

Land Use and Transportation Planning: The Greater Vancouver Regional District

North East Sector: 1951 - 1990.

by

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**We accept this thesis as conforming
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Abstract

One of the most pressing problems faced by large urban areas is traffic congestion. Traffic congestion, or the urban transportation problem is not a new phenomenon, having existed since the process of urbanization began. Low density urbanization or suburbanization, facilitated by the availability of large numbers of automobiles has contributed to the present traffic problem. The causes of the problem have long been recognized by planners and decision makers, and viable solutions have been proposed. However, in spite of solutions being known, the problem still exists and has become worse.

The purpose of this study is to observe how planners have dealt with the land use and transportation factors which contribute to the ever worsening traffic problems in a suburban area. It is hypothesized that the fragmented nature of the planning and decision making processes have resulted in a lack of co-ordination and co-operation in planning to resolve the urban transportation problem.

The objectives of this thesis are to gain an understanding of: 1) why the urban transportation problem exists; 2) the planning process involved in finding solutions to this problem; and 3) the effect of the fragmentation of authority over various factors of land use and transportation.

The methodology includes the following steps. The first is a literature review of the current thought on the subject of traffic congestion, and the factors causing it. The second is a literature review of the planning process and the theoretical foundations of current thought on land use and transportation studies. This will be followed by a case study using a descriptive historical approach. The case study reviews developments as well as past land use and transportation studies for the study area. The fourth step involves an interpretation of the information provided in the case study in light of the literature review.

The area chosen for the case study is the Greater Vancouver Regional District's North East Sector. This Sector has experienced accelerated development and an increasing

population dependant upon the automobile for mobility. Low density land use, has created automobile dependent development, which make an automobile a necessity. A large percentage of the workforce in the area has to commute to other areas.

Numerous studies have been commissioned to find solutions to the North East Sector's transportation problems. Despite the realization of the causes of traffic congestion, the solutions presented in the studies have not been comprehensively implemented to achieve workable results.

There were two major findings of this study. The first is that planners and decision makers are aware of the relationship between land use and transportation planning. The second is the fragmentation of authority for different aspects of land use and transportation has frustrated attempts to resolve traffic congestion, through a fragmenting of the planning and decision making process.

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Definitions of Abbreviations

ALRT	Advanced or Automated Light Rapid Transit
B.C.	British Columbia
BCE or BCER	British Columbia Electric Railway Company
BN or BNR	Burlington Northern Railway
CN or CNR	Canadian National Railway
CP or CPR	Canadian Pacific Railway
GV	Greater Vancouver
GVRD	Greater Vancouver Regional District
GVTS	Greater Vancouver Transit System
LMRPB	Lower Mainland Regional Planning Board
LRT	Light Rapid Transit
MTOC	Metropolitan Transit Operating Company
NIMBY	Not In My Back Yard
TCMHP	Technical Committee for Highway Planning
UTA	Urban Transit Authority

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CHAPTER 1

1.1 INTRODUCTION.

One of the more pressing problems facing modern urban centres is traffic congestion. Traffic congestion increases the time and cost of transportation, hinders development, and diminishes the quality of life. Unlike many other concerns, traffic congestion occurs on a daily basis, causes frustration, and people are more likely to demand solutions from those in power.

Cities of a century ago were small, with mixed land uses and most of the population crowded into small residences close to their places of employment. This type of land use was caused by the lack of convenient and inexpensive transportation. As convenient and less expensive transportation became available, land uses became specialized. Workers could find better and less costly housing on the urban fringe. The advent of reliable, inexpensive personal transportation in the form of automobiles allowed people to commute longer distances, and to locate their residences farther away from their place of work. This action helped create low density suburbs which, in turn made the use of the automobile a necessity. The almost universal availability of the private automobile has helped create the traffic congestion it was supposed to solve in the first place.

The concern of commuters for the problems they face in their twice daily commute between work place and residence have persistently been conveyed to those with the power to find solutions. Numerous studies have led to an understanding of the causes of urban transportation problems, as well as to workable solutions. However, the urban transportation problem still exists, and has become worse. There appears to be a breakdown in the process between initiating the studies of the causes of traffic congestion, the recommendation of solutions and the implementing of the solutions.

1.2 PURPOSE OF THE THESIS.

The purpose of the thesis is to: 1) describe the processes involved in the planning and decision making to resolve the urban transportation problem; and 2) to use a case study to illustrate a breakdown of the process which prevents the transportation problem from being successfully dealt with.

1.3 METHODOLOGY.

The procedure to be followed in this study will involve the following steps. They are: 1) a review of the pertinent literature on the urban transportation problem and its origins; 2) a review of the planning process, and the historical background on the theoretical foundations influencing land use and transportation planning; 3) a case study involving the use of a descriptive historical method to illustrate the role of the planning process in seeking resolution to traffic congestion; and 4) interpret and analyse the information provided in the case study to gain an understanding of the why the planning process has not been effective in solving the urban transportation problem.

The First step will be a review of the available literature on the urban transportation problem, to provide background information on to the current thought on causes, acceptable solutions and the extent of current research. The literature review will also cover the evolution of transportation technology and its impact on land use. Information will be furnished on the interrelationship between land use and transportation in understanding and providing solutions to the urban transportation problem. Current transportation problems will then be discussed. The review will conclude with discussion of the various authorities with jurisdiction over different aspects of land use and transportation.

The second step will be a review of the planning process, followed by an overview of the theoretical foundations of planning thought which influences the procedure used in investigating a problem and formulating possible solutions.

The third step will entail the use of an historical descriptive method applied to a case study. The case study will provide background information on how the problem of traffic congestion originated and how the planning process was applied to seek solutions. The case study will also serve to illustrate one of the weaknesses of the planning process resulting from a fragmented jurisdiction, and lack of co-ordination and co-operation.

The final step involves an interpretation and analysis of the case study in light of the literature review. This will aid in understanding the planning process involved in resolving traffic congestion, and offer insights on how to improve the process.

1.4 THE CASE STUDY.

The case study will focus on the North East Sector of the Greater Vancouver Regional District, which comprises the cities of Port Moody and Port Coquitlam, and the Municipality of Coquitlam. The case study will 1) document the transportation planning process and 2) provide material for an analysis of its effectiveness.

1.5 SCOPE AND LIMITATIONS OF STUDY.

The scope of the case study is limited to the post 1950 planning process, and describes how planners and politicians have dealt with urban transportation questions. It will provide the historical background of the factors influencing transportation, and provide details on solutions proposed but not implemented, as well those which were implemented.

The sources for the case study include information supplied in local histories, municipal council minutes, newspaper articles, published and unpublished reports and studies by municipalities and other relevant organizations (i.e. B.C. Transit, B.C. Ministry of Highways, and the Greater Vancouver Regional District), and notes recorded at public meetings by the author. These will be supplemented by interviews of selected personnel who have been or are at present involved in the planning process within the study area.

1.6 ORGANIZATION OF THE THESIS.

Chapter 2 reviews the available literature on the urban transportation problem, the role of the planner, the fragmentation of authority, and land use transportation relationships.

Chapter 3 begins by discussing planning and planning process. It then provides an overview of the origins of the land use and transportation theories which have influenced current planning thought, and which are utilized to identify possible solutions to the urban transportation problem.

Chapter 4 presents the first part of the case study, and provides an historical review of both the land use and transportation changes within the study area from the advent of European development to 1950.

Chapter 5 describes the development in the North East Sector during period from 1951 to 1990.

Chapter 6 covers the transportation planning, construction of infrastructure, and proposals for projects for the study area for the period 1951 to 1990.

Chapter 7 presents a review of the role of the politicians, the planners, and the process of planning.

Chapter 8 provides an interpretation and analysis of the information presented in the case study, and provides conclusions derived from this study.

CHAPTER 2 Literature Review.

2.1 INTRODUCTION.

One of the most pressing problems facing modern urban areas is traffic congestion. Traffic congestion occurs when an increasing population places pressure upon the existing transportation infrastructure, along with changes in transportation technology and modal split. The physical layout and nature of the road systems within older cities reflects the transportation technologies then available. These past technologies helped create certain types of land use. Today, changes in the land use coupled with changes in transportation technologies have rendered much of the older transportation infrastructure obsolete. It is incapable of handling today's traffic loads.

This movement problem, referred to as the urban transportation problem, occurs chiefly during the peak work day hours, when most people follow set commuter travel patterns in order to reach their work places or residences. There is a clear link between land use, transportation technology, and the present urban transportation problems.

This chapter reviews the literature on land use, transportation, and the origins of the present suburban problems. This is followed by a discussion of the present urban transportation problem, the fragmentation of the planning processes, and solutions suggested in the literature.

2.2 LAND USE AND TRANSPORTATION.

In order to explain the relationship between transportation and land use and its importance to the planning process, it is necessary to define the terms "land use" and "transportation".

Definition of Land Use.

Land use can refer to activities taking place upon a site, or to the buildings constructed on it:

It may refer to buildings or other improvements on the land, to the occupants or users of the land, to the major purpose of the occupancy of the land, or to the kind of activities on the land. (Mitchell & Rapkin, 1954: 13)

all aspects of the built environment of a SEC [suburban employment centre] - its density, composition of activities, scale, layout, and physical design. (Cervero, 1989: 18)

In a general sense, 'urban land use' means the spatial distribution or geographical pattern of city functions (Blunden & Black, 1984: 2)

To a transportation planner, the term "urban land use" refers to:

the spatial distribution of people and activities within an urban region. (Meyer & Miller, 1984: 178)

The chief functions of land use are residential, commercial, retail, industrial, institutional, recreational (parks), streets, transportation, and open space (vacant lands) (Chapin Jr. & Kaiser, 1979: 4; Creighton, 1970: 67; Black, 1981: 22-23). In an urban area, the major land uses are principally residential and streets. Residential land use can account for from 30 per cent (Yeates & Garner, 1979: 185) to between 40 to 50 per cent (Creighton, 1970: 65) of the total land area of a city. Streets and lanes can account for between 20 per cent (Yeates & Garner, 1979: 185) and 28 to 32 per-cent (Creighton, 1970: 68) of the total land area of a city.

In a suburban area, the residential component can rise to as high as 70 per-cent of the total land area. The amount of land utilized for any purpose tends to vary with the distance from the Central Business District (C.B.D.). The density or intensity of use also varies with the distance from the centre of a city. The intensity of use is related to the value of the property. The highest land values usually lie at the centre of an urban area. As one moves away from the CBD, the land values drop rapidly until the suburbs are reached (Wheeler,

1974: 7, Figure 1-2). Chapin defines density as a measure of the designed population capacity of urban land (Chapin Jr., 1970: 43). Density could also refer to the amount of built up space (floorspace), or the intensity of an activity (business or residential).

Definition of Transportation.

Transportation can be defined as the movement of people or goods from one location to another. "Transportation is essentially a service which enables people, firms, and various other entities to carry on activities at sites selected for these purposes in separate locations." (Chapin Jr, 1970: 339). Transportation not only suggests movement but within its meaning is also included the physical features and conveyances that facilitate movement. The features consist of foot paths, streets, roads, railway lines, and waterways. The conveyances needed to move goods, could include such means as horse drawn carts and wagons, buses, private automobiles, streetcars, commuter rail trains, and boats. Harrison (1974: 18) refers to transportation as a derived demand, as it results from other activities.

Relationship of Land Use and Transportation.

Land use and transportation involve activities and movement. Accessibility is an important factor in discussions of land use, while circulation is a factor of transportation. The interrelationship between transportation and land use tends to be circular in nature (Meyer & Miller, 1984: 70). That is, a change in one function, for instance land use, results in an impact upon the other, in this case transportation. This in turn has an impact upon the existing transportation infrastructure. If the infrastructure is not improved and the volume of traffic increases to the point at which congestion results, then this reduces the perceived accessibility of a location. Thus traffic congestion increases the cost of movement by reducing the accessibility of certain locations for particular land uses. If it takes longer to travel between locations, costs are increased, making the particular land use at the location uneconomical, and leading those involved to seek another location where the accessibility is

better and the costs of the land and the costs of transportation reach an acceptable level of equilibrium.

If, however, improvements to the transportation infrastructure occur as a result of the increased volumes of traffic, this would increase the accessibility of the location and create impacts upon the land use.

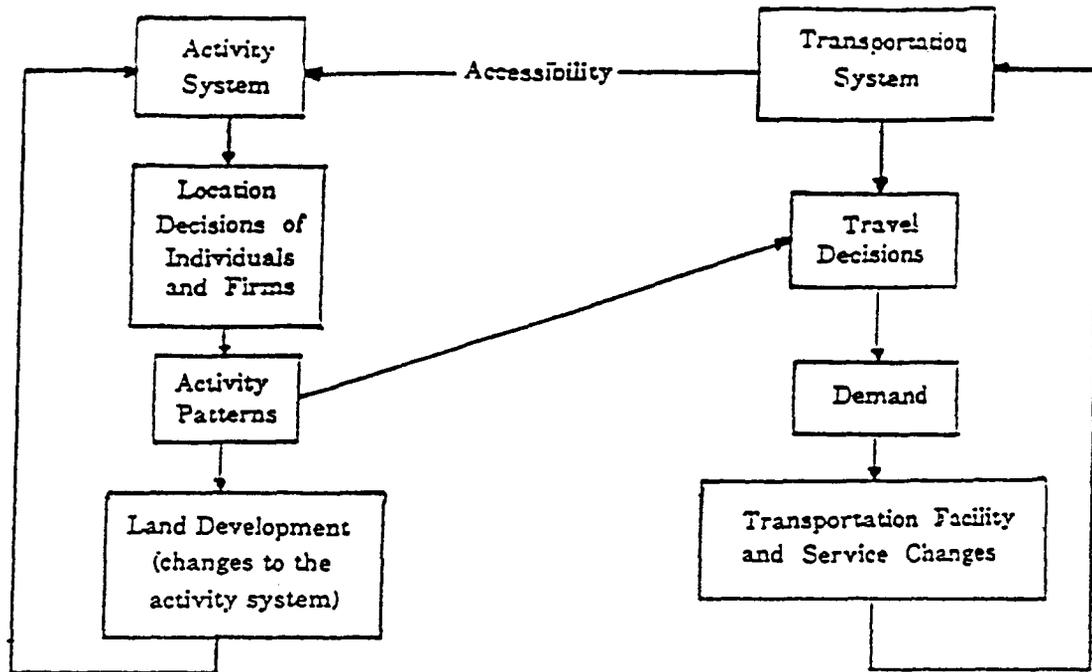
Such improvements to the transportation system make the land more accessible to existing activity centers, thereby making it more desirable and affecting its monetary value. Increased accessibility and improved land values in turn influence the locational decisions of individuals and firms, once again spurring new land development and starting this cycle again, until an equilibrium is reached or until some other external factor intervenes. (Meyer & Miller, 1984: 62)

This cycle of influence can occur over various lengths of time. The time span could be several decades, or only a few years.

A new road between two locations can have a major impact on land uses along the route. Conversely, the decision to build some major commercial, residential or industrial facility in an area where previous use required a lower level of transportation infrastructure can force the construction of new, higher capacity roads. This will in turn, attract more people and activities, and will result in additional pressure for yet more road improvements.

A graphic illustration of the relationship between transportation and land use is shown in Figure 2-1.

Figure 2-1 Land Use-Transportation Interaction.



Source: Meyer, Michael D. and Eric J. Miller. Urban Transportation Problem Toronto: McGraw-Hill Book Co., 1984. Page 63.

The above flow chart graphically illustrates the circular relationship between transportation and land use. "In the long run, the provision of transportation infrastructure and the introduction of new technologies will influence urban form because of the improved accessibility that results." (Meyer & Miller, 1984: 63).

2.3 TRAFFIC.

There are several meanings attached to the word "traffic." It can involve the physical movement of people, goods or vehicles along a route, or the people or material moved by a transportation system.

Coming and going of persons and goods by road, rail, air, sea, etc.; vehicles coming and going; . . . number or amount of persons or goods conveyed; . . . dealings between persons etc. (Oxford Dictionary, 1984)

Another definition of traffic suggests "*Traffic* - is the joint consequence of land use *and* transport supply." (Black, 1981: 23; Blunden & Black, 1984: 1).

In this study, "traffic" means the movement of persons and goods, as well as the conveyances used. The current concern with traffic has to do with the increased numbers of vehicles the urban transportation infrastructure has to accommodate. The number of vehicles that a road can accommodate is labeled its capacity. "Capacity is defined as the maximum number of vehicles that can pass over a given lane or roadway in one direction . . . during a given time period under prevailing roadway and traffic conditions. It is the maximum rate of flow that has a reasonable expectation of occurring." (Carter Jr., 1965: 310). Under ideal conditions, the capacity for multi-lane roadways can be an average of 2,000 passenger cars/hour each lane, and for a two-lane, two-way roadway, the capacity could be a total of 2,000 passenger cars/hour for both directions (Carter Jr., 1965: 312).

Congestion.

In defining the term "congestion", one has to take into account two types. The first type is "recurrent, which is caused by too many commuters and others trying to use a given transportation facility at the same time" (Witthoford, 1988: 2) and "nonrecurrent, which is caused by events that disrupt traffic flow, such as vehicle breakdowns and accidents." (Witthoford, 1988: 2). "Congestion is simply a condition of any transportation facility in which the use of the facility is so great that there are delays to the users of that facility." (Meyer & Miller, 1984: 24). Another way of defining congestion would be in the manner of "economists and engineers as a situation where the sum of the costs (all kinds: money, time, discomfort, etc.) of a number vehicles using a road together exceeds the sum of the costs if each of the vehicles were to use it separately. In other words, in a congested situation each additional vehicle disturbs and slows down the traffic flow with the result that not only does that vehicle

suffer time loss or experience increased operating cost, but it also imposes these disadvantages on all other vehicles on the same road. (Bhatt, 1976: 5).

Causes of Congestion.

Robert Cervero identifies four major causes of today's congestion. These are: 1) continued growth of population and employment opportunities; 2) shift to smaller sized households with both husband and wife employed; 3) decentralization of businesses; and 4) greater physical separation of the places of employment and residence (Cervero, 1987-88: 57).

Owen (1966: 195-196) suggests "the basic causes of congestion are the absence of appropriate land use planning and the crowding of too many people into too little space."

Costs of Congestion.

Traffic Congestion, is not only seen as an inconvenience to those experiencing it, but there is a cost in the time spent in travelling as well as in the extra fuel consumed and the resulting air pollution. Having to face long delays in the daily commutes to and from work and home creates stress upon individuals which can reduce the perception of the quality of life (Cervero, 1987-88: 57).

2.4 URBANIZATION.

Historic Background to Urbanization.

Urbanization can be defined as:

a complex process in which a country's organized communities become larger, more specialized and more interdependent. Urbanization is the result of many variables--economic, technological, demographic, political, etc--and it is inevitably accompanied by other changes in society (Canadian Encyclopedia, 1985)

Another definition suggests "modernization and urbanization may be roughly equivalent terms although dispersion could conceivably accompany urbanism." (Eldredge, 1967: 3). The term "dispersion" refers to the low density land use occurring in recent times around the urban fringe (suburbs). "The spatial distribution of the population and its composition . . . are the demographic bases for urbanization and urbanism." (Eldredge, 1967: 93). The relationship between transportation technologies and urbanization is covered in the following sections.

Cities.

A city can be defined by its function,--its reason for existence.

Cities have sometimes been defined as 'workshops' (Nelson & Aschman, 1957: 31)

A city is primarily a place where people work (Nelson & Aschman, 1957: 32)

A city is also "a *functional entity*--that is, it is a complex of population, land, facilities, equipment, and amenities, all of which are functionally interrelated." (Nelson & Aschman, 1957: 42). In past eras, there had been a religious or defense rationale, but the principal reason for modern cities is economic.

In North America, the major function of cities is to provide employment. If employment opportunities exist, then people will be drawn to a site. If employment opportunities are removed, a city will decline and possibly physically disappear. Examples of this include resource frontier communities, many of which contained large populations and varied activities. The city of Sandon, or the city of Phoenix, British Columbia, are examples of large mining communities located at the site of a resource, but which declined and disappeared when the mineral resources were depleted.

Western cities are chiefly manufacturing centres, commercial centres, transportation centres, regional trading centres (Nelson & Aschman, 1957: 24-25), and administrative centres.

The Characteristics of the Walking City.

The nature and form of the early city were created by the transportation technology of the day. It was a pedestrian or walking city. Jackson lists five characteristics of the walking city. These were: congestion; a clear distinction between city and country; a mixture of functions; the short distance between home and work; and the tendency for the most fashionable and respectable addresses to be located close to the center of town (Jackson, 1985: 14-15).

Congestion resulted from the walking city being small in size with the uses of land being more intense closer to the centre. In larger cities an extremely high level of population density was common. The boundaries between urban and rural areas tended to be clearly delineated. This was due to fortifications in Europe and a strong political sense in North American cities (Jackson, 1985: 14-15). There was little exclusionary zoning practiced prior to the late 19th and early 20th Century, and land was used for a mixture of functions. Because people had to walk to work, it was advantageous to live as close to the work place as possible, thus homes and work places were located close together.

The last characteristic of the walking city was the location of elite residential areas close to the center of the urban area (Jackson, 1985: 15) reflecting a desire on the part of the merchants and industrialists to be located close to their places of business. In the medieval city, they often lived above their shops, while later they might build their residences adjacent to or a very short distance away, to avoid the need to commute long distances.

2.5 ADVENT OF THE MODERN CITY.

Prior to 1800, cities were compact. People walked or rode on horseback. About 1850, a number of technical improvements in transportation resulted in cities changing from compact, densely populated centres, to sprawling cities with decreasing densities as distance increased from the city centre.

Electric Streetcars.

In the late 1880's, the electric-powered streetcar was introduced as an alternative form of transportation to foot or horsepower. Within a few years the streetcar had become the dominant form of urban transportation. Its introduction allowed for the further expansion of the urban area and the greater separation of the residence from the workplace.

When on a separated right of way the streetcar could travel at a relatively high speed, and thus could serve to open the suburban fringes of cities. Land developers were quick to appreciate this fact.

It is a well known fact that real estate served by adequate street railway facilities is more readily saleable and commands a higher price than real estate not so served. (Jackson, 1985: 120)

Most of the streetcar companies were able to negotiate service monopolies within the communities they served. The arrangements worked out forced the companies to keep their fares low. The five cent fare became almost an industry standard (Jackson, 1985: 109). With a transfer, an individual could travel across a large urban area for a single fare. This encouraged people to move from the congested centres of cities and seek less expensive and more spacious accommodations away from those inner city mixed-use areas where businesses and residential units often stood side by side. Many streetcar companies extended their lines beyond the built-up areas, and out into the countryside. This enabled real estate developers to subdivide large tracts of land and to lure people to purchase homes in the suburbs.

Many of the streetcar company promoters were more interested in land speculation than in transportation: they used the streetcars with their inexpensive fares as a tool to make large profits from developing suburban lands adjacent to their tram lines (Mumford, 1961: 503-504). These streetcar lines tended to converge on the central business districts. Employment opportunities and most of the retail outlets were concentrated there. The streetcar lines radiated from the centre, thus causing growth to be concentrated along these

radial lines. The radial nature of the lines served to reinforce the importance of the centre (Jackson, 1985: 113-114; Rugg, 1972: 55-56).

To many communities, the streetcar symbolized "progress and technological achievement; . . . The streetcar was a source of pride; the very symbol of a city." (Jackson, 1985: 111). The impact of the electric streetcar permitted a decrease in the density of newly developing areas on the fringes of the old high density urban areas, allowing the population to spread out over a wider area as streetcars enabled people to move freely from home to work.

Automobiles.

Though the automobile was first developed in the 1880's, its impact upon the form of cities was not felt until after 1920. Prior to that time, the vehicles were too expensive and too unreliable to be seen as an alternative to the streetcars.

Once the automobile became available in large quantities and at a price the average individual could afford, it provided an extremely convenient form of personal transportation. The auto could move an individual from one place to another with a minimum amount of wasted time. Unlike public forms of transportation, such as the streetcars and later buses, the automobile required no change in the mode of travel. That is, an individual would not have to walk to a public transit stop, board a streetcar or bus, transfer to another streetcar or bus after a wait, then walk to the final destination. The automobile streamlined the process, and enabled people to seek out more distant, lower-priced residential locations.

The automobile brought about a radical change in the form of the city. It enabled a high degree of decentralization. "The low population density in these enlarged suburbs makes the setting up of public transportation lines unprofitable." (Bairoch, 1988: 314). The automobile suburbs tended to have specialized uses, principally residential. This separation of use isolated the residential areas from the retail and commercial areas, making it necessary to travel to work or to shop. The automobile freed the individual from a limited choice of

residential location, but contributed to a phenomenon referred to as urban sprawl. The low-density suburb does not allow for the effective use of public transit.

Urban sprawl is used to describe the haphazard, disorderly, and discontinuous development that occurs on the fringes of most North American cities and metropolises. (Yeates & Garner, 1980: 242)

During the depression of the 1930's and World War II, little housing was constructed. This resulted in a severe housing shortage in the post-war period, and large tracts of rural land were developed for housing. Since every family was assumed to own an automobile, there was no need to worry about providing public transit to facilitate movement within the suburbs or to the central business area.

This rapid expansion of the low density suburbs into the formerly rural areas blurred the boundaries between country and city. It slowly changed the central focus of the city as businesses began to move to the periphery to take advantage of changing transportation and land use requirements.

Retail shopping, which had been focussed around the central core, to take advantage of the transportation focal point created by the streetcar lines and later buses, began to find itself losing business. The centres of most of the older cities were laid out when people walked or used transit. Therefore, there were few areas set aside for parking.

Developers saw an opportunity to fill a need through the creation of suburban shopping centres that provided ample parking for automobile-oriented customers. An illustration of the amount of land in a suburban shopping centre that might be set aside for parking is Surrey Place Shopping Centre, in Surrey, British Columbia, where the building site coverage is only 0.37 (Toby Russell Buckwell & Partners, 1989). The rest of the site, or 63 per cent, is used for parking, roads and landscaping. A further example is the Eaton Centre in Burnaby, British Columbia, which has 2,800 parking spaces on two levels underground, in spite of an adjacent ALRT Station and a major bus loop.

The creation of suburban shopping malls decentralized the urban areas even further. The old transit lines were focussed toward the city core where business and retail functions

had formerly been clustered. Many businesses and retail functions found it advantageous to locate to the fringes of the urban area, drawn by cheaper and larger parcels of land, lower transport costs due to less traffic congestion, and a need to follow customers, suppliers and competitors to the suburbs (Yeates & Garner, 1980: 140).

Roadways adequate for the older forms of transportation were soon congested with large numbers of private automobiles that funnelled into the central core.

private automobiles need about 30 times more street surface for each carried person in comparison to the required street surface for each passenger riding in a tram or in a bus. (Weigelt, Gotz & Weiss, 1977: 1)

In the 1950's and 1960's the solution to the traffic congestion problem was seen to be the construction of freeways and expressways linking the suburbs to the central city core (Yeates & Garner, 1980: 207). Little thought was given to the disruption caused by these roadways cutting through established neighbourhoods and reducing the quality of life by the creation of noise, air and view pollution.

The low density developments in the suburbs and the desire of the population to enjoy the advantages of a personal means of travel have created or compounded the traffic congestion in modern cities. As the suburbs continue to develop with single family housing in low density developments, more automobiles flood the existing roadways. The decentralization of some business from the core to the periphery changes the traditional commuter travel patterns of movements from homes in the suburbs to jobs in the core, to job sites spread all around the fringes of the urban area. This decentralization of some businesses reinforces the need for an automobile. The dispersal of the employment limits the usefulness of public transit as a solution to the traffic congestion problem. Public transit needs population density along its lines in order to be effective and economical. The use of the automobile has changed the land use patterns in urban areas and created automobile-oriented patterns in the suburbs. The dependency upon the automobile has been part of the cause of the present urban traffic problem along with the low density land use that makes automobile ownership a necessity.

2.6 SUBURBANIZATION.

The process of suburbanization occurred after the process of urbanization had created densely populated centres. Suburbanization is not a recent phenomenon. It has been occurring since the 17th Century in England (Jackson, 1985: 13). In North America, the process began in the 19th century, when it became fashionable for wealthy businessmen to locate their residences away from the unhealthy congestion of the city, into the quiet healthy countryside (Mumford, 1961: 492). It became a status symbol for those who could afford to work in the city but reside in the country. The advent of railroads enabled those with the ability to pay to commute from rural homes to urban offices.

The advent of the horsecar allowed more people to move from the crowded city centres to less expensive dwellings, but it was the electric streetcar that began the massive movement of the urban population to the suburbs. Land was less expensive, so less well off people could afford their own homes. The dream of most people was to own a place of their own, as ownership was an indication of social success. The streetcar opened up the suburbs by providing relatively fast and inexpensive transportation over long distances from the central core. The old densely populated central city locations were now being vacated for the less dense suburbs. As the central core was still the focus of commercial enterprise, the streetcar lines tended to radiate from this central point. This reinforced the transportation advantage of locating in the central core.

The advent of the automobile offered a solution to the inconvenience of change in mode, from walking to streetcar. It removed the need for a residence to be located close to work or close to a streetcar line. It opened up large expanses of low cost lands to residential use. The car allowed for very low density residential development, and helped to expand the extent of the built up urban and suburban areas. Instead of having a compact form, a concentrated core, land uses became widely separated and decentralized. The automobile created small nodes of retail land uses designed to cater to the vehicular borne customers.

Individuals had to travel greater distance in order to reach their places of work or places to shop.

Jackson supplies a working definition of suburb. It has "four components: function (non-farm residential), class (middle and upper status), separation (a daily journey-to-work), and density (low relative to older section)." (Jackson, 1985: 11). Yeates & Garner supply the definition of suburbanization:

as the spatial expression of the class divisions in society that emerged with the growth of employment in manufacturing, commerce, business, and financial activities. (Yeates & Garner, 1980: 61)

Suburbanization enabled people to separate the location of work from the location of their residences (Jackson, 1985: 174). This process was facilitated by the development of more efficient and convenient forms of transport. The advantages of suburbanization was a less congested residential location and the opportunity to own one's own home as the cost of land was less in the suburbs. The disadvantages included the increased length of travel from residence to work place. The low density of the suburbs meant individuals needed an automobile to commute, and as populations increased the suburbs increased in size, causing strain upon the existing transportation infrastructure, resulting in congestion and what we refer to as the urban transportation problem.

2.7 THE PRESENT TRANSPORTATION PROBLEM.

The term transportation problem is used often in the media to describe the traffic congestion which restricts movement in urban areas. Creighton suggests there are seven components of the transportation problem. These are "accidents, congestion, inefficient investment, inaccessibility, ugliness, strain and discomfort (noise and nuisance, and air pollution)." (Creighton, 1970: 6-13). He sees the problem as a collection of what people dislike about the present transportation system.

In effect, the term Urban Transportation Problem describes a city transport system not functioning efficiently (Atkinson, 1976: 199). Meyer, Kain & Wohl see the peak rush hour movement as being the problem.

It is these movements that tax the capacity of existing urban transport facilities and create the congestion and delays that most people associate with what has come to be known . . . as "the urban transportation problem. (Meyer, Kain & Wohl, 1971: 3)

Yeates & Garner see the origin of the present transportation problem as being "the conflict between private and public forms of transportation." (Yeates & Garner, 1980: 486). Reynolds equates the problem with expanding urban populations, on the one hand and increasing car ownership and use on the other (Reynolds, 1971: 5).

The modern urban transportation problem comes about through urbanization, the lower density of newer developments around urban areas, the increased extent of the suburban fringes, the increasing reliance upon the private automobile, the increase in the decentralization of businesses, the inability to expand the existing urban roads to accommodate additional traffic, and the problem of peak use.

2.8 SOURCES OF AUTHORITY AND JURISDICTION.

It should be noted that one of the components of the urban transportation problem has to do with the fragmented authority for dealing with it.

In Canada, there are two major levels of government. The Federal level has powers prescribed by Section 91 of the British North America Act of 1867, (since 1982 known as the Constitution Act of 1867), (British North American Act, 1867), the second level is Provincial, with prescribed powers under Section 92 of the same Act. The Federal powers under the Act include all powers not expressly assigned to the Provinces. The Federal responsibilities relevant to this study include, amongst others, navigation and shipping, 91 (10), and Indians and lands reserved for the Indians, 91 (24). In the case study area, the Federal Government

has jurisdiction over the railways (92 [10a and c]), and the Harbours, both the Fraser River and Burrard Inlet under the National Harbours Board.

The Provincial powers include management and sale of public lands, 92 (5); Municipal Institutions, 92 (8); property and Civil Rights, 92 (13); and generally all matters of a merely local or private nature, 92 (16). Section 92 (10) gives the Provincial Government jurisdiction over local works and undertakings, except for those works the Federal Government declares to be for the advantage of the country or two or more Provinces.

The Act allows the Province to delegate its authority for local affairs to municipalities, under the Municipal Act of the Province of British Columbia RSBC (Revised Statutes of British Columbia) 1979, Chapter 290 (Province of British Columbia, 1987a). Under the Municipal Act, the municipalities are responsible for the management of development. Under Part 29: division (1)--Official Community Plans,-- they may make general statements of objectives and policies respecting the form and character of existing and proposed land use and servicing requirements in the area covered by the plan (945 [1]). Part 29: division (4)--Land Use Designation,--(Section 963) allows a Municipal Government to create land use zones and to regulate density, use, and the siting, size, and dimensions of buildings. Section 963 (3) also gives the municipality the power to prohibit any use or uses in any zone or zones.

In the case study there are a number of Provincial authorities that have transportation or land use powers. These included the Municipalities, the Provincial Highways Ministry, B.C. Transit, the Ministry of Health (Riverview and Colony Farm), the Ministry of Municipal Affairs, and B.C. Hydro (Coquitlam Lake Dam, Buntzen lake power generating station, and power transmission lines). The Federal Government has control of the National Harbours Board (jurisdiction over Burrard Inlet and Fraser River shipping and the port facilities), an Indian reserve adjacent to Colony Farm, and the Canadian Pacific Railway under the Canadian Transport Commission.

The fragmentation of jurisdictions over transportation and land use accounts for the difficulty in formulating viable solutions to the urban transportation problem. Each

department has its own agenda and puts it ahead of what might be considered best for all concerned.

2.9 SOLUTIONS PROPOSED.

There are a number of factors that have to be considered in any attempt to offer possible solution to the urban transportation problem. Three broad fields of concern have to be considered. They are the administrative sector, the human sector, and the physical sector.

Administrative Sector.

The administrative sector involves the political sphere where policy and project decisions are made. This sphere consists of policy formulation, decision making, and implementation. The planners form a bridge between these spheres. Planners assess needs as a mandate from the political masters, propose goals and objectives, and from these, recommend policies to bring about a desired result. This involves complex interactions between planners, decision makers, the public, and the implementors. This complexity is aggravated by jurisdictional fragmentation.

The obvious solution is to provide a mechanism to co-ordinate the policies and processes of the different jurisdictions. The mechanism, for example, would have to give simultaneous consideration to applications for land development and their transportation implication in a way that would help achieve a better balance between expenditure on roads and transit. This could be facilitated by a planning process that includes constant monitoring and appropriate modification to plans to meet changing needs.

Human Sector.

The human sector involves modifying the behaviour of people that have created or compounded the problem. It is the choice of a place of residence in the suburbs, at a

considerable distance from the place of work, that has created part of the urban transportation problem, a problem compounded by the use of private automobiles.

Another possible solution might be to encourage commuters to make use of public transit. This might be accomplished through reducing the number of parking spaces available in the central business area, or, as in Singapore, restricting the number of private automobiles allowed into the central area (Pendakur, 1986: 42). In Hong Kong, there was a plan to introduce electronic road pricing as a means of controlling traffic congestion through a philosophy of user pay. This could be accomplished through the use of sensors attached to vehicles and other sensors recessed into the roadways which would record the time and location when a vehicle crossed from one zone to another. Costs would be assessed the owner of a vehicle for the number of zones crossed at times of traffic congestion (Catling & Roth, 1987: 51-55).

