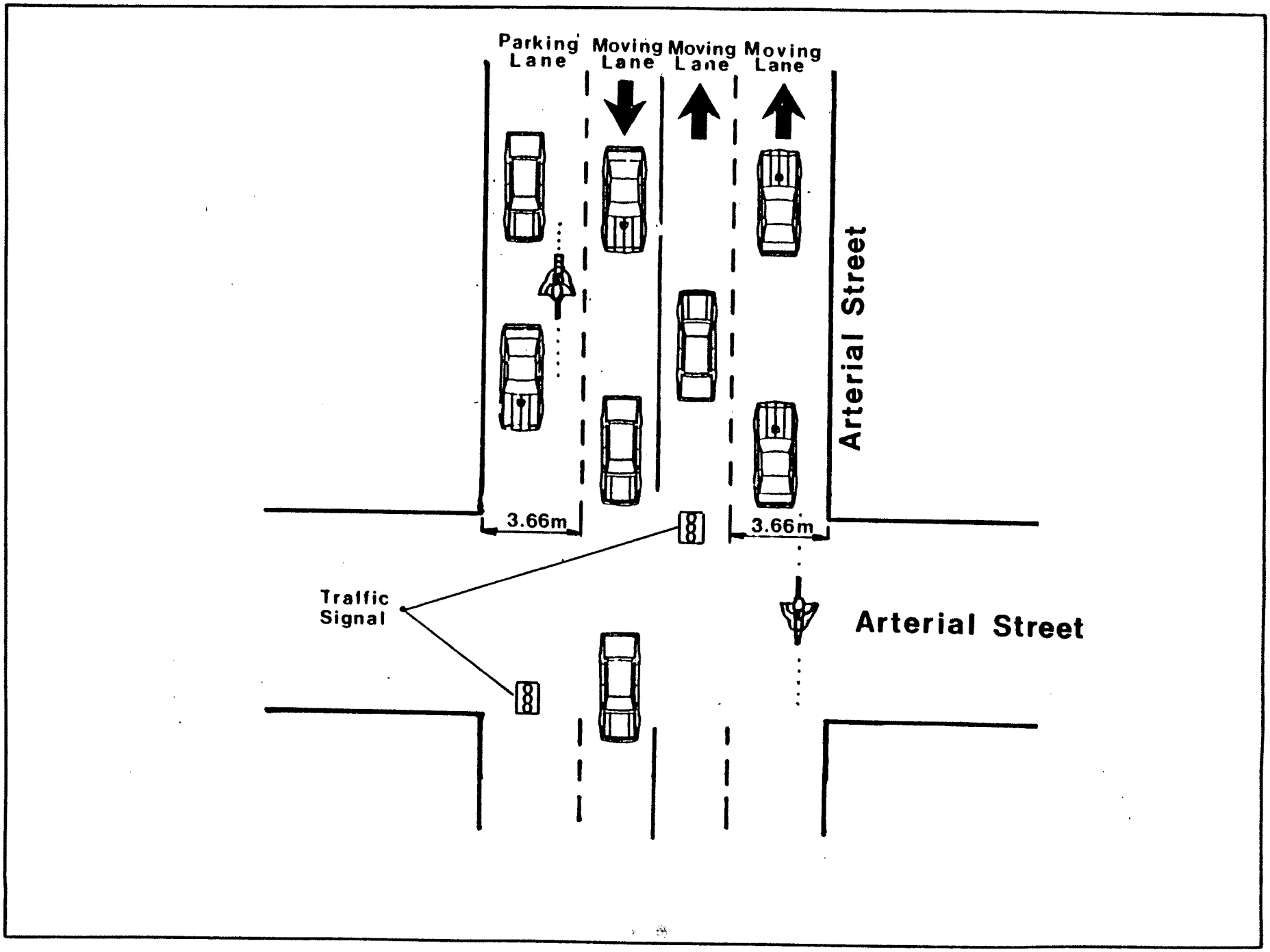



FIGURE 2 – Integration On Arterial Streets

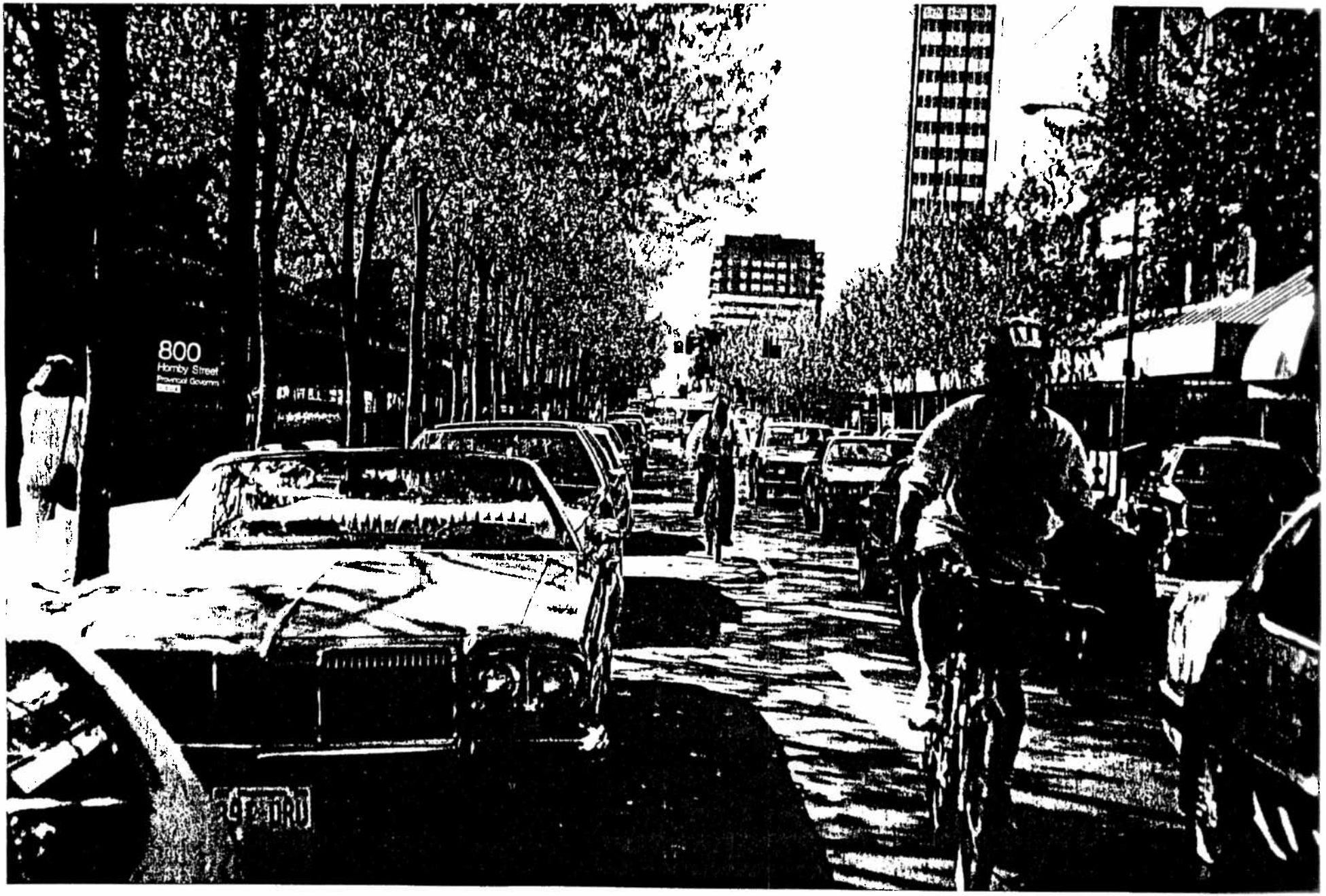



FIGURE 3 - Example of Arterial Integration (Downtown)

traffic management techniques can be effectively used to reduce vehicular traffic and to encourage bicycling.

The traffic management techniques used may include the following:

- stop signs at cross streets
- traffic signals for crossing arterial streets
- traffic barriers to discourage automobile traffic
- traffic and information signs
- traffic circles at minor intersections

Figures 4 and 5 are examples of what a side street may look like after integrating bicycles on the street. The traffic management measures used to encourage cycling on these streets must necessarily be developed in conjunction with area residents to maintain the character of the neighbourhood.

Integration on local streets offers roadway bike routes with much less traffic and lower automobile speeds than arterial streets. The side streets will appeal to people who would like to commute by bicycle but do not like the atmosphere of an arterial street. Cycling along these side streets should also be comfortable enough for recreational cyclists. It offers them an additional degree of freedom of movement within the City.

The increased bike traffic and atypical traffic control measures may not be favoured by some residents of the local street. Vehicular access for some residents may be altered and adjacent local streets are likely to experience some increases in traffic due to the changes in existing traffic patterns in the area.

Another disadvantage is that the speed of cycling along a local street will be lower than cycling along an arterial street. Therefore, it may not appeal to the more confident commuter cyclists who prefer the most direct and fastest route.

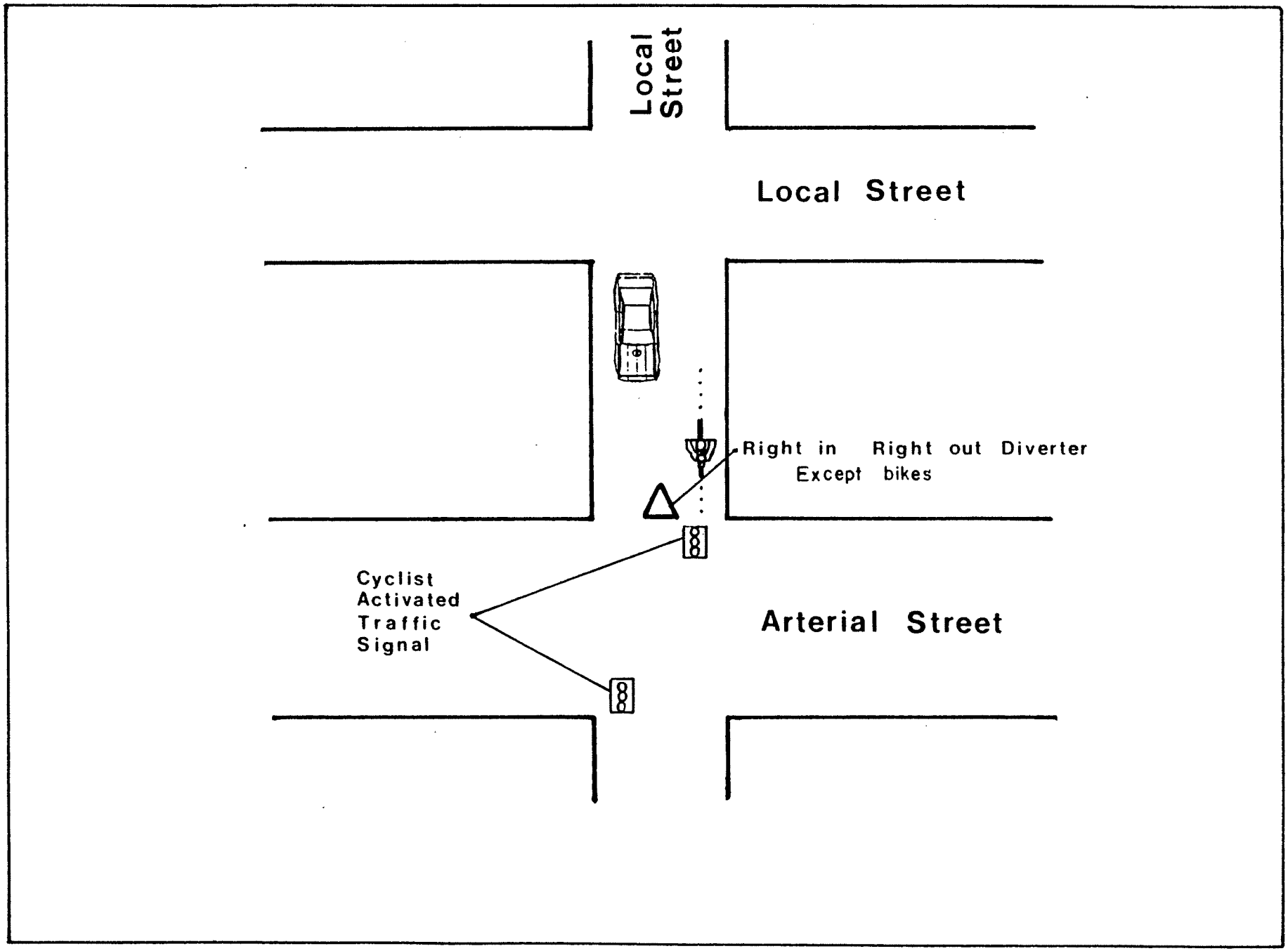



FIGURE 4 - Enhanced Integration On Local Streets

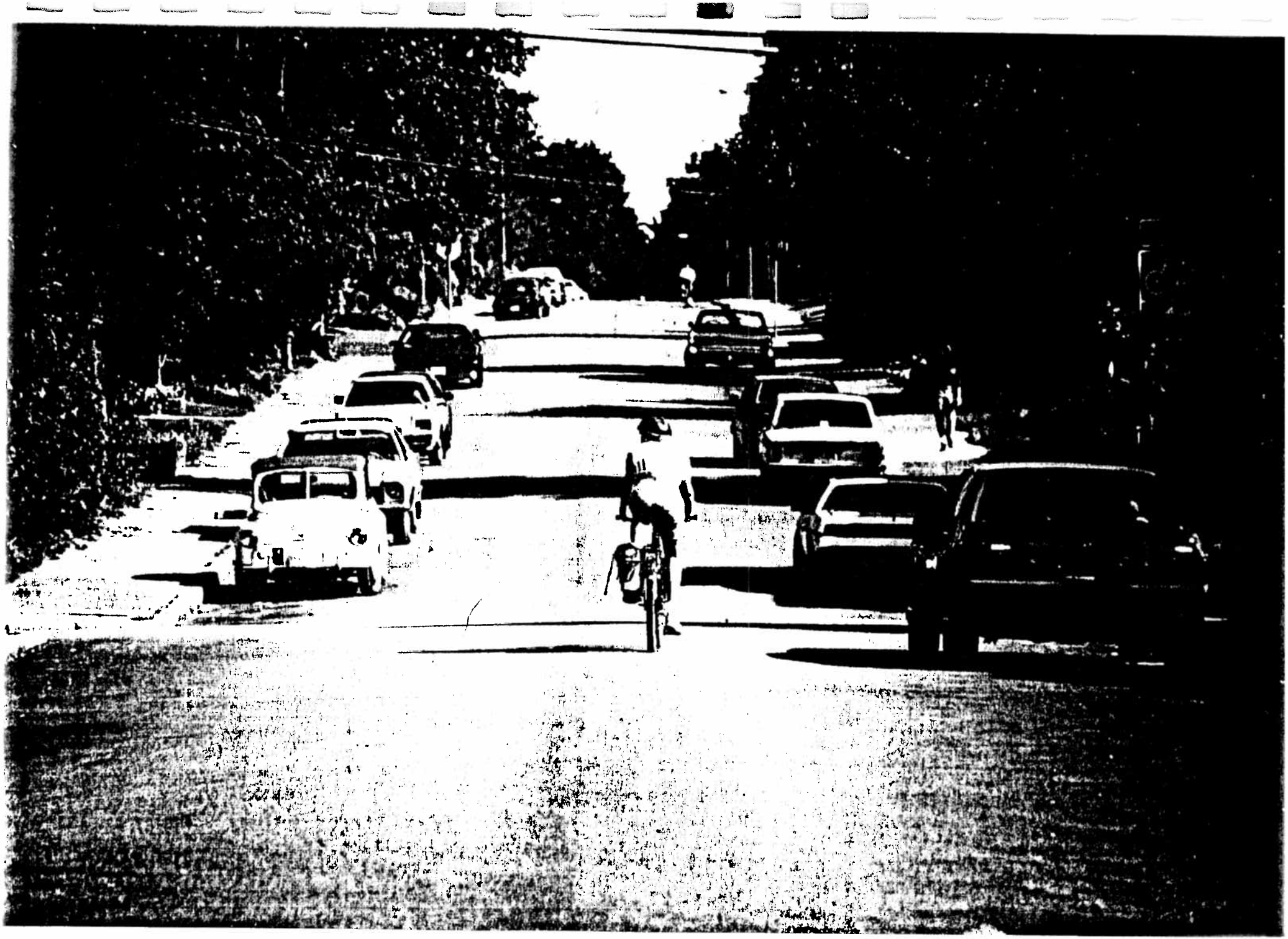


FIGURE 5 - Example of Local Street Integration (W. 3rd Avenue)

## 3.3 Bike Lanes

A bicycle lane is created when a portion of the roadway is designated for bicycles only. The bike lane can be physically separated from automobile traffic, but is generally delineated with a painted line (see Figures 6 and 7). This lane can be shared with buses or can consist of either one-way or two-way bike traffic only. Many North American cities have implemented bike lanes on their street system.