A further solution to the traffic problem would be to stagger work hours. This would serve to "distribute the traffic load more evenly over the day." (Owen, 1966: 204). This suggestion would see better utilization of existing facilities instead of the expenditure of large amounts of scarce resources on expanding the transportation infrastructure to accommodate peak traffic during two short daily periods.

The concern for pollution might prove useful in modifying mode choice. According to air pollution studies in the Greater Vancouver area, 75.9 per-cent of emissions come from vehicles. If people are concerned about the quality of life and the health effects of this pollution, then there should be a change in travel behaviour from automobiles to public transit (TransVision Consultants Ltd., 1990: 19).

Another method of reducing the number of single occupancy vehicles would be to encourage car or van pooling. A number of programs in the United States initiated by large companies seek to reduce the commuter traffic and the size of the parking lots by supplying vans or offering preferential parking to those who carry three or more people in their vehicle.

A further possible solution might be to use telecommunications to replace personal transportation. This use of a home work station would allow the transmittal of information without the worker having to spend the time and money commuting (Schneider & Francis, 1989: 18).

Physical Sector.

The physical sector involves those factors having to do with the material world. These factors include land use, that is the planned or unplanned changes in uses that can influence the generation of traffic, as well as transportation infrastructure, that is the roads and guideways, or the vehicles using them. There are a number of possible solutions to the urban transportation problem that could be suggested involving these factors.

One possible solution would involve the improvement of the capacity of existing road and bridges and/or construction of new roads or bridges. Another solution could involve the construction of Light Rapid Transit lines and bus ways. More buses or larger capacity articulated buses might also be considered.

Yet another possible solution might be making better use of existing infrastructure through better management of traffic, by the installation of turning lanes; delayed traffic control lights; High Occupancy Vehicle (HOV) lanes; or reversible lanes where the costs in financial terms or in community disruptions are too great, to consider widening a road. The introduction of other forms of transportation technology such as commuter rail or ferry boats might serve to mitigate some of the transportation problem.

Solutions derived from land use change factors could involve decentralizing of the work place from the Central Business District to the urban fringe. As a possible solution to the urban transportation problem this would serve to change the travel patterns of commuters by reversing the direction of travel, thus making use of under-utilized existing transportation capacity.

Another solution, linked to decentralization could involve the concept of the creation of new towns (Owen, 1966: 206) or new town centres surrounding existing urban centres. This solution recognizes the relationship that exists between land use and transportation. Owen (1966: 188) suggested "solutions thus appear to depend not simply on measures designed to provide additional transportation capacity, but on the ability to develop urban communities in which satisfactory transportation is possible."

Summary.

There are a large number of possible solutions that could be considered. Some might work in isolation or they might work better in unison. The problems of urban transportation can be resolved with co-ordination among the affected institutions and the establishment of a planning process which accounts for the complexity and dynamic nature of the problem while allowing input from all those involved so that realistic goals and objectives can be formulated.

2.10 CONCLUSIONS.

From the review of the literature, it is apparent that the urban transportation problem is directly related to the changes in land use occurring in cities. The behaviour of people has changed over time due to changes in transportation technologies allowing the decentralization of formerly compact urban centres. There has been a steady reduction in the density of the fringes of cities as people have sought to leave the crowded confines of the city and seek the solitude and health of the countryside.

As the population increases, the level of traffic congestion increases and reduces liveability. There is need for resolution of the traffic problem; however, the nature of the political situation, with fragmentation of authority over land use and transportation, creates a situation where co-operation cannot be easily be achieved. There is need to plan on a long term, region-wide scale, to achieve the best results from the available resources. This fragmentation, however, renders the role of the planners difficult as it restricts the scope

within which they can work. This creates solutions that do not address all factors, and thus cannot adequately resolve the problems under study.

Chapter Three Planning Theory and Methodology.

3.1 INTRODUCTION.

To understand the planning process it is necessary to define what is meant by terms such as plan, planning and the planning process. This chapter will begin with a defining of what is meant by each of these terms. The chapter will then review the theoretical foundations of the transportation and land use relationship and the importance of this to planning. Although an awareness of the interrelationship between transportation and land use has existed since the earliest days of human settlement, it was not until the early 19th Century that modern theories were developed to explain the processes involved in the creation of various land use patterns and the impact of different levels of accessibility. The theories were developed to explain economic questions about the optimum rent to be derived from a use at a specific location, in relation to other possible uses. Land use theory will be extensively discussed as transportation theory evolved from it.

The Planning Process.

The terms plan and planning have been used interchangeably on occasion. Technically, however, they have very distinct meanings. The term "plan" can be taken to mean "a strategy or policy to guide or govern a growth situation or a course of action." (Blunden, 1971: 19). It is associated with a solution to a problem.

The term planning can be taken to mean "essentially the methodological process leading to the plan." (Blunden, 1971: 19). There are a number of planning methodologies and approaches. The methodologies are:

- a) the projective (extrapolation),
- b) the deductive (synthesis), and
- c) the objective (programming). (Blunden, 1971: 20)

Three approaches have been formulated. These are "the remedial approach, the preventive approach and the promotive approach." (Rugg, 1972: 293-295). As the name suggests, the remedial approach to planning attempts to correct an already existing problem (Rugg, 1972: 293). The preventive approach anticipates a problem and tries to reduce or eliminate it. Finally, the promotive approach is concerned with promoting new developments to resolve an existing or potential problem (Rugg, 1972: 295).

According to Friedmann (1987: 31) planning can take three forms. They are allocative, innovative and radical planning. Allocative planning "is concerned with the central disposition of scarce resources amongst competing claimants or uses." (Friedmann, 1987: 33-34). Innovative planning "is concerned with institutional changes in the system of societal guidance." (Friedmann, 1987: 34). Finally, radical planning "is distinctive in drawing on organized citizen power to promote projects pointing towards social transformation." (Friedmann, 1987: 34). These three forms of planning have areas of overlap in their coverage.

The first form of planning, allocative, "involves program budgeting, land use planning, economic development planning and various forms of sectoral planning" (Friedmann, 1987: 34). Allocative planning is the form operating in the transportation and land use sphere.

Meyer and Miller suggest there are six stages to the planning process. They are:

- 1) incremental or tending towards relatively small changes,
- 2) remedial, where decisions are made to move away from ills rather than toward goals,
- 3) serial, where problems are not solved at one stroke but are successively attacked,
- 4) exploratory, in that goals are continually being redefined or newly discovered,
- 5) fragmented or limited, in that problems are attacked by considering a limited number of alternatives than all possible options,
- 6) disjointed, where there are many dispersed 'decision points'. (Meyer & Miller, 1984: 83)

The planning process can be explained as a series of interconnecting steps. These are:

- 1) problem identification (including needs and deficiencies),
- 2) summary of existing and projected states of the relevant functioning systems,
- 3) problem structure analysis,
- 4) specification of goals and objectives,
- 5) inventory of ideals about available relevant policies, goal forms and action instruments and strategies, and
- 6) tentative specification of scenarios for the future. (Chapin Jr. & Kaiser, 1979: 84)

This process also involves a review of the steps to ensure changes in the nature of the problem or parts of it are taken into account. Meyer and Miller identify four stages in an urban transportation planning process. These are:

- 1) diagnosis and data management,
- 2) analysis and evaluation,
- 3) scheduling and budgeting, and
- 4) monitoring. (Meyer & Miller, 1984: 10, Figure 1-1)

The process described has developed over time as a means of explaining the methods used by planners in resolving problems.

3.2 THEORETICAL FOUNDATIONS.

Many of the ideals developed to explain or assist in the understanding of land use or transportation phenomena have been presented in the form of theories. The word "theory" can be defined as a "supposition or system of ideas explaining something, especially one based on general principles independent of particular things to be explained." (Oxford Dictionary, 1987). The rationale for creating theories stems from the need to explain how a situation or process came into existence. The value of theories lies in their explanation of phenomena at an abstract level without the large expenditure of resources to duplicate the situation in reality.

In recent years theories have been part of the methodology used in the investigation and explanation of why phenomena exist, and what processes can influence developments. Their importance lies in the fact that they are transferable from one geographical location to another or one situation to another.

A short historical review of the theories which influenced or are influencing land use and transportation will now be undertaken. The importance of reviewing the origins of land use theory is that transportation theory evolved out of land use theory.

Evolution of Land Use Theory.

The land use theories and models presented give an indication of the evolution of thought concerning land use in urban areas. In a critique of land-use theory, Harvey (1973: 160) noted land use theories arose from a number of schools of thought. These included, geography, sociology, and economics.

In effect the land use theories served to describe the observable patterns of land use and assign behavioural motives to individuals, without taking into consideration the role other factors might have in influencing choice and then distorting the observed patterns. Much has been written on the subject of land use models and theories (Schlager, 1968: 193-205; Meyer & Miller, 1984: 177-217; Karlqvist, Lundquist, Snickars & Weibull, 1978; Wingo, 1961: 85-94; Lowry, 1968: 121-146).

Early land use theory was economic in orientation. It dealt with where to locate certain agricultural uses around an urban centre. It was based on a best use of, or best economic rent from land at a certain location. Economic return was the important criterion to explain land use. Johan Von Thunen developed the first widely known theory on land use in the early 1820's. He used an abstract concept to explain a real world phenomenon, and use patterns (Scott, 1975: 3). Transportation was seen as a cost of distance in the theory.

By the early 1900's, industrial location was seen as the key to explaining land use patterns in urban areas. Alfred Weber developed a land use theory in 1909 to explain the location of manufacturing concerns by identifying a minimum transport cost location.

In the 1920's the choice of housing location by new residents was seen as a way to explain urban structure. In the early 1930's Walter Christaller developed the Central Place Theory, a theory relating the location of centres and their size to the types and numbers of

services they provided. In the late 1930's, Homer Hoyt developed the Sector Theory out of studies of residential area patterns of change. His theory "placed a greater emphasis on transportation as a dynamic element in growth patterns." (Bridger & Greer-Wootten, 1971: 119-120). These theories which attempted to explain the patterns of existing land use, were broad in nature, making assumptions about motivations. One major assumption was that all individuals would seek a location where there was an equilibrium between rents and the costs of transportation.

In the 1940's the emphasis finally shifted towards the importance of transportation as a factor in land use. Losch, in the early 1940's, was concerned with the location of industrial firms, their spatial relationships and their service hinterlands (McLoughlin, 1973: 63). In 1945, Harris and Ullman developed the Multi-Nuclei theory of urban growth. Instead of accepting the notion of a single central focus for an urban area, they suggested in fact there existed a number of nodes of activities which came into existence due to a need to locate some activities in close proximity (Rugg, 1972: 212-214; Breese, 1966: 105; McLoughlin, 1973: 63; Bridger & Greer-Wootten, 1971: 120).

A recent theory developed (1964) to explain land use patterns was Ira Lowery's Model of Metropolis. The model deals with three sectors of activities. These are:

- a) a *Basic* sector of industrial, business and administrative activities . . .
- b) a *retail* sector . . . and
- c) a *household* sector . . ." (McLoughlin, 1973: 246)

The model attempts to estimate population and service employment for areas within regions (Masser, 1972: 109). Lowery's model was designed to allocate activities over an urban area, but not to try to simulate the actual processes involved (Meyer & Miller, 1984: 188; Chapin Jr. & Kaiser, 1979: 560-570).

The early attempts to explain the processes producing identifiable urban land use patterns were initially descriptive in nature (Bridger & Greer-Wootten, 1971: 120). They made use of a gravity model to explain the results--high value, and thus high density at the

city centre, with the value and density decreasing with the distance from the centre until an equilibrium is reached in the rural-urban fringe.

Transportation Theory.

In the past the concern of those involved with transportation was linked to other considerations.

The demand for transportation is in most circumstances a derived demand. Travel may sometimes in itself be pleasurable, but normally it is an end--to get to work, to shop or to visit friends. (Harrison, 1974: 18)

The study of transportation and its impacts originated from the study of such disciplines as economics and civil engineering.

The theories formulated to explain the nature and impacts of transportation were components of larger theories developed to explain economic or engineering phenomena. To the economist, transport was a cost consideration in the calculations of business ventures and site locations in economic theory. To the civil engineer, transportation involved the need to plan and construct the necessary transportation infrastructure to ensure the efficient movement of goods and people.

Transportation models were developed as a planning tool to explain how to increase the efficiency of transportation and the arrangement of land uses. Models were developed in order to elucidate the source of transportation problems and assist in planning what was needed in order to prevent or mitigate potential problems. "The basic use of the transport model is to describe the operation of a specific transport network." (Roberts, 1971: 39). Initially, general models were developed. These were intended to be applicable in any urban area, but it was subsequently found that smaller, more problem-specific models produced more usable results.

Models simulating the interrelationship between transportation and land use have been in existence since the early 1960's (Mackett & Lodwick, 1985: 251). These models

resulted from processes evolving within the planning field which allowed the introduction of this methodology to better understand changes and potential impacts on existing factors within urban systems.

In the case of a commodity transportation model, Roberts suggests there are eight steps to consider. These are:

- 1) commodity disaggregation;
- 2) network definition;
- 3) modal choice and routing;
- 4) commodity distribution;
- 5) commodity assignment;
- 6) modal cost-performance calculation;
- 7) transport price determination;
- 8) a summary of the system performance measures. (Roberts, 1971: 39)

This sequence of steps illustrate, the process needed to describe the operation of a specific transport network in which commodities are being moved, but also these steps could just as easily be used to describe a process that takes into account the day-to-day travel of people.

Travel demand models are one example of transportation modelling. These developed out of large scale transportation studies undertaken in the United States (Chicago, Detroit, and Washington) (Fischer, 1987: 173). The purpose of the models was to study the behaviour of people in order to understand the factors that influence their decisions. The earliest of these models was the Urban Transportation Model System Approach (UTMS) (Fischer, 1987: 173).

The model consisted of four stages:

- 1). trip generation;
- 2). trip distribution;
- 3). modal split;
- 4). trip assignment. (Meyer & Miller, 1984: 246)

Each stage represents a point in the personal decision-making process. A variety of models have been developed to deal with the processes involved with each of the stages mentioned (Meyer & Miller, 1984: 246-273).

Other types of models have been developed to simulate other transportation-oriented concerns. Some examples are: "Network Performance Evaluation Model for HOV Facilities."

(Janson, Zozaya-Gorostiza & Southworth, 1987), "Optimizing Urban Mass Transit Systems: A General Model" (Black, 1978), "Trip Production Forecasting Models For Urban Areas" (Fogerty, 1976) and "Synthetic Models For Through Trips In Small Urban Areas" (Chatterjee & Raja, 1989).

The use of models and simulations has become an accepted method for analysing of the potential impacts of changes in relation to the relevant variables.

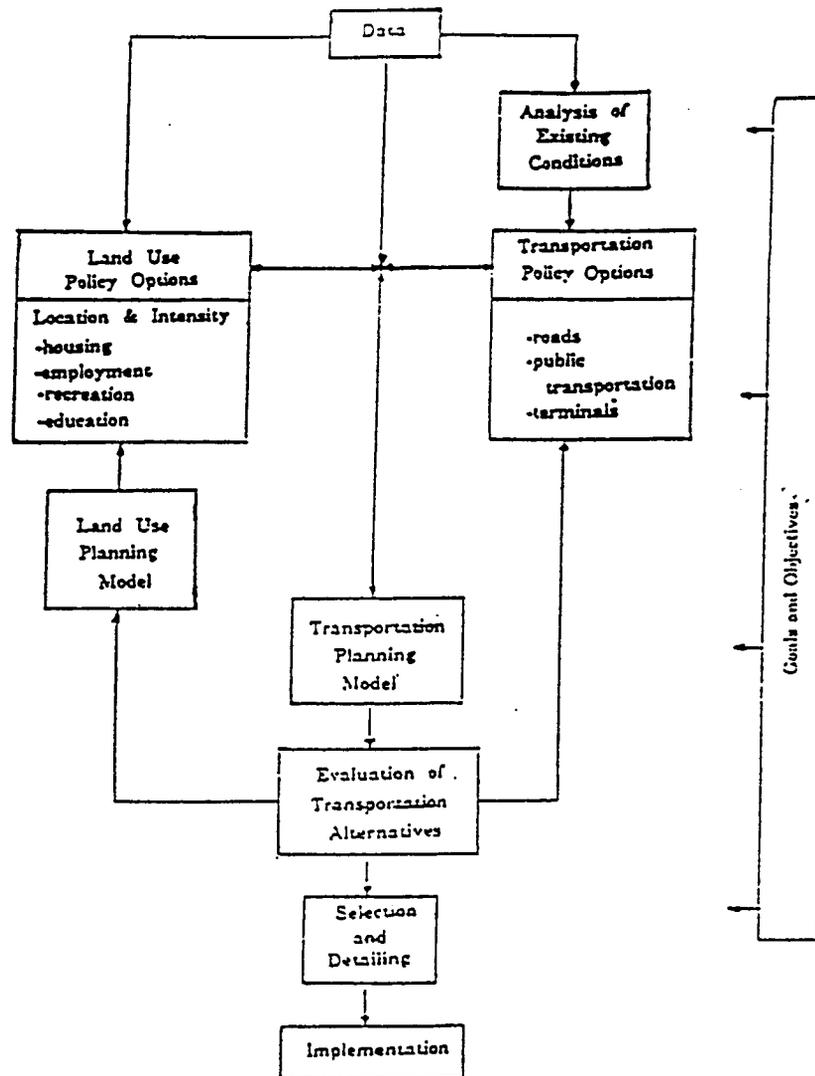
3.3 RELATIONSHIP OF TRANSPORTATION AND LAND USE.

There are many factors common to both land use and transportation. These include rates of population growth, size of urban area, nature of the separation of residence and employment, and the nature of the existing transportation infrastructure. There are also factors that may be more important to one of the fields than the other, though it should be noted most of the factors are in fact applicable to both land use and transportation. For transportation, these factors include the mode split, the amount of congestion at what times of day, and the amount of available capacity in the existing infrastructure which could be used to alleviate the congestion through traffic management. In the case of land use, the factors would include location of different use, density, accessibility of locations, and the economic viability of a region.

The interrelationship between transportation and land use is evident. "A unique property of land use is its ability or potential to 'generate' traffic." (Blunden, 1971: 12). Land use activities create sets of trip patterns, volumes of traffic, as well as a choice of modes of transportation. A change in the use of a parcel of land can result in the creation of new trips. These new trips utilize any excess capacity and create pressure on the existing transportation infrastructure for new facilities to reduce the perceived traffic congestion.

Figure 3-1 serves to illustrate the interrelation between land use and transportation. The flow chart is of the organization of the transportation planning process, but it also illustrates the importance of land use decisions to transportation decision making.

Figure 3-1 TRANSPORTATION PLANNING PROCESS. Illustrating the interrelationship of Land Use and Transportation.



Source: Roads and Transportation Association of Canada. Urban Transportation Planning Guide Toronto: University of Toronto Press, 1977. Figure 1-1 Organization of the Transportation Planning Process and of this guide. Page 8.

Transportation and land use models can be seen as planning tools. In the case of transportation planning, it "has in general failed to operate effectively as a planning tool partly because too few communities have adopted plans to guide transport development and partly because of legal, financial, and administrative obstacles have prevented effective use of transportation as a means of carrying out planning objectives." (Owen, 1966: 193). Land use

planning has had more success in fulfilling its mandate, despite not having the power to control transportation developments.

3.4 LAND USE/TRANSPORTATION THEORY AND THE PLANNER.

A number of factors have to be considered by planners when applying theory to land use and transportation concerns. The land use planning factors of primary importance include the spatial location of various uses, the economic well-being of the region, and which organization has the power to make decisions concerning usage. Transportation planning factors of importance include modes of travel available and the mode split (public transit verses private automobile verses bicycles), the transportation policies of governing authorities of urban areas (do they encourage use of public transit or embark on road building projects in order to resolve traffic congestion and other problems), and the existing transportation infrastructure.

In the case of land use and transportation, the components include population migration, demography, and income; levels of land use densities; location of employment centres relative to residential areas; and the political goals and policies of those with the mandate to make decisions.

3.5 METHODS OF STUDY.

To analyse the importance attached to the interrelationship of land use and transportation in the resolution of urban transportation problems, an historical descriptive method will be used. The rationale for choosing to use this approach is, "The assumption behind any historical approach is that we can learn from the past, that study of the past is of value philosophically as well as in making us aware of the complexity and overlapping of things." (Rapoport, 1969: 11). The present form of the man-made landscape is the result of decisions made in the past. This is of importance to planners as Hodge (1986: 22) noted, planners have to work with decisions made in the past.

To analyse the importance attached to the interrelationship of land use and transportation in the resolution of urban transportation problems, several steps must be followed. It is necessary to define the problem, to identify available courses of action, and to examine the impact of solutions on other factors in the system.

The material needed to study the process include present land uses with estimates of the amounts still available for future use; the potential changes in use that might result from population pressures or economic considerations; the present population with a forecast of what magnitude increases might be in the future; an inventory of the present transportation infrastructure and what problems (congestion) exists; the volumes carried and the capacity of the present infrastructure; the modal split; and the division of political jurisdiction over the study area with a listing of the key authorities with power over land use and/or transportation related functions. This is not a complete list but it covers the major factors that have to be considered.

Information on the present land use is available from the Land Use Plans that, in the case of British Columbia, are required under the Municipal Act of the Province of British Columbia. (Province of British Columbia, 1987a) Part 29 "Management of Development" sections 943 to 945. These Plans describe in broad terms the rationale for the decisions made for proposed uses, as well as in map form. Information on past land use which explain the patterns of present use are available from past land use reports as well as historical documentation or local histories.

Population information is available from the Census, while forecasts of population increases are available from a variety of Governmental sources (locally most municipalities maintain population forecasts, as does the Greater Vancouver Regional District).

Information on transportation infrastructure is available from the Department of Highways and from the local Municipalities. A number of studies commissioned over the years, have assessed the levels of service provided by existing roadways and have suggested improvements or additions that might make for more efficient movement.

Basic information on the traffic component that uses the transportation infrastructure is available from a number of sources. The components are modal split, the volume of traffic, the capacity of existing roads, length of trips, duration of trips, and the reason for trips. This information has been gathered by various agencies over the years, through origin-destination studies, screenline studies, traffic counts, route choice studies, and studies of trip generation.

The various sources mentioned will be used in the analysis of the case study.

3.6 CONCLUSIONS.

This chapter provides background information on important factors in the study of the urban transportation problem. The first factor was planning and involved defining the terms needed to understand the planning process. The planning process itself is a method of defining a problem, collecting and assessing data, proposing solutions, and evaluating the results.

The next factor was the theoretical foundations of transportation and land use. The inclusion of the origins of transportation theory provided basic information necessary to understand the urban transportation problem and possible solutions. The origins of land use theory was included firstly because transportation theory evolved from it, and secondly to appreciate the strong relationship that exists between land use and transportation.

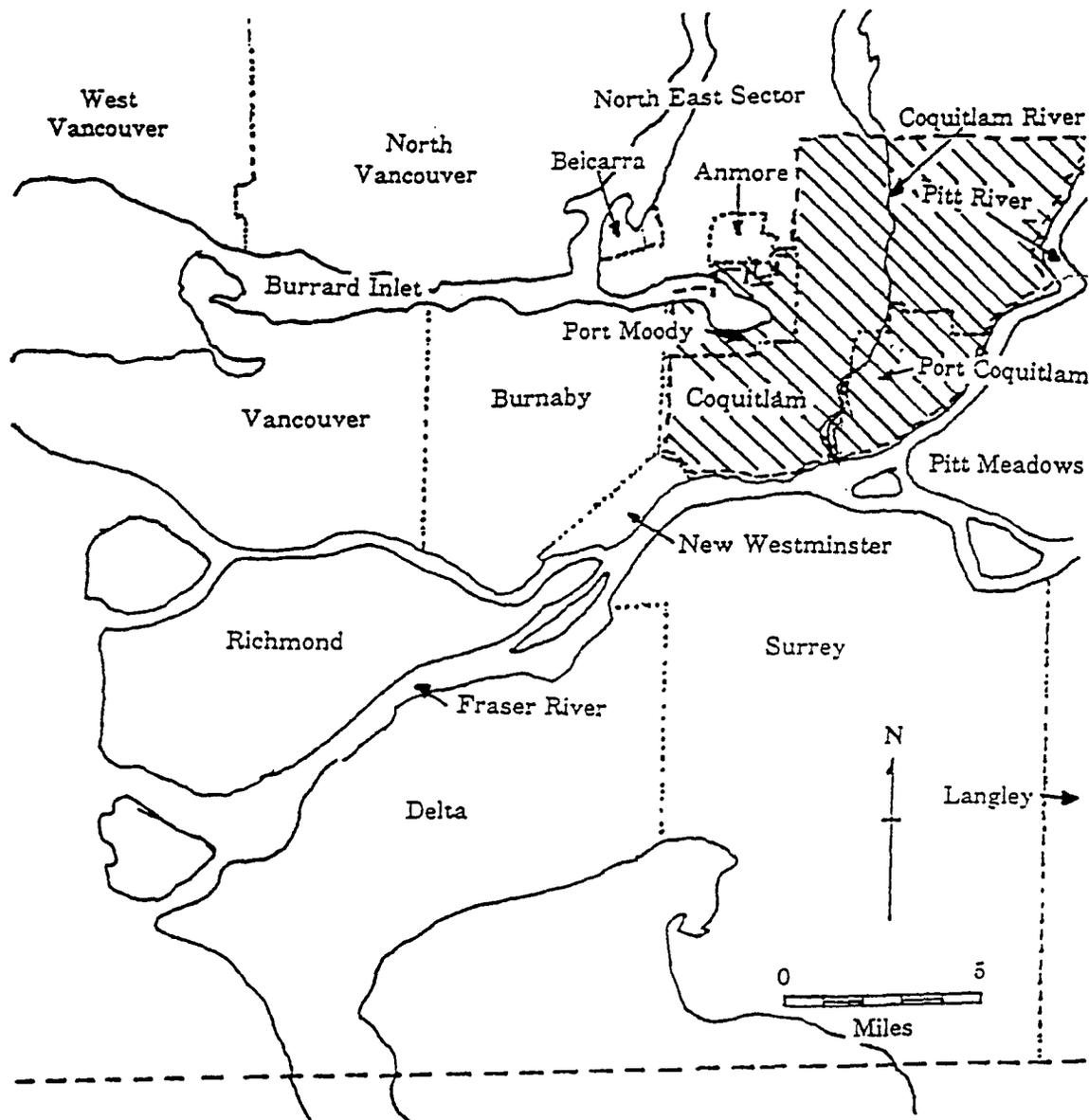
Modern land use and transportation theories have had a large impact upon the planning processes influencing current transportation and land use developments. This information is necessary if the planning processes used to study and recommend solutions to the problems are to be understood. Planners work within an information continuum, and are influenced by and in turn influence the planning processes.

CHAPTER 4 Case Study: The Background.

4.1 FOREWORD.

This chapter will provide the geographical and historical background about developments in the study area and the region. The approach taken will divide the chapter into three sections. The first section will deal with the background information on the study area, the second will deal with the regional context of events, and the third will deal with institutional arrangements. The historical events will be broken into three periods to assist in understanding the origins of the traffic problems facing the North East Sector today. The three periods are, pre-1950, 1951 to 1980, and 1981 to 1990.

Map 4-1 The location of the North East Sector in relationship to the other areas within the Greater Vancouver Region.



Source: Greater Vancouver Regional District. Greater Vancouver Key Facts: A Statistical profile of Greater Vancouver, Canada Burnaby, B.C.: GVRD Development Services, December, 1990. Page 36.

4.2 THE STUDY AREA.

The case study area consists of two cities and one district municipality. The cities are Port Moody and Port Coquitlam; the district municipality is Coquitlam. The study area is 46,802 acres in size and contained an estimated population of 139,400 people in 1990 (GVRD, 1990a: 42) up from 114,156 in the 1986 Census (Statistics Canada, 1986). Coquitlam has the largest area with 37,594 acres and an estimated population of 85,500 (69,291 in 1986 (Statistics Canada, 1986)), City of Port Coquitlam is next with 6,200 acres and an estimated population of 35,800 (29,115 in the 1986 Census), and finally the City of Port Moody covering 3,008 acres and with an estimated population of 18,100 (15,750 in 1986 Census).

The area is referred to as the North East Sector since, it comprises the north east sector of the Greater Vancouver Regional District. It should be noted that two municipalities to the east, Pitt Meadows and Maple Ridge, have considered joining the GVRD and have engaged in discussions concerning this matter since early 1989 (GVRD, 1989a: 4). These two municipalities will not be considered part of the study area.

The City of Vancouver is considered the urban centre of the GVRD. It has the largest population, the greater number of jobs, and contains the central business district. The study area lies approximately 12 miles east of the downtown core, or about 6 miles from the eastern Vancouver border. The District of Burnaby, which over the last 30 years, has become urban in nature lies between Vancouver and the North East Sector. Map 4-1 illustrates the position of the study area.

4.2.1 Physical Nature of Study Area.

The Geography of the Study Area.

The geographical layout of the region is important as it compounds the problems created by the urbanization process. The downtown core of Vancouver is situated upon a peninsula surrounded by water on three sides. Burrard Inlet forms the northern boundary of

Vancouver and Burnaby, and forms part of the north-west boundary of the study area. The southern boundary of Vancouver, Burnaby and the North East Sector is formed by the Fraser River. The land mass between the two bodies of water is in the form of two ridges of land separated by a central valley (Armstrong, 1956: 2) containing a series of lakes and peat bogs (Armstrong, 1956: 15). The northern ridge is the highest, and rises in elevation west to east until it peaks at Burnaby Mountain on the western boundary of the study area. The ridge then decreases in height until it reaches the Fraser River on the east. The position of Burnaby Mountain and its eastern ridge creates limitations on the transportation routes available for those wishing to travel between the study area and either Vancouver or other areas of the region. The boundaries of the region are defined mainly by water bodies. To the east is the Pitt River, to the south, the Fraser River, and to the north west, Burrard Inlet and Indian Arm. The Mountains to the north limit both settlement and the construction of roads.

The road and rail lines on an east-west alignment between Vancouver and the study area, are restricted in the northwest by Burrard Inlet and a steep escarpment that forms the northern slope of Burnaby Mountain. The road and rail lines to the south west are restricted by the steep escarpment of the central ridge and the peat bogs that lie between the ridge and the Fraser River.

Geology of Study Area.

The materials underlying most of the GVRD consist of three main types. The first material which forms the mountains to the north, is granitic igneous rocks and Tertiary sandstone and conglomerate (Eisbacher & Clague, 1981: 206). The granitic material is very hard and durable which makes the process of constructing roads through it difficult and expensive. The Tertiary sandstone and conglomerates form the bedrock of the northern ridge extending from Stanley Park to Burnaby Mountain. They consist of river sediments that have not had the geological time or pressure to have hardened into a durable material. There are alternating bands of these materials, with the conglomerate bands being hard enough to serve

as an impervious capping to prevent the underlying soft sandstones from being eroded by the heavy rainfall in this local.

the rocks are 65 million years old and haven't had time enough to compact so that 'the sandstone can be scooped up with a shovel'. (D'Andrea, 1990: 3)

The second material represented in the region is unconsolidated Pleistocene sediments overlain by glacial till. These sediments were laid down before and during the last period of glaciation. The ridge forming the uplands in the central part of the study area is "underlain by thick glacio-marine sediments complexly interstratified with till and deltaic and ice-contact sand and gravel." (Eisbacher & Clague, 1981: 206). This ridge reaches an elevation of over 450 feet in heights with steeply sloping edges along all sides. Along the northern side, as mentioned previously, the slope is exceedingly steep.

The third material represented in the region is Holocene sediments, which were deposited within recent times by the Fraser River. This material comprises a large segment of the eastern and southern part of the study area. A landscape composed of this material tends to be fairly flat and low lying. There are often drainage problems associated with this material, and since it is low-lying, it is subject to flooding during the spring runoff and the fall periods of heavy rainfall (Eisbacher & Clague, 1981: 208). The low, water-saturated conditions are conducive to the development of Peat deposits. The area of river sediments forming the southern part of the study area was once known locally as "Cranberry Bog" (Wright & Wright, 1978: 19). Building roads over peat can be a costly and time-consuming enterprise. When the Lougheed Highway was extended through Coquitlam, a section of it passed through this area of peat and river sediments. At that time,

the normal procedure was to place relatively thin landfill on the bog and to build the road . . . Consequently, in a few years the road developed a roller coaster type of surface . . . This was followed by an attempt to drain the bogs with ditches, building culverts on piles over the ditches . . . The result in a few years was to have the culverts project above the road which had settled between the culverts; a good example was on Highway 7 (Lougheed Highway) between New Westminster and Port Mann Bridge. (Armstrong, 1984: 30)

Along the northern edge of the northern ridge there is an escarpment that runs along the southern side of Burrard Inlet. This feature is important as it serves to limit the choices available in resolving the transportation problems plaguing the area. In the case of the steep north slope of Burnaby Mountain and the shore of Burrard Inlet, there is very limited space available for future road building due to the nature of the geology of the Mountain. "The whole north slope of Burnaby Mountain and part of the north slope of capital Hill consist of a Tertiary (1) bedrock slide area." (Armstrong, 1957: 15). The material along the steep escarpment has reached an angle of repose, and unless disturbed poses little danger to the rail and road facilities. If disturbed, the material slumps until it reaches a new angle of repose. "When the Barnet Highway was upgraded in the 1950's one such slide developed." (Armstrong, 1984: 35). In January, 1991, construction of the new Barnet Highway along the North Side of Burnaby Mountain was slowed due to longitudinal fractures appearing in the roadbed, caused by slippage of material under it. "Slipage (sic) is a longstanding (sic) problem in some sections of the road, Port Moody Mayor Dave Driscoll said." (The Burnaby & New Westminster News, January 30, 1991: 4). The materials forming the escarpment have not had sufficient time to compact properly, and tends to crumble very easily. Eisbacher and Clague (1981: 211), and Armstrong (1957: 14) mention the uncovering of a buried forest when a site was being cleared in Port Moody. The material covering the site was found to have originated from a hillside 1/2 a mile south.

During a period of particularly heavy rainfall in 1979, there was a large land slide consisting of water-saturated materials that flowed into the heart of Port Moody and damaged a number of homes (Eisbacher & Clague, 1981: 211-212). A few years later in 1985, after several days of heavy rainfall, a 300 foot-wide section of the Barnet Highway just west of the Barnet Highway and St Johns Street intersection, slipped down the embankment and covered the railway tracks below (The News, November 6, 1985: 16).

The geological factors present in the study area and along the routes to and from the area are important elements that limit transportation and land use choices.

4.2.2 Political, Social and Economic History of the Study Area.

Political History of Study Area.

As mentioned earlier, the study area comprises three political entities. These are the City of Port Moody, the City of Port Coquitlam and the Municipality of Coquitlam. The Municipality of Coquitlam was incorporated in 1891 and comprised an area that includes what is now the City of Port Coquitlam. The City of Port Coquitlam was created when the urban area adjacent to the C.P.R. Yards, known as Westminster Junction, was ceded from the Municipality of Coquitlam and became the City of Port Coquitlam. This occurred in 1913, during a time of economic expansion.

The City of Port Moody came into being during the construction of the C.P.R. in the early 1880's. Port Moody was originally designated as the terminus of the railway, and as a result there was much building activity in anticipation of a rapid economic expansion. However, when the terminus was moved to Vancouver, further down Burrard Inlet, the settlement fell into a state of slumber that lasted nearly 20 years. With the Panama canal nearing completion and promising to make local products easier to ship to the European markets, there was renewed interest in the fortunes of Port Moody, with the result that it became incorporated in 1913.

In the past there were several other political entities in and around the study area. The District of Fraser Mills was originally part of Coquitlam, but separated in 1913 to form a separate political entity, whose boundaries happened to coincide with the boundaries of the land holdings of the Western Canadian Lumber Company. Fraser Mills was seen for many years as a tax haven for the Lumber Company and its successor companies. In the early 1970's it was forced by the Provincial Government to join the Municipality of Coquitlam.

Within the present GVRD, the Villages of Anmore and Belcarra were recent incorporations (Anmore 1979, Belcarra 1987 (GVRD, 1990b: 35)). They include several small areas to the north west that are essentially rural in nature, but which opted for incorporation

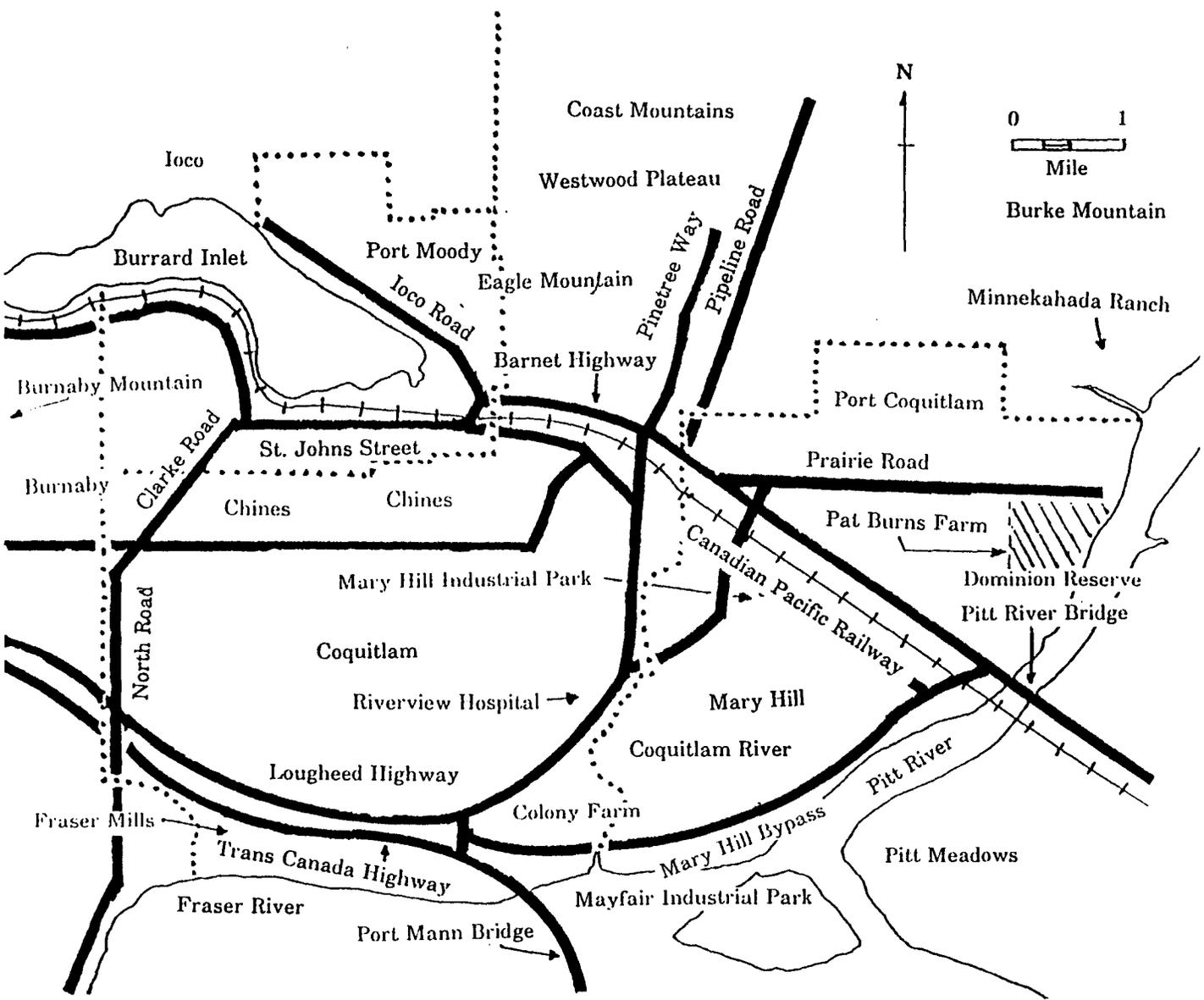
in order to provide needed services, and an organization to ensure that their views on development were heard.

Just outside the present boundaries of Port Moody there is a small community called Ioco. It was created in 1915 by the Imperial Oil Company in order to house its work force, at a time when the site was isolated from other settlements by a lack of roads, and its workers had to live at the site or commute daily by boat from adjacent communities.

History of Early Settlement in Area, 1859-1950.

The first activity to take place in the study area during the colonial era involved the Chief Commissioner of Lands and Works, Colonel Richard Moody. He was searching for a suitable site for the capital of the colony of British Columbia. He decided initially on Mary Hill as the hill would serve as a good defensive position (Monk & Stewart, 1958: 12). However, a better site was chosen downstream at what was to become New Westminster.

Map 4-2 The location of roads, railways, landscape features, large commercial undertakings, and institutions.



Source: Urban Transit Authority. On Track for the 80's, Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

Farming and Ranching.

The earliest settlers were mainly farmers and ranchers. For the first few years their operations were initially subsistent in nature. During and after the building of the C.P. Railway, in the period 1881-1885, commercial farming and ranching operations came into being. For many years, and to a lesser extent today there has existed some farming in the area. In the past, three of the largest operations were: "Minnekhada", the "Pat Burns" Meat Company operation, and The Provincial Government's Colony Farm. Map 4-2 illustrates the location of Minnekhada, the Pat Burns Farm, and Colony Farm.

"Minnekhada, was a very large operation covering 1,600 acres and involving the raising of crops and livestock. Thoroughbred stock was raised, as well as 500 acres of oats and hay for feed. There was a large dairying operation on the property. Potatoes and other root crops were grown as well. In later years a large chicken raising operation was begun (Chambers, 1973: part 6). Beginning in 1900 the property had a number of illustrious owners over the years, including two Lieutenant-Governors of the Province of British Columbia. Today part of the property forms one of the GVRD Regional parks.

The "Pat Burns" farm was approximately 1,000 acres in size; it was mainly involved in sheep raising, which supplied wool and meat. There was also a large pig raising operation on the property. The stock raised on the farm was processed at the Burns Packing Plant situated in Vancouver. This operation supplied meat to the local markets.

Colony Farm was begun in 1905, and was intended to employ patients from the Mental Health Hospital in nearby New Westminster. It was also to serve as a model farm, to demonstrate new farming techniques and to raise purebred stock to improve the breeds in the Province.

From the 1920's onwards, a number of smaller operations raised strawberries, peas and beans that were sold to the Royal City Canning Company in New Westminster. Chicken farming and dairying were also conducted on a small scale on a number of family type farms (Koberstein, 1990).

Logging.

For many years logging provided employment for residents of the study area. The building of the C.P.R. created a large market for lumber, stimulating the local logging industry. Large-scale commercial logging with horses and oxen began when the timber close to the waterways was exhausted. After the turn of the century, steam donkey engines and logging railways were employed to move the timber to the mills.

In the study area, the largest logging operations were owned by the McNair Shingle Company and the Dollar Company (The Canadian Robert Dollar Company of Dollarton, Dollarton is now called Deep Cove). Both companies operated logging railways, making use of part of the Port Moody-Coquitlam Railway. This railway, originally built through an agreement between McNair and the British Columbia Electric Railway Company, ran from Port Moody up into the Coquitlam River watershed. The B.C. Electric Company needed the railway to facilitate the construction of the Coquitlam Lake Dam, and McNair paid half the construction costs in order to gain access to its timber properties (Ewert, 1986: 117). From the early 1920's to the early 1940's, the Dollar Company logged large portions of northern Coquitlam and Port Coquitlam, using the logging railway.

During the period 1920 to 1950, there were a number of small scale logging operations within the study area to remove small stands of privately owned timber and shingle bolts. There were also a number of local small scale shingle mills in the area obtaining their materials from the local farmers and developers clearing their lands.

An example of a small scale operator that logged in the area was Albert Thomas, who in 1931 moved a bush mill into the Harbour Chines area of Port Moody, and used a Caterpillar tractor to drag logs to the mill for conversion to railway ties (International Woodworkers of America, 1976: 158-159). Another example was Mr. Edwards of what is now Edwards Road, who from the 1930's to the early 1950's used a mile long steel cable to

transport shingle bolts from steep terrain on the south slope of Burke Mountain to his shingle mill.

During the 1960's and 1970's, Mr. Frank Wirsz logged intermittently a timber claim on Burke Mountain he had purchased in 1958 (Postma, 1992: 17). Local residents who used the existing logging roads to hike and access a local ski slope, lobbied for an end to logging to preserve the natural environment. "The campaign to stop logging was ultimately successful and by 1981 all logging ceased on Burke Mountain" (Postma, 1992: 17).

There is still some logging being carried out to the north of Burke Mountain, mainly within the G.V.R.D. watershed, but it is on a very reduced scale.

Manufacturing.

One of the largest manufacturing industries in the study area produced wood products, especially lumber and shingles made from local timber. The building of the C.P.R. stimulated the establishment a number of lumber operations at Port Moody. Later, large operations were started at Fraser Mills and in the area that later became Port Coquitlam. The Western Canadian Lumber Company operations, which were the largest, employed up to 850 men when business was brisk (Monk & Stewart, 1958: 35). In 1913 "the big mill was reputed at this time to be the largest lumbering operation in the British Empire and the second largest in the world." (Monk & Stewart, 1958: 38). In Port Moody, Thurston-Flavelle Cedar was the largest operation, followed in size by Canadian Pacific Lumber, Reynold's Timber, Port Moody Shingle, Robert McNair Shingle, Sardis Shingle and F.M. Singer and Company (Norton, 1987: 110-122). Robert McNair also operated a single mill and a small sawmill at Port Coquitlam. This company operated for a very long time and purchased much of its material from the local farmers when they were clearing their lands (Koberstein, 1990).

Interestingly enough, there was a rubber manufacturing plant in Port Coquitlam. The plant began operations in 1926 as the Gregory Rubber Company. Later, in 1934, the

Huntington Rubber Company acquired the operation. The facility manufactured automobile tires, belts, and rubber mats.

Prior to the First World War, there was a steel rolling mill at Port Moody but this shut down soon after the end of hostilities.

In spite of the amount and scope of the agricultural endeavours, there were no processing plants or creameries built within the study area.

Associated with the lumbering business was shipbuilding. Prior to and during the First World War, there were major shipbuilding operations in Port Coquitlam. A contract was secured by the Pacific Construction Shipbuilding Firm. "During the years from 1914 to 1918 a crew of 400 carpenters, shipwrights and metal workers launched these boats." (Chambers, 1973: part 8).

There were two oil refineries constructed near Port Moody just prior to the First World War. The Imperial Oil Refinery at Ioco is still in existence and provides employment for a large number of local residents (Norton, 1987: 149-151).

Hydro Development.

In the period 1902-03, the Vancouver Power Company, built a dam at Coquitlam Lake, a tunnel connecting Coquitlam Lake with Buntzen Lake and a power house on Indian Arm (Monk & Stewart, 1958: 59). In the period 1909 to 1911 the dam and the tunnel were enlarged and another power house built. The British Columbia Electric Railway Company owned the Vancouver Power Company, and at this time it entered into an agreement with a logging company to construct a railway that could be used to carry supplies to the dam site and to transport timber from the surrounding forests to the mills at Port Moody.

The C.P.R. and The Provincial Mental Health Hospital.

Prior to the 1950's the Canadian Pacific Railway (C.P.R.) and the Provincial Mental Health Hospital (Essondale Hospital. See Map 4-2 for location) were the largest employers in the study area (City of Port Coquitlam, 1988: 117).

The C.P.R. construction in the early 1880's stimulated settlement and economic growth which had languished in the area. The railway construction created a land boom at Port Moody and initiated lumbering, farming, and ranching to meet the needs created by the railway construction. At what is now Port Coquitlam, then Westminster Junction, a branch line was constructed to service the then main urban and commercial centre of the region, New Westminster. This transportation node developed into a service centre for the local industries and the railway.

During the period just prior to the First World War, there was considerable development activity in the region due to the anticipated benefits of the impending completion of the Panama canal. The area that is now Port Coquitlam was considered to have the potential to be a large manufacturing and shipping centre. The C.P.R. in anticipation of developments expropriated a very large tract of land to create what were at that time the largest rail yards in western Canada (Chambers, 1973: part 6). This activity brought about a land boom resulting in the creation of the City Of Port Coquitlam in 1913. Extensive shops were created at the site for the repair of freightcars and locomotives. This created the need for a large workforce which sought accommodation in the adjacent community of Port Coquitlam.

The next largest employer in the area was the Mental Health Hospital at Essondale. The hospital had originally been located in New Westminster, but due to an inability to expand the facility within the city, a site was purchased in 1904 in Coquitlam (Poole, 1990: 4). The new hospital was constructed between 1909 and 1913, on the hillside adjacent to the site of the Colony Farm. Many of the patients from the hospital were employed on the Colony farm raising vegetables for use at the facility and purebred livestock to improve the breeds

within the Province. In the mid 1950's the institution housed over 4,700 patients (Poole, 1990: 4) and employed over 1,500 people many of whom lived in the surrounding communities (Monk & Stewart, 1958: 55-56).

Land Use Prior to 1950.

Prior to 1950, land uses within the study area were those that one might expect in a rural area. The south-west area of Coquitlam, adjacent to Burnaby and Fraser Mills, was mainly residential in nature, with some retail outlets to serve local needs and a small amount of farming, and dairying. A 1952 study by the Lower Mainland Regional Planning Board indicated that most of the land in the study area was vacant. The next largest use was agriculture, with the major holdings in the eastern part of the study area, mostly in Port Coquitlam. Many of the agricultural holdings took the form of small-sized plots of one to five acres, and were residential, with some gardening to supply the owners needs along with some berries or eggs that could be sold to the local markets. The owners often worked part or full-time at another job with the farming being more of a hobby (Koberstein, 1990).

By 1950, the study area was still primarily rural, with the vast majority of the land being vacant, and covered with logging slash or second growth timber.

4.2.3 Transportation Developments Prior to 1950.

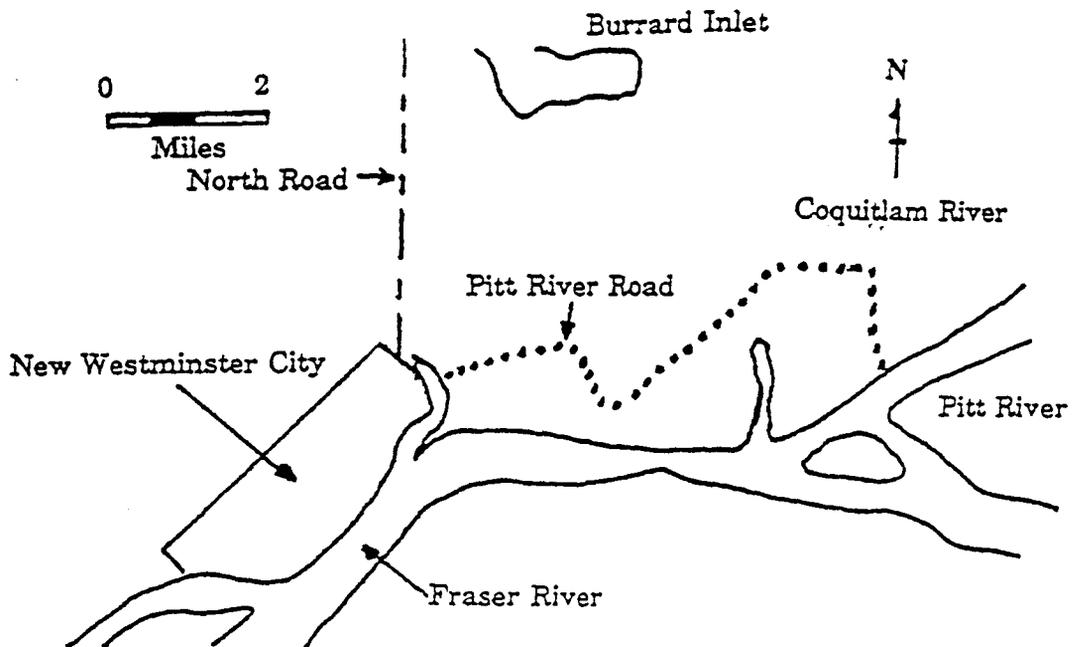
Roads.

The first modern transportation development that took place in the study area was the construction of the North Road from New Westminster to Burrard Inlet in 1859 (Draper, 1945: 25; Hill, 1987: 150). It was seen as a strategic necessity as it offered an alternative means to access the then capital of the crown colony of British Columbia should the Fraser River be blocked by flood, ice, or an invasion by the United States of America.

The next road to be built was the Pitt River Road, in 1861. This road basically followed the same route as the present day Lougheed Highway as far as Essondale, then

crossed the Coquitlam River, and reached the Pitt River north of Mary Hill. Its purpose was to open up the agricultural lands of the region and enable settlers to transport their produce to the only major urban centre in the region. Map 4-3 illustrates the route followed by this road.

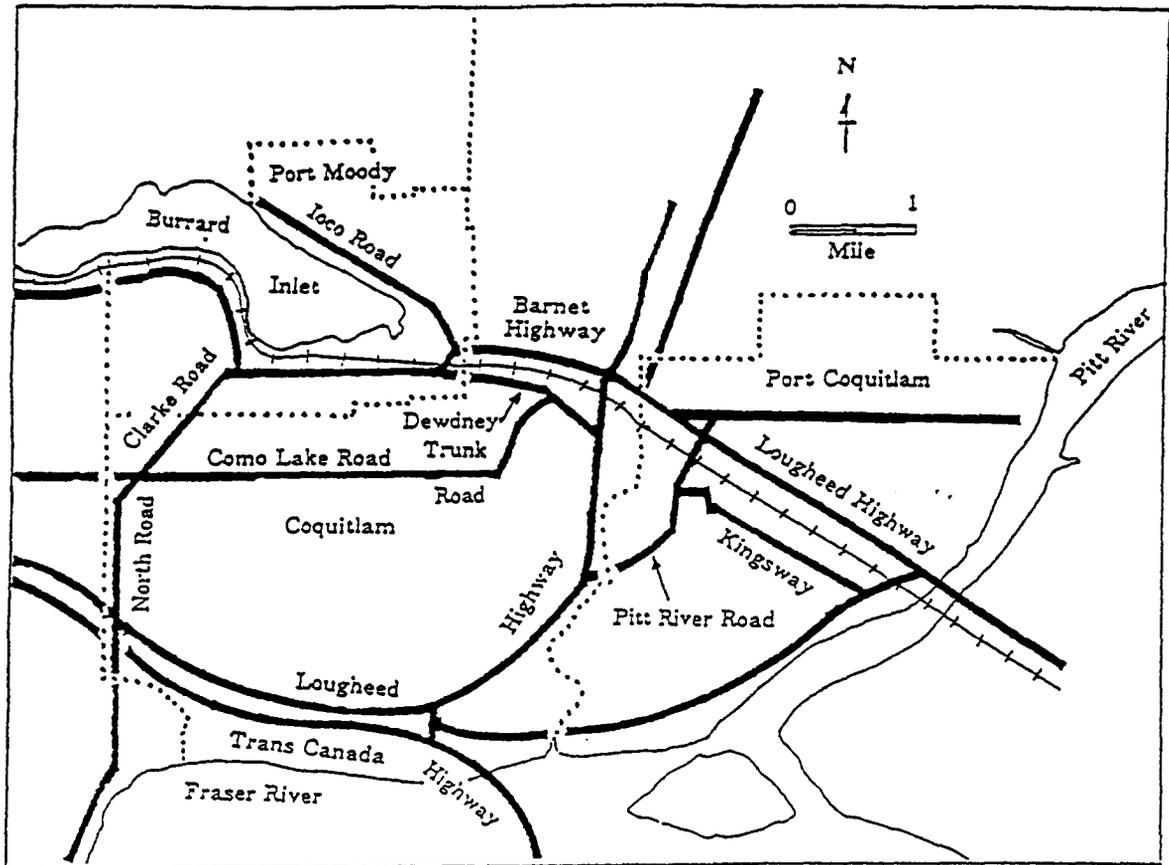
Map 4-3 The location of the early roads in the North East Sector.



Source: Draper, W.N. "Some early roads and trails in New Westminster District." in British Columbia Historical Quarterly Volume IX Number 1. Victoria, B.C.: Published by the Archives of British Columbia, 1945. Pages 25-35. Map on page 26.

Other roads were developed over the years as required. The main roads included the Dewdney Trunk Road, which linked Port Moody with Port Coquitlam, and the Barnet Highway, which linked Port Moody with Hastings Street, and thus gave access to Vancouver. The present Lougheed Highway was constructed in 1950.

Map 4-4 The location of present day roads in the North East Sector.



Source: Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

An important event occurred in 1922, when the Provincial Government declared the North Road, Dewdney Trunk and the Pitt River Roads as secondary highways, with the costs of repairs and improvements to be paid equally by the Province and the Municipalities (Monk & Stewart, 1958: 46).

Examples of what the early road conditions were like are indicated from the following description of North Road.

nothing but an ugly trail. . . . The track is all furrowed by the late floods.
(Norton, 1987: 80)

and

STUCK IN THE MUD . . . A wagon loaded with goods for Port Moody, started out the other day to brave all the adventures of the so-called road to the terminus. The driver must have been a brave man, but wanting in that better part of valour called discretion. . . . the horses had to be rescued from suffocation in the mud . . . the wagon remained sunk to the hubs, to be dug out on some future occasion (Norton, 1987: 80)

The roads would improve somewhat, but not greatly, until well after the advent of the automobile.

In 1912 a bridge was constructed across the Pitt River enabling farmers to travel to New Westminster with their produce.

One major point concerning the lack of a network arterial roads within the North East Sector is a result of there not being, early in its development, an overall arterial road plan devised for the area. The suburbanization process began in the early 1950's, and it was at this time, an overall regional road plan should have been developed. It was not until the early 1970's that Coquitlam and Port Coquitlam commissioned studies of the road needs of the area (Associates Engineering Services, 1970, 1971). However, by this time a great deal of residential development had already taken place which restricted the available options in creating a continuous arterial road network.

The City of Vancouver has a good system of arterial roads due to its commissioning Harland Bartholomew and Associates (1929) in the late 1920's to produce a plan for the upgrading and extension of the existing road systems. The plan also contained a regional component which included the Municipality of Burnaby and the City of New Westminster. This regional road plan was to ensure adequate access from Vancouver to its suburbs. Unfortunately, the regional plan stopped at the western boundary of the North East Sector.

The layout of the arterial road system in Richmond was the result of the initial land surveys carried out in the early 1860's, since the land was of superior agricultural quality and attracted early settlers before other areas. "The land was to be divided into 160 acre allotments by the block and range system, each block being three miles square and divided

into thirty-six sections of forty chains, which is a half mile square." (Ross, 1979: 21). The initial roads were spaced one mile apart to provide access to each quarter section. "In 1881, Richmond's major roads were gazetted." (Ross, 1979: 46). Thus Richmond was supplied with an arterial road system on a grid-system.

The North East Sector, though possessing some good agricultural lands, contained too much rough, and heavily wooded terrain to necessitate early land subdivision surveys.

Railways.

The construction of the Canadian Pacific Railway (C.P.R.), which began in 1881, had the greatest immediate impact upon the study area. At that time the only means of high speed surface travel, or to move large and heavy loads of material was by railway. The construction process provided a ready market for lumber, foodstuffs and draft animals. A frantic land boom occurred at the same time, resulting in the creation of the settlement of Port Moody in 1883. The designation of Port Moody as the Pacific Terminus of the trans-continental railway was sufficient to cause premature development of local facilities in anticipation of an influx of citizens. Unfortunately the hopes were dashed when the terminus was moved to Vancouver, further down the Inlet, in 1886.

In the same year, a branch line was built from the C.P.R. mainline at Port Coquitlam (then Westminster Junction, now Coquitlam Junction), which gave the Company access to the already established urban and industrial centre of the region at New Westminster.

In 1899, the Vancouver, Victoria and Eastern Railway (now the Burlington Northern Railway) was built from Vancouver to New Westminster, passing along the southern boundary of the study area. When the New Westminster Railway bridge was opened in 1904, the line was able to link up with its American parent's lines in the U.S.

In 1915 the Canadian Northern Railway was completed and track use rights along this line into Vancouver were negotiated with the Vancouver, Victoria and Eastern Railway.

In the period shortly before the 1914-18 War, the British Columbia Electric Railway (B.C.E.R.) built a tram line from its operation in New Westminster to the Fraser Mills to "meet the needs of the increasing number of residents and workers." (Monk & Stewart, 1958: 35). The residents of Port Moody had been petitioning the B.C.E.R. from 1906 to 1915 for the building of the tram line from New Westminster to their community (Ewert, 1986: 123; Norton, 1987: 133-134). The residents felt the line would make commuting to New Westminster easier, as well as improve the commercial opportunities of the community. The B.C.E.R., however, felt there was not sufficient demand to warrant the expense involved in constructing the extension.

Water Transportation.

Prior to the building of the modern highway system, beginning in the late 1920's, the Fraser and Pitt Rivers were used widely for commerce, and the local communities were served by river boats. Ocean going ships were towed up to Fraser Mills and Port Coquitlam to load lumber and shingles for export. The harbour at Port Moody was also used to ship lumber as well as to import crude oil to supply the two oil refineries that operated after 1915. Tugboats were extensively used to tow log booms and barges to the lumber mills.

There had been talk of the building of a canal to link Burrard Inlet with the Pitt River to further the economic development of the region. This scheme was first proposed during the gold rush period. It is not presently known definitively who initiated the scheme, though the Hammond Brothers of what is now Hammond, Maple Ridge, did actively promote it for many years (Nichols et al, 1972: 23).

This plan was to dam the mouth of the Pitt River, using Mary Hill as a supply of earth fill, and to divert the flow of the Pitt and Lillooet River systems through a canal to Burrard Inlet. (Nichols et al, 1972: 23

(The present day Alouette River and Lake were known prior to the 1930's by the name Lillooet.) The scheme once again came to the fore in 1891 (Chambers, 1973: part 11), and

was promoted up to the time of the First World War. The great flood of 1894 added another use for the canal as a possible flood control project, but aside from a number of surveys being undertaken, little was accomplished at this time. After the great flood of 1948, the New Westminster Harbours Board resurrected the canal proposal as a flood control measure (City of Port Coquitlam, 1988: 125). The proposal was again revived in 1962, after the Coquitlam River flooded, causing considerable property damage. "The Board of Trade formed a Canal Committee whose objective was to oversee the construction of a canal, 200' wide and 35' deep." (City of Port Coquitlam, 1988: 125). The proposal, however, was once again allowed to lapse after a detailed study indicated that it would be exceedingly costly (City of Port Coquitlam, 1988: 125).

Situation in the Rest of the Region, 1859 to 1950.

The period 1859 to 1865 was one of rapid development due to the discovery of gold in the interior. Local development centred in New Westminster, the capital of the colony of British Columbia. Aside from a few farms and logging operations in the Lower Fraser Valley, there was little urban development outside of New Westminster. The City served as the industrial and commercial centre of the mainland Colony up to the founding of Vancouver in 1886 (Jones, 1966: 29). New Westminster did remain a major industrial centre for the region until the disastrous fire of 1898 destroyed much of the City and most of the industries. Many of the industrial concerns relocated to Vancouver, which had rapidly become the new centre of the region due to changes in transportation technology that reduced the reliance on river transportation and emphasized the use of the railway (Jones, 1966: 28). New Westminster, however, still retained its regional importance.

Friday is market day. Farmers come fifteen to twenty miles with their produce, and thither dealers from Nanaimo, Victoria, Vancouver and local centres repair to make their purchases. (Lawson & Young, 1913: 127)

Vancouver thus became the commercial and transportation centre for British Columbia and Western Canada, while New Westminster served the function of market place and transportation centre for the Lower Fraser Valley.

The period between 1865 and 1880 was one of relatively depressed times, and development although steady, was slow. The construction of the C.P.R. between 1880 and 1885 brought in a large influx of new residents and stimulated a host of economic undertakings that were initially directed to supplying the railway. From 1885 to 1900 there was rapid development of the lands around Burrard Inlet between the First and Second Narrows. Vancouver, which occupied the south shore of the Inlet, was the centre of extensive lumbering operations, metalworks and foundries, and wholesale distribution for the Province, and became the primary centre of commerce and population.

The settlement which became Vancouver (incorporated in 1886) had a population in 1881 of about 800. By 1891, the population was 13,709, and by 1901, 27,010 (McDonald, 1981: 39). The Province of British Columbia contained a population of 49,459 in 1881, 98,173 in 1891, and 178,657 in 1901 (McDonald, 1981: 39). After 1890, the lands surrounding Vancouver and New Westminster, began to be divided into municipalities. The whole of the Lower Fraser Valley experienced substantial growth in the period prior to 1900.

Rapid development continued up to the beginning of the First World War, with Vancouver's population reaching 100,401 in 1911 and the Province registering a population of 392,480 (McDonald, 1981: 39). As the centre for transportation, manufacturing and distribution for the whole of the Province, Vancouver became even more eminent in the region and the Province. It was seen as the gateway to the orient.

The events of the First World War, slowed development, and the rate of population increase declined. The period between the two World Wars saw some development, but it was only after the Second World War that changing circumstances would result in the process of urbanization overflowing the boundaries of Vancouver and impacting the rural lands in the surrounding municipalities. Economic changes and technical changes in transportation began

to affect the settlement patterns of the region. The old transportation means of streetcars and interurbans gave way under the pressures of increased numbers of private automobiles. As in other urban areas in North America, the advent of increased numbers of inexpensive and reliable vehicles enabled people to seek residences in the suburbs. The formerly compact centre of Vancouver, with its arms of developments radiating from the centre along the old streetcar lines, began to feel the effects of decentralization and urban sprawl. People were now able to locate wherever inexpensive land was available for housing.

The City of Vancouver was initially established as a transportation centre, for mode change between land and ocean-going transport. Over time Vancouver retained this function, but it also began to emerge as an industrial city. The major development of the City was related to the growth of its manufacturing and distribution functions (Jones, 1966: 28), and this continued until the 1960's. In recent years, it has been said the City has become an "executive" city, that is, the main economic function of the downtown core has become the location of a large number of regional corporate offices. Partially in anticipation of this and partially as a result, a large amount of office space has been constructed in the downtown core since the mid 1950's (Hardwick, 1974: 58-61).

As the vacant residential lands within the boundaries of Vancouver began to fill, and the land values began to rise, many people began to seek affordable residences in the communities surrounding the City. In the late 1940's and early 1950's, Burnaby, North Vancouver, Richmond and Surrey began to feel the pressures of suburbanization. In the early 1960's there was little vacant residential land available within Vancouver, and greater pressures were exerted upon the communities surrounding the city. The suburbanization of the peripheral communities into automobile-oriented, low-density developments resulted in an increasing traffic load upon the existing transportation infrastructure. The increased congestion has reduced mobility around the lower mainland, and has become one of the main problems facing residents.

4.3 THE PERIODS FROM 1951 TO 1980, AND 1981 TO 1990.

Introduction.

Past events can be divided into three stages. The period prior to 1951 was pioneer in nature, with the wild landscape gradually being modified to reflect a European ideal of productive land use. The lands were logged, then some were used for agricultural purposes. The transportation system was initially designed to serve the developing land uses. The earliest road systems were constructed as a means to encourage development of the land. The building of the railway in 1885 was designed to develop the whole of Canada rather than benefiting just the local region. However, the new transportation technology had a profound impact upon the whole region, and focussed developmental attention away from the old centre of settlement New Westminster to the new centre, Vancouver. In the study area, the coming of the railway offered an economic reason for increased development. There were increased opportunities for utilizing the timber resources of the area, as well as markets for agricultural products in the rapidly growing commercial and industrial centre of Vancouver.

The period of the streetcar and interurban had a profound impact on land development all across the region, but aside from a short spur line to Fraser Mills in south-western Coquitlam, the residents in the study area were compelled to use either the Canadian Pacific Railroad (C.P.R.) or a ferry from Port Moody to travel to Vancouver, or a horse-drawn vehicle or, later, a primitive automobile travelling on the few existing gravel roads to reach New Westminster. Prior to 1950, there could be little thought of commuting to jobs in Vancouver from the study area as the travel costs would have been far too great in relation to the costs of land closer to Vancouver.

The period between 1951 and 1980 marked the beginning of the conversion of the lands in the study area from rural to suburban. New roads opened up the lands to residential development. This development brought additional services which in turn attracted more people seeking lower-priced homes. This in turn created a demand for better transportation infrastructure.

1951 marked a time when automobiles had become a major component of the transportation system. The first automobile-oriented shopping mall was constructed in 1950, at Park Royal in West Vancouver. It was the first major retail development outside the downtown core of Vancouver, and signaled the change in the design of communities in that the land use would be oriented to automobile travel as opposed to the old system of streetcars. The 1980 date, a rather arbitrary choice, marked the end of a period when development in the North East Sector was minor as there was still an abundance of easily developed and inexpensive land available within the municipalities south of the Fraser River.

The lands to the south of the Fraser were preferred for housing for a number of reasons. The first involved the general impression of the landscape. Richmond, Delta and Surrey were long-established agricultural areas, and possessed cleared fields, old farmhouses, and barns. They reflected the ideal of a rural area. The study area on the other hand, possessed a rugged landscape, and due to the nature of the soils, which had limited the extent of land for agriculture, they did not convey the feeling of a farming area. The large expanses of unoccupied lands covered with scrub timber and second growth trees gave the impression of an undeveloped wilderness. People tended to locate in the idealized farming areas.

The developers also preferred to built houses on the level cleared farmlands of the south of the Fraser River Municipalities. The costs of clearing and building were considerably less on the level, already cleared ground, than on the heavily treed sloping ground of the study area. There was also a noticeable difference in climate. The cleared lands in Richmond, Delta, and Surrey looked sunny, while the treed lands of the study area appeared dark and uninviting. A study of the climatic variation of the region indicates that there is a marked difference in the amount of rainfall received by the areas south of the Fraser River and the study area (Stager & Wallis, 1968: 93-96).

The final period, 1981 to 1990, marks a major movement to develop the lands of the North East Sector for housing. This development has increased the levels of traffic congestion within the area. It has also contributed to traffic congestion within the neighbouring

municipalities that face the brunt of the commuter traffic originating within the study area and destined for Vancouver or the industrial parks or commercially zoned lands in the south of the Fraser River municipalities.

4.4 THE REGIONAL CONTEXT.

Regional Situation 1951 to 1980.

Introduction.

This period saw a massive population increase in the Greater Vancouver Region due partly to a natural increase (called the baby boom), and partly to a large in-migration of people from other parts of Canada and from other countries. In 1951 the population of the City of Vancouver stood at 344,833; this rose to 384,522 in 1961, 426,256 in 1971, and declined slightly to 413,952 in 1981 (Statistics Canada, 1971; Statistics Canada, 1981). The decline was due partly to the fact people preferred to move to the suburbs where housing was less expensive. It also reflected the desire of the existing population to preserve their neighbourhoods by ensuring older single family dwellings were not demolished to make way for higher density apartments. During this period, the population of the suburbs rose dramatically. Burnaby's population rose from 58,376 in 1951 to 136,494 in 1981 (Statistics Canada, 1971; Statistics Canada, 1981). Richmond, a suburb to the south of Vancouver, in 1951 contained a population of 19,186 which rose to 96,154 in 1981. Surrey showed an even greater increase, beginning with 33,670 in 1951 and reaching 147,138 in 1981. The vast majority of the growth occurred in the outlying municipalities.

In addition, many people from other parts of Canada sought to escape harsher climates (Stager & Wallis, 1968: 89) and declining economic circumstances by relocating within the region. The dependence of the local economy on the processing of raw materials for export lessened, and more specialized manufacturing and a larger service sector developed.

During the mid 1950's, urban sprawl in the lower mainland was identified as a major problem by planners and decision makers (Lower Mainland Regional Planning Board, 1956a;

Lower Mainland Regional Planning Board, 1956b). One of the main concerns was the inefficient use of the land and the costs of supplying services to widely dispersed residences. An additional concern had to do with the loss of productive agricultural lands. The planners of the time suggested controls to ensure land was developed in a compact and orderly manner so existing service and transportation problems would not be exacerbated.