Some cyclists prefer bike lanes as they are a tangible recognition of their legal right to space on the road. They are also perceived to be safer because of the visual separation between bicycles and automobiles. Bike lanes on arterial streets can offer a direct and fast route to a destination.

Cyclists using bike lanes still need to be well educated in cycling techniques and be comfortable cycling amongst traffic. Bike lanes do pose similar problems to those of integration on arterial streets where additional roadway width is required. In comparison to arterial integration, more curb lane width is required to create a dedicated bike lane.

Some feel that bike lanes discourage the attitude of road sharing and would increase vehicle/bike conflicts, especially at intersections. Bike lanes can give cyclists a false sense of security and motorists may expect cyclists to remain in the bike lane. Particular safety problems can occur when:

- cyclists turn left at an intersection
- right-turning vehicles cross the bike lane
- buses must stop for passengers on the bike lane
- driveway access across a bike lane is required.

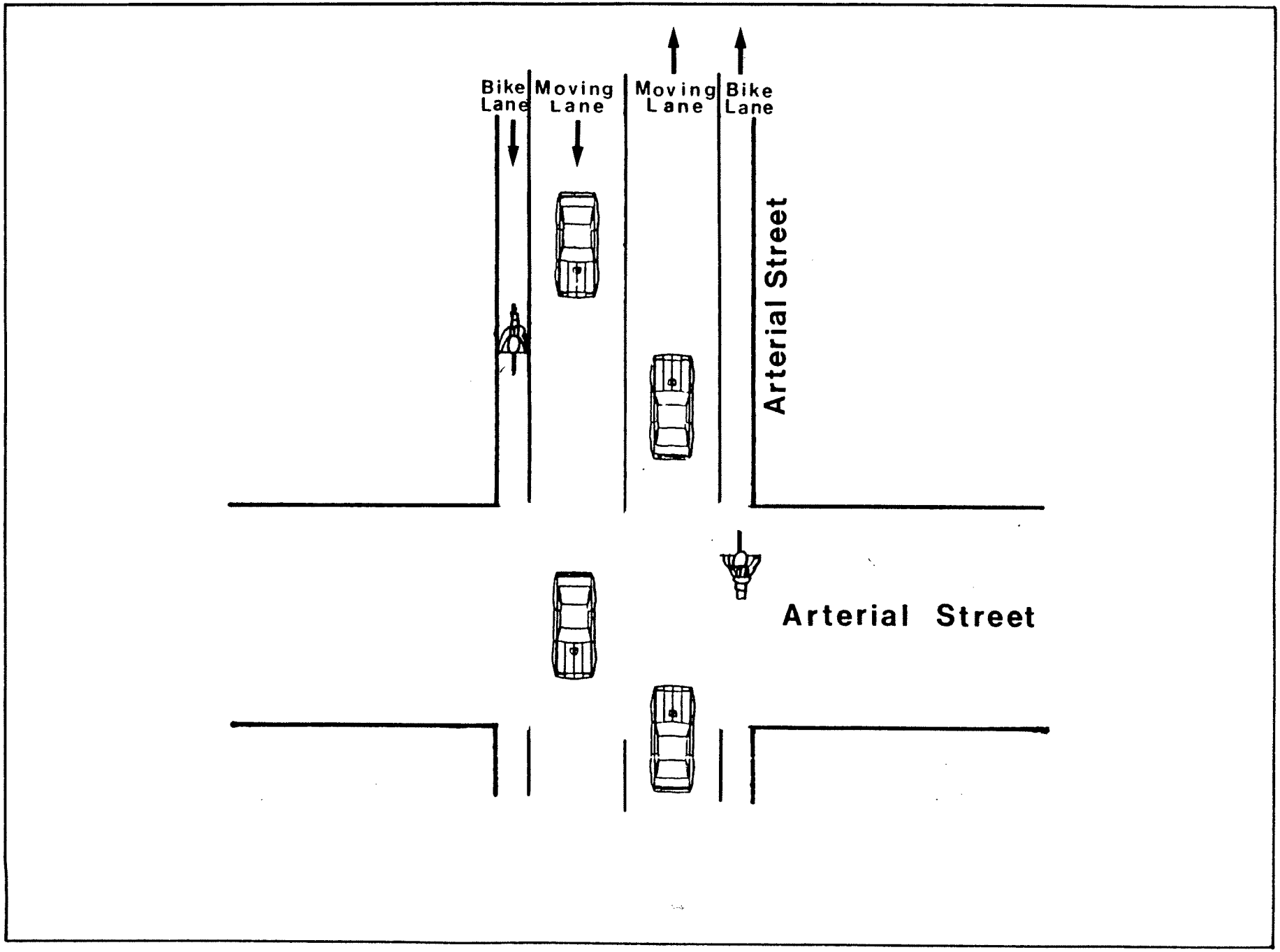



FIGURE 6 - Bike Lanes

FIGURE 7 – Example of Bike Lanes (S.W. Marine Drive)

These conflicts are rare on highways and on many streets where bike lanes have been implemented. However, conflicts would be frequent on most arterials streets in Vancouver, thus limiting the applicability of bike lanes.

### 3.4 Bike Paths

A bike path is an off-street bike route which is completely separated from motor vehicles and, ideally, from pedestrian traffic (see Figures 8 and 9). Almost all cyclists would choose to ride on a bike path if it was well-designed, well-maintained, uncongested, direct and would take them to their destination. Most recreational cyclists prefer bike paths for comfort and safety reasons.

The main advantage of a bike path is the elimination of conflicts with vehicles. It is ideal for those who do not or cannot ride amongst traffic. A further benefit is the improved air quality for those using bike paths that are not adjacent any streets. They can be used by all cyclists with varying abilities. The route can be very quiet, comfortable and scenic.

The disadvantage of a bike path is the limited opportunities to build them. Bike paths can be built along railway reserves, in new development areas, through existing park space and along ocean or river waterfronts. If none exist or if these potential areas are not well-situated for a bicycle route, then land acquisition or major redevelopment would be required. This is often the case in developed urban areas and can be a very costly option.

There are also potential conflicts with pedestrians as pathways for cyclists (such as those along the waterfront) are often locations of pedestrian traffic. This would require cyclists to ride slower. Also, bike paths are generally not useful bicycle commuter routes, nor do they educate cyclists and motorists to share the roads safely when required.

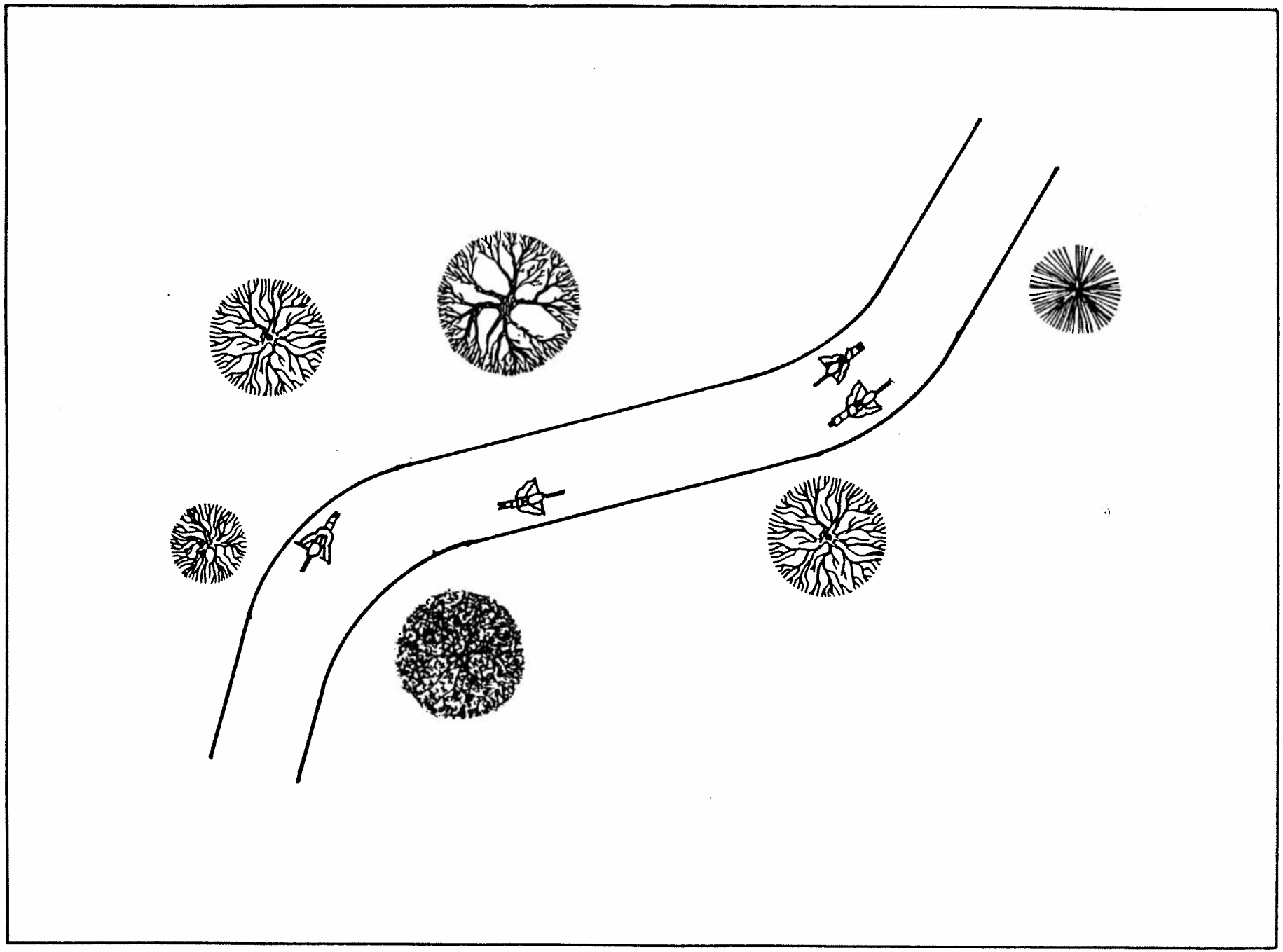


FIGURE 8 – Bike Paths

FIGURE 9 — Example of Bike Paths (Jericho Beach)

## 4.0 PUBLIC INPUT

The public's response to the "Options for Cycling Improvements in Vancouver" document was very good. Approximately 100 written submissions were received. These were thoughtfully written and had useful comments regarding the four basic options presented. Appendix C provides a summary of selected comments from the written submissions received.

The public meeting held on October 2, 1991 was equally successful with about 150 people in attendance. The meeting was taped for cablevision and was chaired by a panel consisting of representatives from City Council, the Engineering Department and the Bicycle Advisory Committee. Over 30 people presented their ideas at the meeting. Although many felt that bicycle education is very important, most wanted to see more bicycle facilities to encourage cycling. Many comments were made at the meeting and a few are highlighted below:

- More and better bicycle facilities should be the first priority.
- The Arbutus Corridor should be pursued as a bikeway.
- A City Bicycle Coordinator is needed.
- Must incorporate all four E's of bicycling (engineering, education, encouragement and enforcement).
- Bicycles should be promoted with an annual bike event.
- More education and a free bike map are needed.
- Parking and meter checkers should be using bicycles.

In regard to the four basic options outlined in the document, many of those at the public meeting felt that all four options should have a role in the City-wide bicycle network and that each should be pursued where appropriate. However, it was clear that the majority supported the option of enhanced integration on local streets. This option was perceived to be the most practical for encouraging more people to cycle. Most felt that it would be safer and more comfortable than arterial integration and more direct than bicycle paths. Local integration also

has the advantage of being able to accommodate both commuter and recreational cyclists, and encourage integration with automobile traffic in a relatively safe environment.

Tabulation of the written submissions confirmed the response received at the public meeting. The majority of people (61%) favoured a combination of the four basic options for a City-wide bicycle network (see Figure 10). Enhanced integration on local streets received the most support from those that only chose one option (Figure 11), as well as from those that chose two or more options (Figure 12). Figure 13 summarizes all written responses received and shows that most people preferred enhanced integration on local streets. Arterial integration, bicycle lanes and bicycle paths received almost equal support.

In general, the majority of people who prepared written submissions or participated in the public meeting were pleased with the City's bicycling initiative and felt that bicycling is an important and environmentally friendly form of transportation that should be encouraged.

## 5.0 PRIORITIES

### 5.1 Route Priorities

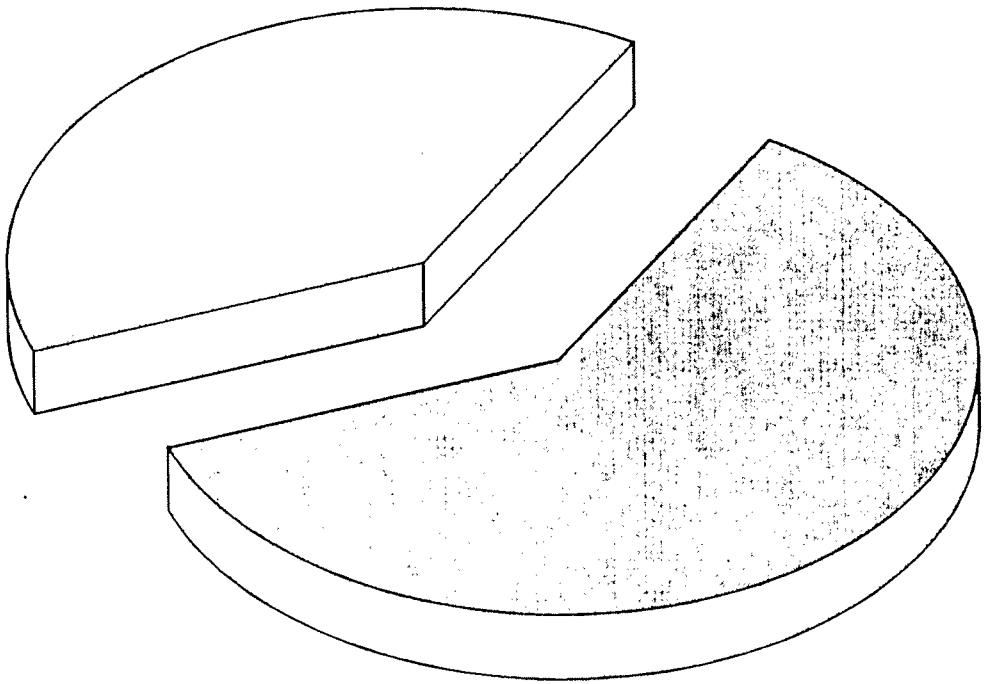
Based on the positive response to the option of enhanced integration on local streets, it is clear that the development of bike routes along local streets should be given priority. No such route currently exists and it has the potential of encouraging more people to commute by bicycle. Given the advantages of a bike route along local streets, it is an option that should be pursued on a trial basis.

A network of potential bike routes on local street was developed (see Figure 14). The network is based on local streets that are generally adjacent to arterial streets and can provide the necessary commuter access across the City. The grade of the street, the traffic volumes,

# FIGURE 10 - PREFERENCE FOR SINGLE VS. MULTIPLE IMPROVEMENT OPTIONS

Options for Cycling Improvements in Vancouver

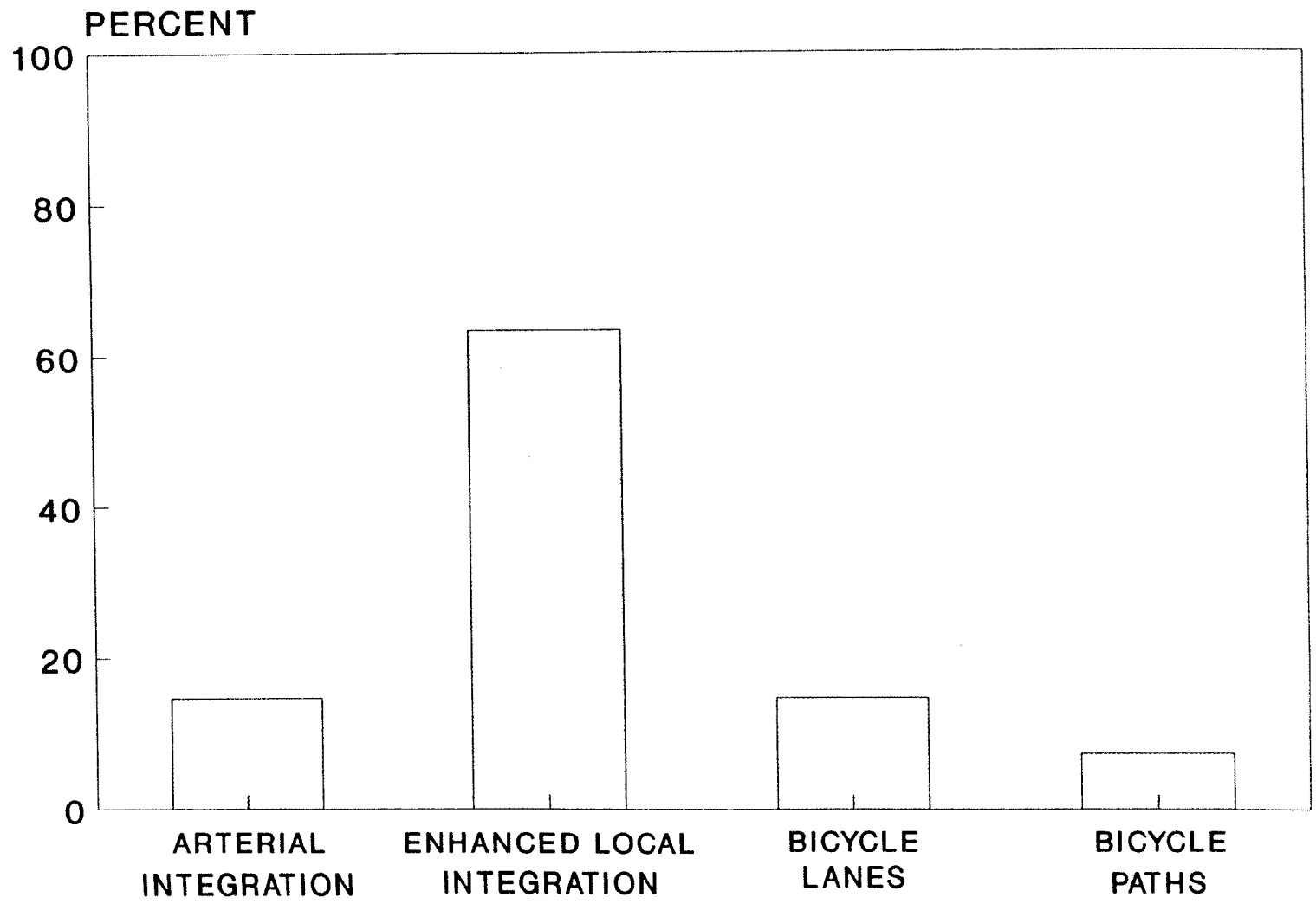
39%
preferred one
improvement
option only



61%
preferred
two or more
improvement
options

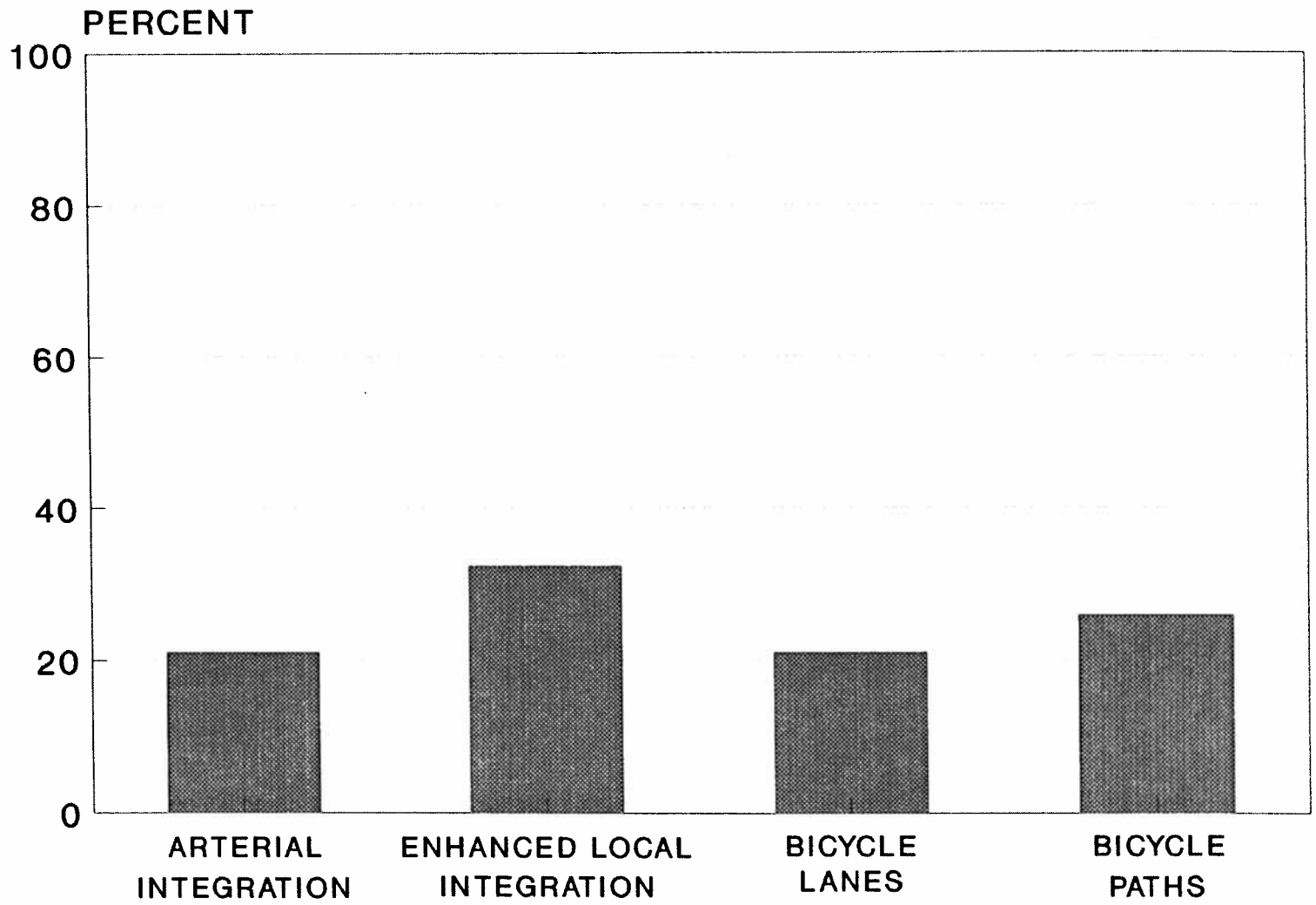
# FIGURE 11 - SINGLE OPTION RESPONDENTS

## Options for Cycling Improvements



# FIGURE 12 - MULTIPLE OPTION RESPONDENTS

## Options for Cycling Improvements



# FIGURE 13 - SUMMARY OF TOTAL RESPONSES

## Options for Cycling Improvements

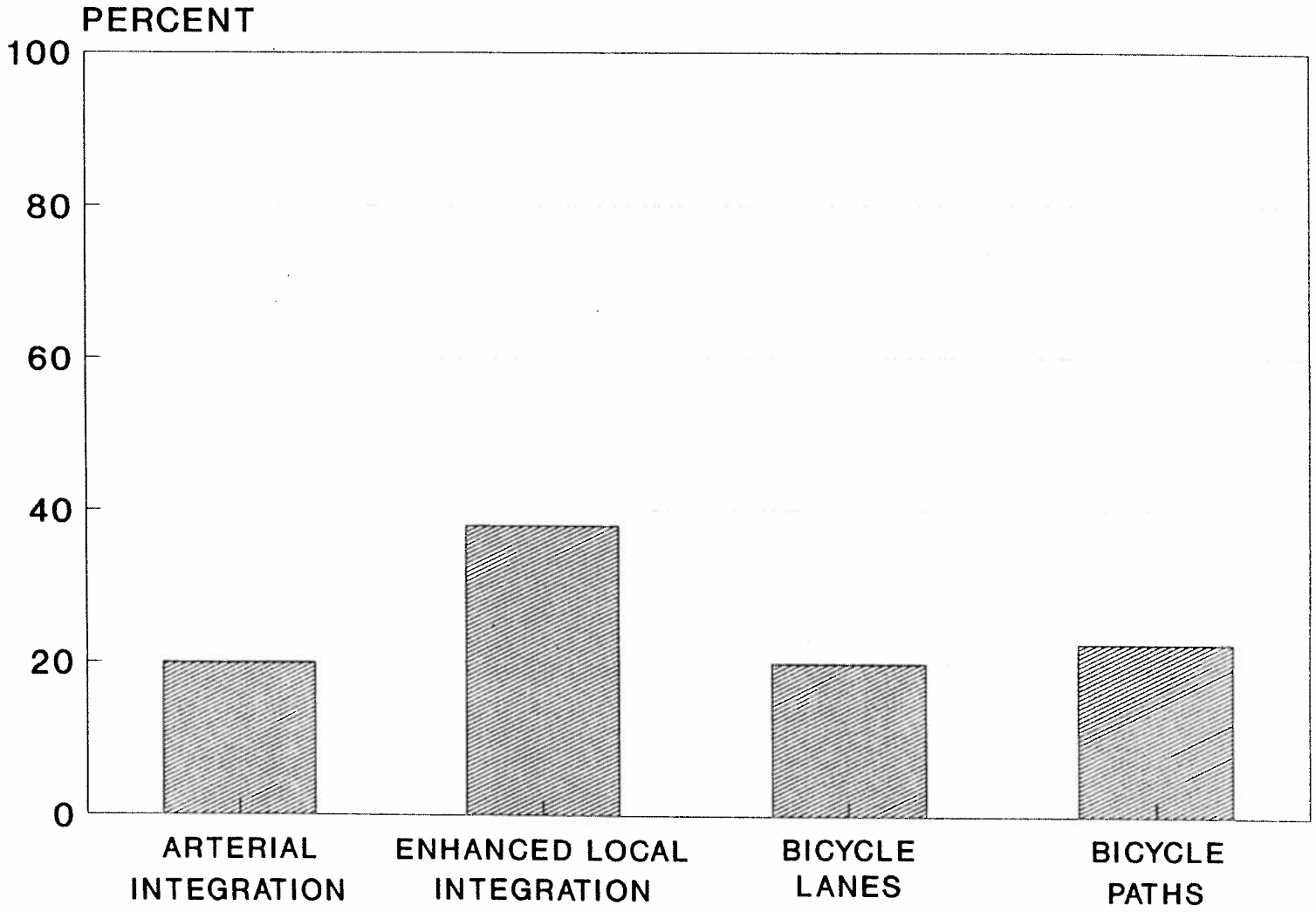
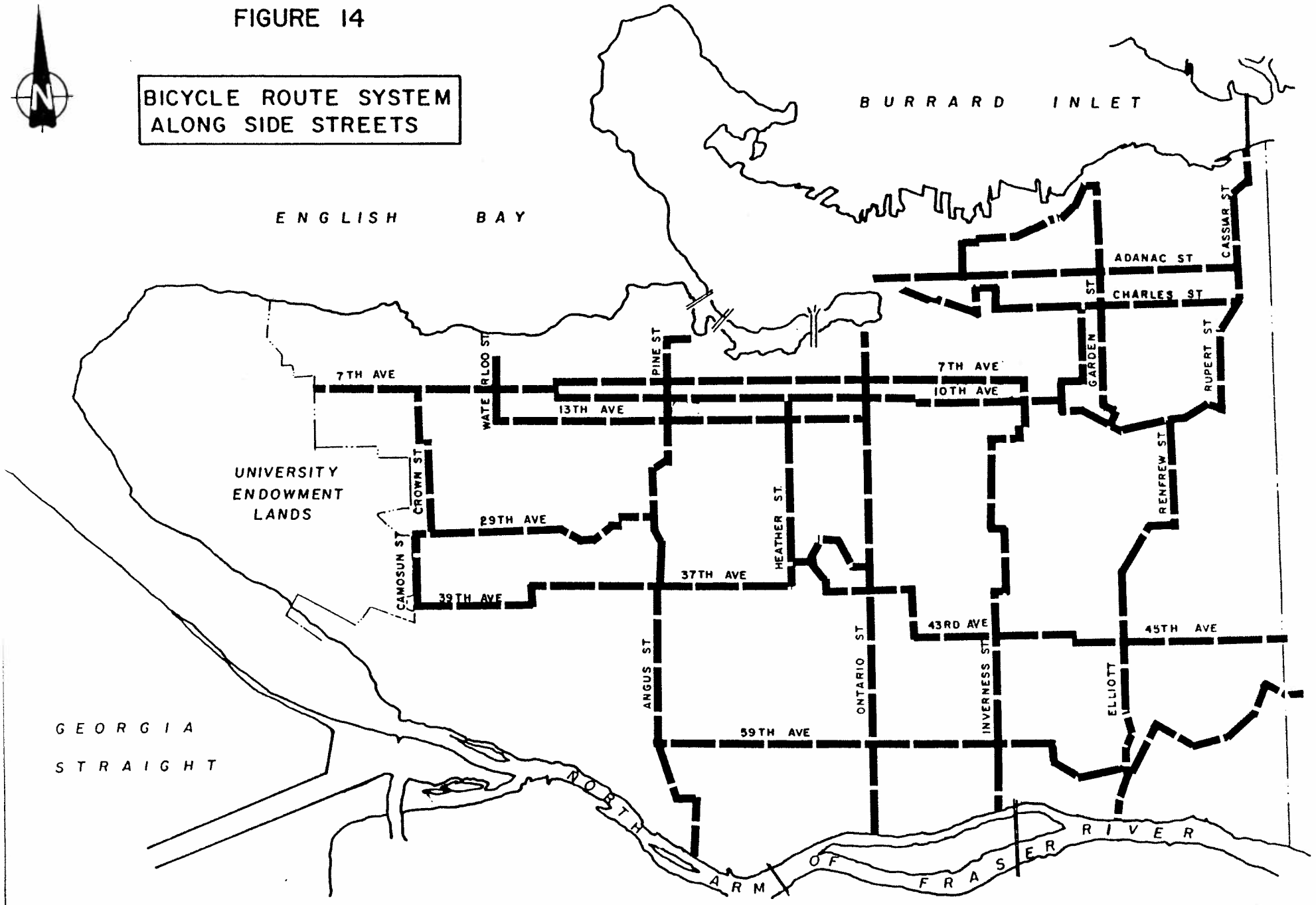


FIGURE 14

BICYCLE ROUTE SYSTEM
ALONG SIDE STREETS



commuter destinations, existing usage by cyclists and the width of the roadway were found to be important criteria in selecting appropriate local streets.

From discussions and preliminary assessment, two north/south corridors and two east/west corridors have been identified as potential trial routes for demonstrating the local integration concept. These are shown on Figure 15 and listed below:

- Adanac/Union Corridor
- Arbutus Corridor
- Broadway Corridor
- Ontario Corridor.

For the 1991/1992 Bicycle Capital Plan, the implementation of a bicycle route along one of the above corridors is proposed. Staff, in consultation with the Bicycle Advisory Committee, will analyze the routes and determine the most appropriate one for trial implementation. Once a route is selected, detailed plans will be developed for Council approval prior to implementation. Additional routes will be developed contingent on funding.