The needs of the expanding population served to spur the residential construction industry to develop land for housing. A new-found affluence after the Second World War, created by a strong economy allowed people to purchase private automobiles (British Columbia Ministry of Highways, 1986: 11). The increased availability of the private automobile enabled the development of more distant suburbs. An example of the link between automobiles and residential development of suburbs is the information provided through screenline surveys. To the north of Vancouver, Burrard Inlet served as the screenline between the City and the North Shore communities, and to the south of Vancouver the North Arm of the Fraser River served as the screenline between the City and Richmond. Data from surveys completed in 1947 (4:30 to 6:30 pm) and 1955 (4:00 to 6:00 pm) indicate a dramatic increase in traffic volumes, with the traffic to and from the North Shore growing from 2,340 to 8,008 during the afternoon peak period, in the eight year period (Technical Committee for Metropolitan Highway Planning, 1955-56: 8). The number of automobiles entering and leaving the City from Richmond during this period rose from 1,881 to 5,469 (Technical Committee for metropolitan Highway Planning, 1955-56: 8).

Despite the rapid increase of development in the suburbs, Vancouver and Burnaby still possessed an abundance of developable land until about 1960 (Hardwick, 1974: 127). As the available supply of land decreased, higher prices forced developers to seek less expensive lands further out. The farm lands south of the Fraser then came under pressure. Those areas within the study area close to the existing transportation routes into Vancouver and New Westminster were beginning to become attractive to housing developers.

At the same time people began to move to the suburbs in response to the increased employment opportunities as industry began to move out of the centre of the city, to escape problems of accessibility and other increased costs. As the value of the land and thus the levels of rent increased, many companies found it was advantageous to locate on the fringe of the urban area, where large parcels of inexpensive land were available and materials could be transported more easily and less expensively utilizing the newly constructed multi-lane roads. Many of the employees of these industries, seeking affordable residences, had already moved to the suburbs, and in some cases this movement of companies to the suburbs, enabled employees to reduce commuting time.

In the period, 1951 to 1980, many major land use changes occurred. The movement of industry and warehousing to the suburbs marked one change, but a more important change involved the construction of large amounts of office space in the downtown core. In 1957, there were 5.7 million square feet of office space in the downtown core. By 1973, this figure had risen to 11.2 million square feet (Hardwick, 1974: 61). Between 1965 and 1975, the amount of office space in the downtown core almost doubled, and about 75,000 people were employed in the office space (Collier, 1978: 159).

The importance of this land use is the requirement of large numbers of employees, on an average about 7,000, for every 1 million square feet of office space (Taylor, 1990).

Role of the Central Business District of Vancouver.

Prior to 1951, most of the major retail outlets in the region had clustered in the central business area of Vancouver. In the past, the radial nature of the streetcar lines had reinforced this pattern of consumers shopping in the downtown area. However, 1950 marked the advent of the first of the modern automobile-oriented shopping mall, at Park Royal, in West Vancouver. This foreshadowed, an evolution of shopping activities which would see a decline of region-wide shopping downtown, and an increasing number of shopping malls in the suburbs. Unlike the downtown shopping areas, the new shopping malls were designed to

accommodate the automobile by supplying large expanses of parking. The motivation for this was the large increase in automobile ownership. In 1925 there were 46,336 passenger cars registered in British Columbia. By 1945 the number stood at 99,421 and this figure rose to 341,650 in 1956 (Williamson, 1958: 269). In 1964, the number of vehicles registered in the Province stood at 571,807 of which 290,941 were registered in the Greater Vancouver Region (Province of British Columbia, 1965: L9). In 1972 there were 906,268 passenger vehicles registered in the Province of which 467,148 were registered in the Greater Vancouver Area (Province of British Columbia, 1973a: K7, K10).

A study of the Motor-Vehicle registration statistics for the Province of British Columbia (see Appendix No. 1), illustrates the change in the origins of registration, with the greater numbers shifting from the City of Vancouver to the suburbs over the period 1951-1985.

The role of the C.B.D. has changed over the past few decades. The C.B.D. still remains the major employment location in the region, however, since the early 1970's job growth has increasingly been dispersed throughout the region (GVRD, 1989b: 6). There has begun a shift of the type of employment in the C.B.D. to increased service and administration, while manufacturing has moved to the suburbs. This shift has resulted in a division of labour, with the white collar workers left to continue in the C.B.D. and the blue collar workers commuting to jobs in the areas away from the central part of Vancouver. This state of affairs does not mean that the importance of the C.B.D. to the economic well-being of the region is diminished, but that the suburbs are becoming more important in the economic growth of the region.

Population Increase.

The massive increase in the region's population resulted in pressure upon the available housing stock. Many people sought to locate in the suburbs, where the land was less expensive, and since there were few services provided, the taxes were lower. Many of the

residential locations in the suburbs were on city-sized lots scattered amongst larger holdings or lots that had not been built upon and were left covered with weeds or scrub trees. The scattering of city-sized lots in a rural or suburban setting has been referred to as urban Sprawl. Three forms of Sprawl have been identified. They are low-density continuous development, ribbon development, and leapfrog development (Bahl & McGuire, 1977: 248).

The Federal Veteran's Land Act (Statutes of Canada 1942-43, Chapter 33) encouraged sprawl, because it would provide assistance only if the parcel of land was over 1.6 acres (Lower Mainland Regional Planning Board, 1956b: 10). This legislation resulted in a number of veterans moving to the suburbs and seeking parcels that would fulfill the Act's requirements. The Union of British Columbia Municipalities in the late 1950's, expressed the concern of some of the member municipalities over the impact the minimum size of the holding required had upon the supply of lots of this size, and the associated costs of servicing these large sized lots (Union of British Columbia Municipalities, 1959: 43). The Municipal Union passed a resolution at its 1959 annual convention suggesting "that the U.B.C.M. petition the Federal Government to reduce the size of lots required to the equivalent of the National Housing Act" (Union of British Columbia Municipalities, 1959: 44). The impact of the existing requirement was to begin or increase the extent of suburbanization in those municipalities surrounding the established urban centres.'

At the end of the Second World War, the major concentration of commercial and industry was still the downtown core of Vancouver. There were some minor concentrations of industry, mainly sawmilling and fishing (canning and ship building) along the Fraser River. However, most of those veterans who took advantage of the financial assistance available under the Veteran's Land Act had to commute from the urban fringe, from Surrey and Richmond, to jobs in the urban core. An example of the impact of the Act can be seen from the fact that "homes established by the V.L.A. in Surrey between 1949 and 1954 represent about 42% of the lots occupied in this size range." (Lower Mainland Regional Planning Board, 1956b: 10).

The massive influxes of population coupled with the availability of automobiles, encouraged people to settle in the suburbs. Since public transit was not available in most of the suburbs and there was not the density of population to support transit service, an automobile became a necessity. The increased numbers of automobile commuters entering the City each day soon resulted in traffic congestion along the main routes. The roads and bridges existing in 1951 became inadequate to handle the increased traffic. There was a call by the public for improved roads, and bridges. In the late 1950's a major Highway Study was undertaken. At that time, the automobile was widely seen as the key to the future of transportation. Its flexibility coupled with the fact that it was essential for suburban living, dictated that the old narrow roads and bridges needed to be upgraded. "In the 1950's and 1960's a large program was embarked upon to upgrade alignment and pave the rural trunk road system." (British Columbia Ministry of Highways, 1986: 11).

Roadways in the Region.

The increasing population and subsequent increase in automobile ownership resulted in congestion upon the existing and inadequate road system. Due to a lack of funds during the 1930's (depression years) and the scarcity of materials during the Second World War (1939-1945), maintenance and improvements to the existing transportation infrastructure were delayed. In the late 1940's and early 1950's many gravel roads and old, narrow-lane wooden bridges that had long outlived their usefulness were being used to accommodate steadily increasing traffic. As the situation worsened, it was decided the existing roads would have to be improved and new routes constructed to provide better access around the region and to the central business district.

In the early 1950's the Provincial and Municipal Governments began to assess the transportation needs of the region. A Metropolitan Highways Committee was set up in 1953, and between 1956 and 1959, it commissioned a number of transportation studies. The studies recognized the importance of the relationship between land use and the future transportation

needs of the region. The Provincial Ministry of Highways (now Ministry of Transportation and Highways), embarked on a number of major studies enabling it to allocate its limited resources to those projects providing the greatest benefit. Major bridge projects were planned, and later constructed during the late 1950's and 1960's.

The whole of the Province was in need of improved roads and bridges. The Provincial Government recognized the economic and political desirability of creating a province-wide network of modern roads and bridges to encourage the development of the resources of the Province. "Infrastructure creation provided the motif of the 1950's, making possible the big development projects, especially in hydro-electric power, that marked the 1960's." (Barman, 1991: 281). There was a pressing need for high capacity express or freeways into the city, but the Provincial Government decided to spread the financial resources around the Province instead of concentrating it in the Lower Mainland (Adam, 1970: 6).

During the early years of 1952-55, highways consumed almost a third of the total provincial budget (Pendakur, 1972: 54)

During the first 6 years of Bennett's tenure more money was spent building highways than in the entire history of the province. (Barman, 1991: 281)

W.A.C. Bennett was Premier of British Columbia for the period from 1952 to 1972. It should be noted, however, the political party (at that period, a coalition of provincial Liberals and Conservatives) holding power prior to 1952, also spent a large portion of its budget on roads. Byron Johnson, premier of British Columbia from 1947 to 1952, allocated one-third of the 1949 provincial budget to road building (Barman, 1991: 272).

The local projects completed in the late 1950's were the Oak Street Bridge in 1957, to replace the old two lane swing bridge at Marpole and allow the increasing population of Richmond commute to Vancouver more easily; a new Granville Street Bridge (1954) across False Creek to allow the increased traffic using the Oak Street Bridge easier access to the downtown core of Vancouver; a new Pitt River Bridge (1957) which, like the Oak Street Bridge, replaced an old wooden bridge; and a new Second Narrows Bridge (1959), which, like

the others, replaced an old low-level railway bridge which had allowed only alternating one-way traffic across the narrows. Within the City of Vancouver many of the major roads were widened to accommodate increased traffic volumes. There were also a number of local road projects allowing increased traffic on the major routes into Vancouver. The Barnet Highway, the Lougheed Highway, Kingsway, and the King George Highway were all improved. In the 1960's, the Deas Island Tunnel (Completed in 1962, now called the Massey Tunnel) linked Delta to Vancouver and extended to the United States Border at Blaine, Washington. The Port Mann Bridge and the 401 Freeway (1964) served as an alternative route for traffic travelling from Surrey or further up the Fraser Valley, to reach Vancouver; the old Georgia Viaduct was replaced in 1972 by a new structure designed to be a component of a city-wide freeway system (Pendakur, 1972: 95). In 1974 the Knight Street Bridge was completed to replace the old wooden Fraser Street Bridge linking the central area of Richmond to Vancouver (British Columbia Ministry of Highways, 1986: 45). In 1979 a new Pitt River Bridge was constructed parallel to the old one in order to reduce the traffic congestion resulting from the increase in population in Pitt Meadows, Maple Ridge, and Mission.

During this period the highway and road network in the lower mainland was being extended and improved. The completed projects included the Upper Levels Highway in North Vancouver, the 401 Freeway, the 499 freeway to the United States Border, Marine Drive in Vancouver and Burnaby, the Lougheed Highway through Burnaby, Coquitlam, and east to Maple Ridge (this included a new parallel bridge over the Coquitlam River). The Mary Hill Bypass which was suggested in the report of the Technical Committee for Metropolitan Transportation Planning, was constructed to relieve some of the congestion along the section of the Lougheed Highway passing through Port Coquitlam. This Bypass allowed the ever-increasing traffic from the communities east of the Pitt River to commute to Vancouver while helping reduce the congestion along the study area's roadways.

Another attempt to improve access and traffic flow into the study area was a major reconstruction of the freeway interchange with the Lougheed Highway and Mary Hill Bypass

at the western end of the Port Mann Bridge (Cape Horn Interchange). This removed a bottleneck for traffic attempting to access or leave the Freeway from the Lougheed Highway.

The Great Freeway Debate in Vancouver.

Unlike many of the major North American Cities, Vancouver does not at present (1990) possess freeways or expressways radiating out of the central core to the suburbs. In Canada, Toronto and Montreal, planned and later acquired these modern transportation features in the late 1950's and early 1960's. In the United States, limited access roadways or freeways were first begun in the 1920's in New York State, and in the 1930's in Los Angeles and other major urban areas. These were planned and built in reaction to the lack of adequate roads existing in the nation at that time. They were seen as a means of allowing easy access of automobiles into the compact cores of cities.

The so-called great debate over Freeways in Vancouver was a lengthy process taking place between 1952 to 1972, and it would take too long to relate all the events. However, the outcome of the debate has had far-reaching implications for the present attempts to resolve transportation congestion. The chronological listing of events and the importance of each has been adequately covered and discussed in a number of articles and publications. There is little need to repeat all the detail as a full account can be found in Cities, Citizens and Freeways by Dr. V. Setty Pendakur, published in 1972.

A brief summary of the events might, however, be in order to emphasize the importance of the outcome to the transportation planning process which has since that time, tried to find workable solutions to the ongoing and ever-worsening traffic congestion problems facing the Greater Vancouver Region.

In the 1950's the planners and those in political power saw the need to improve the transportation infrastructure between the City of Vancouver and the surrounding suburbs. At that time it was believed the automobile would solve most personal transportation needs, and to ensure Vancouver would remain the focal point of the region, a system of limited multi-lane

freeways or expressways was required. At that time, the enormous costs involved meant the senior levels of government would have to be brought into the process.

In 1964, the 401 Freeway was completed, bringing traffic up to the eastern boundary of the City. Those in power wished to extend the freeway into the heart of the City and connect it to another crossing of Burrard Inlet. The First narrows Bridge (The Lions Gate Bridge) was too narrow to accommodate the increased traffic load caused by the rapid development of North Shore communities. There was a great deal of debate over the need for or the location of a third Crossing of Burrard Inlet. In late 1972, the Simon Fraser University Geography Student Union produced a publication entitled Vancouver's Transportation Future containing a number of articles by people or organizations having an opinion on the subject (Geography Student Union, 1972).

The suggestion of an east-west freeway across the residential neighbourhoods of the City brought large numbers of alarmed citizens to public meetings to inform their politicians that they did not wish the city and their neighbourhoods bulldozed and carved up by freeways. The last attempt to construct a cross-city freeway was the building of the new Georgia Viaduct, which was designed to be a component of the east-west freeway. Many of those politicians involved in the discussions and the process were defeated in the subsequent elections, and the citizens of Vancouver made it clear they did not wish freeways within the city of Vancouver.

There had been attempts at various times to plan for a waterfront freeway, but the National Harbours Board and local citizens opposed this proposal. The importance of the so called Great Freeway Debate was the clear message it sent to local and provincial politicians; that under no circumstances were the citizens prepared to accept freeways within the City of Vancouver. The result of this was although major multi-lane roadways could be constructed in the suburbs in order to provide easy access for motorists commuting to employment in Vancouver, there could be no continuation of these roadways within the City of Vancouver. Thus some other means of resolving the commuter traffic congestion would have to be found.

Transit in the Region.

In 1951, the regions' public transportation system was owned by the private British Columbia Electric Railway Company. This Company had negotiated a number of agreements with the local municipalities giving it a monopoly over public transit. From the company's inception in 1897, it had extended its streetcar and interurban lines throughout the lower mainland. It had the distinction of operating the longest streetcar/tram lines in Canada. The company's original purpose was transportation, and in the early days, it sold its excess electric power to local customers. However, after 1917, the Company Directors came to realize most of their revenue would be obtained from the generation and sale of electric power. Due to labour troubles in 1917 and 1918, and the request of the B.C. Electric Company for assistance from the Provincial Government to eliminate competition with its transit operations, there were strong public pressures for a public inquiry. The B.C. Electric Company wished to limit the inquiry to its transit operations only "because almost all of the company's profits had been earned by the lighting division, the B.C. Electric Railway did not want any outside agency to investigate lighting rates." (Roy, 1965: 197-198). In 1928 the B.C.E.R. Co. was sold to the Canada Power Corporation. The new owners saw the transportation component of the company as a liability, but since it at least paid its own way, and provided a small dividend, they would continue to operate it. In the First Annual Report of the British Columbia Power Corporation, the successor to the old B.C. Electric Railway Company, it was noted that "notwithstanding the growth in population, the revenue from railway passenger operations, due to the ever-increasing number of private automobiles, shows only a slight increase over last year." (B.C. Power Corporation, 1929: Operations: Railway systems).

During the War years, from 1939 to 1945, when fuel was rationed and automobile parts were scarce, many commuters were forced to make use of transit. After the War, the public transit lines continued to enjoy high public use until the early 1950's when more automobiles were available and many new residents sought homes in the suburbs. Due to the

age of the transit fleet, and the lack of maintenance during the depression and War years, the B.C.E.R. embarked upon a modernization program. The old streetcars were replaced by modern trolley and motor buses.

The old, established residential areas of Vancouver and part of Burnaby and New Westminster were fairly well serviced, but the new suburbs were not. The Company did operate an interurban bus service to the main centres in the lower mainland; however, the limited service offered was not convenient for the suburban residents who wished to travel to work.

In 1961, the Provincial Government, expropriated The British Columbia Electric Company (B.C. Power Corporation, 1961: 3), and created the British Columbia Hydro and Power Authority. The new Company, like the old, was more interested in the generation of electric power than in transit, and did little to improve service, though due to political considerations, it did replace some of the obsolete equipment. In the 1960's the Provincial Government's vision of transportation was focused upon automobiles and freeways. The future was viewed as one of prosperity where all residents would be able to purchase automobiles and travel about at their own convenience. However, as the population steadily increased and traffic congestion became more evident, planners began to realize public transit would be a better and less expensive solution to the problem. In 1973 the provincial government created the Bureau of Transit Services within the ministry of municipal affairs (Kelly and Francis, 1990: 94). Its responsibilities were "initially to deal with the Greater Vancouver Regional District and the Capital Regional District in an effect to beef up and add to the present public transit systems" (Province of British Columbia, 1973b: 1666) through the direction of the funding and planning of transit (Kelly and Francis, 1990: 94). B.C. Hydro continued to operate the money-losing transit function. Later the Urban Metro Transit Commission was created to assist in the planning and operation of Transit in the region. Finally, in 1978, the Urban Transit Authority was created to take control of transit in the

Province and assumed the responsibilities formerly held by the Bureau of Transit Services (Kelly and Francis, 1990: 94)

In 1980, the responsibility for the operation of transit was removed from B.C. Hydro and given to the Metro Transit Operating Company (MTOC). MTOC continued in existence until June 1, 1985 when the provincial government expanded the role of B.C. Transit (created in 1982) to cover transit province wide, and MTOC was merged with this expanded B.C. Transit (Ewert, 1986: 299; Kelly & Francis, 1990: 96).

In 1982, the local municipalities were given a role to play in the planning and funding of transit through the creation of the Greater Vancouver Regional District Transit Department also referred to as the Greater Vancouver Transit Department (Greater Vancouver Transit System, 1982a: 1). This delegation of responsibilities, however, did not achieve the desired effect of streamlining transit operations. There were overlapping jurisdictions, and the ultimate decision-making lay with the provincial government and not with the local authorities. The outcome of this friction between the components was the provincial government retained control of the operating and capital spending functions, while assigning the GVRD part of the responsibility for the funding of local transit. In February, 1983, the provincial government through an order-in-council removed the transit planning function from the GVRD (Gutstein, 1986: 77).

In July, 1982, the Urban Transit Authority underwent a name change and became British Columbia Transit, under a Provincial Minister (Province of British Columbia, 1982a: 8656). Since 1982, the transit functions have been under the control of B.C. Transit, which is a responsibility of the Ministry of Municipal Affairs.

Numerous reports had been commissioned during the 1970's outlining a number of strategies that could reduce traffic congestion through the encouragement of transit. New routes and the introduction of new technologies were suggested. In the early 1980's Light Rapid transit was chosen to provide a fast means of moving large volumes of passengers along high traffic routes. As a result, construction of SkyTrain (Automated Light Rapid

Transit or ALRT) began in 1982, and became operational in 1986, connecting Vancouver and New Westminster (Kelly and Francis, 1990: 131). An extension to south of the Fraser River communities was started in 1986 and became operational in 1990 to Scott Road Station. A further extension is presently under construction, and when completed in 1993 will extend ALRT service to Whalley.

Since the 1970's the cost of providing road capacity for the increasing numbers of automobiles flooding the routes and bridges into the C.B.D. has become prohibitive, and the more efficient utilization of transit has been seen as one possible method of reducing the problem. Attention has been directed towards those forms of public transit that can operate on exclusive roadways or guideways so automobile traffic does not interfere with them.

4.5 ALTERNATIVE SOLUTIONS TO RESOLVE TRAFFIC CONGESTION.

There have been a number of alternative solutions proposed by individuals and organizations studying the urban transportation problem. These solutions have included traffic management, ridesharing, private commuter buses, bicycling, staggered work-hours, and teleworking.

Traffic Management.

One approach to resolving traffic congestion would be to make more efficient use of the existing transportation infrastructure. This could be accomplished through a number of methods which could include the use of reversible or counter-flow lanes during congested periods, designating lanes for bus and high occupancy vehicle use, co-ordinating traffic signal lights to ensure a smooth flow of traffic, and control the amount of traffic allowed into congested areas.

The first method involves the use of reverse or counter-flow traffic lanes. The program of reversible or counter-flow lanes involves making use of the excess capacity of adjacent lanes which would normally be used by traffic moving in the opposite direction. For example, if morning traffic on a four lane highway was congested on the two lanes coming

into the Central Business District, while the outgoing traffic was lighter, one of the outgoing lanes could be used to accommodate incoming traffic in the morning. In the evening, when the outgoing traffic is heavier, then one of the incoming lanes could be reversed. At the end of the peak use periods, the lanes could be reassigned to their normal traffic directions. There are two cases at present where reversible lanes are used in the Lower Mainland. In the first case, the Lions Gate Bridge makes use of a reversible lane. This state of affairs is resorted to since the Bridge was constructed with only three lanes. The second case involves the George Massey Tunnel (Deas Island Tunnel) (Province of British Columbia, 1987b: 35). In this situation there are four lanes, one of which is reversed to accommodate the direction of traffic that is congested. This program has been in place since 1986.

The second method would involve the use of dedicated or high occupancy vehicle lanes. The use of designated lanes for buses and high occupancy vehicles (HOV) is a program that has been suggested to increase the passenger capacity of some of the major routes in the Lower Mainland. The Hastings/Barnet People Moving Project has suggested this program be instituted to alleviate the present traffic congestion the Hastings/Barnet route has been experiencing. The Barnet Highway is to be widened and the additional lanes are to be used for buses and HOVs. This would allow more people to be moved without dramatically increasing the numbers of vehicles that have to be accommodated. At present the vehicle occupancy rate for the G.V.R.D. is 1.3 per vehicle (Seelig & Artibise, 1991: 64). If the vehicle occupancy rate can be increased through the inducement of the use of a traffic lane with freer flow, or if people could be induced to take transit because it could use the dedicated lane and provide a faster service than the automobile, more people could be moved and better use could be made of the roadway. In the case of Transit, "Every 50 people diverted to transit mean 38 fewer automobiles on the road." (Seelig & Artibise, 1991: 64).

The third method would involve co-ordinating traffic signals. The program for co-ordinating traffic signals would allow for traffic flow to be uninterrupted along major commuter routes during peak periods. It could also allow for more time for the traffic on the

congested roadway to pass through a controlled intersection in respect to the crossing roadway.

The fourth method would involve the control of vehicles entering areas during congested periods. This could be accomplished through number of methods such as collecting tolls either through a toll-gate or by electronic sensors, and reducing the available parking spaces on the street and in parking lots. The first program of limiting the number of vehicles entering congested areas has been initiated in Singapore (Pendakur, 1986: 42). In Hong Kong there was a plan to institute a program of user pays, with the introduction of electronic road pricing (Catling & Roth, 1987: 51-55). Both these programs were discussed in Chapter 2, the Literature Review Section 9, "Solutions Proposed: Administrative Sector."

And finally the last means of limiting traffic in congested areas of a city would be to limit the available parking spaces and/or increase the cost of parking. In limiting parking spaces, zoning requirements for the number of parking spaces could be lowered for new building construction. Parking on public streets could also be reduced or eliminated within congested areas. When the demand for parking exceeds the supply, the costs will rise.

These four methods of traffic management would serve to slow the necessity of expanding the available transportation capacity. Their greatest impact would be felt if they were used in conjunction with other methods to control traffic congestion.

Ridesharing.

The first suggestion was ridesharing or carpooling. Studies have shown the rate of vehicle occupancy has dropped over the last thirty-five years. In 1956 the vehicle occupancy rate was 1.56 people per vehicle (TCMHP, 1958-59b), with the rate dropping to around 1.3 persons per vehicle in 1991 (Seelig & Artibise, 1991: 64). An obvious suggestion would be to encourage an increase in the vehicle occupancy rate.

The first attempt in Canada by government to initiate a program to encourage ridesharing occurred in Vancouver in September 1976. At this time "the federal government gave the City of Vancouver \$500,000 to launch the country's first computerized car pool"

(Clarke, 1977: 8). The funding was to allow the program to function for two years and it was anticipated 5,000 car pools moving 20,000 people would be created. A reduction of at least ten per cent in the number of automobiles was anticipated from the program.

The method used to begin the program was to initiate a pilot program through seeking the assistance of five of the firms employing the largest number of people within the City of Vancouver. These firms were, B.C. Telephone, McMillan Bloedel, The Hudson Bay Company, B.C Hydro, and Continental Insurance Company (The Columbian, November 5, 1976: 2). These five companies employed over 8,000 (The Columbian, July 29, 1976: 2). In September 1976, when the main program was begun, the methods used included advertising the carpool project on radio, and in the local newspapers.

Unfortunately, after 6 months the program was seen as being a failure, as "only 2,000 have submitted their names and only slightly more than 200 have joined carpools." (Clarke, 1977: 8).

A study was commissioned in 1977 to assess the information gained from the program (City of Vancouver, Engineering Department, 1977). In total 59,000 application forms were distributed, but only 8,400 were returned, and of these only 2,485 were from people actually interested in forming carpools (City of Vancouver, Engineering Department, 1977: 83-84). Of those who expressed an interest in forming carpools, "70 per cent of Commuter Club applicants made no effort to contact anyone on their matchlist. This provides an excellent indication of the lack of interest in or commitment to the carpooling concept even among the small percentage of persons that applied to Commuter Club for matching assistance." (City of Vancouver, Engineering Department, 1977: 90).

The result of the exercise was "as of June 1977, a total of 52 pools with 173 poolers were registered with Commuter Club's parking discount program. 21 of these poolers (or 12%) had also been applicants for computer matching" (City of Vancouver, Engineering Department, 1977: 92).

This project, now known as the Commuter Club, is still in operation. There are still a number of signs posted on the main routes out of the city, which provide a telephone number for those interested in carpooling. The telephone number, 872-POOL or 872-7665, connects the interested part with the Vancouver Traffic and Engineering Department. The Department has a person in charge of providing information on carpooling and serving as a liaison to introduce interested parties wishing to form a carpool. Approximately 5 to 10 calls are still received each month from people interested in joining a carpool.

To successfully form a carpool there are four factors necessary. These are, those individuals involved, 1) have to leave from the same place, 2) leave at the same time, 3) arrive at the same place, and 4) arrive at the same time. The lesson learned from Vancouver's attempt at organizing carpools has been, governments cannot successfully create them. The government can, however, provide inducements which encourage the creation of carpools. The major inducements involve, controlling the price of parking, and controlling available parking spaces in the central core of the city (keeping supply below demand), and offering a reduced parking rate for carpoolers. The City of Vancouver, can influence the availability of parking spaces and pricing through the ownership of a number of parking lots within the downtown area.

In the last few years, several large companies have embarked upon programs to reduce the need to provide or increase the number of parking spaces at their business locations. The most successful of these to date has been the B.C. Telephone Company. "More than a third of the 3,500 employees at the company's headquarters in Burnaby share rides." (Wilson, 1991a: B-17). The need for the company and the employees to organize carpools originated from the decision by the company to limit parking when it constructed its headquarters building in Burnaby. The idea at the time was employees would make use of transit. However, most employees found it more convenient to use their automobile and seek parking on the residential streets surrounding the office complex. Complaints from local

residents and pressure from Burnaby Council persuaded B.C. Telephone to embark upon programs to reduce the usage of private automobiles by employees.

Another example of a company encouraging carpooling to avoid the costs of having to provide additional parking spaces is Canadian Airlines International, whose operations are located at the Vancouver International Airport, on Sea Island. The company has 3,500 employees and 2,686 parking spaces (Wilson, 1991b: B-16). Instead of providing additional parking, the company decided to try to reduce parking demand through carpooling and the introduction of a van pooling program. Van pooling has been encouraged through the company arranging to lease vans for groups of employees who have the operating expenses deducted from their paycheques. One of the inducements to belong to a car or van pool is preferred parking. The company's carpooling co-ordinator noted "The most difficult aspect of setting up a pooling program is the marketing . . . It's hard to get people to change their habits." (Wilson, 1991b: B-16).

Between 1976 and 1990, there were periodic suggestions by interested organizations and individuals that the local governments, the regional districts and the provincial government should actively promote ridesharing. Lip service was given to the benefits possible from carpooling, but little action by government was initiated until late 1990. In late 1990, in response to public concern over the transportation problem, the provincial government proposed the addition of special traffic lanes on highways reserved for transit and vehicles carrying three or more people. The provincial government through B.C. Transit began a program to promote transit use or carpooling. The program was titled "Go Green" (District of Burnaby, Transportation Committee, 1991: Appendix A, 37). The Go Green program was created through the co-operation of B.C. Transit, the B.C. Ministry of Transportation and Highways, Environment Canada (Federal Government agency), and the Greater Vancouver Regional District. It was to provide information to companies or individuals about the benefits of transit use or carpooling.

The Go Green program initiated the "Transit Options Program" (TOP) to encourage companies to promote transit through the subsidization of monthly transit passes or B.C. Transit FareSaver tickets (District of Burnaby, Transportation Committee, 1991: 2). The program is still in the preliminary stages and the final outcome is unknown.

Private Commuter Buses.

As an alternative to carpooling, some commuters have opted to group together, and charter a bus. Chartering a bus has financial benefits if enough people can be brought together to share the expense. "According to the 1986 family Expenditure Survey conducted by Statistics Canada, Canadians spend on the average \$6,100 a year, about \$500 per month, for their vehicles." (District of Burnaby, Transportation Committee, 1991: Appendix A, 33).

An example of this commuting option would be Cascade Charter Service of Chilliwack, B.C., which "operates several daily commuter buses . . . from Chilliwack to Vancouver" (Farrow, 1990: B-1) a distance of seventy miles one-way. The cost of a trip is \$7.45 which is less than the cost of operating an automobile over the same route. The automobile operating costs include not only the price of fuel, but price of insurance, maintenance, depreciation, and parking charges if any.

Some companies operate shuttle bus service between work centres. An example of this would be the B.C. Telephone Company's Shuttle Bus service. This service was initiated to reduce the number of automobiles the company would have to provide its employees to commute between its numerous outlets (Dist of Burnaby, Manager's Report, 1990). The company, in early 1990, began to run the Shuttle Bus service to the nearest SkyTrain Stations, to encourage employees to commute by transit.

Public Institution Initiated Carpooling.

Some public institutions, which employ large numbers of people, have sought to reduce their parking requirements through encouraging carpooling amongst staff. One example would be the District of Burnaby which has begun a program to give preferential treatment to those carpooling. "A total of 15 parking spaces closest to the entrance of municipal hall will be

designated for 'car pools only' " (Burnaby Now, February 24, 1991: 3). Another example would be the University of British Columbia Ridesharing Program. The program is designed to match drivers and riders. The program was initiated in an attempt to reduce the number of vehicles entering the campus. "UBC has over 32,00 daily users. The majority drive alone." (AMS Student Environment Centre, 1991). The AMS (Alma Mater Society) is working with UBC Parking to establish rideshare reserved parking in B-lots (AMS Student Environment Centre, 1991).

The actions initiated by Simon Fraser University in the fall of 1991, are a further example of an attempt to promote carpooling. The University introduced a computerized carpooling system entitled Rideshare, developed by the B.C. Government and North Vancouver's STW Communications (Edwards, 1991: 16). A severe shortage of parking space was one of the primary reasons the University considered introducing this system. One of the inducements offered to drivers to consider entering the program has been a planned carpool only parking area (Edwards, 1991: 16). The computerized Rideshare program has also been of interest to B.C. Transit, and is to be utilized as part of the GO Green campaign. B.C. Transit intends to introduce the carpooling program at its Scott Road SkyTrain Station, through setting aside a rideshare parking area (Edwards, 1991: 16).

Commuting By Bicycle.

Another commuting option is the use of bicycles. In the past some individuals have found this mode of transportation to be most convenient though the practical commuting range of a bicycle, would limit its effectiveness. There are safety concerns with the use of bicycles, especially when bicycles have to share the road with automobiles. Despite the safety concerns, "in Vancouver over 47,000 trips each weekday are made by bicycles. 85% of these are for non-recreational purposes, i.e., commuting." (Seelig & Artibise, 1991: 65).

Until recently municipalities did not pay much attention to bicycles as a viable mode of commuting. The City of Vancouver has established a Bicycle Advisory Committee to serve as liaison between cycling organizations, and the Engineering Department. In 1988, the

Vancouver Comprehensive Bicycle Plan was approved by City Council (City of Vancouver Engineering Department, 1991: 3). The purpose of the plan was to make the city bicycle friendly.

The University of British Columbia Alma Mater Society has also begun a program of encouraging commuting by bicycles. "The AMS Society has joined with the City of Vancouver in working to make bicycling commuting a practical reality." (AMS Student Environment Centre, 1991).

Staggered Work-Hours.

The present road system in the Lower Mainland is at capacity only during the two daily peak periods, when commuters arrive and depart from their places of employment. It has been suggested that staggering the work hours would eliminate part of the traffic load during the peak period and thus reduce the level of traffic congestion. Most businesses have found this suggestion impractical due to the need to operate at the same hours as their customers. Public organizations such as some municipal governments have instituted staggered work-hours as an example of the viability of the scheme. An example would be the City of Vancouver initiating a four day week for its city hall employees. This program was initiated in 1976 at the same time its ridesharing program was introduced (Clarke, 1977: 8).

Telework.

Teleworking or telecommuting is a fairly recent phenomenon. "Teleworking is part of a movement in the workplace that has seen an increase in telecommuting, or working out of the home and communicating with the office electronically" (Mishima, 1991: D-2). It can also be defined as making use of modern communication methods to work without having to commute to a central office. The British Columbia Telephone Company has launched a pilot program to assess the effectiveness of telecommuting as an alternative to employees having to commute long distances to a central office. Instead, the employees will commute to a satellite office in the suburbs. One of the benefits to the employees is "they have an awful lot

less stress and are more productive" (Mishima, 1991: D-2). This is a result of some of these employees not having to face long commutes on crowded roadways.

The pilot program, begun in October, 1991, has fifteen employees working in a satellite office in Langley, a Vancouver suburb. The employees communicate "with supervisors and colleagues in their former offices in Vancouver, Burnaby and New Westminster by computer, telephone, fax and voice mail." (Mishima, 1991: D-2).

B.C. Telephone has enlisted the assistance of Bentall Development Inc., in locating suitable suburban office space to lease. The Bentall Company through subsidiaries constructs, and sells or leases commercial buildings and has taken a great interest in the project. "If it is deemed a success, Bentall Development . . . will consider setting up satellites that could be used by a cluster of companies" (Gibb-Clark, 1991: B-4).

There has also been an increasing numbers of people who due to the nature of their employment, are able to work out of their homes. Like those who commute to a satellite office in the suburbs, some of these people are able to make use of the technical advances made in telecommunications to avoid commuting to a central office. The Home Business Network, a Toronto based organization with 1,200 members, "estimates that more than a million people in Canada work out of their homes." (Kines, 1989: B-5), and market studies have indicated "by the year 2000, four out of ten Canadians will be working out of the home." (Kines, 1989: B-5).

These alternatives to commuting by automobile or make better use of the existing transportation infrastructure are means which could have an impact upon traffic congestion. Some are more readily acceptable to the commuting public while others have limited applicability. These options have been discussed in the past, but only recently have they actually been seriously considered.