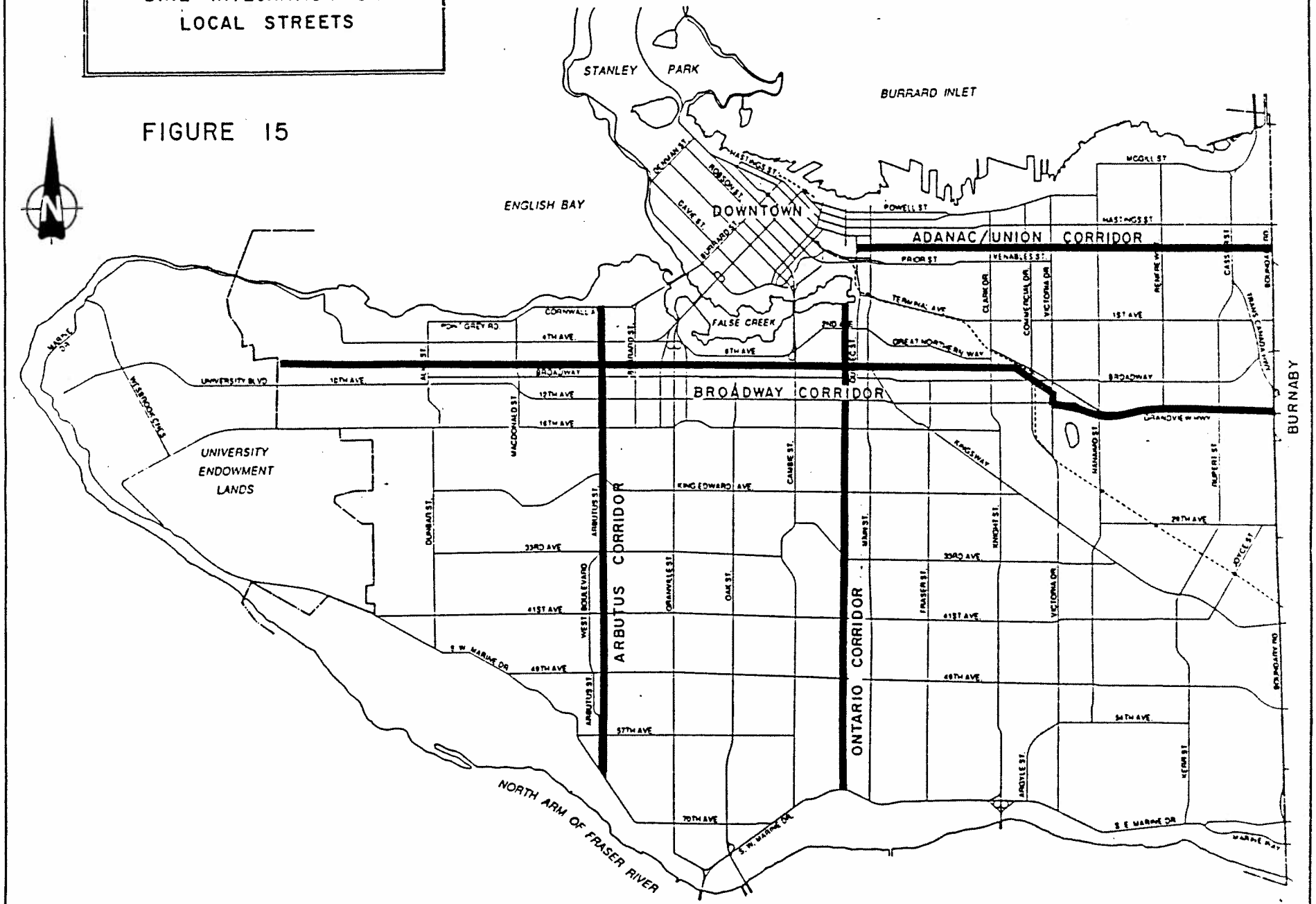
## 5.2 City-wide Bicycle Network

In addition to pursuing bicycle routes along local streets, arterial integration, bike paths and bike lanes should also be pursued. Arterial street integration is required to accommodate the experienced commuter cyclist, off-street bike paths are required for recreational cyclists and bike lanes are an alternative that can be useful in certain conditions where other alternatives are not appropriate. Therefore, a City-wide bicycle network for Vancouver should incorporate all four options.

Arterial integration as outlined in the Comprehensive Bicycle Plan will continue to be pursued. Experience to date in Vancouver has shown that

PRIORITY CORRIDORS FOR BIKE INTEGRATION ON LOCAL STREETS

FIGURE 15



for arterial integration will remain unchanged. The existing priority I and II streets outlined in the Vancouver Comprehensive Bicycle Plan and shown in Figure 16 will become part of the proposed City-wide Bicycle Network.

Since bike paths or recreational routes were also identified as being an important component of a City-wide bicycle network, a system of recreational routes was developed. The proposed system is shown in Figure 17 and expands upon the existing recreational routes. The Stanley Park Seawall and the Seaside Bike Route are extended to create a continuous waterfront route around Vancouver. This is currently being pursued as opportunities arise. Current waterfront developments that incorporate recreational bike routes include:

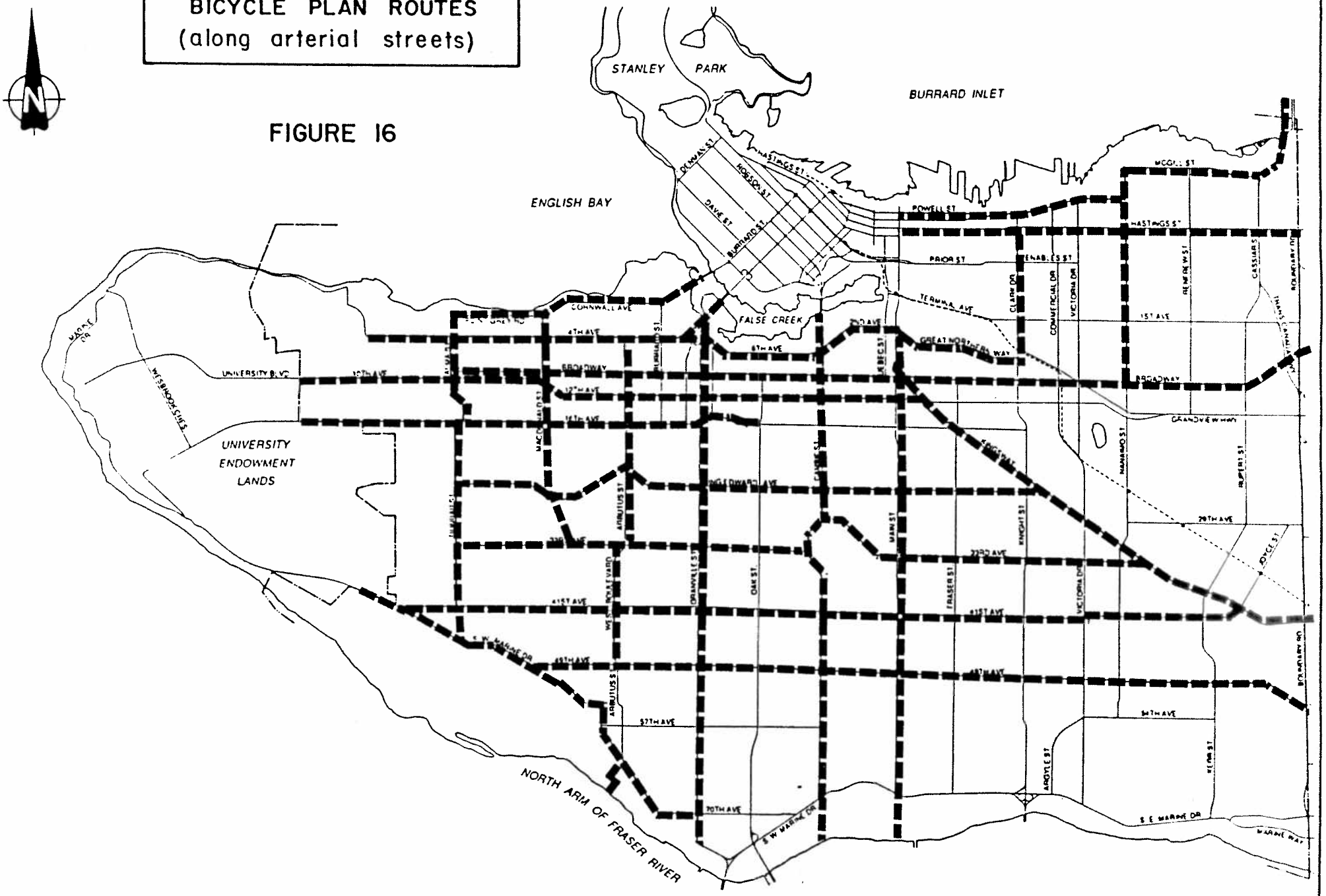
- the Fraser Lands development along a rail right-of-way,
- the Riverfront Park along the Fraser River,
- the Bayshore and Marathon developments at Coal Harbour, and
- the Concord development on False Creek North.

The proposed recreational bicycle route system also includes routes through the city that further link and provide access to the waterfront system. The existing 7-Eleven recreational bike route along the Skytrain corridor is one such example.

Bike lanes encourage the segregation of bicycles and automobiles. As noted previously, past policy has been to integrate bicycles with automobiles. Given the nature of the existing street network and the inherent potential for bike/automobile conflicts at intersections, bike lanes are not recommended in general. However, it is recognized that some opportunities may exist (such as on roadways with very few cross streets and intersections) where bike lanes can be safely incorporated into the bicycle network. Bike lanes will be considered on a site specific basis where appropriate.

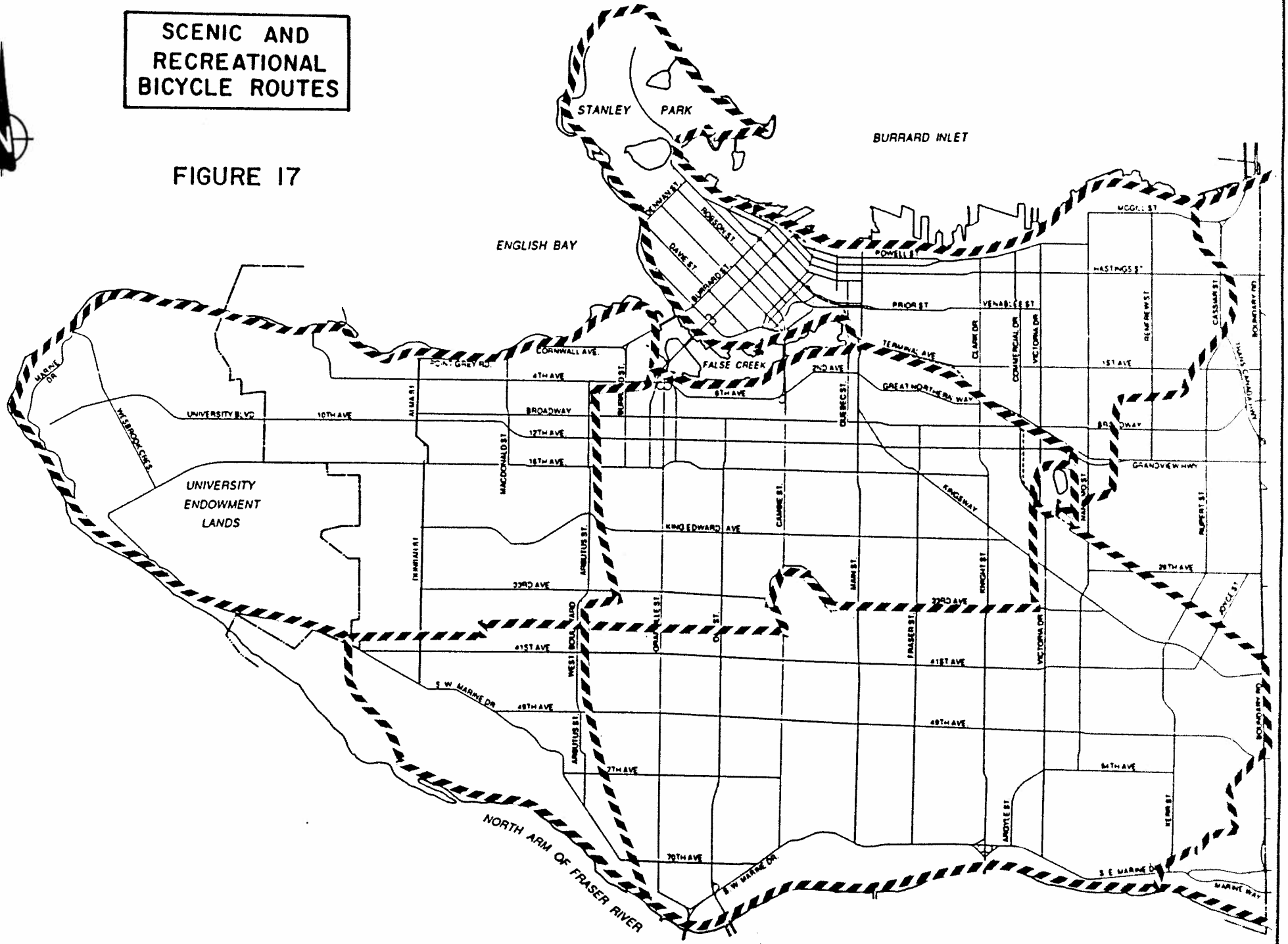
# VANCOUVER COMPREHENSIVE BICYCLE PLAN ROUTES (along arterial streets)

FIGURE 16



# SCENIC AND RECREATIONAL BICYCLE ROUTES

FIGURE 17



## 6.0 CONCLUSION

Based on input from interested bicycling organizations and the public, a Bicycle Network for Vancouver was developed. The network incorporates bike route integration along arterial streets and local streets. Recreational off-street routes are also proposed and bike lanes will be considered where appropriate.

Local street integration was found to be appealing to most cyclists and potential cyclists. Local streets adjacent to arterial streets can provide the necessary commuter access across the City in a more comfortable and less polluted environment than arterial streets. They are also more readily available than off-street bike paths which generally require land acquisition. Therefore, priority should be given to the development of bike routes along local streets. Four corridors (Adanac/Union, Broadway, Arbutus and Ontario) are identified as potential candidates for local street integration and are recommended for further detailed study and implementation.

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## ACKNOWLEDGEMENT

The Bicycle Network Study was carried out by staff from the Transportation Engineering and Planning Branch of Vancouver's Engineering Department. Dr. Lorne Whitehead provided the inspiration for the local street integration concept. Valuable input and support was received from the Bicycle Advisory Committee. The report was prepared under the direction of Doug Louie, P.Eng, Assistant Transportation Engineer. Others who participated in various aspects of the study were:

Liz Abbink
Ian Adam, P.Eng.
Ron Archide
Don Henderson, P.Eng.
Steve Kautz (City Clerk's Office)
Ron Mitchell
Rick Slessor
Terry Thompson
Mona Chan