4.6 THE REGIONAL SITUATION, 1981 TO 1990.

The last decade has seen major development in all the Greater Vancouver Region suburbs. There has been accelerated immigration of people from other parts of Canada and from abroad. The economy while registering little or no growth in the first few years of the decade, rallied and served to attract large numbers of people to the Lower Mainland.

There have been attempts within the older residential areas of Vancouver to allow increased density. This would entail the rezoning of single family residential areas to allow for multi family units. In many parts of the City, residents have sought to preserve their neighbourhoods from the changes this would bring about. There have been discussions as to what impacts this might have on the future prospects for the City to continue to grow and provide accommodation for people who might wish to reside there (Sarti, 1990: B-3).

With the inner residential areas unable to accommodate large numbers of additional residents, pressure has been exerted upon suitable under-utilized commercial and industrial lands within the City. As more industry is forced by high land values and increasing taxes to relocate to the suburbs, the C.B.D. has become a major focus for office building. In 1990, there was in excess of 22 million square feet of office space, with enough land presently zoned to build another 30 million square feet (Taylor, 1990).

The movement of blue collar jobs to the suburbs has been replaced by an influx of white collar jobs. The transportation needs and expectations of these two classes are quite different. The white collar executive has more money, and a more demanding schedule often requiring the use of an automobile, while a blue collar workers usually works set hours, and has a predictable travel routine.

The concerns of the local communities and the GVRD have been to preserve and enhance the quality of life in the region. In a series of public meetings and workshops held in late 1989 and early 1990, the people of the region were asked, what they perceived were the limitations to livability in the region. The main points mentioned were concerned with accessibility and the need for better co-ordination of different modes of transportation.

4.7 INSTITUTIONAL ARRANGEMENTS.

A Lack of Governmental Co-operation.

A major handicap in the resolution of the problem of traffic congestion in the Lower Mainland is the result of a lack of co-operation and co-ordination of activities between those levels of governments and the departments having jurisdiction over land use and transportation planning. When major land use and transportation planning issues are considered in a fragmented manner without adequate concern being given to the potential negative impacts on other factors, it becomes apparent the problem of traffic congestion cannot be adequately addressed.

As discussed in the Literature review, Chapter 2 section 8, under "Sources of Authority and Jurisdiction," there are three levels of government having decision making powers over various aspects of land use and transportation in this province. The three levels are the federal, provincial, and municipal governments. Both the federal and provincial governments have paramount powers over prescribed areas of service, while the municipal governments derive their powers from those functions delegated to them from the provincial governments.

There has been a recognition by various federal and provincial ministers of the need to co-ordinate activities in land use and transportation planning, to produce better results. Most of the attempts at co-ordination have been between the provincial and municipal levels of government. In the case of the federal government, there have been from time to time attempts to establish some means of co-ordinating efforts with provincial governments, but the results have not been all that successful to the present.

In the case of the provincial government and the municipalities, the municipalities have had to often pressure a reluctant provincial government to allow for a mechanism to facilitate co-ordination, though on occasions the provincial government has had to impose a co-operative mechanism upon reluctant municipalities.

The creation of regional districts was one effort by the provincial government to establish a mechanism for co-operation and co-ordination between local municipalities and to an extent the provincial government. The provincial government through its Minister of Municipal Affairs, created the regional districts in 1965, to facilitate better co-operation between member municipalities in a region as well as co-operation between the districts and ministries of the provincial government. One of the difficulties experienced in the encouragement of regional co-operation has been some of the municipalities "fear of losing local autonomy." (Hrushowy, 1971: 16).

Dan Campbell, Municipal Affairs Minister in 1971 and the driving force behind the creation of the regional districts, had tried to encourage government departments and the regional districts to co-ordinate their efforts to reduce duplication. However, both the departments and the districts "viewed this policy with some suspicion and resentment" (Hrushowy, 1971: 16). Campbell noted:

To get this arrangement to work requires co-ordination--and "co-ordination is not just a word."

All the problems of compartmentalized government had to be shaken up. All the problems of compartmentalized decision-making had to be stopped.

It has been expressed that there is an attitude of them verses us--the provincial government verses the regional districts. Nothing can be further from the truth. (Hrushowy, 1971: 16).

There were others who possessed a different view of the situation. "Some regional district representatives say the difficulty in dealing with various government departments, especially lands, is a struggle between Campbell and other cabinet ministers." (Hrushowy, 1971: 16).

In the case of the federal government, Barney Danson the federal Minister of Urban Affairs in 1975, noted the need to better co-ordinate activities between different levels of government. During the opening ceremonies of the Arthur Laing Bridge, which linked the Airport on Sea Island to Vancouver, Mr. Danson said the bridge which was designed to serve the airport, did "little to relieve commuter traffic from the suburbs" (The Columbian, August 29, 1975: 25), was a mistake that would not be made again. "The bridge was planned and

financed by the federal Ministry of Transport." (The Columbian, August 29, 1975: 25). The Ministry of Transport had its own agenda, and the design of the bridge fulfilled its needs with little if any thought being given to the possible needs of adjacent municipalities.

Mr. Danson noted:

the bridge "illustrates the need for co-operation" between different levels of government and different federal departments which his department is trying to foster. . . . he described a "tri-level" planning process instituted by his department in which federal, provincial and municipal leaders meet to debate projects while they are still in the discussion stage. (The Columbian, August 29, 1975: 25).

Despite the planning process described by the Minister of Urban Affairs, the problem of a lack of co-ordination and co-operation between departments and levels of governments still exists.

On the municipal level, a strong suspicion exists concerning the motives of the provincial government attempts to co-ordinate local efforts on matters of a regional nature through the introduction of regional districts. The mayor of Port Moody in 1976, Mr. Norm Patterson, attacked the Greater Vancouver Regional District by describing "the organization as a "monolithic monster feeding on its own bureaucracy." It has become a fourth level of government, he said, taking over many of the functions of the municipality. This is in violation of its intended purpose of co-ordinating agencies between the municipalities" (The Columbian, January 6, 1976: 2).

The regional districts function of co-ordinating planning and action on regional concerns, on occasions pitted feuding municipalities against each other. The case of the locating of a regional town centre in the North East Sector is an example of one of the weaknesses that exist within the organization of the GVRD. Both Coquitlam and Port Coquitlam wanted the regional town centre to be located within their boundaries, since this would serve as a springboard for further developments. The GVRD could not reach a decision, so Coquitlam resolved the matter by ignoring the concerns of the regional district and proceeding with plans of its own.

There were other weaknesses noted with the regional districts. The provincial government can add to or delete the functions the regional districts can control. In the case of the GVRD, transportation, which has far reaching regional impacts is not one of the functions it has control over. In fact, there is no one organization exercising control over all facets of transportation. In 1977 it was noted:

Greater Vancouver is the only metropolitan region in the country without a regional transportation planning and operating authority. Instead, responsibility--if you can call it that--is scattered amongst 13 municipalities, three provincial government ministries and three public transportation agencies. Co-ordinated planning on roads, existing transit lines and the desperately needed rapid transit is sadly inadequate. (The Vancouver Sun, October 18, 1977: A-4).

Today the situation has changed somewhat, with the three public transportation agencies having been replaced by one agency, B.C. Transit, but the rest of the situation as outlined by the 1977 newspaper articles still exists at present.

The examples provided illustrate the difficulties facing planners and politicians in attempting to resolve problems composed of factors coming under a number of jurisdictions.

4.8 CONCLUSIONS.

The North East Sector has experienced the sort of land use and transportation development which could be expected in a formerly rural area undergoing suburbanization. Its development prior to 1950 was limited to resource extraction, and agricultural pursuits. Developments after 1950, paralleled those of the other rural areas of the region surrounding Vancouver, which were experiencing low density, automobile oriented residential development.

The region as a whole faced a series of problems stemming from a rapid increase in population and the availability of inexpensive automobiles. Traffic congestion which began to trouble the region as a whole, was more severe in the study area due to geological and geographical imposed limitations, as well as a lack of early plans creating an arterial road

network. Richmond for example had a grid system of main roads placed a mile apart by surveyors dividing the land for agricultural use.

Solutions to resolve traffic congestion involved more and improved roads and bridges, provision or improvement of existing transit service to the suburbs, as well as the introduction of alternative transportation solutions to make better use of the existing transportation infrastructure.

A major influence upon the continuation of traffic congestion was identified as a lack of co-operation and co-ordination of the governmental agencies responsible for land use and transportation planning.

CHAPTER 5 The North East Sector.

5.1 INTRODUCTION.

This chapter will deal specifically with the North East Sector and provide an in-depth look at the factors contributing to the traffic problems facing the study area. It will discuss the commercial, industrial and residential developments, and major land use projects impacting the study area. It will also cover some of the concerns that local officials have relating to the perceived traffic problems in the study area and its surroundings.

5.2 THE PERIOD 1951 TO 1980.

When the period began, there were only 22,545 people in the North East Sector. At the end of the period, the population of the sector was 103,529 (Statistics Canada, 1981). This tremendous growth paralleled the growth other suburbs experienced.

During this period, there were some improvements to the transportation infrastructure, but these did not keep pace with the demands created by the increased population. The topographic and geological limitations of the study area were expensive to modify to improve the roads in the region. The Provincial Highways Department during the 1950's was charged with improving a province wide transportation network that had been neglected for many years. Its first priorities were the needs of those areas where the transportation problems appeared to be more pressing. The result of this policy was the study area received enough improvement to solve the then problems but never enough to ensure future needs would be addressed. Another part of this policy was to direct a large part of the available road building funds to the interior of the province to develop the resources, and thus improve the economic well-being of the citizens of the province as a whole (McGeer, 1971: 187).

To comprehend the changes in land use in the study area, and the impact these changes had on transportation, it would be beneficial to view these factors separately for commercial, industrial, and residential development.

5.2.1 Industry.

In the 1950's there was a movement of heavy industry into the study area. A steel rolling mill was built in Port Moody to supply the local and Prairie markets with steel tubing. In Port Coquitlam, in 1955, a tungsten smelter was established by Kennametal Ltd (Greater Vancouver Metropolitan Industrial Development Commission, 1956: 39), and in 1957, a specialty metal foundry (Esco) (District of Coquitlam, 1990a: 118) was established for the manufacturing of manganese steel castings. These industries located in the North East Sector because of the availability of railway transportation.

In the early 1970's, a number of the trucking and warehousing firms located in the central industrial areas of Vancouver began to seek alternate sites as redevelopment projects were beginning to cause an increase in the value of the land.

The Canadian Pacific Railway (C.P.R.) was one of the major owners of industrial lands around the centre of Vancouver. Many of its tenants were involved in businesses that complimented railway activities. The businesses included warehousing, trucking and/or the transferring of materials brought in by the railway or by ocean shipping utilizing the wharfs adjacent to the Railway's property.

The C.P.R., not wishing to loose the business generated by its tenants, commissioned its real estate arm, Marathon Realty, to develop lands served by the C.P.R. in Coquitlam, to replace the lands being redeveloped in Vancouver. The new lands, the Mayfair Industrial Park, had the advantage of being located adjacent to the Trans Canada Highway (401), the Lougheed Highway, and next to the Fraser River for barge access. Situated on the fringe of the urbanizing area, Mayfair Industrial Park allowed easy access to other industries that had located in the suburbs.

An example of the benefit trucking companies enjoyed by moving to the North East Sector from Vancouver can be illustrated by a comment Port Coquitlam Mayor George Laking made concerning the Howell Trucking Company that in 1981 had relocated from Vancouver to Port Coquitlam. "Howell has informed me that they have cut 24 hours off delivery since they moved here." (Sanderson, 1981: 77).

The C.P.R. encouraged those businesses dependent upon its services, to move to the North East Sector through locating its extensive trucking and intermodal business in the area. This encouraged shipping container loading/unloading, repair and storage facilities to relocate from the City of Vancouver.

The composition of the commercial and industrial businesses in the North East Sector changed over the period between 1951 and 1980. The business emphasis changed from logging, and sawmilling, to warehousing, transfer (trucking), light and heavy manufacturing which would include steel fabrication, foundries, cabinet making and so forth. As the population and the number of industrial concerns increased, the number and extent of commercial operations and services also increased. The number of concerns locating in the North East Sector prior to 1980 steadily increased but not to the same extent as the increases in Southern Vancouver, Richmond or Burnaby.

5.2.2 Extractive Industries.

The logging industry began to decline in the early 1950's, while the sand and gravel excavating industry began to expand. Extensive sand and gravel operations were begun or expanded in the region along the Coquitlam River above the Lougheed Highway Bridge. The massive expansion of roads, water and sewerage lines, and the construction of bridges, modern concrete office buildings and concrete foundations for new residential buildings created a great demand for sand and gravel, and the older operations with access to water transportation were unable to meet the increased demands. This increased demand made operations dependent upon trucking economically viable. This shift to road transportation

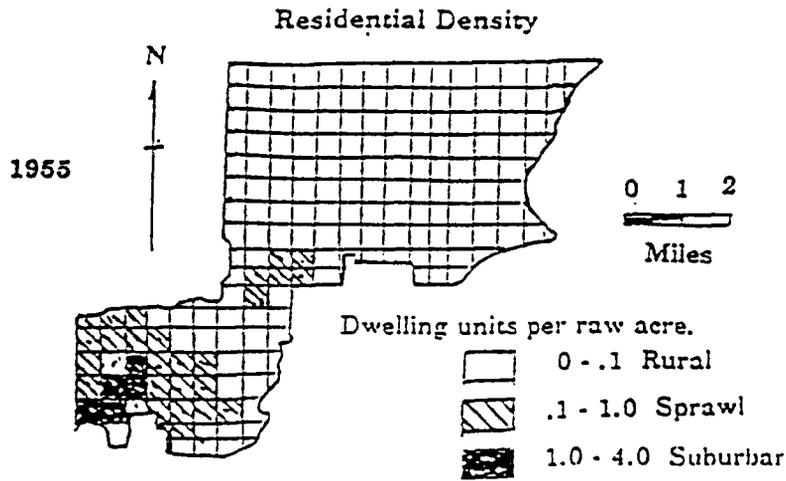
placed pressure upon the existing road network. The traffic created by the heavily loaded trucks not only intensified congestion, but also aggravated maintenance problems. In 1976 on Pinetree Way, the main route from the gravel extraction area, it was estimated that "Gravel trucks now number some 1,300 in one direction on Pinetree Way or 65% of the total 2,000 vehicles." (District of Coquitlam Planning Department, 1976: 62).

5.2.3 Residential Development.

Residential development in the early 1950's took place mainly around the southwestern part of Coquitlam and around the fringes of the urbanized areas of Port Coquitlam. In addition there was a scattering of houses constructed throughout the study area. In the southwest region of Coquitlam, the process involved the infilling of vacant lots rezoned during the economic boom years prior to World War I. As with Surrey and Richmond, the Veteran's Land Act had an impact on settlement, which saw a number of parcels as small as 1.6 acres being developed (Lower Mainland Regional Planning Board [LMRPB], 1961: 11-12). Coquitlam and to a lesser extent Port Coquitlam experienced the problem of urban sprawl. The type of sprawl experienced was a leapfrogging of developments which left a mixture of densities from small urban sized lots to large vacant rural parcels.

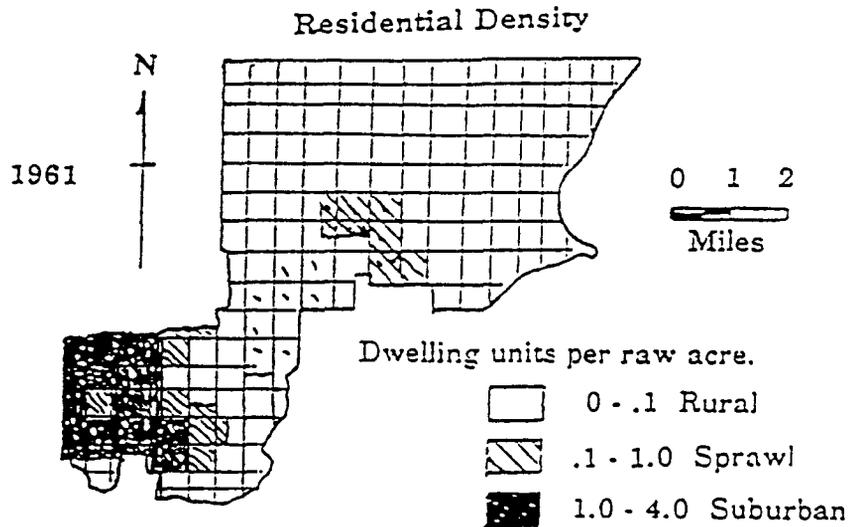
The spread of development in Coquitlam can be seen in Map 5-1 and Map 5-2 which compares residential density between the years 1955 and 1961.

Map 5-1 Residential Density in Coquitlam, 1955.



Source: Lower Mainland Regional Planning Board. Planning for Coquitlam New Westminster, B.C.: 1961. Page 22.

Map 5-2 Residential Density in Coquitlam, 1961.



Source: Lower Mainland Regional Planning Board. Planning for Coquitlam New Westminster, B.C.: 1961. Page 22.

Land development in the District has not been orderly. The southern half of the municipality is only 40 percent developed with 6200 dwellings dispersed over an area of some nine square miles. The overall density of this development is 6 persons per acre to be compared with a possible 14 persons per acre. (Lower Mainland Regional Planning Board, 1961: 21)

Much early residential construction involved individuals building single units. However, as the demand for housing increased, a number of large companies purchased extensive tracts of land and began construction of large numbers of single family houses.

By 1975 it was recognized that "the GVRD North East Sector is a dormitory suburb, with only one local job for every two workers." (Dunhill Development Corporation Ltd., 1975a: 19). In the 1960's there were an increasing number of housing developments within Port Coquitlam and the southwest sector of Coquitlam. The tempo of development continued to increase in the 1970's as large areas along the Coquitlam River were opened for residential development.

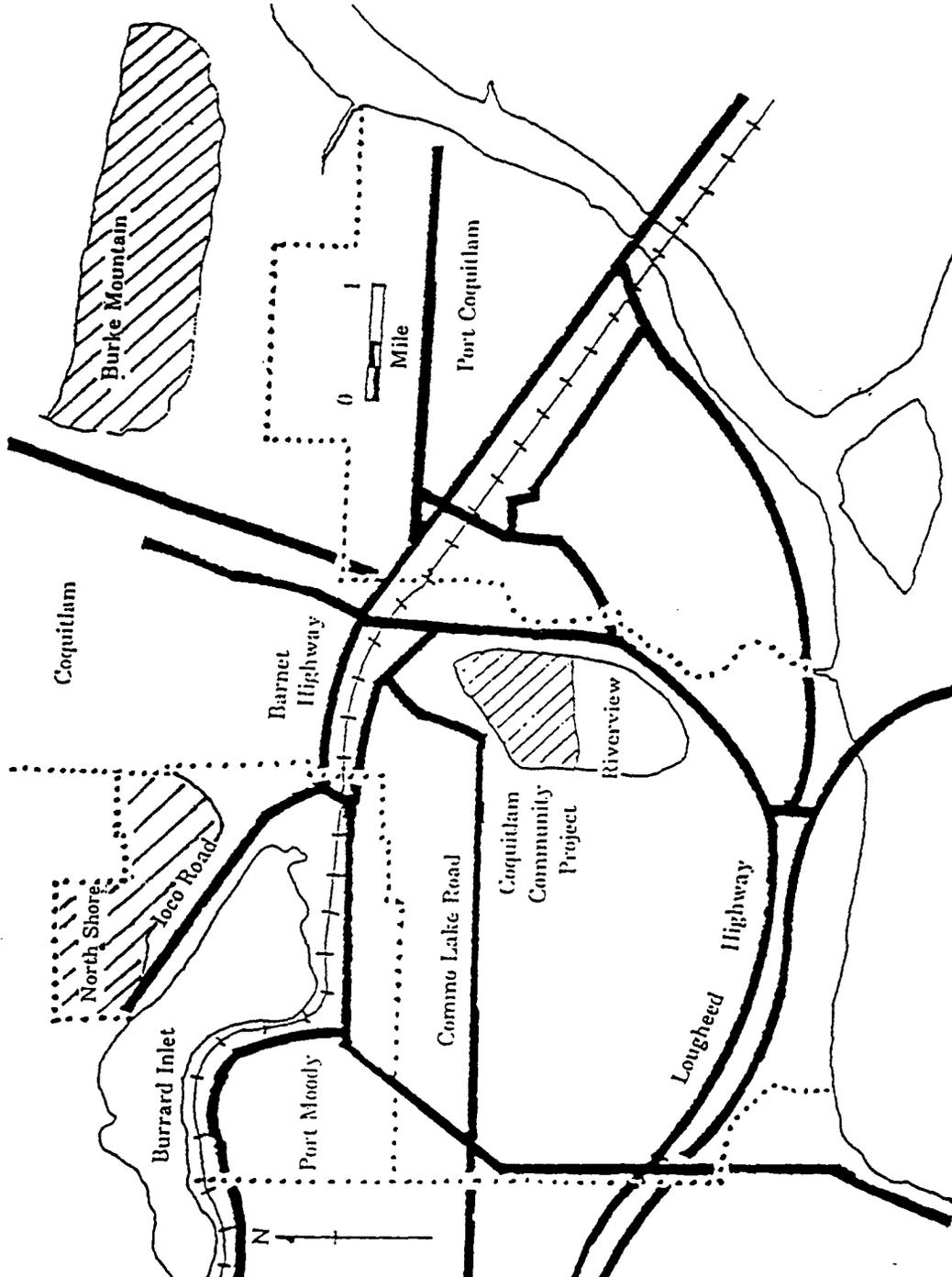
In the late 1970's much of the development became focussed around Coquitlam Centre and Lougheed Mall. The Lougheed Mall area also began to experience redevelopment as the older single family housing was replaced with apartment units. It was during the 1970's the availability of developable lands in the North East Sector began to attract the attention of developers and home seekers. The potential of the area to accommodate increased density of land use resulted in a number of studies being undertaken, with several large government sponsored projects being proposed. The largest of these were the Burke Mountain Project, and the Coquitlam Community Project (Riverview Heights).

In Port Moody, in 1966, the LMRPB was commissioned to study the existing land use and formulate a Master Plan for the orderly development of the City. "The Master Plan provides long term land use objectives to proceed towards employing various planning tools." (LMRPB, 1966a: 1). The study presented a number of concepts to guide the City Council in formulating appropriate policies to direct future land use.

In Port Moody, in 1971, a proposal was put forward to develop 1,000 acres on the north shore of the City for housing (The Vancouver Sun, November 24, 1971: 23). In 1973, development was considered a top issue as the Council unveiled a proposal that would take 10 to 30 years to complete resulting in a doubling of the population of the City (The Vancouver

Sun, November 8, 1973: 18) to about 34,000 people. Map 5-3 illustrates the location of these projects.

Map 5-3 North East Sector proposed developments.



Source: Urban Transit Authority. On Track for the 80's Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

The Burke Mountain Project.

There was a shortage of rental and low-cost housing in the Lower Mainland during the early 1970's. In response to this shortage the provincial government, decided to make available undeveloped crown-own lands for rental and low-cost housing. The government assessed the available vacant crown-owned lands located on the fringes of the urban area and found several suitable sites within the North East Sector. One of the locations was an area of Coquitlam immediately north of the City of Port Coquitlam on the southern slope of Burke Mountain. The rationale for selecting this parcel of land for development was linked to the decision to create regional town centres to reduce development pressures upon the C.B.D. "The intention is to siphon off some Vancouver downtown growth pressure and work towards self-sufficiency for the Coquitlam area." (Dunhill Development Corporation Ltd., 1974: 3). There has been a suggestion that another reason for choosing the North East Sector as the location for this project might have been that it was within the home riding of the Premier of the province for the period 1972 to 1975.

A large part of the proposed development site was moderately to fairly steep mountain side (Dunhill Development Corporation Ltd., 1975b: Soils). The existing land use was small hobby farms and vacant brush covered land. The intended land use was high density residential through the creation of an community of 80,000 to 100,000 residents. The project was initially envisioned to contain up to 20,000 housing units on 4,000 acres of land and to be constructed within 10 years (Oberfeld, 1975a: 33). Due to the topographical limitations of the site, the proposed housing would take the form of high density clusters of apartment buildings and townhouses surrounded by large areas left in their natural state. The provincial Minister of Housing said the development "would consist of high-density condominiums and exclusive homes." (Odam, 1975: 6). The intention was to integrate the project into the surrounding metropolitan region. "We do not envisage Burke Mountain as a dormitory suburb languishing on the eastern extremity of the transit connection." (Dunhill Development Corporation Ltd., 1975a: 5). The Government's concept for the project was to

have it form the residential component of a satellite regional town centre that would supply a large component of the commercial and retail needs of the residents. Employment opportunities were seen as being available through the future development of large vacant areas located along the floodplain of the Fraser River, stretching from New Westminster to Port Coquitlam. This potential industrial land was beginning to be developed to accommodate businesses leaving the central industrial areas of Vancouver. "Most of the residents will look to the as yet undefined regional town centre as their commercial focus, and southwesterly for their jobs." (Dunhill Development Corporation Ltd., 1975a: 5).

The Burke Mountain Project was to create a large residential community on lands not suitable for agriculture, and to focus development in the North East Sector to create a viable satellite community on the fringe of the metropolitan area, had been politically initiated and encouraged. In the elections of December 1975, the ruling party was defeated. The party gaining power had a different philosophy and instead of using government power to initiate development, they preferred to leave development to the private sector. As a result the Burke Mountain Project was cancelled.

The cancellation of the project did not mean there were no benefits for the North East Sector from the planning process. The transportation problems that had hindered development over the years were brought to the attention of those in power, and some of the deficiencies had been resolved. The awareness of the consequences of a lack of transit in the study area resulted in the introduction of bus routes making the residents not so completely dependent upon automobiles.

Another more far reaching result was the research into the impacts this development would have upon the existing transportation routes and the need for other forms of transportation, besides buses and automobiles. The idea of constructing Light Rapid Transit (LRT) lines (Dunhill Development Corporation Ltd., 1975a: 40) and utilizing Commuter Rail (Dunhill Development Corporation Ltd., 1975a: 47) were put forth as viable options to solve commuter traffic congestion. The option of Commuter Rail service to the study area was

considered so viable that it was felt the option could be operational by 1976 (Dunhill Development Corporation Ltd., 1974: 3).

Coquitlam Community Project.

While the Provincial Government was promoting the Burke Mountain Project, it was also considering a smaller project on crown-owned land in Coquitlam. This project, called the Coquitlam Community Project, was situated upon part of the 1,000 acre Mental Health Hospital lands (Dunhill Development Corporation Ltd., 1975c: background). The stated purpose of the project was "to provide moderately-priced, family oriented housing." (Dunhill Development Corporation Ltd., 1975c: Development Objectives). The first component of this project was to accommodate about 7,600 people in 2,000 units on 314 acres of land. It was recognized that this type of land use would have a considerable impact upon the existing transportation infrastructure. The transportation impacts were expected to be resolved through the encouragement of the use of transit. Buses were to be routed on an exclusive right-of-way, focussing on the Lougheed Mall as well as the proposed regional town centre to the north east (Dunhill Development Corporation Ltd., 1975c: Transportation).

Like the Burke Mountain Project, this one was cancelled when the change of government occurred in late 1975. However, unlike the Burke Mountain Project, this one was revived some years later, but with the private sector in control.

5.2.4 Town Centre Controversy.

Between the early 1950's and the late 1960's, the Regional Planning Board, in major region wide studies, suggested development should be directed away from the core of Vancouver to a number of regional centre in the suburbs (1952 report and 1966 report). Initially four centres were proposed, in Burnaby, in Surrey, New Westminster and the last one somewhere in the North East Sector. There was controversy between Coquitlam and Port Coquitlam over the location of this town centre (The Province, January 10, 1975: 8). The

Mayor of Port Coquitlam suggested since the City of Port Coquitlam was already an established urban centre with the necessary infrastructure, it should be the location of the new town centre. The Mayor of Coquitlam, realizing the importance of this project to the development of the largely undeveloped forest lands in the central part of Coquitlam, wanted the town centre located within his municipality. The Greater Vancouver Regional District members could not reach a consensus on the best location, so in 1976, the Mayor of Coquitlam decided Coquitlam would create its own town centre in an area just to the north-west of Port Coquitlam (Oberfeld, 1976: 15). A large developer, Ira Young and Associates, proposed a large shopping centre at Sharpe Street (now Lougheed) and Barnet Highway. The project was initially called the East Gate Project then later Coquitlam Centre Shopping Mall (Urban Programme Planners, 1969). The project was first presented to Coquitlam Council in 1972, but was blocked by the then Provincial Government (The Vancouver Sun, May 27, 1977: 40). This was due to a number of concerns, both political and physical, including the need for massive and expensive building and reconstructing of the road systems in the area. The project was not begun until 1977 and was completed in May 15, 1979 (The Province, May 27, 1977: 17). The competition between the municipalities was an attempt to ensure that the Town Centre would be located within their respective boundaries. "At stake is creation of a regional town centre in either Coquitlam or Port Coquitlam. Both municipalities want a shopping centre as an anchor for such a centre." (Coffin, 1976: 23). Once the shopping centre was completed, there was a series of development applications to take advantage of its drawing power. Mayor Tonn of Coquitlam described the completion of the Mall as:

the most exciting development in Coquitlam's history and the start of the over-all town centre that will cover about 1,000 acres. . . . Other developments adjacent to the centre will be built. We'll see a new provincial court-house, a major hotel, a new municipal hall, and there will be office structures, cultural facilities, more commercial buildings, a school, a new 19 acre Douglas College campus in time to come. (The Province, August 14, 1979: E-7)

As the population increased in the area around the new Centre, more businesses located adjacent to the site. This in turn attracted developers who wished to construct high density apartments and condominiums in close proximity to the commercial/retail centre.

5.3 THE PERIOD 1981 TO 1990.

This period began when the economy was experiencing a downturn. The effects of this downturn lasted well into the middle of the decade and either delayed or caused some projects to be cancelled. However, after the middle of the decade, an improving economy coupled with a large increase in the numbers of people moving to the Province from other parts of Canada and over-seas caused a housing shortage. This in turn resulted in an increase in developmental pressures on suburban municipalities. The supply of subdividable residential and industrial lands in other municipalities began to be depleted. This caused areas possessing some limiting factors, to become economically viable as alternate locations for development. The North East Sector communities, containing large blocks of undeveloped lands, began to feel pressure from developers. The increase in land development proposals accentuated the transportation inadequacies of the study area.

The following sections discuss residential, and commercial/industrial developments in the decade of the 1980's.

Residential Development.

The existence of large undeveloped blocks of land in the North East Sector became the focal point of large numbers of development proposals as the need for additional housing stocks increased.

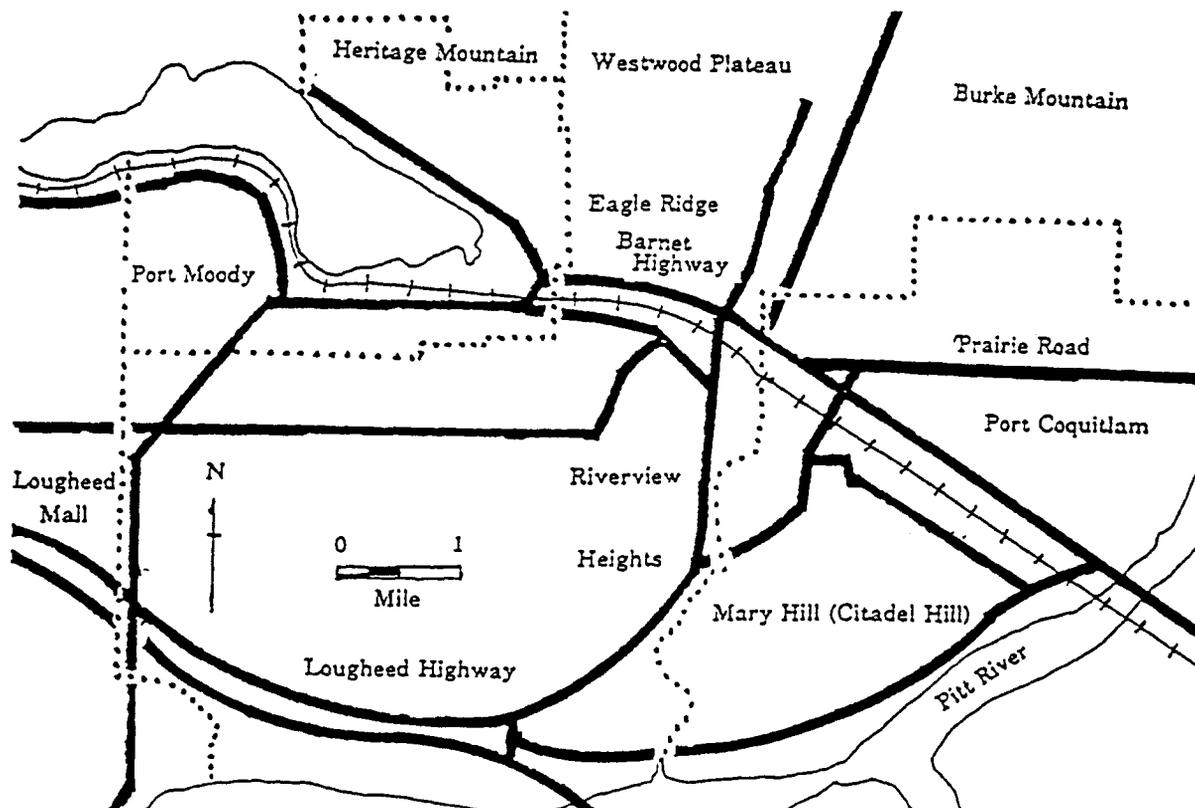
In Port Coquitlam, the northern portions of the City were developing with new housing while in the area adjacent to the commercial centre around Coast Meridian Road and Prairie Road, higher density housing began to replace the older single family dwellings. In the early 1980's the undeveloped lands on Mary Hill were rezoned and several large housing

developments were approved. The Citadel Hill Project involved the building of high quality single family housing and was expected to take eight or more years to complete.

In the late 1980's, the older single family housing in the areas closest to the old commercial centre of Port Coquitlam, began to be replaced by three floor apartment and condominium complexes (The Sunday Magazine, March 25, 1990: M-22).

In Port Moody, the development of the north shore of the City was moving ahead. The Eagle Ridge Development on the border with Coquitlam, was rapidly advanced with the construction of numerous single family and town house units. The location of a regional hospital (Eagle Ridge Hospital) also served as a stimulus to further development. With the good economic climate for the Province in the late 1980's, a large area of the north shore, called Heritage Mountain, was rezoned for housing. Map 5-4 illustrates the location of these housing projects.

Map 5-4 Location of residential developments, 1980 to 1990.



Source: Base Map, Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.2 "Proposed Residential Development Areas." Map located between pages 11 and 12.

The whole North East Sector was experiencing rapid development during the late 1980's. As land prices steadily rose, some developers proposed increasing the allowable density to permit the construct of high rise towers with adjacent commercial/retail and office space. In early 1990 in Port Moody, two projects were proposed. They were the Port Moody New Town Centre by Bosa Construction, and the Seaside Village by Kerkoff Construction. These proposals would see a series of towers, up to 28 stories in height constructed in (Hirvo, 1990: 4) the eastern part of the City. The Projects have also been referred to locally as the "New Wave" proposals. The Bosa Project called for 800 units on 13 acres with 270,000 square feet of commercial space, and the Kerkoff Project suggested 1,300 housing units on 22 acres with commercial/retail space and several office towers (Diamond, 1990: 4). The two

proposals were presented at an open Council Meeting on April 2, 1990, (City of Port Moody, 1990) with an estimated 320 citizens present. One of the main criticisms of the projects was the apparent unrealistic traffic impact assessments. In an earlier Council presentation, the projects' traffic studies suggested there would be little if any traffic impacts in the early phases, and by the time the projects were completed, SkyTrain and road improvements would be in place (Bryce, 1990a: 9). There were those residents who expressed the view that proposals such as Bosa's and Kerkoff's belonged in Vancouver or a large urban area, not in a low density still relatively suburban area such as Port Moody.