# APPENDIX A

# STATUS OF THE VANCOUVER

# COMPREHENSIVE BICYCLE PLAN

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| | RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|---|
| 1) | That the street priority system detailed in this report be recognized as a system to determine where bicycle requirements should be considered in road design and future improvement projects. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 2) | That the City of Vancouver Engineering Department road design standards incorporate recommended lane widths, where practical, as outlined in this report. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 3) | That intersection design continue to assume cyclists perform safe standard vehicular left turns, as outlined in this report. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 4) | That all future interval clearance time calculations for signal installation utilize calculated bicycle clearance intervals in cases where they exceed that of a motor vehicle, where practical. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 5) | That special attention continue to be paid to vehicle-actuated signals on priority I and II streets (see Street Priority System) to ensure that bicycles are being detected. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 6) | That symbolic railway crossing signs (showing angle of tracks) and cyclist cautionary signs be placed before all shallow angle railway crossings. | City (Engineering) | Completed | |
| 7) | That the City continue to negotiate with railway authorities to install rubber flange fillers at shallow angle railway crossings. | City (Engineering) | On Hold | CP Rail is in a firm position against the installation of flange fillers. Negotiations with staff have been unsuccessful. However, along all high priority rail crossings no longer in use, the tracks have been filled in with asphalt or removed. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 8) That roadside asphalt drainage diverters be marked, where practical, to improve detection under poor visibility circumstances. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department construction standards. |
| 9) That bicycle access through traffic barriers be considered on a site specific basis. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 10) That all future roadway projects be designed to include cyclists on the road. In situations where such on-road access is unsafe that an alternative safe, direct, and convenient bicycle facility be provided, if practical. | City (Engineering) | Completed (ongoing) | Implemented as part of Engineering Department design standards. |
| 11) That the City of Vancouver incorporate minimum bicycle parking requirements into the Vancouver Parking By-Law for all new developments. | City (Engineering) | In progress | See recommendation 12. |
| 12) That the Engineering and Planning Departments continue to pursue minimum recommended bicycle parking in all new developments at the development permit stage, using the existing floor space ratio exemption as an incentive. | City (Engineering) | Completed (ongoing) | Council approved standards are in place for conditionally approvable development applications and rezonings. Outright developments will be addressed in 1992. |
| 13) That the existing Street and Lanes Maintenance Program continue to identify and repair bicycle hazards. | City (Engineering) | Completed (ongoing) | This policy will be continued. A "hotline" for cyclists is being examined in 1992. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 14) That the Park Board consider the following recommendations in order to alleviate present cyclist/pedestrian conflicts on the Stanley Park Seawall: | | | |
| A) In order to alleviate cyclist/pedestrian conflicts at Second Beach, Third Beach and Lumberman's Arch, designated pedestrian crossings should be established. Pedestrian crosswalks should be painted on the cycle path with offset warning lines and traffic control signs requiring the cyclist to "stop". "Cyclist Dismount" signs should be removed. | Park Board | Completed (ongoing) | A Stanley Park Task Force will be reviewing the Stanley Park seawall operations in 1992. |
| B) On route conflicts can be minimized through the use of "cyclists use bell or voice when passing" signs, placed periodically along the route. | Park Board | Completed (ongoing) | See reccommendation 14A. |
| C) A printed, up-to-date safety code should be distributed along the route during peak use periods and posted at key locations. Such a safety code should be recommended reading for all bicycle renters. | Park Board | Completed (ongoing) | Safety codes and cycle route maps continue to be distributed at community centres, local rental shops and tourist information booths. In conjunction with the Bicycle Advisory Committee, staff advise that information booths can be set up on the seawall with the afore-mentioned material on several occasions throughout the summer months. |
| D) A suggested speed limit for cyclists. | Park Board | On Hold | The Stanley Park Police - Mounted Squad have not recommended that the signing be introduced because of enforcement difficulties. This will be reviewed in 1992 by the Stanley Park Task Force. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 15) That B.C. Parkway consider the following recommendations for the 7-eleven Bicycle Trail: | | | |
| A) Stop and Yield traffic control signs should be placed before all major intersections on the trail. | BC Transit | On Hold | BC Transit was made aware of this recommendation for their consideration. No action has occurred yet. |
| B) "Use bell or voice when passing" signs should be placed periodically before all major intersections on the trail. | BC Transit | On Hold | See Comments for 15A. |
| C) Some on-street sections of the trail should be analyzed for areas to reduce potential conflict and improve signage. In particular, the Grandview Highway to Clark Drive section should be reviewed. | City (Engineering) | In Progress | The Engineering Department will be reviewing these sections in 1992. |
| D) Bicycle access in the False Creek to Clark Drive section should be considered during land development in this area. | City (Engineering) | On Hold | Improvements to the 7-eleven Trail should be made before connection to the Seaside Route. Presently, land developments in the area are limited. |
| 16) A) As on the Stanley Park Seawall, "cyclists use bell or voice when passing" signs should be placed periodically along the route in high pedestrian use areas. These areas include: Sunset Beach (and Burrard Street Bridge). | City (Engineering) and Park Board | Completed | Completed for Burrard Street Bridge. A Park Board path exists which has bicycles bypass Sunset Beach congestion as part of the Seaside Route. |
| B) That the Burrard Street Bridge signage and access ramps be improved as outlined in the Burrard Street Bridge Bikeway Report. | City (Engineering) | Completed | |
| C) Surface conditions, signage and conflicts should be reviewed in the Kitsilano area (Habitat Bicycle Route). | City (Engineering) and Park Board | Completed | Review was completed and bicycle route was redirected along W. 3rd Avenue to minimize conflicts. Accompanying pavement improvements and sign installations were made, and a cyclist actuated signal installed. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 17) That facilities for recreational cyclists be progressively provided, wherever practical, along railway reserves, ocean and river foreshores, and highway rights-of-way. | City (Engineering) and Park Board | Completed (ongoing) | The Engineering Department has developed a conceptual plan for a City-wide bicycle network. The Seaside Route review is nearing completion and will be reported to Council shortly. All future progress and improvements will be done in close association with the Bicycle Advisory Committee. |
| 18) That the terms of reference of the Vancouver Bicycle Advisory Committee be expanded to include the role of a bicycle education advisory board for all bicycle education courses held by the Parks Board, the School Board and the Police Department.<br>AND<br>That the representation on the committee be expanded to include representatives from the School Board, the Park Board, and cycling associations knowledgeable in the area of bicycle education. | Bicycle Advisory Committee | Completed | |
| 19) That all bicycle education courses offered through the Vancouver School Board or Park Board, which include an on-road riding component, require that instructors of such courses be certified by the Canadian Cycling Association as qualified bicycle instructors. | School Board and Park Board | Completed (as far as possible) | At present, several community centres offer cycling courses taught by Canadian Cycling Association instructors, and other centres are encouraged to offer similar courses. |
| 20) That an informational brochure be made available for parents of children under the age of nine. This brochure can be distributed through schools, community centres, Police and retailers. | School Board and Bicycle Advisory Committee | In progress | Informational brochures are most appropriately dealt with on a regional or provincial level with funding from the same. The Bicycle Advisory Committee will be pursuing this in 1992.<br><br>The Bicycle Advisory Committee will also continue to be active with the Police in promoting local bicycle events with the media for the spring bicycling season. Examples include Bicycle Education Week and Bicycle Enforcement Week. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 21) That the Vancouver School Board work with the Bicycle Advisory Committee and involved agencies to introduce a basic bicycle safety course for children under nine years of age using 'Effective Cycling' techniques and CCA certified instructors. | School Board | Completed (ongoing) as far as possible | Local School Boards are afforded some flexibility in curriculum to meet local needs. However, since the curriculum is already very full, the current activity on recommendations 21-23 should concentrate on increasing the pool of certified instructors and on providing learning resources information about bicycle safety as per recommendations 20,24,26 & 35. Although it would seem difficult to introduce courses on a district-wide basis, the School Board supports local school initiatives to meet local school needs in the area of bicycle education, as in other areas. Existing bicycle safety courses provided by the Vancouver Safety Council and Police will continue. |
| 22) That the Vancouver School Board work with the Bicycle Advisory Committee and involved agencies to introduce bicycle education as a compulsory part of the elementary school curriculum for grades 4 to 7. | School Board | Completed (ongoing) as far as possible | See comments for recommendation 21. |
| 23) That the Vancouver School Board work with the Bicycle Advisory Committee and involved agencies to introduce in-class bicycle education into existing high school courses. | School Board | Completed (ongoing) as far as possible | See comments for recommendation 21. |
| 24) That an adult cyclist brochure be made available for distribution through automobile associations, community centres and retailers. | Bicycle Advisory Committee | In progress | See comments for recommendation 20. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 25) That the Vancouver Park Board and community colleges and universities be encouraged to expand their present bicycle program to include adult CCA Can-Bike courses at local community education centres, campuses, etc. | Bicycle Advisory Committee and Park Board | In progress | The Park Board has taken steps to encourage these courses. About 6 Community Centres offer the courses and other Community Centres are encouraged to introduce the courses.<br><br>Adult education courses, night school courses and continuing education courses through the School Board and Community Colleges could be offered immediately. The Bicycle Advisory Committee is examining ways to encourage the provision of these courses. |
| 26) That a 'road sharing' brochure geared towards motorists be made available outlining the rights and responsibilities of the cyclist and motorists on the roadway. And that this brochure be made available through ICBC, BCAA, BC Tel and bicycle organizations. | Bicycle Advisory Committee | In progress | See comments for recommendation 20. |
| 27) That driver training booklets and courses be revised to present cyclists as an integral part of the road user environment, outlining the rights and responsibilities of cyclists. And that the driving test itself be revised to test for such knowledge. | Province | In progress | The Province has been requested to review this item. Currently, the Superintendent of Motor Vehicles has considered several improvements to their Safe Driving Guide. Further improvements to this guide and the Motor Vehicle Act are planned for future. |
| 28) That a city-wide 'Share the Road' media campaign be introduced. And that promotional material in this campaign include posters, bumper stickers, T.V. and radio advertising. | Bicycle Advisory Committee | In progress | The Bicycle Association of B.C. are planning to implement this media campaign in 1992. See comments for recommendation 20. |
| 29) That a city-wide helmet campaign be implemented to reduce present cyclist injuries. | Bicycle Advisory Committee | In progress | See comments for recommendation 20. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 30) That future mandatory helmet use be considered when the majority of cyclists are voluntarily wearing helmets. | Bicycle Advisory Committee | In progress | The Engineering Department has monitored the voluntary use of helmets in 1991 and found about 38% of cyclists wearing helmets. A helmet campaign or future mandatory helmet by-law is most appropriately dealt with on a regional or provincial level. The Bicycle Advisory Committee will be pursuing this in 1992. |
| 31) That a Commercial Bicycle Operator Licensing program, as outlined in this report, be implemented in order to control the present downtown bicycle courier problem. | City Permits & Licenses | Completed (ongoing) | |
| 32) That the Vancouver Police Department in cooperation with the Bicycle Advisory Committee run a one week Bicycle Enforcement Campaign as outlined in this report. | City (Police) | Completed (ongoing) | Enforcement campaigns are conducted annually. |
| 33) That the Vancouver Police Department consider working with local RCMP to initiate a Vancouver Bicycle Identification program to reduce bicycle theft. | City (Police) | Completed (ongoing) | Bicycle marking clinics are conducted on a regular basis as part of a regular crime prevention program. |
| 34) That the Vancouver Police Department prepare an informational memo to all on-street officers outlining methods of identifying a stolen bicycle. | City (Police) | Completed (ongoing) | A Training Bulletin on bicycle identification has been prepared and distributed to Police Department members. In addition, a 10 minute video on bicycle identification has been shown to all patrol members. |
| 35) That an informational pamphlet outlining cycling traffic laws and regulations, be supplied to all bicycle rental outlets for distribution to rental customers. | Bicycle Advisory Committee | In progress | See comments for recommendation 20. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 36) That the Vancouver Police Department consider the use of trained police officers on bicycles to enforce traffic laws and regulations governing cyclists on the Stanley Park Seawall and the English Bay area. | City (Police) | In Progress | The Police Department has created a pilot 'Bicycle Squad' project in the northwest area of the city. |
| 37) That the City of Vancouver secure bicycle parking facilities at Vancouver school, libraries, community centres, parks, museums and other public buildings. | Bicycle Advisory Committee, City (Engineering) and various other agencies | In progress | The Engineering Department is reviewing the existing on-street bike rack program and the possibility of another demonstration project. The Bicycle Advisory Committee has pursued other bicycle parking facilities on a site specific basis where a need has been identified. The Parks Board continues to provide bike racks, wherever possible, at community centres and parks. |
| 38) That private developers be encouraged to provide shower and locker facilities in the development permit application | City (Planning Department) | In progress | See comment for recommendation 12. |
| 39) That the Park Board continue to hold Bicycle Sundays with the objective of encouraging safe cycling in Vancouver. | Park Board | In progress | The Park Board continues to encourage Bicycle Sundays at parks (other than Stanley Park) and community centre locations by private initiatives. |
| 40) That fund raising cycling events be encouraged and supported by the City of Vancouver whenever possible. | Bicycle Advisory Committee | Completed (ongoing) | The Bicycle Advisory Committee continues to further encourage these types of events. |
| 41) That BC Transit be requested to upgrade bicycle parking facilities at all Skytrain and Seabus stations as outlined in this report. | BC Transit | In progress | A trial bike and ride program has been implemented at the Scott Road, Sexsmith and Ladner Exchanges. A total of 40 bicycle lockers were installed and are now available for lease. |
| 42) That BC Transit consider providing bicycle parking facilities at all Park and Ride locations and off-street transit exchanges. | BC Transit | In progress | See comment for recommendation 41. |

## BICYCLE PLAN STATUS, TO FEBRUARY 1, 1992

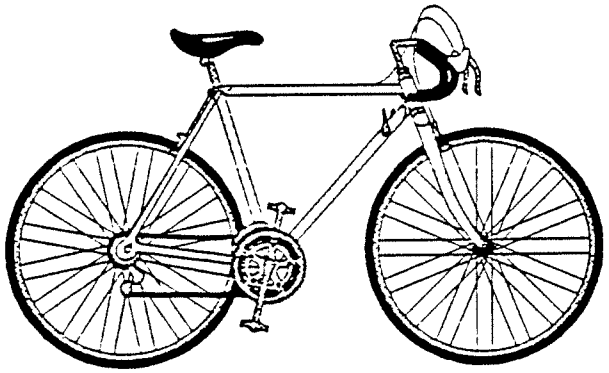
| RECOMMENDATION | RESPONSIBLE AGENCY | STATUS | COMMENTS |
|---|---|---|---|
| 43) That individual municipalities be asked to consider providing bicycle parking facilities at transit exchanges where off-street space is not available. | BC Transit | On Hold | See comments for reocmmendation 41. |
| 44) That BC Transit consider: | | | |
| i) allowing cyclists to use the Skytrain system during non-peak periods (similar to Montreal and San Francisco). | BC Transit | On Hold | With the purchase of their wide-bodied SkyTrain cars, B.C. Transit has suggested that there is a possibility that bicycles may be allowed on the SkyTrain. However, this will not likely occur in the near future. |
| ii) permitting bicycles on the Seabus at all times to facilitate North Shore commuting. | BC Transit | Completed (as far as possible) | Bicycles are now allowed on the SeaBus during off-peak hours without any additional adult fare charged. |
| iii) equipping express buses from Surrey and Delta with external bicycle racks to transport cyclists from major transit exchanges to designated unloading points in downtown Vancouver (similar to San Diego). | BC Transit | On Hold | The Bicycle Advisory Committee has recently suggested to B.C. Transit that bike racks be installed on buses using the Massey Tunnel. |
| 45) That BC Ferries Corporation consider providing improved bicycle parking facilities on ferry car decks in order to safely encourage the present increased trend towards | BC Ferries Corporation | On Hold | BC Ferries have responded with concerns about the practical implementation of recommendation 45. |

# APPENDIX B

# OPTIONS FOR CYCLING

# IMPROVEMENTS IN VANCOUVER

# Options for Cycling Improvements in Vancouver



Engineering Department
City of Vancouver
August 1991

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Electrical & Utilities Control
T.E. Mulder, P.Eng.

September 3, 1991 Please refer: M.R. Zaborniak File #3654

Dear Fellow Citizens,

## ENCOURAGING CYCLING IN VANCOUVER

The bicycle is an environmentally friendly mode of transportation. It does not consume non-renewable fossil fuels and is non-polluting. This was recognized in the Clouds of Change report prepared by the Task Force on Atmospheric Change. A number of recommendations in the report were approved by Vancouver City Council. One of the recommendations was to make bicycling a better transportation alternative.

Our task is to create a practical plan that will significantly increase bicycling. It is essential that we learn from citizens what it will take to make bicycling an attractive option. We need to know how residents, pedestrians and drivers feel about bicycles and bicycle-related improvements.

The Engineering Department is working closely with the Bicycle Advisory Committee to get input from residents. To this end, we have prepared the enclosed discussion paper called "OPTIONS FOR BICYCLE IMPROVEMENTS IN VANCOUVER". We hope to hear from you about the four basic options it presents. Guidelines for written statements are described on page 8 of the paper. Please submit your written statements as soon as possible, preferably before Wednesday, September 25, 1991.

We may invite some authors of some statements to give a brief presentation of their ideas at a public meeting. This will be held on Wednesday, October 2, 1991 from 7:00 to 10:00 PM in the Council Chambers, 3rd Floor, City Hall, 453 West 12th Avenue. You are encouraged to attend this meeting.

If you would like additional copies of "OPTIONS FOR BICYCLE IMPROVEMENTS IN VANCOUVER" or help in obtaining reference material, please call 873-7275 or fax your request to 873-7419.

The Engineering Department and the Bicycle Advisory Committee consider the bicycling issues raised to be of great importance. We hope you will share your ideas with us.