In spite of the concerns of residents, Port Moody Council approved the two projects in September, 1990, though the Kerkoff proposal had to be scaled down to 22 stories in height. There was also a reference to the Port Moody New Town Centre, including these projects, having accessibility to SkyTrain (The Burnaby & New Westminster News, September 30, 1990: 14).

In Coquitlam, as with other municipalities in the early 1980's, began to feel increased developmental pressures. In response to these pressures, Coquitlam divided its area into four distinctive sectors. Each of these four sectors possessed different terrain features which would influence their developmental possibilities. Coquitlam then began a process to create to create Official Community Plans with each area receiving its own Official Community Plan. The Four sectors and the dates the Plans were adopted are , Northeast Coquitlam in 1986 (District of Coquitlam, 1986), Northwest Coquitlam in 1987 (District of Coquitlam, 1987), Southwest Coquitlam in 1988 (District of Coquitlam, 1988a), and Southwest Coquitlam--Town Centre in 1988 (District of Coquitlam, 1988b).

In the 1980's, a number of large projects were considered for Coquitlam. In the area east and north of Coquitlam Centre, large tracts of housing were constructed in Canyon Springs and on the lands adjacent to the Coquitlam River. In the areas closest to Coquitlam Centre, apartment buildings were constructed. In the areas adjacent to Lougheed Mall, the three floor apartment buildings constructed in the late 1960's and early 1970's were now

beginning to be replaced by high rises. In early 1990 the first of three 21 story high rises was nearing completion (Rebalski, 1990: E7).

The largest proposed project to be suggested in 1990 involved the redevelopment of a large tract of Provincially owned land on the Westwood Plateau. In 1989, the 1,100 acre site was sold to a private company, which then indicated to Coquitlam Council they wished to develop up to 5,000 housing units over a five to eight year period. The first phase was to involve 1,200 units and the proposal came before Council in March, 1990 (District of Coquitlam, 1990b).

In keeping with the desire of Coquitlam Council for increased development of Coquitlam Centre as the Regional Town Centre for the North East Sector, there are plans for the relocation of the Municipal Hall, to a site just north of the Centre. Adjacent to the new Municipal Hall there would be a new Public Safety Building, the possibility of a new Court House to replace the overcrowded facilities now located in Port Coquitlam, a new community centre and library complex, a recreational complex, and an arts centre ("Choosing Our Future" Public Meeting at GVRD North East Sector Livable Regions Plan Update, information display board, March 29,1990). There are developers who have proposed the construction of large apartment/condominium complexes in conjunction with the new Civic Centre.

Residential Developmental Impacts on Transportation.

The impacts the residential developments and the accompanying increases in population would have upon the transportation infrastructure were known to the politicians of the study area. In 1976, the Mayor of Port Moody, Norm Patterson said in response to the GVRD's Livable Region population target figure for Port Moody, which envisioned a doubling of the City's population, "transportation is a key link to growing areas." (The Progress, June 10, 1976). At this time, there was increasing traffic congestion being experienced by the area. The politicians were feeling pressure from residents who wanted the problem resolved.

In 1983, Les Garrison, a Coquitlam Alderman noted "The Coquitlam, Port Moody, Port Coquitlam, Maple Ridge, and Pitt Meadows areas are the key for housing development in the next 10 to 15 years. . . . but there's no way you can develop that kind of housing without providing transportation for it." (Fitton, 1983: A-3). Garrison also added "Port Moody is already having difficulties handling morning and evening commuter traffic on the Barnet Highway. If something isn't done soon, it's going to be chaos." (Fitton, 1983: A-3).

In a 1988 newspaper article, the premier of the province described the Coquitlam area as being "one of the fastest growth areas in the lower mainland" (Smith & Bryson, 1988), and the Provincial Transportation Strategy, a review of the transportation needs of the province, would identify needed changes to the transportation infrastructure for the area "before traffic begins to choke on itself." (Smith & Bryson, 1988).

The concern of some local politicians for the impacts of increased residential developments on the existing transportation infrastructure is reflected in a vote taken in the Port Coquitlam Council in February, 1991. The vote allowed a proposal to build 317 apartments near the Pitt River Road to proceed to public hearing. "Alderman Mike Thompson argued vigorously against the proposal, saying it will compound existing traffic gridlock." (Ross, 1991: 3).

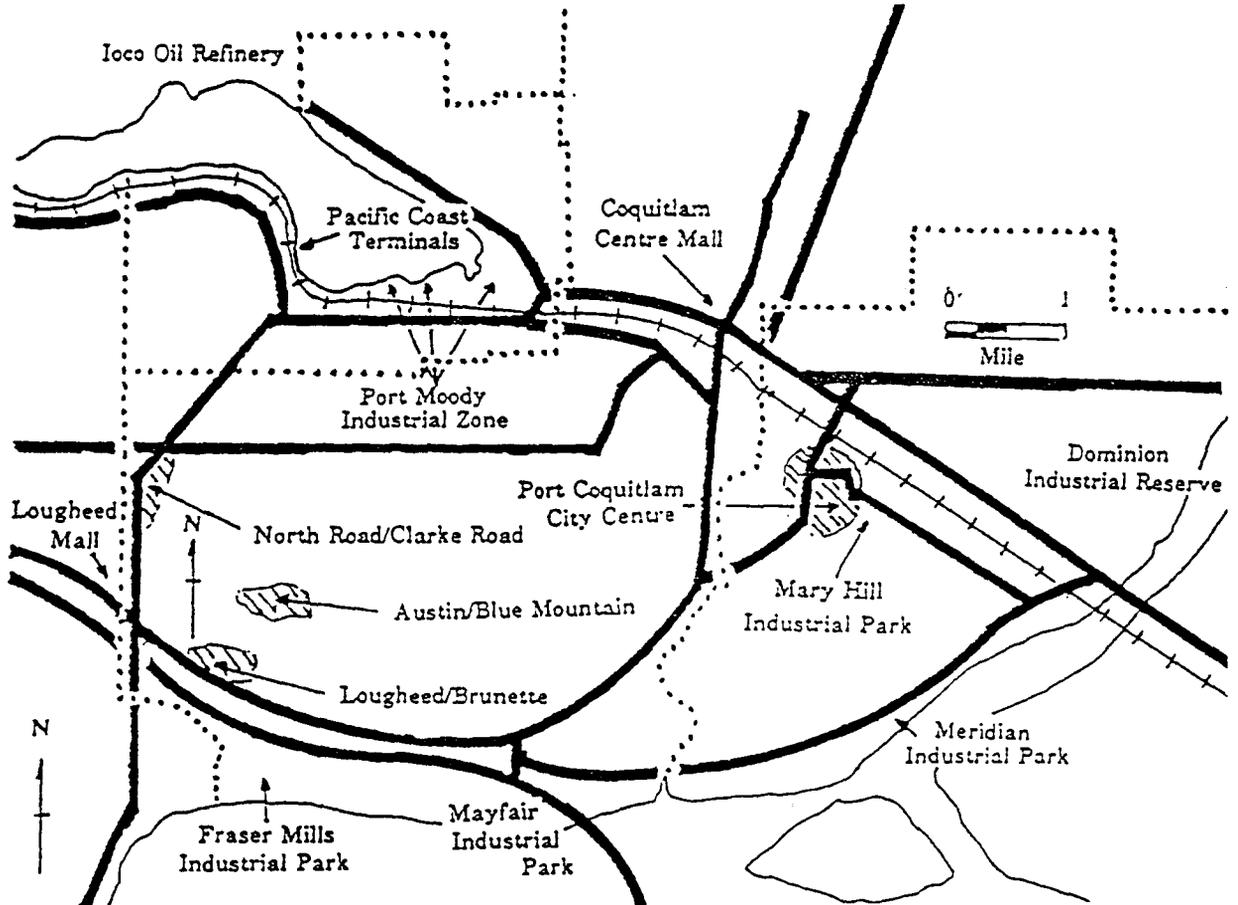
From the few examples given, it becomes apparent the politicians were aware of the implications additional development of residential and industrial projects would have upon creating additional traffic. The existing traffic situation was already perceived to be congested, and the political leaders believed there was need to increase the capacity of the transportation infrastructure to accommodate the increase in traffic the projected land developments create.

Commercial and Industrial Development.

In the decade of the 1980's, there had been a substantial increase in the number of businesses locating in the North East Sector. There had also been expansions of the size of

the existing industrial parks. Map 5-5 indicates the location of the various commercial areas and industrial parks.

Map 5-5 Location of commercial/industrial areas of the North East Sector, 1980 to 1990.



Source: Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

Commercial Development.

The decade of the 1980's witnessed, a steady growth of commercial/retail space within the North East Sector. Much of the new growth was centred around the Coquitlam Centre

Mall, as the largest increase in residential development was occurring in this area. The older commercial/retail centres within the region, the North Road/Clarke Road, Austin/Blue Mountain, Lougheed and Brunette, the Port Moody and Port Coquitlam City Centres, also experienced growth though not on the same scale as the Coquitlam Centre. Map 5-5 locates the commercial areas and industrial parks. An indication of the rapid growth of commercial floorspace can be perceived by the total floorspace of 5,375,754 square feet (Zaborowski, 1989: 49) in 1987 being increased in 1988 by 250,851 square feet (Zaborowski, 1989: 50) or a 5 per cent increase within one year.

The importance of the increase in the amount of Commercial/retail space the study area can be seen by the fact that in 1988 this sector of the economy employed, 5,519 workers of which 3,210 workers were in retail trade (Zaborowski, 1989: 21). The study area possesses about 10 per cent of the shopping centre floorspace of the Lower mainland and is ranked fifth in size (Zaborowski, 1989: 49).

The increase in shopping centre floorspace is a reflection of the increase in the area's population and also serves as an important source of employment. The amount of office space within the study area is still relatively minor, however, there are plans to construct large office complexes in Port Moody (Kerkoff/Bosa projects) and in the vicinity of the proposed new civic complex adjacent to the Coquitlam Centre.

Industrial Development.

The rise in the value of land within the older industrial areas of Vancouver, coupled with the relocation of some of the major firms, prompted a continuing number of firms to relocate in the suburbs to be closer to their suppliers and customers. The North East Sector communities have developed strategies which would see a balance of different complimentary industries which would not impact adversely upon residents and other businesses within the area.

In Coquitlam, industry has been located within the low lying lands along the Fraser River, from the Port Mann Bridge west to New Westminster. In the past, the sawmill at Fraser Mills was the main industry within the District. In recent years, the Mayfair Industrial Park has been developed on 250 acres adjacent to the Port Mann Bridge. By 1989, this Industrial Park was full, and the lands adjacent to Fraser Mills, about 300 acres were beginning to develop (Zaborowski, 1989: 54). The types of industrial concerns locating within the municipality have ranged from light manufacturing, to truck transportation firms.

In Port Moody, industry is located along the south shore of Burrard Inlet, in an area north of St. Johns Street. Land adjacent to the Ioco Oil Refinery has been annexed by Port Moody and could possibly be used for industrial or commercial activities. There is still one large sawmill operating (Flavelle Cedar), and the bulk loading facilities (Pacific Coast Terminals) served by the C.P.R. The oil refineries are still operating and have been modernized over the years. The available industrial and commercial space within the City has almost been fully occupied, though the 375 acres near the Ioco Oil Refinery which have been annexed to Port Moody, could possibly be rezoned for industry. There has been some pressure on industrial lands in the eastern part of Port Moody, as developers have sought to change the land use to residential/commercial/retail for high density projects. The Kerkoff Project would remove a large segment of industrially zoned land from the limited available stock. This in turn would place pressure upon several other large parcels of vacant or under utilized industrial lands close to or adjacent to the Kerkoff site.

Finally, Port Coquitlam has three Industrial Parks, along with an extensive undeveloped area that could be utilized when the existing Parks have been filled. The three Parks are Mary Hill with 648 acres available, the 10 acre Davies Park with 1 acre still available, and the Meridian Park of 60 acres with 20 acres still available (Zaborowski, 1989: 56). Port Coquitlam's location with large parcels adjacent to the C.P.R. Rail Yards, enabled a number of large metal processing and fabricating firms to establish within the municipality. Coast Steel Fabricator, Record Chemicals, Ellett Copper and Brass, and Ellett Valve Co. have

located alongside Kennametal (tungsten refinery) and Esco (alloy steel foundry). These firms along with C.P. Transport and a number of container loading/unloading firms have served to draw other businesses to the vicinity.

Port Coquitlam has a large area which could be utilized for industrial use when the need arises. The Dominion Industrial Reserve covers 268 acres presently zoned agriculture, but with the rapid urbanization of the adjacent areas, it will come under developmental pressures. The Reserve lands are adjacent to the Pitt River and are located upon peat or alluvial soils in the flood plain. Present land use policies prevent the use of such land for housing, so industrial usage appears to be a viable future possible use.

Within the last decade, the North East Sector has experience a very rapid increase in land use for industrial purposes. "The region has progressively become more industrialized. In 1983, there were 1,348 acres of land used for industrial purposes, a 21% increase over 1976." (Zaborowski, 1989: 54). By 1990, large areas presently zoned for industry, but remaining undeveloped, were being serviced to make more space available as existing Industrial Parks filled. Mayfair Industrial Park in Coquitlam reached capacity in 1989 and the Meridian Industrial Park in Port Coquitlam expanded its serviced lands to meet the demand.

The future demand for industrial lands can be met from the stock of available zoned lands. However, there is little additional land that can be zoned industrial in the future, particularly when there is a strong demand for residential land.

Industrial Developmental Impacts on Transportation.

The concerns of local residents and politicians with the traffic impacts of more industrial development is reflected in the statements made by several of the mayors of the study area. In 1981, Port Coquitlam Mayor George Laking noted that "the immediate constraint on development of his city is the lack of good access to potential residential and industrial growth areas. Otherwise he says, PoCo's central location within the Lower

Mainland can prove a real bonus to industry." (Sanderson, 1981: 77). While in 1988, Mayor David Driscoll of Port Moody, said "Transportation is the critical element in economic development." (Spaner, 1988).

These statements indicate the local leaders were aware of the importance of coordinating transportation improvements with residential and industrial developments.

Summary of 1981-1990 Period.

The period from 1981 to 1990 saw the pace of urbanization in the North East Sector increase significantly faster than in the previous periods. The large undeveloped parcels of residentially zoned lands were subject to increased development pressures. Large Provincially owned blocks of land were beginning to be made available to developers for residential use. The availability of large blocks of developable lands when the transportation infrastructure was perceived to be at or near capacity further complicated traffic conditions within the North East Sector. Rapid residential developments in the municipalities lying to the east of the Pitt River, and north of the Fraser, also increased the pressures on the existing transportation infrastructure within the North East Sector. Most of the residential development was automobile oriented, low density development which did not make the introduction of transit an economically viable option.

Towards the end of the decade, there were many businesses seeking to locate their warehousing and manufacturing operations to the suburbs. All the fringe municipalities were subject to this movement from the old central industrial locations. As the available industrial and commercial zoned lands within Richmond and Surrey became limited, and the prices rose, attention turned to other areas which did not have the same pressures nor high land prices.

The North East Sector was recognized as a very good location, and there was still vacant industrial lands available for development. Some of the transportation infrastructure deficiencies had been resolved over the previous decades and those industrially zoned lands adjacent to the Trans Canada Highway, began to experience rapid development. Many of the

businesses which had been dependent upon the C.P. Railway, followed the Railway to the North East Sector after it began to remove its operations from the valuable land around the centre of Vancouver. The amount of industrial land available in the North East Sector is limited. However, Port Coquitlam possesses a large block of undeveloped low lying lands along the Pitt River, north of the Lougheed Highway which could be rezoned for industrial use (the Dominion Industrial Reserve), and Coquitlam has approximately 300 acres of land near Fraser Mills available for industrial development (Zaborowski, 1989: 54-55).

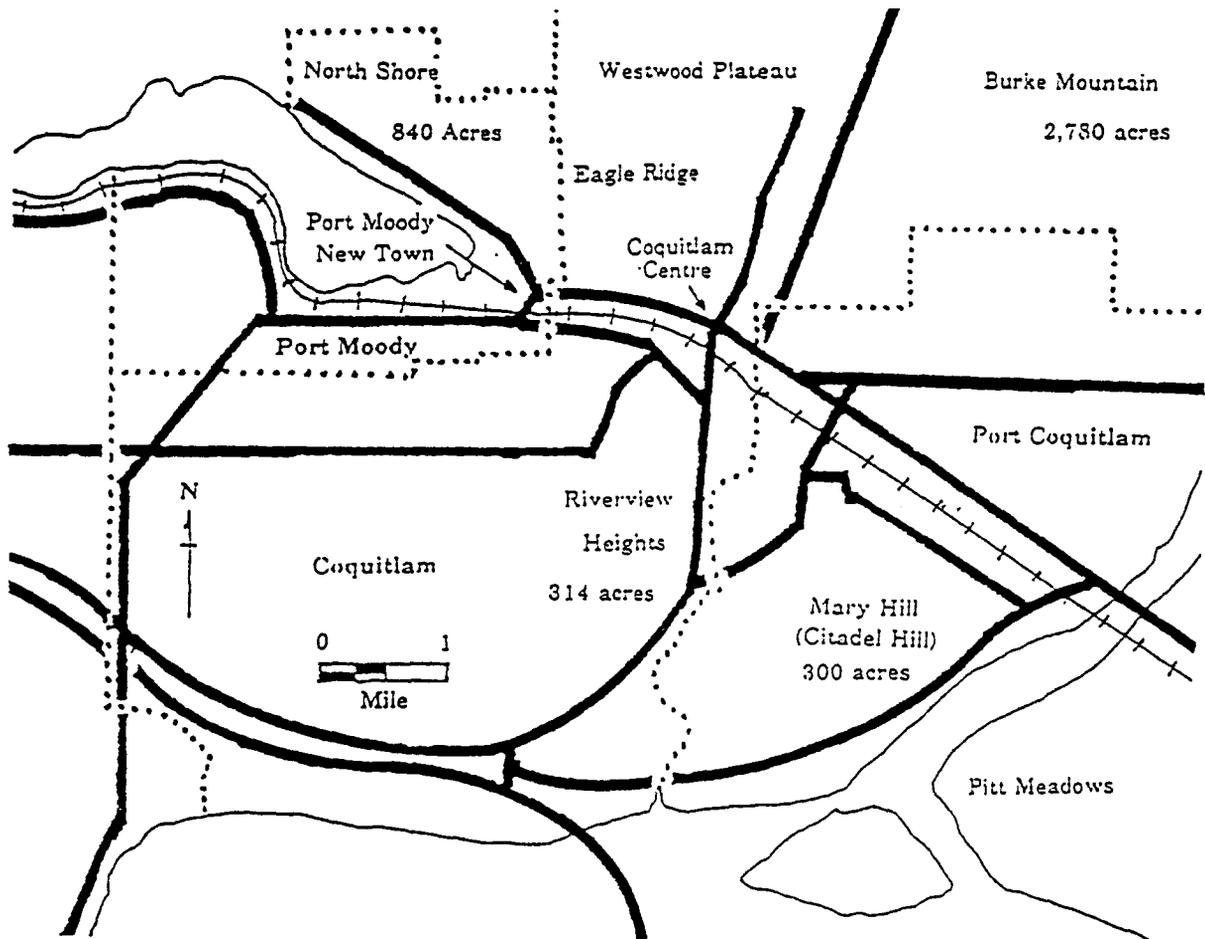
Future development of land will depend upon and influence the level of transportation services available within the study area. To date, much of the housing has been low density making transit difficult and expensive. The geographical and geological constraints of the study region limit the available transportation options, to accommodating increased automobile traffic.

5.4 FUTURE CONCERNS.

There are a number of concerns the residents and Councils in the North East Sector share. The three political jurisdictions within the study area have their own land development plans for the remaining undeveloped lands. Coquitlam has a growth strategy that will see, 4,400 new units constructed within the Westwood Plateau to accommodate about 15,000 people, and Burke Mountain, which could accommodate about 25,000 people depending upon the type of density allowed (Zaborowski, 1989: 44). The sites close to Coquitlam Centre have been zoned for higher density use. An example would be Bosa's Glenborough condominium development, located across the street from Coquitlam Centre (The Burnaby & New Westminster News, September 16, 1990: 32).

Port Moody has an area called Heritage Mountain which could accommodate a population of about 10,000 people. Map 5-6 locates the most recent housing developments. This area is at present undergoing development to create additional housing.

Map 5-6 Location of most recent housing developments.



Source: Base Map, Urban Transit Authority. On Track for the 80's Vancouver, B.C.: May, 1981. Exhibit 2.2 "Proposed Residential Development Areas." Map located between pages 11 and 12.

Port Coquitlam is developing the remaining vacant lands on Citadel Hill (Mary Hill). There are also a number higher density residential developments underway close to the commercial/retail centre of the City of Port Coquitlam. For example Andre Molnar's Shaughnessy Court project (The Sunday Magazine, September 16, 1990: M-13).

As the amount of developable land decreases, with the resulting increase in the value, higher density uses will be considered. In Port Coquitlam this is already occurring. An example would again be Molnar's Shaughnessy Court condominium complex consisting of a three story building enclosing a central court and containing 33 units. The site was formerly covered by a few single family homes on large lots. In the southwestern area of Coquitlam, close to Lougheed Mall, a number of high-rise towers have been constructed which dramatically increase the density.

One can expect the replacement of many of the older low density, favourably located suburbs with higher density usages as the value of the land increases. This will have a pronounced impact on the feasibility of introducing a more extensive transit system within the study area.

5.5 SUMMARY OF EVENTS FROM 1951 TO 1990.

The past four decades has seen a remarkable change in land use within the North East Sector of the GVRD. Development, in the first decade was slow due to the lack of demand for the largely uncleared and poorly serviced lands in the study area. The vacant lands within Vancouver, the municipalities on the north shore of Burrard Inlet, Burnaby, and Richmond, were well able to accommodate the needs of the expanding population.

The small amount land use change, from the subdivision of small agricultural holding or wooded lots to housing on urban sized lots, occurred mainly in southwestern Coquitlam, and on the fringes of the already built-up portions of Port Coquitlam and Port Moody. In the second decade, the 1960's, there was a diminishing amount of readily available lands convertible into residential use within Vancouver. More pressures began to be felt in Richmond, Delta, Surrey and the North East Sector communities of Coquitlam, Port Coquitlam and Port Moody. The pressures for urbanization on the North East Sector were still felt mainly in or near areas already undergoing land use changes. The southwest area of Coquitlam up to the border of Port Moody was being converted from small farms or brush

covered plots to small city sized urban lots. The vacant northern slopes of Mary Hill, just south of the commercial area of Port Coquitlam and the vacant acres or small farms just to the north of the Canadian Pacific Rail Yards were beginning to undergo change to housing on city sized lots. These land use changes with the accompanying increase in population would create pressure upon the existing transportation infrastructure in the study area.

In the third decade, the 1970's, the pressures for the conversion of the large blocks of undeveloped lands to residential use were greater as the availability of low cost accessible lands in other Municipalities began to become depleted. Major land use changes were planned for the large blocks of Government owned vacant lands within the study area. A large residential community was planned, however in late 1975 an election brought about a change of Government resulting in many of the government sponsored land use plans being abandoned. This did not prevent Coquitlam from rezoning land at the junction of the improved Lougheed and Barnet Highways for the construction of a large regional shopping centre which was seen as the needed anchor development for the creation of a regional town centre. Despite the curtailed Provincial Government sponsored residential developments, private developers began to view the North East Sector as an attractive area to seek opportunities to develop lands that were less expensive than those closer to the centre of Vancouver.

The final decade, that of the 1980's, witnessed large numbers of development projects. The increased population brought about more traffic. More businesses moved from the congested Vancouver central business area to the outlying areas. A split between the location of blue collar and white collar work locations began to appear. Office locations remained in the C.B.D. while warehousing and manufacturing facilities located in the suburbs to take advantage of the less expensive and larger parcels of land, as well as the access to transportation routes to other regions within the country or south to the United States.

The study area has seen rapid urbanization occurring, with large expanses of land being cleared and residences constructed. The type of developments has for the most part been low density, automobile oriented suburbs, which would contribute additional traffic, and

necessitate improvements to the transportation infrastructure. There has been some recognition of the need to co-ordinate land use and transportation within the study area, since some of the public officials have recognized the impacts land and transportation have upon each other. On top of the local concerns about low density automobile oriented land use, the areas east of the Pitt River are now beginning to experience the type of rapid development the study area and other municipalities in the region underwent a decade earlier. This eastern automobile oriented land development, has the potential of contributing more traffic to the existing transportation infrastructure and forcing improvements to meet the increasing demand.

CHAPTER 6 The Case Study: Transportation in the North East Sector, 1951 to 1990.

6.1 INTRODUCTION.

The purpose of this part of the case study is to provide background information on the transportation situation in the study area from 1951 to 1990. It will provide information on the improvements made to the highways and bridges and to transit in the area. It will then provide an overview of the transit needs of the North East Sector in relation to the region as a whole.

Over the last four decades, there has been continuous planning processes to study the Lower Mainland region including the North East Sector to arrive at solutions to the transportation problem. The North East Sector transportation problems like those of other areas have a unique component created by a combination of geographical and geological conditions. These conditions may be further compounded by political and/or administrative boundaries superimposed without regard for the topography of the region.

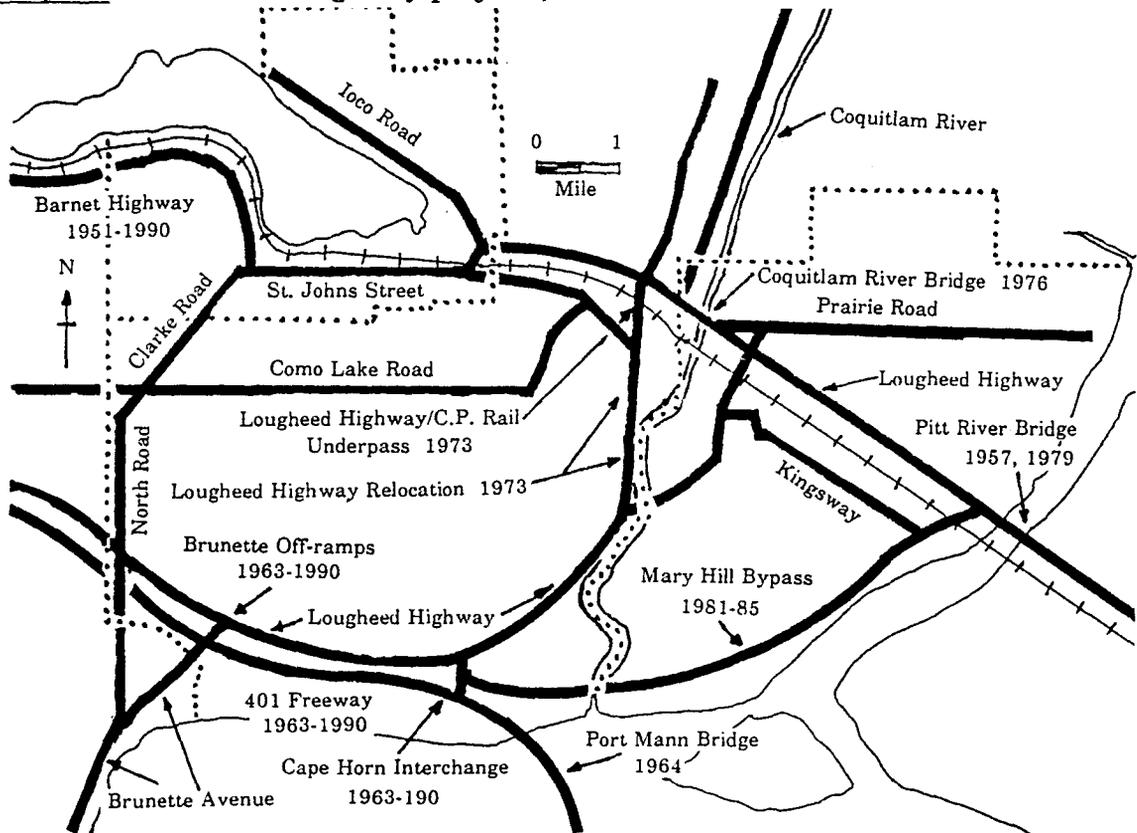
6.2 HIGHWAY PROPOSALS.

6.2.1 Highway and Bridge Proposals and Improvements, 1951 to 1990.

After the Second World War, the road infrastructure in the study area, as with other areas of the Lower Mainland, was in poor condition. A lack of funding and reduced maintenance between 1930 and 1945 had stalled any major improvements. However, after 1951, the study area along with the other lower mainland communities became the focus of a number of land use and transportation studies. These studies initially recommended a number of automobile-oriented improvements which would make the Lower Mainland Region more accessible to commuters.

A number of projects within the North East Sector were proposed and some constructed. In the period, 1955-57, there were improvements made to the Lougheed and Barnet Highways to bring them up to the then modern standards (Province of British Columbia, 1957: J-26, J-30; Province of British Columbia, 1958: N-25, N-30). Up to the present day, the Lougheed Highway in particular has undergone upgrading and widening as the traffic demands increased. In 1974, the level crossing of the Lougheed Highway with the C.P. Rail tracks in Port Coquitlam, was removed through the relocation of part of the highway, and the construction of an underpass to remove the constant traffic disruptions caused by train traffic.

Map 6-1 Location of highway projects, 1951 to 1990.



Source: Base Map, Urban Transit Authority. On Track for the 80's Vancouver, B.C.: May, 1981. Exhibit 2.2 "Proposed Residential Development Areas." Map located between pages 11 and 12.

In 1979, the Lougheed Highway was widened to four lanes, and this necessitated a parallel bridge across the Coquitlam River. This widening was part of the improvement of

accessibility to communities east of the Pitt River. The Pitt River Bridge which had been replaced in 1957 with a more modern structure, was paralleled in 1979 so the Lougheed Highway east of the river could be widened to four lanes.

The Barnet Highway, like the Lougheed Highway was constantly being upgraded as traffic pressures increased. The stretch along the north side of Burnaby Mountain was improved in 1956. The development of the Coquitlam Centre Shopping Mall between 1977 to 1979, necessitated the rebuilding and widening of the stretch of the highway from its junction with the Lougheed, to the Junction with St. Johns Street in Port Moody. The Provincial Government announced in 1990, the stretch from Port Moody to where it becomes Hastings Street in Burnaby, would be widened from two lanes to four lanes. This would enable the Barnet Highway to accommodate articulated commuter buses and possibly car and van pool vehicles (High Occupancy Vehicles or HOVs) (Hilborn, 1989: 3; Hilborn, 1990a: 3).

The remaining bottleneck along the Barnet Highway-St. Johns Street was the segment running through the centre of Port Moody. Due to the existence of commercial establishments, the value of the lands along St. Johns Street precludes the possibility of further widening or upgrading. The inconvenience created by this bottleneck, has upset residents, merchants and commuters. There have been discussions of the possibility of constructing a bypass to remove rush hour traffic from the centre of Port Moody. In the early 1960's a route to the south was proposed to connect with the Lougheed Highway west of North Road (Buchanan, 1990). This, however was not constructed. In the 1970's, there was a proposal to build a bypass north of the Inlet, and then across Burrard Inlet by bridge to carry traffic onto the Barnet/Hastings Corridor. This proposal was also not constructed. At present, there are discussions occurring between the Ministry of Highways and the City of Port Moody on the possibility of constructing a bypass along Spring Street, a few blocks north of St Johns Street (The Burnaby & New Westminster News, January 7, 1990: B-4).

The construction of the Trans Canada Highway (401) and the Port Mann Bridge in the early 1960's (Port Mann Bridge opened in 1965), provided another access to the North

East Sector. The Freeway (401) opened up the southern area of the Coquitlam to both residential and commercial/industrial development. There were two off-ramps constructed. The first was at Brunette Avenue, allowing traffic from North Road and Lougheed Highway to access the freeway. The second was at Cape Horn. The Cape Horn Interchange, just west of the Port Mann Bridge, allowed access to traffic from the Lougheed Highway, as well as egress for the freeway traffic.

The Cape Horn Interchange has undergone a number of modifications and improvements since its construction in the early 1960's, as the amount of traffic has increased. This caused the nature of the land use in the immediate vicinity to change from vacant flood plain and garbage dumps to industrial/commercial use. When Marathon Realty (C.P. Rail's real estate arm) first began to develop an industrial park (Mayfair Industrial Park) in the area adjacent to the freeway and the interchange, a network of access roads were constructed to service the new industrial park.

In the B.C. Department of Highways' Coquitlam Area Planning Study of 1971, (B.C. Department of Highways, 1971) there were a number of suggestions for possible new highway routes in and around the Cape Horn Interchange. One of these was the Port Coquitlam Expressway, a route along the north bank of the Fraser River and west bank of the Pitt River, linking the Lougheed Highway just west of the Pitt River Bridge to the Cape Horn Interchange (B.C. Department of Highways, 1971: Exhibit 28). The recommendations of the report suggested the Port Coquitlam Freeway or as it is now known, the Mary Hill Bypass, would not be needed before 1980 (B.C. Department of Highways, 1971: 51). This road was constructed in the early 1980's and additional off-ramps were built to allow traffic from the 401 and the Lougheed Highway to access or egress the industrial access roads or the Mary Hill Bypass.

At the present time, there is heavy commuter traffic originating from the rapidly expanding population of the municipalities east of the Pitt River. There is a bottleneck where the Bypass is reduced from four lanes to two lanes where the highway passes under the C.P.

Rail line just west of the Pitt River Bridge. There is also a controlled intersection where the Bypass joins the Lougheed Highway, and this contributes to the rush hour congestion. There have been suggestions for building a new Pitt River Bridge from Mary Hill in order to take pressure off this intersection. However, the costs as well as the possibility of the introduction of other modes of transportation (Transit, Commuter Rail, car and van pooling) have shelved the proposal.

In the early 1970's, due to commuter traffic congestion at the intersection of North Road and the Lougheed Highway, a road was constructed between Gaglardi Way and North Road, using an alignment along Como Lake Road and East Broadway. The use of the route, allowed some commuter traffic and the traffic to Simon Fraser University, to bypass the Lougheed Highway. This state of affairs has over the last 20 years created a good deal of concern and inconvenience for the Burnaby residents living along the routes or along Curtis/Parker which connects to Vancouver.

6.2.2 Proposed Highway Projects for the North East Sector.

As with other areas within the GVRD, there were a number of transportation proposals considered but for a variety of reasons not constructed. The most important of these reasons involved funding and political considerations. Some of the proposals have long since ceased to be viable as other routes have removed their need, while others are still viable and are awaiting the proper timing to be acted upon.