Yours truly,

W.H. Curtis, P.Eng.
City Engineer

John Whistler, Chairman
Bicycle Advisory Committee

EC1275/KC8912(09/04/91)

# OPTIONS FOR CYCLING IMPROVEMENTS IN VANCOUVER

CONTENTS

## 1. THE PURPOSE OF THIS DOCUMENT

This discussion paper focuses on ways of encouraging cycling in the City of Vancouver. Encouragement for cycling in Vancouver was a recommendation in the Clouds of Change report which was carried out by the City to study the complex issues surrounding air pollution. On October 16, 1990, Vancouver City Council approved Clouds of Change Recommendation 11 to "develop measures beyond the existing Vancouver Comprehensive Bicycle Plan to make bicycling a better transportation alternative".

Several methods are available to improve the cycling environment in Vancouver: integration on arterial streets, enhanced integration on local streets, bicycle lanes and bicycle paths. The Engineering Department and the Bicycle Advisory Committee feel it is important to learn from citizens what it will take to make cycling a more attractive mode of transportation. This document is a key step in soliciting public opinion, as it gives background on four basic options available. It is important that non-cyclists or potential cyclists, as well as seasoned cyclists, respond to this document.

Section 2 of this document briefly explains some of the benefits of bicycling. We explain how it reduces pollution and can improve health.

Section 3 outlines the four basic methods being considered to improve and encourage bicycling. It describes their advantages and disadvantages in light of Vancouver's geography, climate and existing street network. Our eventual plan will likely include a combination of these methods.

Section 4 roughly compares the relative costs of the four methods presented and summarizes the pros and cons of each.

Section 5 describes how citizens can make written submissions and take part in a public meeting to be held on Wednesday, October 2, 1991, from 7:00 to 10:00 pm at the Vancouver City Council Chambers, 3rd Floor, City Hall, 453 West 12th Avenue.

## 2. WHY ENCOURAGE BICYCLE TRANSPORTATION?

Motor vehicles are one of the prime contributors to air pollution.[1] This situation is typical of many cities across the world where traffic is increasing faster than urban sprawl.[2] Cities, in their attempts to reduce traffic congestion and emissions of environmentally harmful gases from automobiles, are looking for ways to encourage alternative forms of transportation. One such alternative is the bicycle, which currently accounts for 1 - 2% of morning rush hour commuters into downtown Vancouver.[3]

Bicycling is being encouraged in many cities in Europe and North America by the engineering of safe, comfortable and convenient bike routes. In some European cities, 20-30% of all trips are made with the bicycle.[4] In the United States it was found that over half of all trips made were less than 8 km in length.[5] A similar situation exists in Vancouver and this indicates a potential for increased bicycle usage, especially for short trips. This may be achieved by providing safe, comfortable and convenient bike routes.

It will never be the case that 100% of the population will ride bicycles. There are many reasons some do not cycle: health, age, distance from work, nature of work, etc. Bike commuting isn't for everyone all the time. However, as demonstrated in Europe, bike commuting could be greater than it is now in Vancouver. Of the three largest cities in Canada, Vancouver has the longest cycling season (12 months per year for some cyclists) and therefore the most to gain by encouraging bicycling.

Cycling is beneficial to both individuals and society for a number of reasons:

* Bicycling to work or to shop is more economical than driving.

* Short trips during rush hour can be faster by bicycle than by car.

* Cycling is an excellent form of exercise.

* More bicycles on the road may lead to fewer cars and reduced traffic congestion.

* Bicycles do not consume non-renewable fossil fuels and do not contribute to smog.

Consideration of these bicycle and other environmental related issues has resulted in the City of Vancouver's Clouds of Change report and the Greater Vancouver Regional District's (GVRD's) Creating Our Future report, establishing far-reaching goals for cycling in the Lower Mainland. In fact, the GVRD wants to double the number of commuter cyclists by 1995 by promoting a regional cycling network. The question today is how best to achieve increased cycling.

## 3. FOUR BASIC OPTIONS

This section outlines four basic options for providing additional bike routes to encourage cycling. The advantages and disadvantages of each option are briefly outlined to help you develop an opinion. The options presented are not mutually exclusive and various combinations in various locations may be appropriate and preferred.

While reviewing the four options, it may be helpful to bear in mind three key criteria. We feel a bicycling plan for Vancouver should be:

| | | |
|---|---|---|
| Encouraging | - | it should yield an increase in bicycling for transportation and recreational purposes. |
| Feasible | - | it should be physically achievable, compatible with the existing street network and reasonable in cost. |
| Appropriate | - | the plan should be favourable to all, including residents, pedestrians and motorists. |

We encourage you to consider these criteria as you review the options.

## 3a. INTEGRATION ON ARTERIAL STREETS

### Definition

Integration implies that bicycles share the roads with automobiles. This is generally achieved with a wider curb lane on arterial (main) streets to accommodate cyclists without any visual or physical separation. See Figure 1.

### Background

The integration concept was first widely promoted by John Forester[6]. He believed that bicycles should be treated like any other vehicle, with the same rights as the automobile. Forester's principles encourage commuter cyclists to use their bikes on arterial streets just as cars do. This approach requires cities to ensure that their arterial streets are wide enough that cars and bicycles can travel safely together in the same lane (side by side). It requires cyclists and motorists to be highly responsible about safety and the rules of the road.

In 1988, the Vancouver City Council approved the Vancouver Comprehensive Bicycle Plan. This Bike Plan adopted a goal to make Vancouver 'Bicycle Friendly' through what it called the Four E's of Cycling: Education, Enforcement, Encouragement and Engineering. Amongst its recommendations were calls for integration of cyclists through widening of curb lanes on arterial streets and education programs for both cyclists and motorists. Currently, the City's Engineering Department has integrated bicycle considerations into most of its operations. This includes better maintenance and cleaning of recognized bike routes, signage and pavement improvements, and general roadway design, including wider lane widths, where practical, to accommodate cyclists integration into the street network.

### Advantages

Integration on arterial streets offers a direct, quick and convenient means to get to a destination through the use of any existing streets. This option may help to legitimize the bicycle as a form of transportation by allowing cyclists to assert their legal rights on the road. Also, it has the benefit of educating motorists and cyclists about each others' rights and responsibilities, which will increase safety for all in the long term. Integration can also take advantage of existing roads that have additional width and does not require an excessive right-of-way (disproportionate share of the street).

### Disadvantages

One disadvantage is that cyclists should be well-educated in cycling techniques and confident in cycling on arterial streets. Some people may find arterial roads too dangerous or too intimidating. Integration has had limited success so far in increasing the number of cyclists, as it generally caters to those who already cycle.

Another disadvantage of integration is the exposure of cyclists to high levels of noise and automobile exhaust along busy arterial streets.

## 3b. ENHANCED INTEGRATION ON LOCAL STREETS

### Definition

Enhanced integration on local streets refers to non-arterial bike routes which run along quieter side streets. Traffic management techniques would be used to reduce vehicular traffic and to encourage cyclists.

### Background

This type of bike route has been used in cities in the Netherlands and the United States (e.g. Palo Alto and Berkeley, California).

In June, 1991, the Vancouver Bikeway Network Group proposed a concept plan for incorporating "Vancouver Bikeways" into the City.[7] This plan routes cyclists along residential streets, generally running parallel and adjacent to arterial streets. Where the bike route intersects a major cross-street, measures such as traffic signals are proposed to enable cyclists to cross safely. Traffic barriers partially closing the street are also proposed along the roadway to discourage cars from driving along the route.

Other traffic management measures, including signs and traffic circles at minor intersections, may also be incorporated into the residential side street to further reduce the speed and volume of traffic. These traffic management measures to encourage cycling must necessarily be developed in conjunction with area residents to maintain the character of the neighbourhood and to meet the needs of all users. Figure 2 is an example of what a side street may look like after integrating bicycles on local streets.

### Advantages

Bicycle integration on local streets offers roadway bike routes with much less traffic and lower automobile speeds than on arterial streets. These side streets will appeal to people who would like to commute by bicycle but do not like the atmosphere of an arterial street. Cycling along these side streets should also be comfortable enough for recreational cyclists. It offers them an additional degree of freedom of movement within the City.

With less traffic along the side street, the route will be quieter and the air will be cleaner for cyclists and pedestrians than on arterial streets.[8] Similar to integration on arterial streets, it also takes advantage of existing roadways.

### Disadvantages

Some residents may not favour the enhanced integration on local streets due to increased bike traffic and atypical traffic control measures. In addition, vehicular access may be altered for some residents along the local streets and adjacent streets are likely to experience some increases in traffic due to changes in the existing traffic patterns in the area. Traffic control measures should be implemented in collaboration with neighbourhood committees.

Figure 1
Integration on Arterial Streets

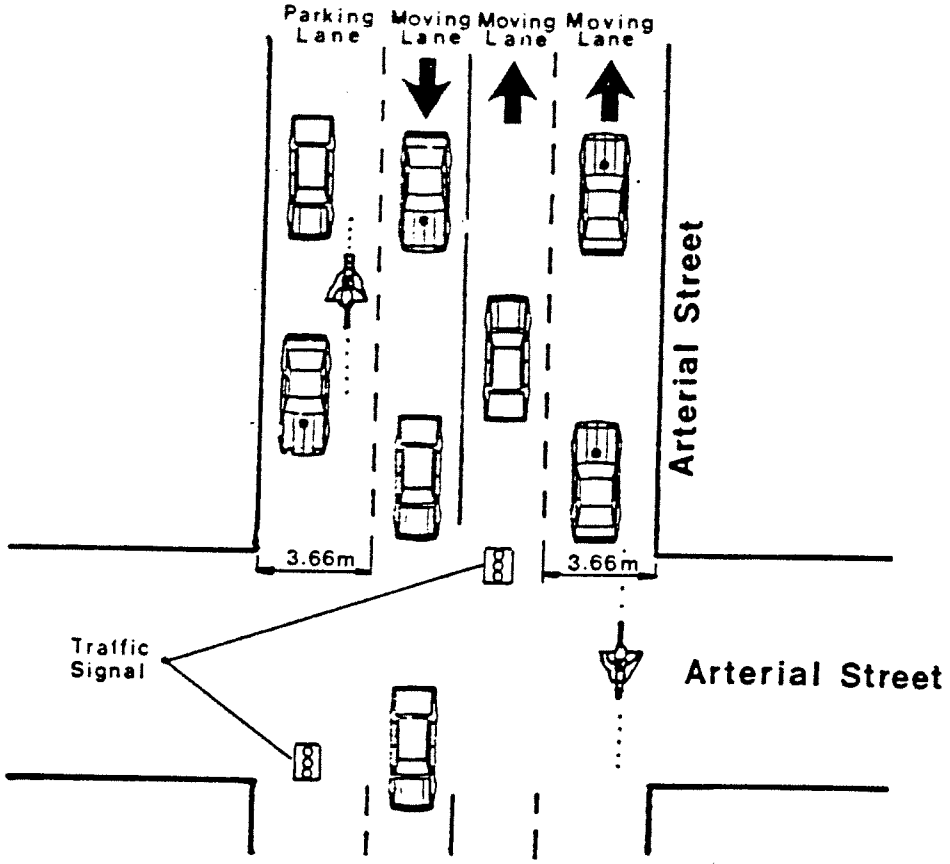
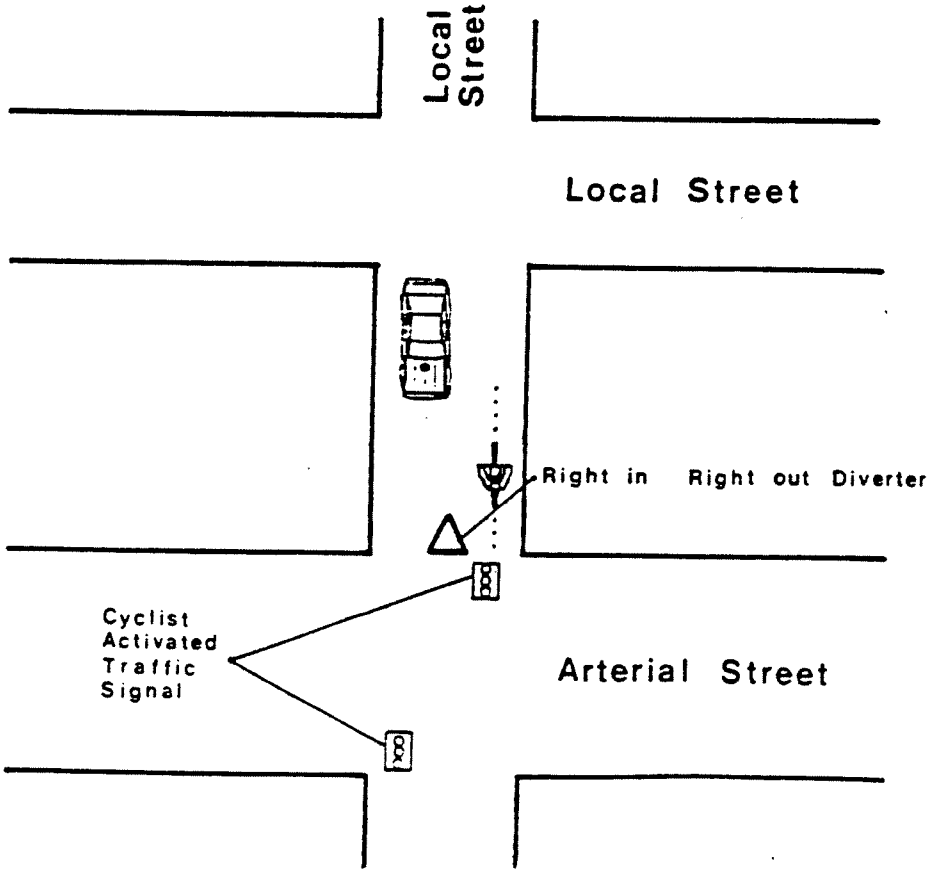



Figure 2
Enhanced Integration on Local Streets



Another disadvantage is that the speed of cycling along a local street may be somewhat lower than cycling along an arterial street. Therefore, it may not appeal to the more confident commuter cyclists who may prefer the most direct and fastest routes.

## 3c. BIKE LANES

### Definition

A bicycle lane is created when a portion of the roadway is designated for bicycles only. This lane can be shared with buses or may consist of either one-way or two-way bike traffic. The bike lane may also be physically separated from the traffic, but is generally only delineated with a painted line. See Figure 3.

### Background

Bicycle lanes have existed in North American cities for the past twenty years. They are most widespread in California cities like Davis and Palo Alto. Examples in the Lower Mainland include the bike lanes in Richmond (on Granville and Railway Street), North Vancouver (Mount Seymour Parkway) and Vancouver (in effect, the shoulders on NW and SW Marine Drive).

The City of Montreal has been building a network of on-street bike lanes (two-way) over the last decade. Usually, an existing traffic lane is reallocated to the bicycle for the purposes of building the bike lane.

This year, the City of Toronto dedicated two of the four lanes on Bay Street to buses, taxis and bicycles (in effect, similar to Granville Mall in Vancouver). These mixed-traffic lanes are in effect from 7:00 AM to 7:00 PM.

### Advantages

Surveys in Vancouver and Toronto have shown that some cyclists prefer bike lanes because they want some tangible recognition of their legal right to space on the road.[9] They also provide a visible separation between cyclists and motorists and are perceived to be safer than integration. Similar to integration, bike lanes on streets would make efficient use of existing roadway space while offering a direct and fast route to a destination.

### Disadvantages

Cyclists using bike lanes still need to be well educated in cycling techniques and be comfortable in traffic. Bike lanes also pose problems similar to those of bike integration where additional roadway width may be required. In this case even more curb lane width is required to create a dedicated bike lane.

Some feel that bike lanes discourage the attitude of road sharing and would increase vehicle/bike conflicts, especially at intersections. Bike lanes may give cyclists a false sense of security resulting in less cautious traffic behaviour. Motorists may also become less cautious as they may expect cyclists to remain in the bike lane. Accidents have been shown to increase substantially where separated bike lanes have been introduced.[10] Particular problems occur in busy areas where turning vehicles must cross the bike lanes, buses must block the bike lanes at stops, etc. Thus, separate bike lanes may best be restricted to areas with minimal conflicts.

Finally, the problem of cycling near a pollution source is a concern for bike lanes along arterial streets.

### 3d. BIKE PATHS

Definition

A bike path is an off-street route for bikes which is physically separated from motor-vehicles and, ideally, pedestrian traffic. See Figure 4. Almost all cyclists would choose to ride on a bike path if it were well-designed, well-maintained, uncongested, direct, and would take them where they want to go. Many recreational cyclists favour bike paths as they are totally separate from vehicular traffic.