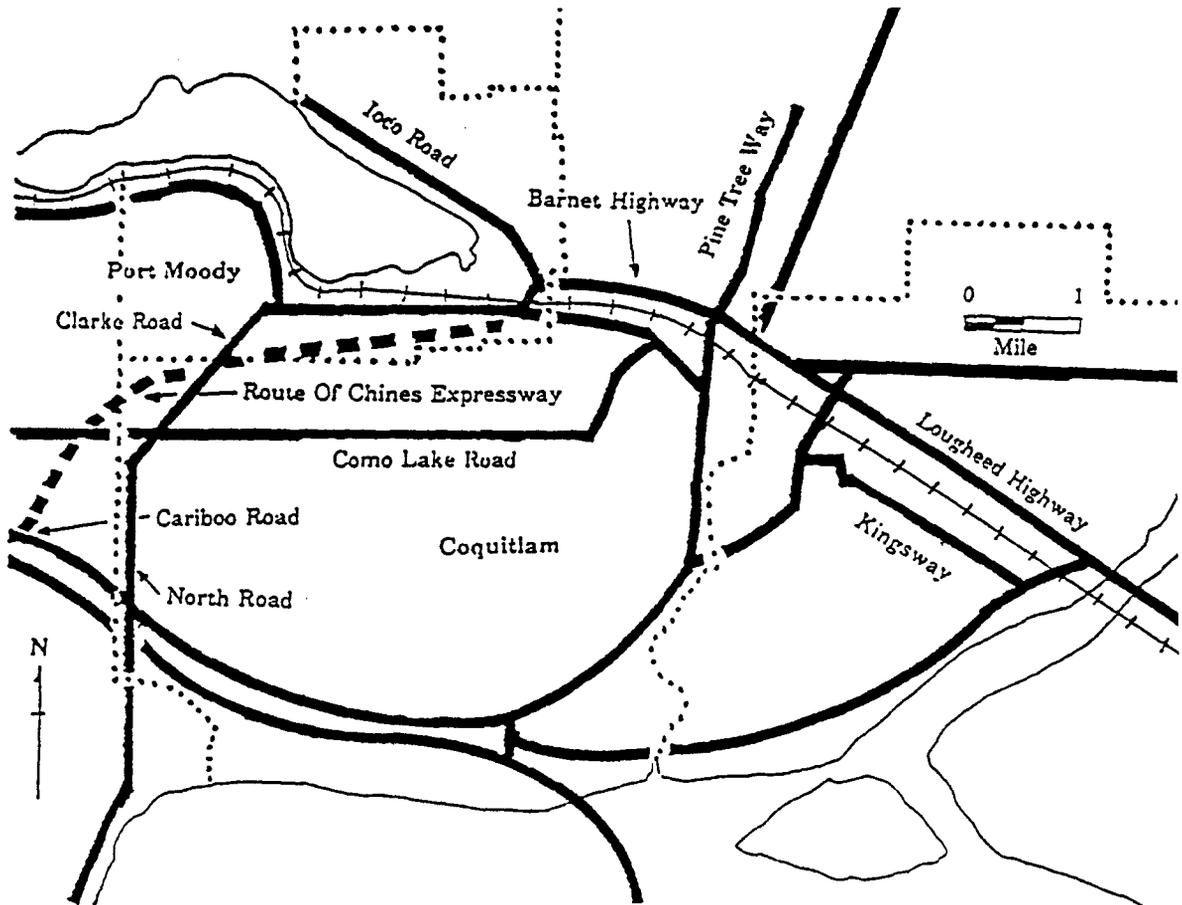
The proposed projects to be covered will include: the Port Moody Bypass or Chines Expressway, the more recent Port Moody Bypass, the David/Pathan Connector, the North Fraser Freeway, the Como Lake/East Broadway Connector, the Hastings/Gaglardi Connector, and the Burrard Inlet Waterfront Freeway.

Port Moody Bypass/Port Moody Highway/Chines Expressway/Burnaby Mountain Expressway.

This lengthy list of titles was assigned to a road project designed to remove traffic congestion from the centre of downtown Port Moody and offer an additional route allowing traffic to move from the North East Municipalities to the rest of the Metropolitan area. The high central ridge, with its steep slopes forming part of the western boundary of Coquitlam had served in the past to limit the viable possible routes that could be used to move traffic. (see Chapter 4 Section 2 "Physical Nature of the Study Area," which provides the geographical and geological information on the North East Sector.)

As the multitude of names suggests, there were a number of proposals, all of which used the same central routing, with each project's beginning and/or end point varying. One proposed route was to follow a right-of-way connecting the Trans Canada Highway at the Cariboo Road Interchange with the Lougheed Highway near Port Coquitlam (Buchanan, 1990). Another was to link up with the access roads built to service Simon Fraser University, and possibly link up with the eastern end of Hastings Street. The central part of most of the projects was to follow a route skirting the Port Moody-Coquitlam boundary and climb the steep embankment, utilizing a lengthy roadway so as to reduce the necessary gradient. The first proposal was suggested in a report entitled Planning for Coquitlam undertaken by the Lower Mainland Regional Planning Board in 1961 (LMRPB, 1961: 92; LMRPB, 1966a: 40).

Map 6-2 Route of Chines Expressway.



Source: Base Map, Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.2 "Proposed Residential Development Areas." Map located between pages 11 and 12.

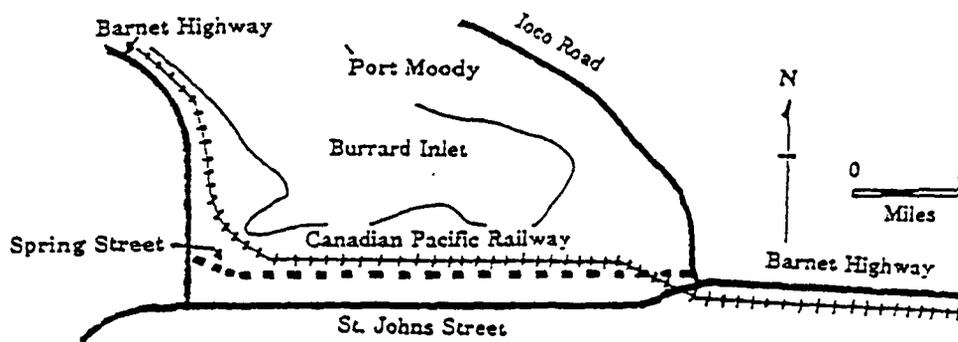
The Chines Expressway project was recommended by the City of Port Moody to the Provincial Highways Department for consideration, but little was done about it. In 1971, the Provincial Highways Department in a planning study of the Coquitlam area, concluded that "the proposed Port Moody Highway does not appear to serve a major travel desire." (B.C. Department of Highways, 1971: 37). Port Moody Council which had set aside lands for the route, was so upset at the apparent lack of action on what they perceived to be a very pressing transportation problem, expressed their disgust for the findings by asking the Provincial Government not to build any more freeways in the area (*Vancouver Sun*, April 19, 1972: 43).

The Highways Department explained the reason for the decision not to recommend the construction of the Port Moody Highway in its Coquitlam Area Planning Study. The route did not fulfil the projected travel desires, and its terminal location would result in a large volume of traffic being "dumped" onto already congested routes at the western terminus of the Highway (B.C. Department of Highways, 1971: 50). The lands on the proposed route have now been developed, thus rendering the project unfeasible.

Port Moody Bypass (Recent Proposal).

Due to the increasing traffic funnelling through the centre of Port Moody during rush hours, and the disruption it creates for residents and businesses along the St Johns Street, there has been increased pressure to resolve the congestion and inconvenience caused by traffic using this route. The topography of the area limits the practical routes available. Two modern proposals have been suggested. One will be discussed here while the other will be discussed under the David Avenue/Pathan Avenue connector. The one to be discussed here involves the construction of a road following Spring Street, which is north of St Johns Street) and south of the C.P. Railway line.

Map 6-3 Route of Port Moody Bypass (Spring Street).



Source: Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

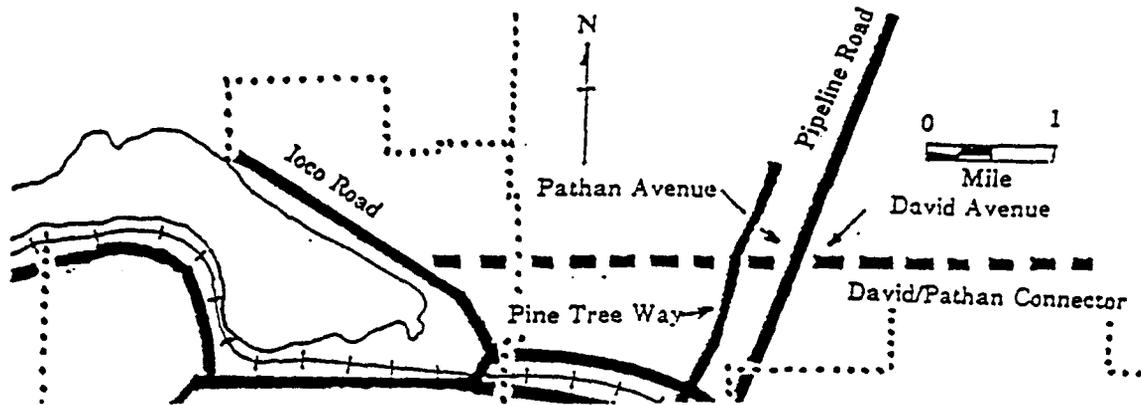
This route would carry traffic through the industrial area of Port Moody and over the C.P.R. Yards at the western end of Port Moody to connect with the Barnet Highway.

This route would begin at the junction of the Barnet Highway, Ioco Road, and St Johns Street, and carry the through traffic along a route either through the present industrial area, utilizing a viaduct to carry traffic over the industrial area, or along a route closer to the waterfront so as to avoid the costs relocating businesses. This route is at present under consideration as it appears to be the least expensive and could be completed within the shortest time compared to other automotive proposals.

The David Avenue/Pathan Avenue Connector.

The North West and North East Sectors of Coquitlam and Northern areas of Port Coquitlam have either experienced rapid growth or are projected to experience such growth over the next few years. To ensure east-west traffic does not have to make use of the few existing routes, a proposal has been put forward for a major roadway along the alignment of David and Pathan Avenues (Dunhill Development Corporation Ltd., 1975a: 41), from the Pitt River to Burrard Inlet with a bridge across the Coquitlam River, north of the Lougheed Highway.

Map 6-4 Route of David Avenue/Pathan Avenue Connector.



Source: Urban Transit Authority. *On Track for the 80's* Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 11 and 12.

This proposal was suggested in the mid 1970's by planners for the Burke Mountain Project. This would allow the freer movement of local traffic wishing to move about the area, as well reduce some of the congestion on the Lougheed Highway. An important feature of this proposal is the possibility of connecting the western end of this roadway to the Barnet Highway by the construction of a Bridge from Burns Point to Barnet Beach, across Burrard Inlet to create a major new east-west route within the Vancouver Metropolitan Region. This bridge/road proposal would aid in the removal of through traffic from the centre of Port Moody and render the construction of the Spring Street Port Moody Bypass unnecessary.

In a 1966 study, there was a suggestion to construct a North Shore Freeway, routed to the north of Port Moody, through Anmore and Bedwell Bay, then cross Indian Arm by bridge and connect with the Upper Levels Highway (LMRPB, 1966a: 40). There was also a suggestion of a rail link to North Vancouver utilizing this route (LMRPB, 1966a: 41).

A further suggestion for a northern expressway, has been the possibility of a bridge over the Pitt River to connect to a North Fraser Freeway to improve access to the rapidly growing north shore of the Fraser River east of the Pitt River.

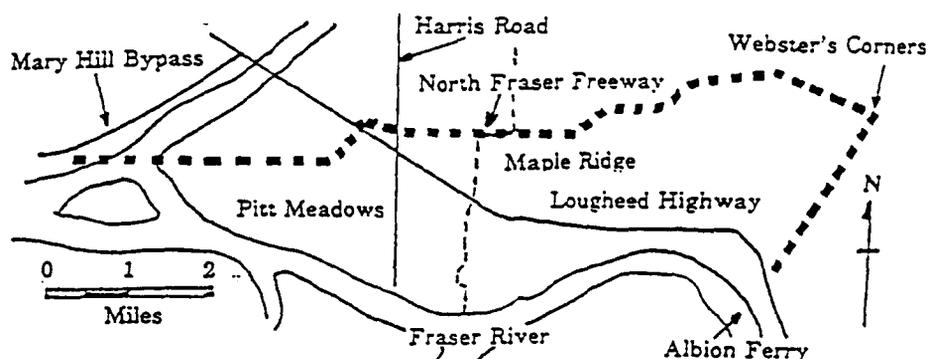
At present the David Avenue/Pathan Avenue Connector is merely a proposal, with little work having been effected. The Municipality of Coquitlam would be the major beneficiary of the proposal, and has reserved part of the corridor the connector might follow. Port Moody has actually constructed a short piece of the roadway, north of the Barnet Highway and along part of the Ioco Road right-of-way.

At the moment, there is not sufficient traffic to warrant this costly connector, but with the rapid increase in housing in the area, the pressures for the connector will increase unless a viable alternative is provided (i.e. Rapid Transit, Commuter Rail, or buses on exclusive right-of-ways).

The North Fraser Freeway.

With the rapid increase in housing in Pitt Meadows and Maple Ridge, the resulting increase in traffic has strained the existing roads. Commuters wishing to reach their work places in the rest of the GVRD have to cross the Pitt River Bridge which has two traffic lanes in either direction. At the present time, during rush hours, there is severe congestion experienced on the roads leading to the bridge. The presence of traffic signals at both ends of the bridge or the fact the bridge has to open for river traffic does not help the situation. A new high level crossing of the Pitt River from Mary Hill to Pitt Meadows, near the mouth of the Pitt River, with a limited access roadway north of the Lougheed Highway has been proposed.

Map 6-5 Route of North Fraser Freeway.



Source: British Columbia Agricultural Commission. "A Brief to the Dewdney-Alouette Regional District Transportation Committee." March 28, 1989 in Dewdney-Alouette Regional District, Transportation Committee Recommendations. Freedom to Move Mainland-Southwest -- Region 2. Victoria, B.C.: British Columbia Ministry of Transportation and Highways. 1989. Appendix B, map following page 7 of brief.

This could connect to 256th Street, with a bridge crossing the Fraser River near the Albion Ferry and enable the North Fraser Freeway to link with the Trans Canada Freeway in Langley as well as at the western end of the Port Mann Bridge in Coquitlam.

There has been a proposal to construct a new crossing of the Fraser River near the Port Mann Bridge. This would see the construction of a new bridge joining Mary Hill in Port Coquitlam to North Surrey. This would be in conjunction with an upgrading and widening of the Lougheed Highway and the 401 Freeway west of Port Mann Bridge. The proposal to build the North Fraser Freeway is currently under study, but there is an immense cost involved in the construction of the bridges and a lack of sufficient traffic to warrant it.

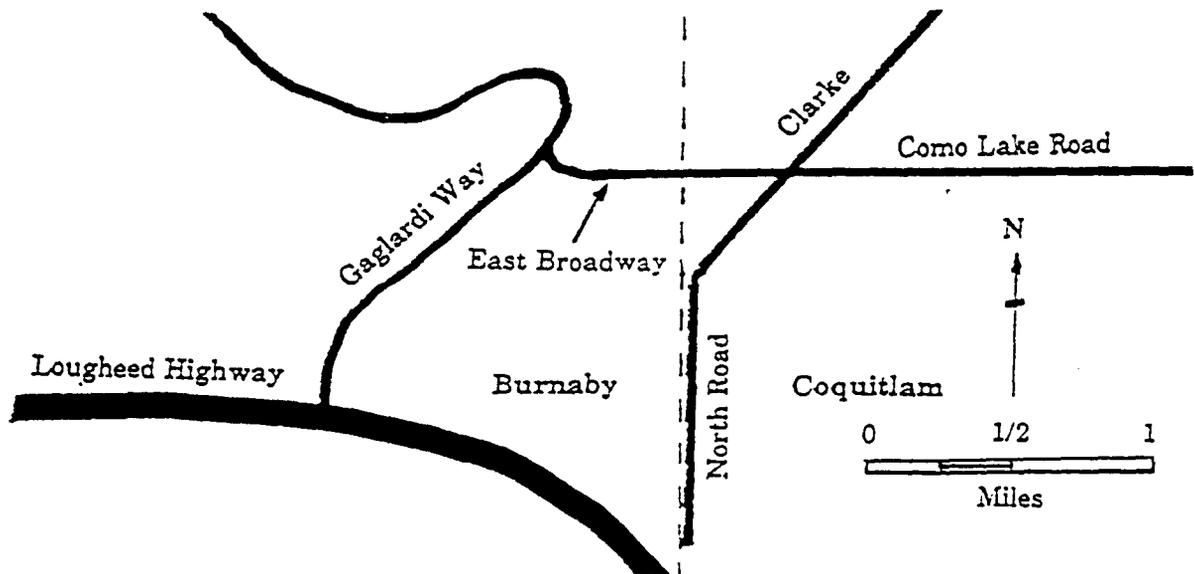
Como Lake/East Broadway Connector.

This connector was constructed during the 1970's. Its purpose was to take some of the traffic off the Lougheed Highway. The traffic previously had to travel south along North Road and converge with the already congested Lougheed Highway.

Presently traffic is congested on the East Broadway section of this road and there has been a proposal by the Provincial Highways Department to widen this stretch to funnel more

commuter traffic from the Lougheed and Barnet Highways onto Gaglardi Way and then via east-west streets to the downtown core. Como Lake Road, which has recently been ungraded to four lanes from approximately Mariner Way near Riverview Hospital through to North Road, funnels traffic onto two lanes on East Broadway. This creates a severe bottleneck at North Road.

Map 6-6 East Broadway/Como Lake Road.



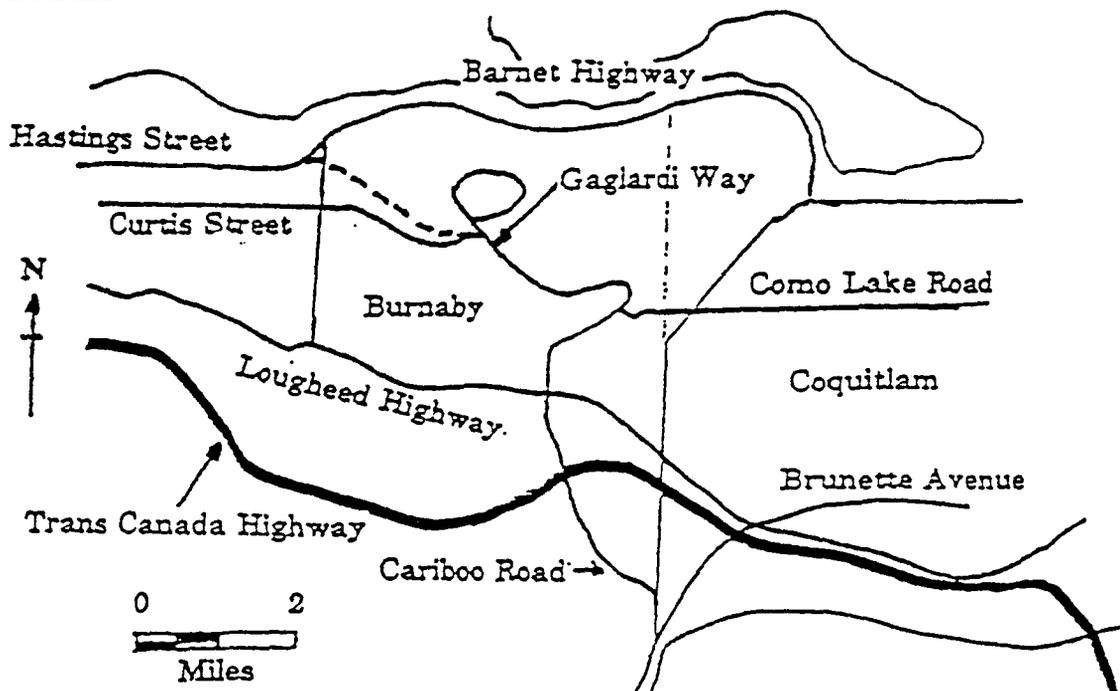
Source: Base Map, B.C. Transit. SkyTrain Extension to Coquitlam Transit Planning Study. Summary Report. Vancouver, B.C.: September 25, 1986. Figure 1 "Regional Transit System." Between pages 1 and 2.

The Burnaby Municipal Council has expressed concern about the proposal to widen East Broadway as traffic has to funnel itself onto two lanes of traffic on Curtis Street which is classed as a residential street, but has carried an increasingly higher number of vehicles over the years. At present (1989) traffic counts have shown upwards of 20,000 vehicles make use of this supposed residential road (Burnaby Now, October 8, 1989: 3). The residents have become increasingly vocal in recent years as a Hastings/Gaglardi Connector was promised over 20 years ago to prevent the present situation.

Hastings Street/Gaglardi Way Connector.

This connector was to link Gaglardi Way, to Hastings Street, to avoid the commuter traffic having to pass through the residential neighbourhoods along Curtis and Parker Streets.

Map 6-7 Route of Hastings/Gaglardi Connector.



Source: Base Map, B.C. Transit. SkyTrain Extension to Coquitlam Transit Planning Study. Summary Report. Vancouver, B.C.: September 25, 1986. Figure 1 "Regional Transit System." Between pages 1 and 2.

The concept for this connector was proposed as "a provincial project originating with the Simon Fraser University Master Plan." (District of Burnaby, Manager's Report, 1987: 1). In the 1979 Transportation Plan for Burnaby, the connector was seen to serve several purposes, including, the addition of a link in the arterial road network; removing commuter traffic from Parker/Curtis, downgrading the roads to collector classification; and reducing the grades for transit buses serving Burnaby Mountain (District of Burnaby, Transportation Committee, 1979: 25).

There has been a good deal of controversy and public concern over the possible construction of this connector. The citizens residing in the area impacted by the commuter traffic have over the last 15 years expressed impatience over the lack of progress. At the

public meetings dealing with Burnaby's response to The Greater Vancouver Transportation Task Force Report, one of the participants stated

there is an unacceptable number of vehicles moving along Curtis and Parker Streets, both residential streets, which should be diverted to either Hastings Street or Lougheed Highway the main provincial arterials. (District of Burnaby, Transportation Committee, 1989a: 3)

This stretch of road has not to date been constructed due to the Provincial Highways Department concern about

the double loading of Hastings Street by a widened Barnet Highway (a Ministry project) and the development of a new link from Hastings to Gaglardi Way (District of Burnaby, Manager's Report, 1987: 1)

The Burnaby Transportation Committee, in their response to the Greater Vancouver Transportation Task Force Report, noted the widening of East Broadway from Como Lake to Gaglardi was recommended as a necessary project, but the Hastings/Gaglardi Connector was not identified as such (District of Burnaby, Transportation Committee, 1989b: 3). Burnaby's response was the East Broadway widening should not take place without the Hastings/Gaglardi Connector, as the East Broadway widening would only serve to increase the amount of traffic using residential roadways within Burnaby.

Burrard Inlet Waterfront Freeway.

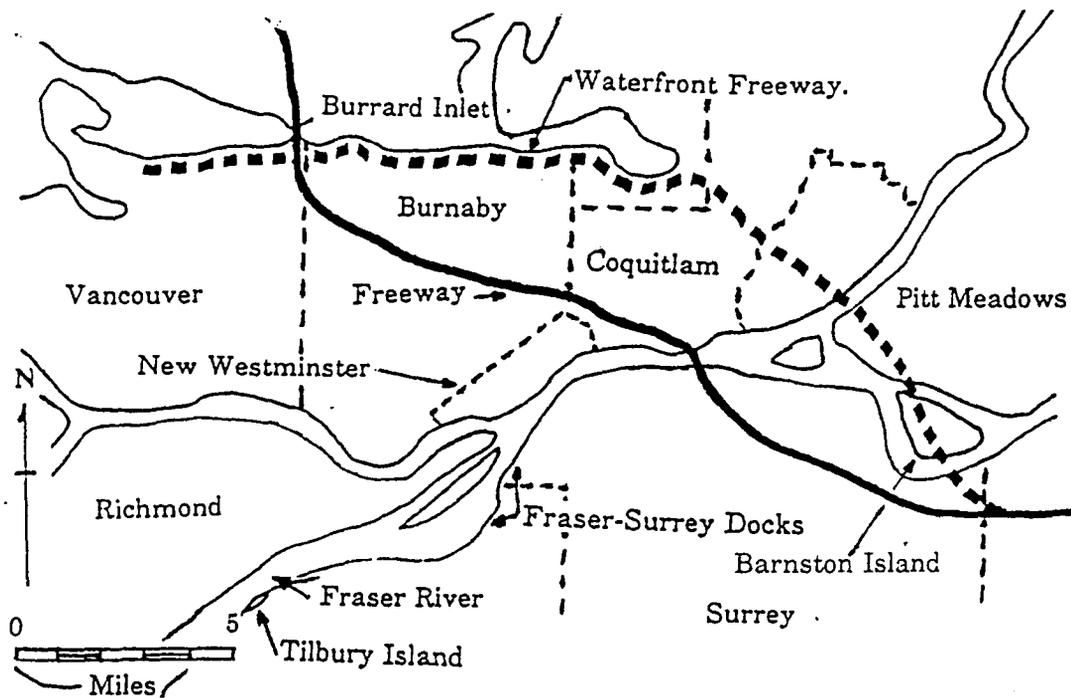
A waterfront freeway along the south shore of Burrard Inlet was proposed by a Mr. Burt Benson in 1975 (Romero, 1987: B-1). This proposal has subsequently been referred to as Benson's Waterfront Freeway, or Benson's Freeway.

The initial idea was composed of three sections. The first involved a plan proposing the freeway would:

run from downtown Vancouver along the south shore of Burrard Inlet to Port Moody; through Port Moody, the Coquitlam Town Centre area, Port Coquitlam, and across the Pitt River; then across the Fraser River at Barnston Island to connect with the Trans Canada Highway. (Buchanan, 1990)

This was the initial version suggested in the mid 1970's.

Map 6-8 Route of Benson's Waterfront Freeway.



Source: Base Map, Greater Vancouver Regional District. Greater Vancouver Key Facts: A Statistical Profile of Greater Vancouver, Canada Burnaby, B.C.: GVRD Development Services, December, 1990. Page 36.

Information, Romero, Reg. "Freeway attracts attention." Tri-City News October 18, 1987. Map, B-24.

A later version suggested an abbreviation of the first proposal. This would be the construction of a four lane arterial road that would in effect be an extension of the Barnet Highway, and would run along the waterfront from Inlet Drive in North Burnaby to terminate in Vancouver at the Second Narrows Bridge. It was suggested this section of the proposed road would have positive benefits as "it would take commuter traffic off residential streets in Vancouver and Burnaby" (Constantineau, 1981: A-3). This version of the plan was calculated to cost about \$30 million (Fitton, 1987: 8).

The second component of the plan included "associated cargo handling facilities to handle dangerous cargo at the head of Burrard Inlet in Port Moody and the C.P. Rail Yards in Port Coquitlam." (Buchanan, 1990). A benefit of this roadway would be to "reduce the number of transport trucks using local roads to carry hazardous goods" (Romero, 1987: B-1).

The Waterfront Freeway would also serve to link the various port facilities in the region. That is the Vancouver Port would be linked to the facilities at Port Moody, the intermodal facilities at the C.P. Rail Yards, the C.N. Rail Yards in Surrey and the port facilities along the south bank of the Fraser River (Surrey-North Delta Docks, and Tilbury Island). An additional benefit of this proposal, aside from the elimination of dangerous cargos from the existing congested roadways, would be a reduction of the heavy truck traffic travelling between the different port facilities on the local roads within the region.

The third component involved the development of a marina in the vicinity of Berry Point in North Burnaby.

This facility was proposed to accommodate the fishing and marine industries, which were being displaced by redevelopment in the Coal Harbour and False Creek areas of Vancouver. (Buchanan, 1990)

The proposal has been included in a number of transportation studies of the Municipality of Burnaby.

The Municipality first considered the technical feasibility of the Waterfront Road in 1979/80 subsequent to the adoption of the Comprehensive Transportation Plan. (District of Burnaby, Manager's Report, 1987: 1)

A feasibility study was undertaken in 1981 for a joint Burnaby and Ministry of Transportation and Highways Technical Staff Committee (District of Burnaby, Manager's Report, 1987). The result of the study was the project appeared both technically feasible as well as economically desirable. However, nothing further was done at that time as the Ministry bearing the responsibility for the project "was not interested in pursuing the proposal." (District of Burnaby, Manager's Report, 1987: 2). A third study was commissioned in 1987. The study was initiated due to concerns about traffic problems expressed when a review of the Hastings Centre Plan was undertaken. The study discussed the costs and benefits of the waterfront road, and its potential impact upon the various municipalities. The findings indicated the residents of the North East Sector would benefit most from the road.

The extra road capacity along Burrard Inlet will reduce congestion pressure on corridors to the south of Burnaby Mountain such as Austin and Lougheed Highway. (District of Burnaby, Manager's Report, 1987: Exhibit 2)

In Appendix A of the Report, it was calculated that the road would carry 2,245 vehicles per hour. The road would thus reduce the amount of commuter traffic from the North East Sector using the arterial roads within Burnaby. The Report estimated 1,600 vehicles per hour would be removed from Hastings Street if the Waterfront Road was constructed. As the Waterfront Road would have few links with Burnaby's streets, it would allow commuter traffic to travel uninterrupted. An observation made in the Appendix was the impact of the route would decrease rapidly with the distance from its western end (District of Burnaby, Manager's Report, 1987: Appendix A 5).

One of the advantages of the waterfront route would be the opportunity to develop an express bus service more cost effective than commuter rail (District of Burnaby, Manager's Report, 1987: Appendix A 6). On the negative side the waterfront freeway "is not expected to be as cost effective as widening the freeway." (District of Burnaby, Manager's Report, 1987: Appendix A 6).

At the present time (1990) Burnaby Council has expressed an unwillingness to consider a waterfront freeway. The Council wishes to retain the waterfront for park use, and feels the improvement of transit or introduction of commuter rail on the C.P. Rail line would be more beneficial than building more roads.

6.3 TRANSIT PROPOSALS: 1951 TO 1990.

6.3.1 Transit in the Study Area.

In the period prior to 1951, although the population was very small, the study area was served by two private transit companies, the Columbia Stage lines and the Pacific Stage Lines, a subsidiary of the British Columbia Electric Railway Company. The service provided by the Pacific Stage Lines was limited to the main nodes of activity within the study area

(Maillardville in Coquitlam and the Port Coquitlam business area) and provided one round trip daily. This type of service was not suitable for commuter purposes.

Columbia Stage Lines, which began operations in 1934 (Canadian Coach, July, 1969: 3) provided a rudimentary bus service from Port Moody through Coquitlam to New Westminister. The service was operated along the various routes several times each day. Due to increased competition from private automobile ownership within its service area, coupled with increased operating costs, the company was forced in early 1968 to apply to the Public Utilities Commission for permission to reduce its evening service after attempts by the company to seek financial assistance for its service from the Councils of Port Moody and Coquitlam met with failure (Canadian Coach, February, 1968: 5). On May 23, 1969, the Columbia Stage Lines ceased operations (The Province, December 31, 1973: 16; Canadian Coach, July, 1969: 3) leaving the 70,000 residents of the area without transit services. B.C. Hydro, the Provincial Government agency charged with the responsibility of operating the transit services department of the nationalized B.C. Electric Company "firmly stated that it is not interested in extending its routes which fringe the area." (Canadian Coach, July, 1969: 3).

On October 22, 1969, a local company, Sabina Enterprises Ltd. (also known as Sabina Inter-City Transit), began local transit operations utilizing eight surplus B.C. Hydro Transit Buses (Canadian Coach, November, 1969: 1; The Province, December 31, 1973: 16). The company began servicing the Coquitlam, Port Coquitlam and Port Moody areas along three routes on a six day per week schedule (Canadian Coach, November, 1969: 4). The company managed to continue operations until 1973 despite low public patronage caused by an inability to provide a reliable service due to poor equipment and inadequate finances. The company, whose finances had always been precarious, had proposed to initiate a dial-a-bus system and the City of Port Coquitlam offered to provide \$12,000 to assist with the scheme (The Province, December 31, 1973: 16). This offer of financial assistance, however, was dropped after the sudden action of the Provincial Government in authorizing the successor to B.C. Hydro Transit (Province of British Columbia, 1973b: 1666) to provide transit service to

the area. This action made the efforts of the local private service redundant and resulted in its demise.

In 1973 the Provincial Government operated Bureau of Transit (later B.C. Transit) began to provide local transit services as well as express buses to downtown Vancouver (Bureau of Transit Services, 1974: 2). The rationale for extending regional transit services into the Coquitlam/Port Coquitlam/Port Moody areas, was based upon two points. The first was, part of the region was the home riding of the new premier, and an election promise was to establish transit services (Province, December 31, 1973: 16). The second reason was the Government's desire to create a large residential community in the northern part of the study area, on the slopes of Burke Mountain. This new community was to house 80,000 to 100,000 people. The local communities would not co-operate in the promotion of this instant community unless the then existing traffic problems were addressed.

The study area contained approximately 90,000 people, scattered over 40 square miles, and with an increasing population, the existing roads and bridges did not have sufficient capacity. A road development study commissioned by the City of Port Coquitlam in 1970, noted that during the am peak traffic period, the intersection of Pitt River Road and the Lougheed Highway way accommodating 109 per cent of its theoretical capacity (Associated Engineering Services Ltd., 1970: 25). The east bound pm peak traffic period saw the intersection of Pitt River Road and Shaughnessy Street accommodating 101 per cent of its theoretical capacity (Associated Engineering Services Ltd., 1970: 25). The traffic levels at other intersections were for the most part below the rated capacity, though there were a few exceptions.

The study provided a projection of possible traffic volumes likely to be created by the increasing residential developments that were being proposed. Eastbound traffic at the Pitt River Road and Shaughnessy Street intersection was projected to be in 1973 at 175 per cent capacity, while eastbound traffic at the Lougheed Highway and Shaughnessy Street was projected to reach 150 per cent of capacity (Associated Engineering Services Ltd, 1970: 34).

These projections assumed continued rates of growth and no major road or bridge improvements. The information presented in the report suggests that the road capacity was sufficient for existing traffic except during peak periods. Additional residential developments would have a negative impact upon the available road capacities, and create traffic congestion at key intersections. One of the options available to relieve the problem of increased peak hour traffic congestion was to provide another means of moving increased numbers of people. Transit service linked into the existing regional system appeared as the best viable option. The transit service option was made operational in 1973.

The new service in 1973 consisted of 10 local routes and two express buses, one from Lougheed Mall and the other along the Barnet Highway (Bureau of Transit Services, 1974: cover letter). In a study of the first year of operation, it was found that 25 per cent of all trips were related to work, 23 per cent to shopping, and 13 per cent to school. The remainder were for recreation, or personal business reason (Bureau of Transit Service, 1974: 9).

Increased residential development and the construction of Coquitlam Centre Shopping Mall, brought about a number of new routes and express bus service during rush hours. Since the mid 1980's Transit has commissioned a number of studies to aid in the planning and design of proposed new bus routes to serve new residential communities being constructed on the as yet large expanses of vacant lands still existing in the North East Sector. In 1990, there were two studies conducted to seek public input concerning a new routes, to serve the Westwood Plateau (B.C. Transit, 1990a) and the Citadel Heights area of Port Coquitlam (B.C. Transit, 1990b).

Transit has evolved a process for introducing new routes into formerly unserved areas. The process is to provide an initial service operating only during the morning and evening rush hours. When demand increases, the service hours are extended to ensure the costs of providing this service are kept to a level reflecting the level of patronage. The rationale for this process is reflected in the findings of the reports. The main trips generated by the residential areas are work and school trips (B.C. Transit, 1990a: 3). The rush hour

service within the new subdivisions also has the purpose of reducing the automobile dependency of the residents.

6.3.2 Proposals to Improve Transit in the Study Area.

It is difficult to separate the needed transit improvements of the North East Sector from those of other areas within the Greater Vancouver Region. The transit needs of each area are linked, as they impact on each other and so the improvements will be discussed in this section although some of the information is also applicable to the whole of the region.

Since the early 1970's there have been a number of proposals for the improvement of transit within the study area as well as the improvement of the transit linkages to other areas within the transit service area.

The transit proposals have included the use of conventional buses, express buses, commuter rail, and some form of Light Rapid Transit. The use of conventional and express buses have been initiated, but the later two suggestions are still before the planners and the politicians.

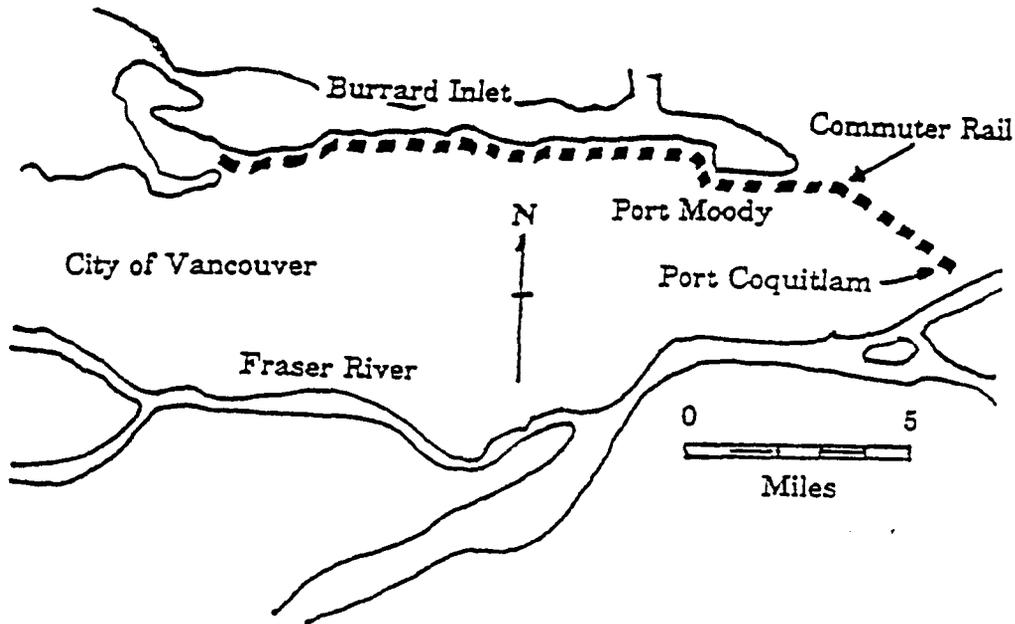
Commuter Rail.