Background

Early bike paths in North America included the Coney Island bike path in New York and the bike path network in Seattle, both of which were built around 1900 and, ironically, helped pave the way for roads for cars. In the late 1960's many North American cities began building bike paths, but these were often badly designed. Because of their expense, they were short and often not useful for transportation.

Vancouver has bike paths in Stanley Park, around False Creek, and along the SkyTrain. Presently, a section of bike path along the Fraser Lands is being developed. Another bike path has been suggested along the Arbutus rail corridor. The bike paths in Vancouver generally cater to the recreational cyclists, although they also serve some commuters. Sections of the bike paths are shared with pedestrians, but there is a trend to separate pedestrians and cyclists.

Advantages

The main advantage of a bike path is the elimination of conflicts with vehicles. It is ideal for those who do not want to or cannot cycle in traffic. A further benefit is the improved air quality for those using bike paths that are not adjacent any streets. They can be used by all cyclists with varying abilities. The route can be a very quiet, comfortable and scenic.

Figure 3
Bike Lanes

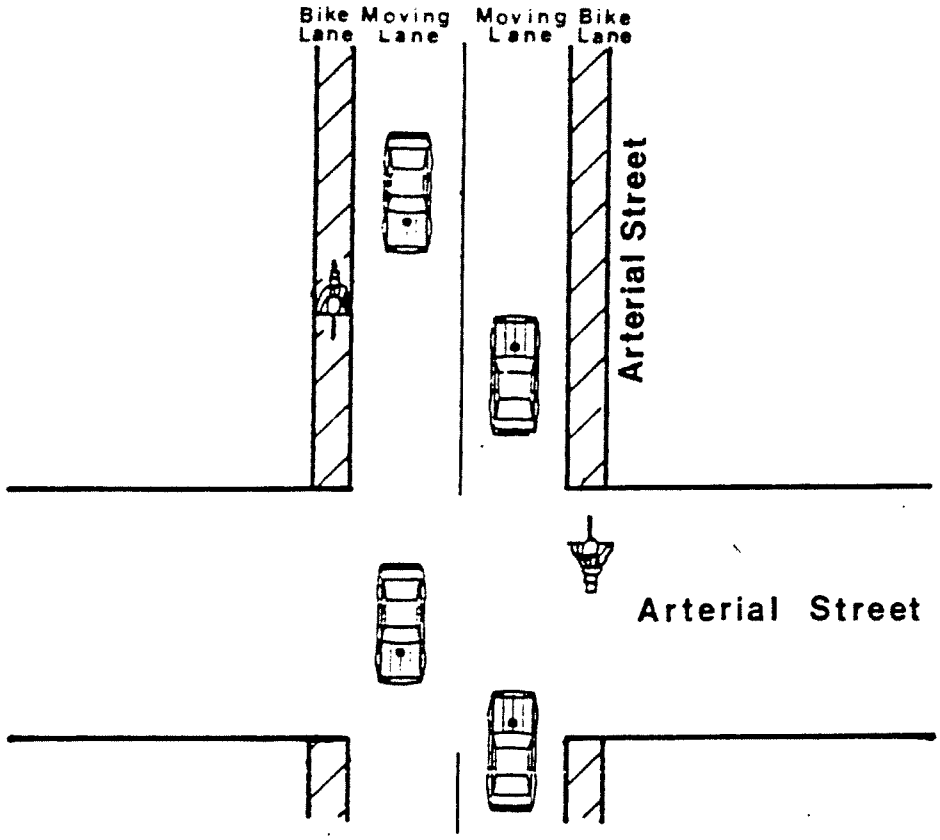
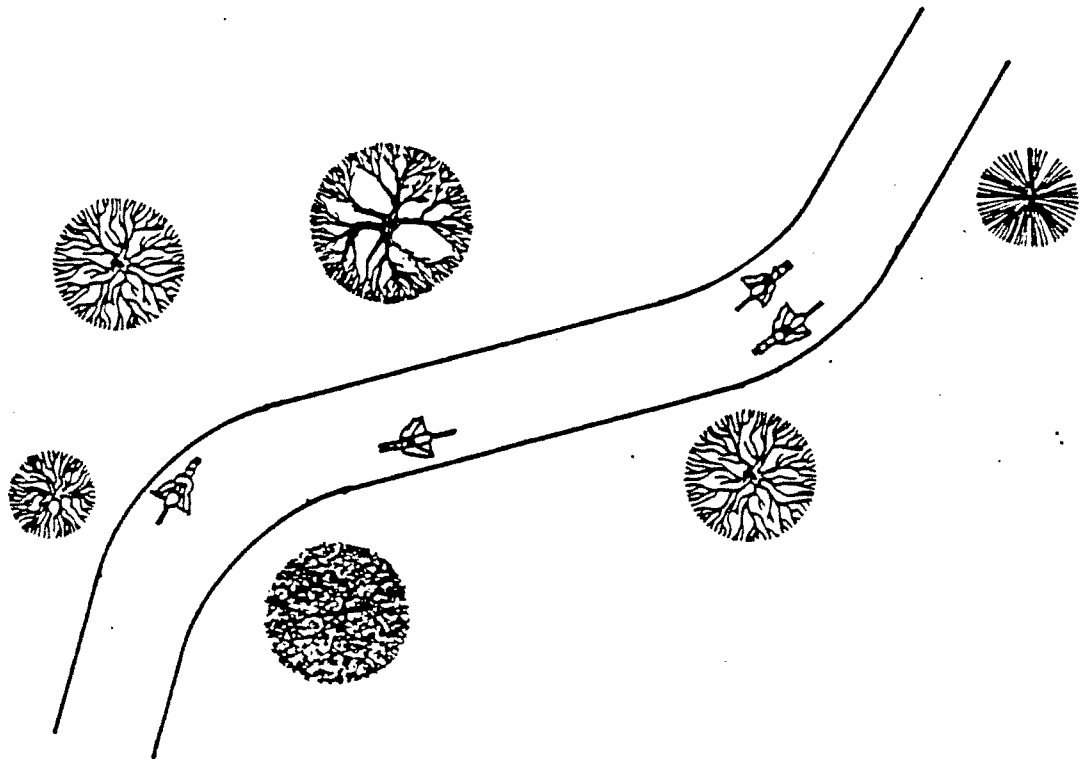



Figure 4
Bike Path



Disadvantages

The main disadvantage is the limited opportunity to build bike paths. Because of the existing physical environment in Vancouver, bike paths would generally require land acquisition and major redevelopment, in conjunction with existing City property and park space. This option can be very expensive.

There are also potential conflicts with pedestrians as pathways for bikes are often locations of pedestrian traffic. Thus, cycling along a path would generally require slower speeds. Generally, bike paths will not meet the needs of all commuter cyclists as they may not follow a useful commuting route.

Finally, bike paths also do not educate cyclists nor motorists to share the roads safely when required.

## 4. RELATIVE COST AND SAFETY FACTORS

In planning any transportation facilities, cost is one factor which should be considered. Although estimates are not available for each of the four bike route options presented, it is important to grasp the relative costs of the options.

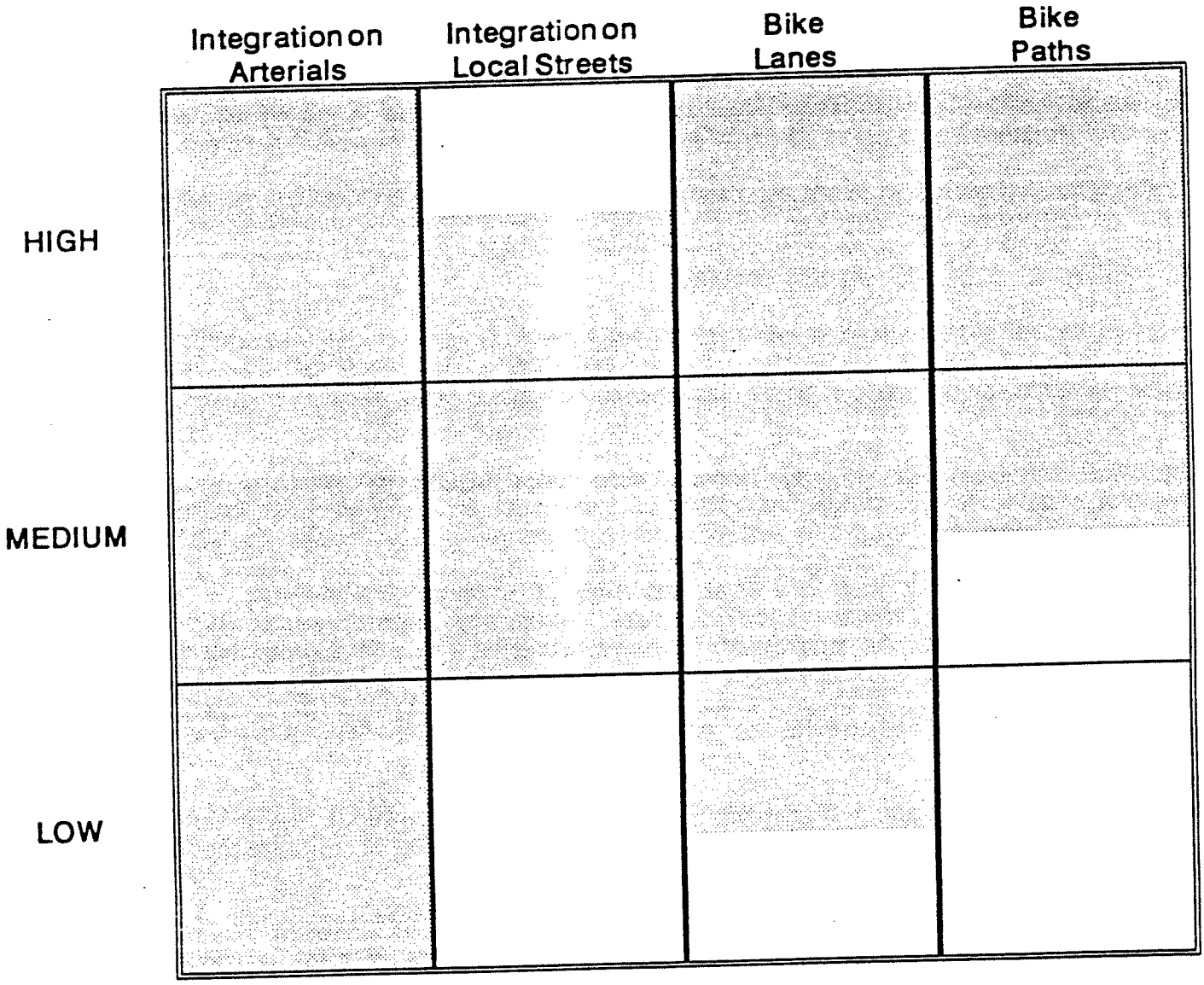
The costs for each option would have a wide range depending upon the location of the route and the existing conditions of the route so only general comments can be made. Figure 5 shows the relative cost comparison that could be anticipated with each option. The costs of Integration on Arterial Streets would be low if existing street facilities are used and high if streets are widened. The costs of enhanced integration on Local Streets, which includes traffic signals and other measures, such as right-in/right-out diverters would be medium to high, although not as high as widening arterial streets. The costs of Bike Lanes would be low if limited to paint markings and high if streets are widened. The costs of new bike paths would be high as construction and land dedication are involved.

Depending on location, different options may be the most cost effective. However, along the most likely commuter routes, the costs of bike paths would be high, making the other options more cost effective.

Safety is a major concern. However, there is not enough quantitative information to conclude that one option is safer than the others, although it is generally agreed that most serious bicycle injuries occur in collisions involving cars.

Table 1 summarizes the pros and cons of each of the four options.

## Figure 5
## Relative Cost Comparisons




Note : The shaded area denotes the range of potential costs for each option

TABLE 1

SUMMARY OF OPTIONS FOR CYCLING IMPROVEMENTS

| OPTION | PROS | CONS |
|---|---|---|
| Integration on Arterial Streets | ° fast, convenient, direct<br>° educates motorists and cyclists to share road<br>° legitimizes bike as a vehicle on the road | ° pollution, noise<br>° perceived as unsafe by some cyclists<br>° limited success in increasing the number of cyclists<br>° may require street widening |
| Integration on Local Streets | ° fewer cars<br>° quiet, less pollution<br>° perceived as safe<br>° easy to build (no widening is necessary) | ° likely indirect/slower<br>° increased cycling on selected streets<br>° changes traffic patterns in neighbourhoods<br>° may require new traffic signals |
| Bike Lanes | ° fast, direct<br>° perceived as safe<br>° guarantees space for bikes | ° pollution, noise<br>° false sense of security<br>° motorists expect cyclists to stay in lane<br>° may require street widening |
| Bike Paths | ° no cars<br>° quiet, very little pollution<br>° perceived as safe<br>° guarantees space for bikes | ° indirect/slower<br>° may be difficult to build<br>° no education to share road<br>° may require land acquisition |

## 5. YOU ARE INVITED TO PARTICIPATE

We would like your considered response to the four options presented in this report. Please submit your written statements as soon as possible, preferably before Wednesday, September 25, 1991, if the author would like to formally present it at the public meeting. The Network Committee may invite authors of some statements to give a brief presentation of their ideas, prior to other speakers, at a public meeting on Wednesday, October 2, 1991. All statements will be considered in preparing the City-wide bicycle network plan to be presented to Council in October, 1991.

Guidelines for Written Statements

Statements should address the issues raised in this paper. Please make your statements legible, concise, on 8.5 by 11-inch paper, and suitable for photocopying. All ideas will be considered, but we are especially interested in your thoughts regarding the likelihood of success, the feasibility and the general appropriateness of the four options outlined. Along with your statement it would be helpful if you provided the following background information:

- Name, address and phone number.
- Are you a cyclist?
- If so, how often do you cycle and for what purposes?
- If not, what could be done to encourage you to cycle?
- Which bike route option(s) do you prefer, and why?

Deadline

Please mail or fax your statement as soon as possible, preferably before Wednesday, September 25, 1991, to

Mr. Steve Kautz
City Clerk's Office
Vancouver City Hall
453 West 12th Avenue
Vancouver, B.C. V5Y 1V4
FAX: 873-7419

For additional information, please contact the City Clerk's Office at 873-7275.

Public Meeting

The purpose of the public meeting is to gather public input and responses to the issues raised in this report. The meeting will be held Wednesday, October 2, 1991, from 7:00 to 10:00 p.m. at the Council Chambers, 3rd floor, City Hall, 453 West 12th Avenue. First priority will be given to authors of selected statements (as described above) and to guest presenters invited by the committee. If you wish to participate, please call the City Clerk's office at 873-7275 to schedule a time; unscheduled speakers may present as time permits. As a courtesy to others who wish to speak, please keep your presentation brief. Generally, 5 to 10 minute presentations are the most effective.

## REFERENCES

1. Clouds of Change, Task Force on Atmospheric Change, City of Vancouver, 1990 page 35.

2. Ibid, page 14.

3. Bicycle Parking Standards Study, City of Vancouver Engineering Department, June 1991, page 28.

4. The Bicycle: Vehicle for a Small Planet, September, 1989, page 10.

5. Ibid, page 19.

6. Cycling Engineering Transportation, John Forester (Palo Alto, California), 1977.

7. The Bikeway Solution, Vancouver Bikeway Network Group, June 1991.

8. Jogging Through the Smog, Garbage Journal.

9. A Comparison of Bicycle Policies and Programmes in Vancouver, B.C. and Seattle, Washington, Unpublished Masters Thesis, U.B.C., 1991.

10. Vancouver Comprehensive Bicycle Plan, City of Vancouver Engineering Department, 1988, page 33.

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1. Bellafante, Ginia, "Jogging Through the Smog"; Garbage Journal (July 1990).

2. City of Vancouver Engineering Department, Bicycle Parking Standards Study (Vancouver: June 1991).

3. City of Vancouver Engineering Department, Vancouver Comprehensive Bicycle Plan (Vancouver: June 1988).

4. City of Vancouver, Clouds of Change (Vancouver: 1990).

5. Forester, John, Cycling Transportation Engineering (Palo Alto, California: 1977).

6. Lowe, Marcia D., The Bicycle: Vehicle For a Small Planet (Washington, D.C.: World Watch Institute; September, 1989).

## ACKNOWLEDGEMENTS

We would like to acknowledge all those that contributed to this discussion paper. For their time and effort we thank:

Michel Desrochers
Steve Kautz, City Clerk's Office
Tom Nicholls, Board of Parks and Recreation
Peter Stary, Bicycle Association of B.C.
John Whistler, Bicycle Advisory Committee

Also, we would like to thank the following people for researching this document:

Doug Louie, City Engineering Department
Mark Roseland
Tom Rye, Bicycle Advisory Committee
Sally Smith
Doug Todd
Lorne Whitehead

# APPENDIX C

# PUBLIC COMMENTS

**APPENDIX C**

Selected Comments

The following comments are a sampling of the total number of comments received from the written submissions for the "Options for Cycling Improvements" document. Comments shown below were chosen to reflect a variety of the views held.

1. We concur with the majority sentiment heard at the public meeting; that Option 2 (enhanced integration on local streets) represents the mix of low cost, safety, and efficiency that is preferable for most situations. This is the option that should receive greatest priority in the development of new cycling facilities.

2. As the primary guide to cycling in the City, a bicycle map would provide an important opportunity to promote bicycle use and provide education in cycling safety. The map should state the City's policy of promoting cycling, and summarize the rights and responsibilities of cyclists.

3. I have no end of trouble with rude drivers who refuse to give me the room I require to maneuver, and bike lanes on many of the major streets would be a big help.

4. I encourage the use of cyclist controlled crossing lights for major crossings.

5. If the Arbutus corridor becomes available, there is no denying it will provide an excellent facility for commuters and for recreational cyclists.

6. The options presented here represent Engineering options only. Coupled with these, we should strive to encourage employers, shopkeepers and building managers to provide facilities, such as bike racks, showers, lockers, etc. to further provide for cyclists and make the illusion of cycling being an option, a reality.

7. I support bike paths and the use of secondary streets by bikes. Pedestrians and bikes need to be physically separated on paths.

8. I think a combination of integration on arterial roads as well as the use of side streets will be the most feasible and effective option at this time.

9. As a commuter, I prefer the options that allow me to get in and out of the city directly; I don't want to be shunted off onto a safer and cleaner, although less direct, side street.

10. I believe that when all options are taken into account this one [enhanced local integration] provides the safest, cleanest and most effective bicycle transportation system.

.... 2/

11. We do not support the concept of bike paths. Those that have been built in Vancouver in the past, particularly the 7-11 bike path, are of little use to bike commuters.

12. The level of safety for all people in traffic would be greatly helped by some education about and enforcement of traffic rules. This applies equally to car drivers and cyclists.

13. I personally think we have to improve all four basic options stated in the report "Options for Cycling Improvements", so we will reach more people for encouraging cycling.

14. Option 1 "integration on arterial streets", is not much different from the present poor situation. Vancouver needs to do more than this if it wants to encourage more bike use.

15. A comprehensive network of bikeway routes based upon the concept of enhanced local integration would be safe, economical, appealing and convenient for most people to use for routine transportation.

16. We need to educate our young people to commute by bicycle, and to get older commuters back into the idea of biking. Only if the routes chosen are quite direct and useful to the users, safe, clean and easy to use will the dedication of bikeways make sense and be widely utilized.

17. The element of safety alone would encourage more people to ride to work. Bike lanes: guarantee SPACE to ride your bike, do not interfere with the traffic flow, improve visibility of the cyclist for drivers at intersections, provide a fast and direct route, and most importantly, are safe, in my mind.

18. Split the sidewalks into one side for bicycles and one side for pedestrians. This works just fine on the Burrard Bridge. Widening a sidewalk is probably much easier than widening a street. Just ensure that all curbs have wheelchair access.

19. I think that right now motorists are impatient or frustrated because bikes are getting in their way and slowing them down. But if lanes and shoulders are clearly marked for bike traffic there won't be any surprises and car drivers will respect the cyclist more than they do now.

20. I strongly believe that the most desirable option is to integrate the bicycle as fully as possible with other vehicles. This would require that both cyclists and motorists be educated and demonstrate respect and concern for one another.

21. I am a casual bicycle user, but would be encouraged to become a more regular user if the conditions were safer and more conducive to pleasurable riding. I am writing to support Option 2, "enhanced local integration".

.... 3/

22. I would like to see more education and enforcement against cyclists riding on the sidewalk. This is rude, unsafe and shows the same disregard for courtesy that cyclists accuse motorists of.

23. I am writing to express my strong support for the second option, "enhanced local integration". Although I think it would be wonderful to have bike lanes and bike paths throughout the City, I realize that cost and feasibility problems may make these options impractical. Our arterial streets are already clogged, and dedicating land for bicycle facilities would be expensive.

24. Don't do much beyond what is currently being done in terms of the engineering. I am pleased with the current integration on arterials.

25. I would like to express my strong support for the second option, referred to in the document as "enhanced local integration". I would like to see the city initiate such a bicycle transportation network based on this plan, as soon as possible. If such a network was established I believe that many other non, or part-time, cyclists like myself would switch to full time cycling.

26. I support both Integration on Arterial Streets and Enhanced Integration on Local Streets as long as such plans are implemented with a strong driver and cyclist education program. Unsafe and improperly equipped bicycles should also be prohibited from the streets, just as an unsafe car (ideally) is.

27. It will take more than roads to increase bicycle commuting. Bike parking racks should be more common. Employers, planners and developers should be given an incentive to install shower and change facilities.

28. In my opinion cyclists should be encouraged to <u>avoid</u> arterial streets and use alternate quieter streets. Cyclists and motorists are not compatible, given our existing road system.

29. Preferences: a blend of the 4 options tied into a network of routes with the emphasis on option 3b [enhanced local integration].

30. We wish to propose a combination route of 1) bicycle integration on local streets and 2) a bike path to link Burnaby, the Grandview-Woodlands area and False Creek/Downtown.

31. The fact that integration has had limited success should tell you something.

    I believe that the city should be examining and applying the 3 other options. The proposal: ENHANCED INTEGRATION ON LOCAL STREETS combined with BIKE LANES and with BIKE PATHS.

.... 4/

32. As you build the key corridors throughout the city, a T.V. educational campaign must be put into place to educate the car driver with the knowledge that there are bicycles on the road and about what that means to how one should operate their car.

33. I enjoy cycling to work, and can actually get to work faster by bicycle than by car, when I count the time taken to park the car. Currently, I cycle on side-streets, whenever possible. These are (coincidentally) immediately adjacent to main arterial routes. I do not cycle on arterials because I consider that cycling on arterial routes is far too dangerous.

34. I give my qualified support for option 3b: enhanced integration on local streets.

35. I do not think that we have enough road space on our main arterials to create bike lanes. I have strong negative feelings about bike lanes because:

    a) the bike lane is a convenient place to park cars for short periods with hazard warning lights on.
    b) Buses have to pull into the bike lane and stop at bus stops. Cyclists are forced to stop or go around the bus into the traffic (dangerous and unpopular with motorists), or stop and wait for the bus to pull away (inconvenient).
    c) Bike lanes make junctions [intersections] more complicated and therefore less safe for cyclists.

36. Bike paths are great for Sunday afternoons, but for most people they are unlikely to ever take them from home to work. However, whenever the city has the opportunity to create one (from old railway line, for instance), this should be considered strongly. For instance the rail line along Arbutus could become an extremely attractive commuter route to downtown.

37. I cycle daily in dry weather for shopping and recreational purposes. I prefer quiet streets and don't go far from home because it's so difficult to cross a major road from a local street, as there is seldom a traffic signal. I would cycle much further, perhaps to work, if there were signals at those intersections. So, option B [enhanced local integration] seems perfect to me.

38. A fifth option exists.

    This option is similar to 3b, "integration on local streets". Partial integration on local streets refers to bicycle routes on local streets where vehicular thru traffic is strongly discouraged, yet possible in the case of emergency vehicles.

39. I feel that there needs to be more education of both cyclists and motorists regarding safe sharing of the road, and bicycle helmets should be mandatory by law.

.... 5/

40. The problem with local streets is getting across major traffic routes (49th, 41st, 25th and so on.) If the crossings could be enhanced my trip would be faster and safer. So the INTEGRATION ON LOCAL STREETS is my preferred option.

41. As to your 4 types of accommodation for cyclists, I think each plan has merits and is applicable in certain situations.

42. Any one of the four cycling improvement options proposed is a meaningless gesture without first easing the crowding of city streets. Please, for the sake of my tax dollars, solve the urban transit problem first. The cycling problems are secondary and the proposed improvements will have a negligible effect on the overall picture.

43. I am writing to voice strong support for option 3c, "bike lanes". They would seem to be the best way to provide a network of fast, safe bike routes across the city. They would also increase the status of bicycles on the road, perhaps encouraging more drivers to ride.

44. I currently commute using what is effectively a combination of options A [arterial integration] and B [local integration]. I find this means of travel effective and, for me, comfortable. At some points on my daily trip more features of option B would be nice. For instance, if I knew of a side street which would be direct and have relatively little traffic on it that was only one or two blocks away, I would probably go out of my way to take it.

45. I am concerned that this document does not address the fundamental question of getting people out of their cars, and once they are out of them providing most of those people, who will not go near a bicycle, with some other transit option. Our transit system must be improved to accommodate displaced motorists.

46. If the object is to increase the number of cyclists, then I would support a thoughtful combination of options B, C and D [local integration, bike lanes and bike paths]. Arterial integration only appeals to the most aggressive and insensitive cyclists.

47. My recommendation is that the city make cycling education a priority for school-age children.

48. It needs to be recognized that people who commute or run errands on their bikes instead of in cars are reducing air pollution, noise pollution, energy consumption, etc. The status of cyclists as legitimate road-users needs to be affirmed and full account taken of their safety and convenience.

49. Unfortunately, the report deals only with one approach - physical facilities - i.e. engineering. The other "three E's" of cycling, education, encouragement and enforcement, are not discussed. These are equally likely to make the bicycle a better transportation alternative and are necessary to make improved facilities effective.

.... 6/

50. We must do more than build better facilities, we must ensure that they work and are well used. We must identify problems and solve them. We must take advantage of opportunities for new facilities and improvements. This is the role of the bicycle coordinator. Many cities now have one, (Seattle has several!) and the results in those cities are obvious.

51. The bike is perceived by the general public as a form of transport used by people who cannot afford a car. In order to change this attitude, I think, people who are current role models must be seen riding bikes: Ministers of Religion arriving at Church, Alderpeople arriving at Council Meetings, Management arriving at the Post Office or MacMillan Bloedell, Teachers at School, University Professors, Theatre performers, etc.

52. Bikes should not be allowed to go where people take leisure walks.

53. Should have by-laws to have shower and change rooms in city buildings, office buildings, etc.

    Should have a by-law for mandatory installation of bike racks for public buildings, shopping centres, office buildings, etc.

54. Integration on Arterial Streets - my personal favourite, as speed and convenience are my biggest priorities.

55. Integration on arterials should not be stopped, but should be complemented with an alternative: bicycle boulevards on sidestreets [enhanced local integration].

56. I strongly back the appointment of a bicycle co-ordinator for Vancouver city hall.

    Bicycle co-ordinators are in place from Toronto, Eugene, Oregon. These cycling specialists help city staff avoid the tendency to re-invent the wheel every time a cycling issue arises. A bicycling co-ordinator would not only smooth the process by which cycling engineering deals are made, the position would no doubt reduce the cost of researching cycling options. Rather than spread expertise thinly among a number of engineers (who might not see eye-to-eye anyway), cycling knowledge would be focussed in one person. He or she would become a resource for everyone.

57. The Arbutus Bicycle Corridor is imaginative and practical for cyclists from Richmond if the Arthur Laing bridge were modified to better accommodate a large number of cyclists. I am sure that such a corridor would become a major tourist attraction.

    Alderman Price asked each of us where we would spend our first dollar. I would spend it on making the downtown core safe for cyclists and unfriendly to automobiles.

.... 7/

58. Of the four options outlined, (Option #1) Integration on Arterial Streets is the most attractive to me. However, I already cycle on arterial streets and am a competent cyclists and yes almost comfortable on most Vancouver streets.

    If you want to attract the majority and the ordinary cyclist, I believe that it would be most beneficial to put money into Option #2 (Enhanced Integration on Local Streets). I feel that this option would encourage more commuters to use their bikes. Local streets are safer (both from the point of view of traffic and pollution) and can be direct and quick (if they are chosen properly, if car traffic is discouraged, and if crossing intersections is made easy).

59. There is probably room for all four options and probably a combination of all four is the most realistic, depending on the location etc. No matter what physical option is used, I believe that EDUCATION is probably where most of the money should be spent.

60. To decrease car traffic and increase bike traffic, I believe that BC Transit should allow bicycles on SkyTrain. BC Transit could only gain from this (through increased ticket sales and positive public opinion).

61. The Arbutus corridor sounds excellent, as long as we can get it hooked into the bridge [Arthur Laing] effectively. Also need equivalent on east-side.

62. ABC [Arbutus Bicycle Corridor] is a "great idea". Otherwise bike paths are disasters for commuters.

63. Different places in the city require options. All four options have their place in a comprehensive plan. A full time Bicycle Commissioner is essential.

64. I try to cycle to work at least twice a week. I purposely choose side streets and have found a reasonably direct route that already provides for pedestrian/cyclist activated traffic signals on a couple of the main arterials. I choose to ride on local streets because they are quieter, less polluted by automobile exhaust and most importantly because I feel safer riding with fewer cars.

65. Whether driving, walking, or cycling, I feel that safety is increased when there is minimal contact with the other two modes of travel. Cyclists are a worry and hindrance to drivers and pedestrians, and both cars and pedestrians can be problems for cyclists, so I very much favour segregation of routes.

66. As an avid cyclist, both for recreation purposes and for my major means of transportation, I feel I am in the position to strongly support the Arbutus Bicycle Corridor and all other such endeavours in the GVRD.

.... 8/

67. I strongly support improving cycling opportunities in Vancouver using some combination of "Bikeways", "Bike paths" and "Bike lanes". I strongly disapprove of integration on arterial streets.

68. Bike Paths - the best option but very difficult to build. The Bert Gilman Bike Trail is an example of a successful bike path that was once a railway line. The Arbutus Railway corridor has potential for similar use.

69. It would appear that integration on arterial streets, integration on local streets and bike lanes provide the most effective and immediate means of facilitating bicycle circulation in Vancouver. However, there are certain areas (e.g. Stanley Park, B.C. Hydro rail right of way) where bicycle paths ought to be established. In all cases, cycling routes should be plainly indicated by signs and painted markings so that both cyclists and motorists are sure of their positions, rights, and responsibilities.

70. Any improvement would be better than the existing perception that cycling on the roads in Vancouver takes an act of bravery.

71. While cyclists need some educating with respect to rules of the road, motorists and pedestrians require much more. Cyclists are looked upon as a nuisance and not serious commuters with the same deadline to get to work as the motorist. The classic problems of left turning cars in front of cyclists and opening car doors without looking can only be improved through education.

72. The city needs to increase the amount of safe and efficient road space for bicycles.

    Once the level of service is adequate and able to accommodate an increase in use, the City should initiate a bicycling promotion campaign - identify cyclist characteristics and initiate a value based bicycle promotion campaign, the goals of which are to promote the convenient, healthful and economic benefits of the bicycle and to demystify the bicycle lifestyle.

73. I am a regular commuter cyclist for environmental reasons and I'm in favour of the construction of a major bike path in Vancouver. I understand that it is the most expensive of the four options but it is the one option that will successfully get less confident people out of their cars.

TIR SYSTEMS LTD

October 08, 1991

Mr. Ian Adam, M.S.T., P.Eng.
Transportation Engineer
Engineering Department
City of Vancouver
City Hall
453 West 12th Avenue
Vancouver, B.C.
V5Y 1V4

Dear Ian:

I am just writing to more formally thank you for very kindly serving as chairman of the public meeting on bicycle options on October 02, 1991, and also for authorizing the public involvement process which culminated in that meeting.

I think your whole approach on this matter has been most admirable, and I am very optimistic that the information we have obtained will result in bicycle improvements which are beneficial to all concerned.

Finally, I would like to note that in working closely with Doug Louie of your department, and Steve Kautz of the City Clerk's office, I was very impressed by the way these individuals successfully carried out a rather complex and challenging process.

Thanks again to you and your department for a job well done!

Yours sincerely,

Lorne Whitehead
Chairman

LAW/bk

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