One of the more persistent proposals to resolve commuter traffic in the North East Sector has to do with the concept of Commuter Rail. The origins of the modern suggestion for using the local rail lines to move large numbers of rush hour commuters goes back to the time when the B.C. Electric Railway Co., finished converting its fleet of interurban and street cars to rubber tire buses in April, 1955. Transportation planning in the decade after this was oriented to the construction of freeways to accommodate automobiles. In the mid 1960's, public concern over the impact on neighbourhoods from the routing of major roadways through urban areas, caused planners to look to transit as the most efficient means of moving large numbers of commuters.

The first regional planning document to suggest commuter rail, was a 1967 proposal for a Metropolitan Vancouver Transportation study by the Lower Mainland Regional Planning Board (LMRPB, 1967: 1). A change in the political party governing British Columbia in 1972, brought about a change in urban transportation philosophy. Transit was considered to be more effective than freeways and the Provincial Government, set about to up-grade the existing inadequate transportation infrastructure. There was a suggestion to construct a Light Rapid Transit line to service the new development on Burke Mountain as well as to make use of the existing railway lines to introduce commuter rail (Dunhill Development Corporation Ltd., 1975a: Map 7).

Negotiations were entered into with the C.P.R. and in the 1974 Burke Mountain development proposal, it was announced commuter rail was likely to be in place within two years (Dunhill Development Corporation Ltd., 1975a). A change of government in late 1975 resulted in a corresponding change of philosophy on transportation. The North East Sector land development plans were cancelled, and the commuter rail proposal was placed on hold. However, the increase in residential land use and increasing commuter traffic on the already insufficient road network of the study area, as well as pressure from the local councils and residents, caused the Provincial Government to order a feasibility study of Commuter Rail within the North East Sector in 1979 (Urban Transit Authority, 1980a). The following year a more extensive study was commissioned proposing an integrated commuter transit system for the lower mainland, stretching from downtown Vancouver to Mission. The Rail section of the line would run as far as Port Coquitlam with a bus line extending further east to Mission (Urban Transit Authority, 1981).

Map 6-9 Route of Commuter Rail.



Source: Base Map, Parkinson, Tom E. "Light Rail in Western Canada: Vancouver, Edmonton, Calgary, Winnipeg." in *Transit Canada* May/June 1975 Volume XI Number 3, pages 7 to 10. Map illustrating possible routes for LRT and commuter rail. page 7.

The GVRD in a 1982 five year conceptual plan for transit mentions negotiations were underway and upon completion (by late 1982) "it can be expected that the commuter rail/bus service . . . may commence service by early 1984." (Greater Vancouver Transit System, 1982b: 42-44). During the negotiations with the C.P.R., the Railway announced that before commuter rail could use the Vancouver to Port Coquitlam line, up-grading and signaling equipment would be necessary. At this point the Provincial Government was involved with planning an ALRT system (SkyTrain) for the GVRD, with a proposal for an extension from New Westminster to Lougheed Mall in Coquitlam as Phase 1, and a further extension to Coquitlam Centre sometime in the future when sufficient passenger traffic warranted its construction.

The Commuter Rail Project languished up to 1989, partially due to the cost of improving the C.P.R. line and the apparent reluctance on the part of the Provincial Government to authorize another form of transit which might draw public support away from

the proposed ALRT line extension to Coquitlam. At this time, the Chief Operating Executive of B.C. Transit, Mr. Michael O'Connor, announced Commuter Rail was dead (Burnaby Now, August 1, 1990: 5). A meeting of concerned Mayors from the North East Sector, Dewdney-Alouette Regional District, and other interested parties was held on August 22, 1989 in Port Moody to discuss means of reviving the project.

In 1989, VIA Rail announced cut-backs of the cross-Canada rail passenger service. As part of the VIA route used C.P.R. right-of-way from New Westminster to Mission, interested parties suggested commuter rail could make use of this route which would take passengers to the Main Street Station of VIA Rail, and allow access to the adjacent SkyTrain line through the Main Street SkyTrain Station (Vogler, 1990; Smith, 1990a: 8). This concept was not new as the De Leuw Cather Report of 1970 on Transit suggested the use of the C.N./B.N. rail line from Main Street to New Westminster, then the use of the C.P. Rail line from there towards Mission (De Leuw Cather, 1970: Exhibit #6).

In spite of the announcement by the Provincial Government of the demise of commuter rail, local politicians have been keeping the issue alive. "Burnaby North MLA Barry Jones wants Burnaby Council to support his call for a trial commuter rail run." (The Burnaby & New Westminster News, October 17, 1990: 13). At the present time the concept of Commuter Rail is still before the public and may yet again be revived.

The history of the evolution of the concept of commuter rail is a long and complicated one. To adequately understand it and also to gain an understanding of the forces and processes involved in transportation planning and decision making in the Lower Mainland, a more extensive discussion of Commuter Rail can be found in Appendix #2, "Commuter Rail."

Rapid Transit (L.R.T.) and Conventional Transit.

De Leuw Cather & Co. 1970 suggested there would be need of Rapid Transit by the year 2000 as the population of the Greater Vancouver Region was forecasted to double in 30 years. There were to be four routes focused on the Central Business District in Vancouver.

There would be a line from the North Shore, that could have three sections. One would run into West Vancouver, another would run north from the Inlet crossing to the Upper Levels Highway, while the third would run parallel to Marine Drive to Lonsdale then run up towards the Upper Levels Highway (De Leuw Cather & Co., 1970: Exhibit #2). The next route would travel south from the CBD along the Arbutus Railway Alignment to Richmond. The third route would follow the old Central Park Interurban alignment paralleling Kingsway to Edmonds Street in Burnaby, then follow an alignment taking the Rapid Transit line down 6th Street (Along the original Streetcar route), then across the Fraser River to Surrey. The Fourth and final route would follow Hastings Street, by placing the line underground from Clark to Willingdon (De Leuw Cather & Co., 1970: 42). The line was to later be extended to the vicinity of Lougheed Mall. It was suggested feeder buses and automobiles would transport the passengers to the Rapid Transit Stations.

The idea of using LRT to service the suburbs in the North East Sector was first proposed in the Burke Mountain New Community proposals presented in the mid 1970's (Dunhill Development Corporation Ltd., 1975a: 40). The use of LRT to serve the area was considered at the time to be a reasonable proposal, as the abandoned right-of-way of the B.C. Electric Railway (from Port Moody to the Coquitlam Lake Dam) was available and could be upgraded for the purpose. However, this concept was abandoned when a change in the Provincial Government resulted in cancellation of the Burke Mountain Project.

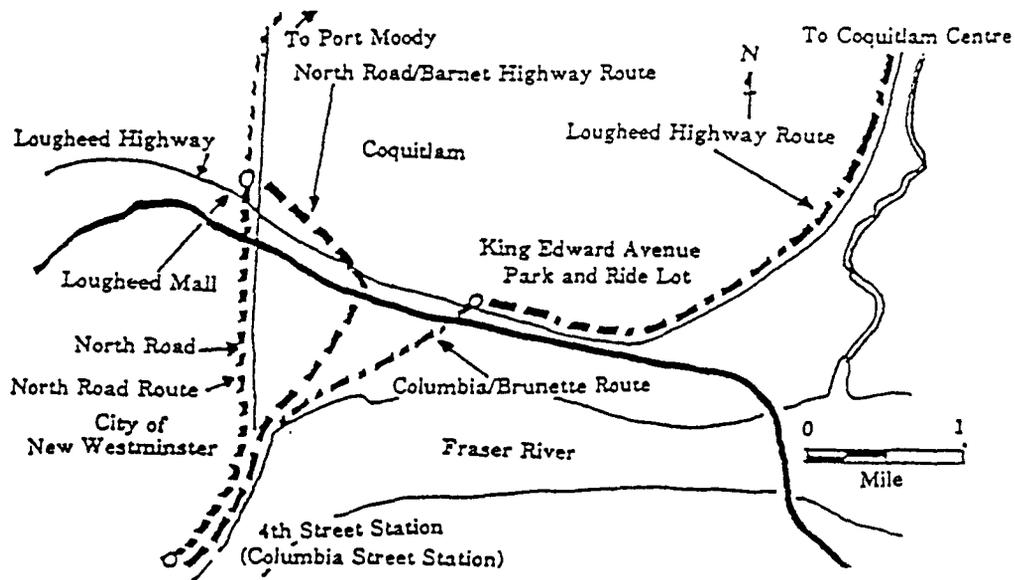
During the late 1970's and early 1980's when Light Rapid Transit was being considered for the Lower Mainland, there were suggestions for an LRT line to serve the North East Sector. When the form of the technology for LRT had been decided upon, in the early 1980's (Urban Transit Authority, 1981/82: 12), and the route for the system was being selected, there was the suggestion that after the initial line had been constructed, from Vancouver to New Westminster, branch lines be considered, to serve the suburbs.

On March 1, 1982 the ground-breaking ceremony was held to mark the beginning of construction of a demonstration section of the ALRT (Automated or Advanced Light Rapid

Transit), later to be known as SkyTrain. Shortly afterwards, construction of the main route, from the Waterfront to New Westminster was begun and was finished in late 1985. There were a number of studies undertaken at the time concerning the extension of the SkyTrain to Lougheed Mall or to King Edward Avenue (site of a large park-and-ride lot) to serve the North East Sector. A 1983 study commissioned by the GVRD, examined the feasibility of the extension of the ALRT to both the North East Sector and Surrey (GVRD, 1983: 1).

There were several possible routes available for ALRT to serve the North East Sector (B.C. Transit, 1986: 1).

Map 6-10 Light Rapid Transit routes.



Source: Base Map, B.C. Transit. SkyTrain Extension to Coquitlam Transit Planning Study. Summary Report. Vancouver, B.C.: September 25, 1986. Figure 1 "Regional Transit System." Between pages 2 and 3.

The first was an extension of the line from New Westminster following North Road to Lougheed Mall. The advantage of this route was the access provided to an already existing major retail and transportation focal point. Another possible route to the Lougheed Mall would follow Edmonds Street in Burnaby, then pass through Burnaby Park, across the 401 Freeway to reach the Mall (District of Burnaby, Manager's Report, 1986). This route offered the

advantage of being shorter than the route from New Westminster. A third proposal would see the line follow Brunette Street to the Lougheed Highway, then east to King Edward Avenue where a large park-and-ride lot existed, located adjacent to the Lougheed Highway and the 401 Freeway. This lot was in an industrial area, away from existing residential or retail/commercial uses. The soil conditions in the area are of a silt/peat nature which make foundation construction extremely expensive.

The ultimate destination for the Coquitlam ALRT line was the Coquitlam Centre Mall. The choice of the first leg of the project would possibly dictate the second. If Lougheed Mall was chosen as the first destination, then the second leg would likely run north to Port Moody, then east to Coquitlam Centre Mall. This route would stimulate development of the vacant land on the north shore of Port Moody. If King Edward Avenue was chosen, then the most likely route would be one following the Lougheed Highway to Coquitlam Centre. A disadvantage of this route would be the lands along it are either vacant or have low density residential use and thus there would not be the ridership to make the ALRT viable. An advantage of this route, however, might be the opportunity to create new higher density residential developments in the area and reduce the pressures upon farm lands south of the Fraser River.

A variation of the routing from Lougheed Mall, would be possible if the Edmonds route to Lougheed Mall were used, as it would then be possible to choose between the Port Moody alignment or the Lougheed Highway alignment (B.C. Transit, 1986: Figure 3).

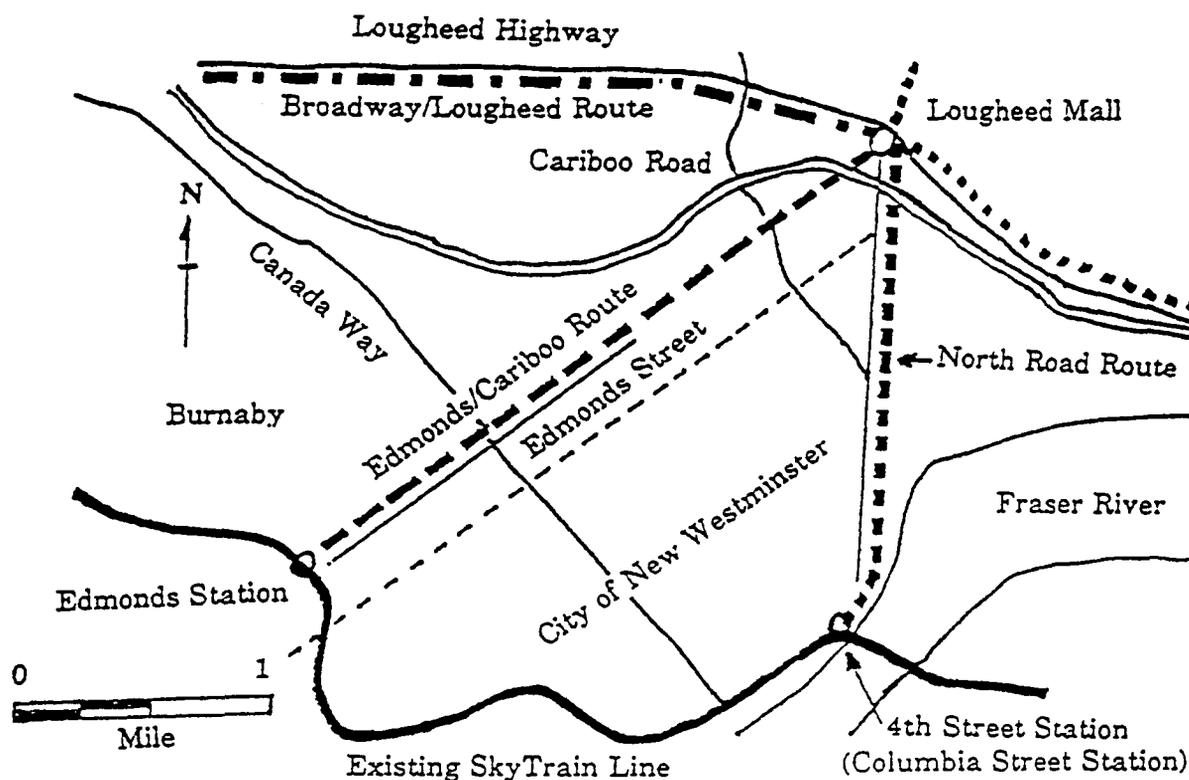
In late 1985, when the first section of the ALRT was completed, the Provincial Authorities decided due to the high costs of construction, any additional segments would have to wait until there was sufficient demand to justify the expense. This state of affairs continued until 1989, when traffic conditions deteriorated to such an extent that local politicians and residents began to pressure the Provincial Government to begin construction of this segment of the ALRT.

Current LRT Proposals. 1990.

In 1989, the Minister in charge of Transit announced the Provincial Government would extend SkyTrain (LRT) to Whalley in Surrey. The North East Sector Mayors became increasingly vocal over their area's need for transportation improvement especially when the Surrey extension was seen as a decision made more on political grounds, than need. At this time the Provincial Government had sold a large parcel of undeveloped land in Coquitlam (Westwood Plateau). The Mayor of Coquitlam, Lou Sekora was reported in the local newspaper as saying "I certainly can't support rezoning the Westwood Plateau lands until we have some transit." (The Province, March 11, 1990: 5). The result of the local concern was the Provincial Government announcing the creation of a committee to assess the best route to serve the North East Sector and that construction of the first segment would begin in mid 1992 (Smith, 1990b: 3). The terms of reference for the committee members was outlined in correspondence sent to Burnaby and included in the Council's agenda (District of Burnaby, 1989: 33-34).

The Coquitlam SkyTrain Route Advisory Committee was initially authorized to study three possible routes to the Lougheed Mall from the existing SkyTrain line.

Map 6-11 North East Sector SkyTrain proposed routes.



Source: Base Map, B.C. Transit. SkyTrain Extension to Coquitlam Transit Planning Study. Summary Report. Vancouver, B.C.: September 25, 1986. Figure 1 "Regional Transit System." Between pages 3 and 4.

The first routes was to leave the line in New Westminster and follow North Road or Brunette Avenue to the Mall. The second route was to leave the SkyTrain line near Edmonds Station and follow an alignment along Edmonds Street, then through Robert Burnaby Park to the Lougheed Mall. Finally, the third route was to leave the SkyTrain line at the Broadway Station in Vancouver and follow the Lougheed Highway to the Lougheed Mall.

The Broadway or Lougheed Highway SkyTrain route was removed from the terms of reference for the Coquitlam SkyTrain Route Advisory Committee by the Provincial Government in April, 1991 (Hilborn, 1991b: 9). An issue of the SkyTrain Coquitlam

Extension public information paper, offered reasons for the removal of the Broadway route from consideration. These reasons include:

- At this time it is outside the scope of the province's announced rapid transit program and funding.
- it traverses the City of Vancouver, which has not been involved in the planning process; and
- compared to the other two corridors it provides poor connections to the existing SkyTrain line. (B.C. Transit, 1991a)

Burnaby council felt this decision did not take into consideration, the long term benefits the Broadway route offered. In an interview with a local newspaper, Burnaby Alderman Doug Drummond, a member of the Coquitlam SkyTrain Route Advisory Committee, noted "the alignment would be more accessible to a greater number of people than a single extension along the Edmonds or New Westminster corridors." (Hilborn, 1991b: 9). Statistics provided by B.C. Transit, support this view. The statistics indicate the likely ridership of the Broadway line would be 16.7 million compared with 10.6 million for Edmonds and 8.8 million for New Westminster (B.C. Transit, 1991a: 3). The travel time for Broadway would be identical with the Edmonds route at 26 minutes, compared to 35 minutes for the New Westminster route (B.C. Transit, 1991a: 3). The cost of the Broadway line at \$480 million compared to \$225 for New Westminster and \$245 million for Edmonds appears to be the principal reason for rejecting this route (B.C. Transit, 1991a: 3).

A leaked confidential memo from a transportation consultant to the B.C. Transit president was published in the local Burnaby newspapers (Horn, 1991a: 1; Burnaby Now, April 24, 1991: 5). The memo suggests that despite a promise from Coquitlam SkyTrain Route Advisory Committee, and B.C. Transit to consider all the routes and listen to the comments and concerns of the affected citizens, a decision had already been made in favour of the Edmonds route. An editorial in a local newspaper commented that:

there is something fundamentally insulting in a process which promises that the public will have input before a decision is made and then seemingly ignores that process . . . A year ago, the premier herself, then transportation minister, inadvertently announced the Coquitlam SkyTrain extension would run along the Edmonds alignment . . . There have been too many 'inadvertent' references to the Edmonds route to attribute to absentmindedness. (Burnaby Now, April 24, 1991: 6)

A result of the controversy has been the resignation of one of the Committee members and a loss of credibility in the route choice process (Hilborn, 1991c: 1, 5).

In spite of the apparent reluctance of the provincial government to consider the Broadway/Lougheed Corridor in planning for the Coquitlam rapid transit extension, Trileta Centres, the owner of two shopping malls along the route decided to commission its own feasibility study. The Company hired six consulting groups to research and write the report titled Let's Do It Right! The Lougheed Corridor: A Key to Regional Transportation (Aitken Wreglesworth Associates et al., 1992), then presented the results to the Burnaby Council who were in support of the Broadway/Lougheed route over the other routes (Marziali, 1992: 3). The report concluded that the Broadway/Lougheed Corridor, aside from the higher construction costs, was a superior route to the other two (Aitken Wreglesworth et al, 1992: 31). The superiority was seen to be in the size of the population served, greater development potential of the lands along the Lougheed Highway, the potential for greater employment creation, and a lesser impact upon the environment and existing neighbourhoods (Marziali, 1992: 3). The report also concluded the "Lougheed Corridor presents a major opportunity for enacting long term integrated land use and rapid transit planning." (Aitken Wreglesworth Associates et al., 1992: 32). The report suggested integrated long term land use and transit planning should be the rationale for judging the benefits of the choosing of the best route, not the present rationale of "which route would provide the lowest capital cost terminus to terminus connection." (Aitken Wreglesworth Associates et al., 1992: 1).

Two other possible routes had been suggested at the same time as the three routes that have already been discussed. Early 1990, B.C. Transit announced two other possible

routes would be considered for study. These routes would run from the Waterfront Station end of the existing SkyTrain line to the Pacific National Exhibition (PNE) grounds in East Vancouver, then one would follow the waterfront to Port Moody, while the other line would travel south and around Burnaby Mountain to Coquitlam Centre (Austin & Turnbull, 1990: 4).

6.4 STUDY AREA TRAFFIC IMPACTS ON ADJACENT AREAS.

Impacts on Adjacent Municipalities.

This is the final part of the case study and will discuss the impacts the traffic problems and their possible solution may have upon the municipalities adjacent to the North East Sector. The two municipalities most directly impacted are the Municipality of Burnaby and the City of New Westminster. Burnaby.

The Municipality of Burnaby has had to contend with traffic congestion on its major road network over the past decades. Burnaby "suffers from some of the worst motor-vehicle nightmares in the Lower mainland." (Smith, 1989a: 5). Staff Sergeant Ron Poulter, head of the Burnaby R.C.M.P.'s traffic section, "the largest traffic section of all the RCMP detachments in Canada" (Smith, 1989a: 5), said:

The major problem rests with commuters travelling in and out of the Greater Vancouver area, coming from their homes in the Fraser Valley or the north side of the Fraser River. Burnaby, meanwhile, has two major roads for the commuters to use: the Lougheed Highway and Highway No. 1. Barnet Highway is also a well-used route.

"A lot of commuters from outside areas, commute through Burnaby to their places of work and increase traffic on arterial routes in the municipality," explained Poulter. The road system in the Lower Mainland is not adequate for carrying the number of vehicles coming into the area each day, and has not kept up to the increase in population.

"Our roads are overloaded--that's the bottom line. There are just too many cars for the amount of roads we have" (Smith, 1989a: 5).

As the municipalities to the east develop, more commuter traffic is generated. A Burnaby Alderman commented "every community to the east of us would like to drive 1,000 roads through Burnaby. And we don't need any new roads." (Burnaby Now, November 28, 1990:

5). In a newspaper article entitled "Burnaby won't be an intersection", the Mayor stated "I will oppose any road development which will create further traffic problems and congestion and is of little or no benefit to the citizens of Burnaby." (Holland, 1976: 5).

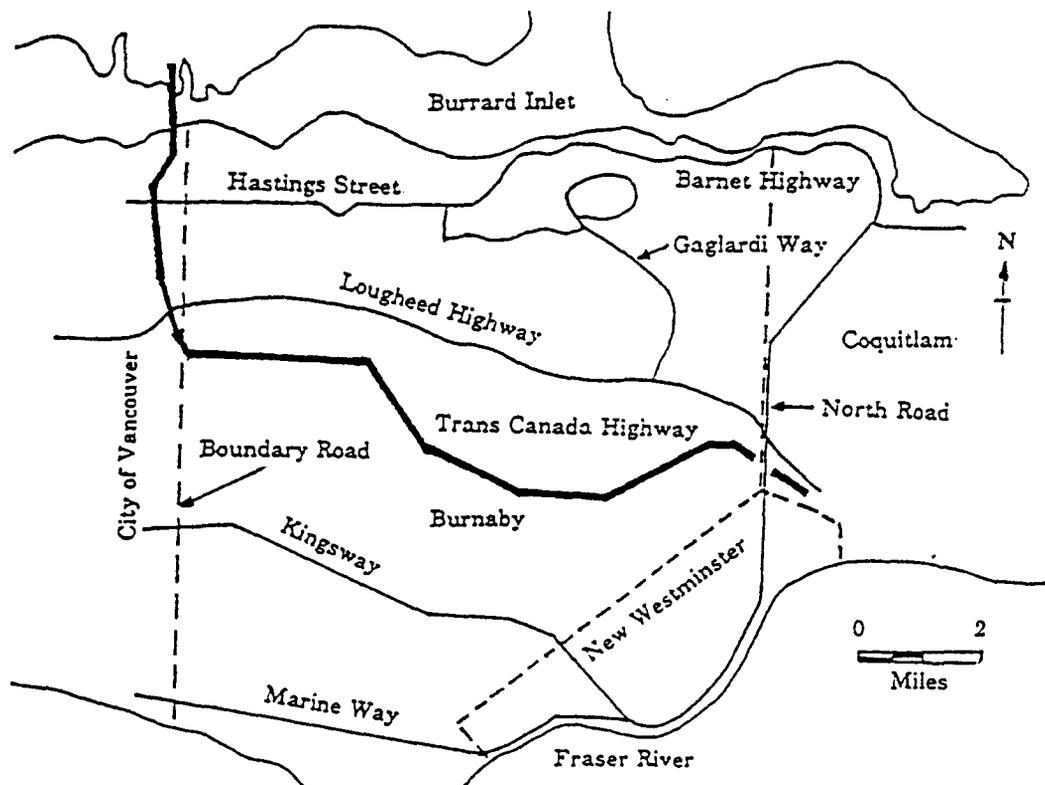
The problem of traffic congestion is not a new phenomenon in Burnaby. In 1968 a local newspaper printed an article titled "Traffic has to go somewhere in the future", and noted that the question of "where and how will traffic flow is a problem plaguing council." (Burnaby Courier, May 9, 1968: 2). In 1989 another local newspaper printed an article titled "Burnaby plugged--Worsening of traffic snarls predicted." The article commented that: "Burnaby's network of streets and highways--important links for eastern commuters heading to Vancouver's downtown core--is fast becoming a smog producing plug instead of a funnel. . . . the Greater Vancouver traffic snarl is eroding Burnaby's quality of life." (Smith, 1989b: 3). A Burnaby alderman noted "part of the problem is the skyrocketing growth which has been continuing unchecked in eastern communities such as Coquitlam." (Smith, 1989b: 3).

Again in 1989, another local newspaper carried a story that stated "Council wants the public to know they are aware of massive traffic problems in the area and are working towards a solution." (The Sunday News (Burnaby & New Westminster), April 23, 1989: A-3).

These newspaper articles illustrate that the Burnaby Council and the public are aware that a traffic problem exists, and are also aware of the causes for the problem.

A major portion of the traffic from the municipalities east of Surrey have to use the 401 or other main routes through Burnaby to reach employment in or near Vancouver. Burnaby possesses five main east/west roadways. They are Hastings, Lougheed, the Trans-Canada Highway (401 Freeway), Kingsway, and Marine Way, all of which are under Provincial Government control.

Map 6-12 East/west highway routes through Burnaby.



Source: Base Map, B.C. Transit. SkyTrain Extension to Coquitlam Transit Planning Study. Summary Report. Vancouver, B.C.: September 25, 1986. Figure 1 "Regional Transit System." Between pages 1 and 2.

The Provincial Government can widen or modify these roads to accommodate increased traffic without taking into account the impact on the adjacent businesses and residents.

In the late 1960's and early 1970's, residents along Burnaby's eastern boundaries with Coquitlam and New Westminster were faced with large volumes of commuter traffic seeking to avoid the congestion on the main thoroughfares by searching for shortcuts along residential streets. The result of this was Burnaby Council ordering a number of streets providing access from 10th Avenue (the Burnaby/New Westminster Boundary) to be blocked to traffic. Along the Burnaby/Coquitlam boundary (along North Road north of the Lougheed Highway) the Council order a number of streets on the west side of North Road to be blocked. There was considerable friction between the Councils of Burnaby and Coquitlam over this action. The Vancouver Sun Newspaper described the situation as being a "Traffic war

between Coquitlam and Burnaby" (Vancouver Sun, February 4, 1975: 18). Coquitlam wanted Burnaby streets open so morning rush hour traffic funnelling into the intersection of North Road and Lougheed Highway and which created traffic congestion could be reduced by some vehicles using local residential streets as shortcuts to the Lougheed Highway. This friction was later reduced by the construction of the East Broadway connector allowing Coquitlam traffic to bypass the Lougheed and Barnet Highways and reach Vancouver destinations via the use of Gaglardi Way-Curtis/Parker Streets.

Recently, the Provincial Ministry of Highways and Transportation announced the Barnet Highway would be widened to four lanes, to accommodate increased traffic from the North East Sector, and Hastings Street which is the main road through North Burnaby was to be widened from four lanes to six through the elimination of on street parking. The local residents and merchants became upset as the already heavy traffic volumes during rush hours were disrupting business. Traffic volumes on Hastings Street have been measured at 44,500 vehicles per day (Burnaby Now, October 10, 1990: 3). Local residents were also upset as the already heavy traffic along Hastings Street served to divide the neighbourhood, and as the capacity of the street was exceeded, there was spill-over of commuter traffic onto the side streets. Burnaby Council had offered an alternative plan, which would see the Lougheed Highway and the Freeway widened from four to six lanes to reduce the amount of traffic on Hastings (Burnaby Now, October 10, 1990: 3). In order to protect and preserve the unique character and quality of life of North Burnaby, the Burnaby Planning Department recently produced the Hastings Street Area Land Use Plan (Hastings Street Advisory Committee, 1990). This Plan was developed to aid in the revitalization of the neighbourhood and to preserve its "village atmosphere".

Burnaby Council discussed the announcement and suggested any additional traffic lanes created be used for transit or car/van pool (High Occupancy Vehicle or HOV) use. Residents along the Curtis Street access route to Simon Fraser University had over the previous 25 years, to contend with ever increasing numbers of commuters using Gaglardi

Way as a by-pass route to the already congested Lougheed and Hastings/Barnet Highways. In 1989, traffic counts placed the volume of traffic using Curtis Street at 20,000 vehicles per day. This volume was far in excess of the amount of traffic one might expect a residential collector street.

The local residents were upset by unfulfilled promises made by the Provincial Government in the past to restore Curtis Street to residential use by constructing a long promised connector between Gaglardi Way and Hastings Street (Choosing Our Futures Public Meeting, Burnaby, April 17, 1990). Construction of this connector had been stalled as the Ministry of Highways became aware over the years that the increase in traffic along both Barnet and Gaglardi Way would result in a bottleneck where the connector joined Hastings Street.

A public information meeting was held in North Burnaby on April 9, 1991, (Barnet/Hastings People Moving Project public meeting) to provide information on the provincial Ministry of Highway and Transportation's plans to widen the Barnet Highway and upgrade Hastings Street (Prince, 1991a: 3). There was also a proposal to construct the long awaited Hastings/Gaglardi connector (Burnaby Now, April 14, 1991: 4).

The residents in the North Burnaby areas to be affected by the Barnet/Hastings and the Hastings/Gaglardi projects were angered by the proposals. Local newspapers reported affected citizens were organizing to "make sure the provincial government minds its p's and q's when expanding Barnet Highway." (Prince, 1991b: 5). The local residents' concerns were that "Our kids and ours community are in serious danger and we have to stop this damn thing now." (Prince, 1991b: 5).

Residents along two blocks of Inlet Drive are outraged with a plan that could move the Barnet Highway within 20 feet of their bedroom windows. (Hilborn, 1991d: 4)

The construction of Marine Way in South Burnaby, a project designed to remove commuter and heavy truck traffic from the two lane, largely residential Marine Drive, was

begun in the late 1970's. Upon completion, it did alleviate traffic congestion and the inconvenience experienced by residents who lived near or along Marine Drive. However, by 1990, the heavy traffic volumes using Marine Way were again beginning to impact local residents through noise and visual pollution. A local resident in a letter to Burnaby Council noted "the peaceful vista he used to have over Marine Way has now changed. 'The constant stream of traffic . . . creates a cacophony of sound that comes across the flat lands of the market gardens and hits our homes' " (Horn, 1990: 5). Another local resident, in a Letter To The Editor stated that "the incessant din of truck engines and tires only makes us nervous and irritated." (Rettich, 1990: 6).

The proposed Coquitlam extension of the SkyTrain could also have a great impact upon the residents of Burnaby. If the Edmonds/Cariboo route was chosen, then the largely residential area of East Burnaby would be subjected to the noise and visual pollution that could result if the line were constructed at or above grade. The immediate impact upon the community would be "the expropriation of about 63 homes and a dozen businesses . . . the line would also cut through the northern end of Robert Burnaby park, over an existing swimming pool." (Horn, 1991b: 3).

There would also be other impacts, such as developers seeking to rezone lands at or near stations in order to increase densities or change uses to retail/commercial which would create traffic and parking congestion in what was a quiet residential area. The East Burnaby Rate Payers Association held a public meeting on October 12, 1989, just after the Coquitlam extension was announced and emphasized their opposition to the choice of this route to the local Member of the Legislative Assembly, the Mayor, members of the Municipal Council and members of the press (East Burnaby Rate Payers Association Meeting, 1989).

Burnaby Council, during the municipal election of November, 1990, included a referendum to dedicate certain municipal parks to ensure no other but the prescribed use could be made of the land. This "Parks Referendum" also had the consequence of placing an obstacle to the possible routing of the SkyTrain to Coquitlam along the Edmonds Street route,

as this line would have to pass through Robert Burnaby Park. The Mayor of Coquitlam stated that "Burnaby's decision to hold the vote without telling the affected communities showed contempt for the Coquitlam rapid transit advisory committee." (Hilborn, 1991e: 1). A citizen who resides near the proposed Edmonds Street SkyTrain route commented that she did not want "a noisy concrete eyesore" (Arsenault, 1991: 6) passing through her neighbourhood. The same citizen in a letter to the editor of a local newspaper, expressed cynicism over the process involved in the consultation with the public by the various Provincial Government bodies.

'grassroots' input receives only head nodding from Transit and the Socreds, while in the back rooms they go right ahead without our backing. (Arsenault, 1991: 6)

Coquitlam Council has indicated it wants the Lougheed Mall extension of SkyTrain begun immediately, and strongly endorsed the Edmonds route (Mark, 1991: 2). A Burnaby Alderman was upset with Coquitlam Council passing a motion showing strong support for the Edmonds route. The Alderman commented this action by Coquitlam Council was "a great sign of disrespect for Burnaby." (Hilborn, 1991b: 9).

Whatever transportation choices are made, the Municipality of Burnaby will be affected, being located between Vancouver and the areas to the east where population growth will likely occur.

6.5 CONCLUSIONS.

There has been four decades of planning studies completed, and many projects proposed to resolve the North East Sector traffic problems. Compared to the region as a whole, the North East Sector has received a reasonable share of the transportation infrastructure funding provided by the province. Despite this, however, the upgrading of existing , and construction of new infrastructure has not kept pace with the increasing demand for more capacity from expanding automobile oriented residential development within the North East Sector and the municipalities to the east.

At present the increased generation of traffic from the North East Sector has caused traffic congestion in adjacent municipalities. The congestion has caused disruption to local businesses and residents. This has created the need for transportation infrastructure improvements within these municipalities to accommodate the increased traffic. These municipalities prefer a solution that reduces the volume of traffic, instead of widening of existing roadways. The preferred solution would see both a greater role for transit, and as well as other means of increasing the movement of people rather than automobiles.

CHAPTER 7 Planning Process.

7.1 INTRODUCTION.

The chapter presents a descriptive history of the land use and transportation plans for the North East Sector and the Greater Vancouver Region. Prior to 1950, most small municipalities did not possess planning bodies as they exist today. The City of Vancouver was an exception as it had the Vancouver Town Planning Commission (Vancouver Town Planning Commission, 1943). This Commission served to oversee the development of the City as outlined in the "Town Plan" which was developed between 1926 and 1930 by the firm of Harland Bartholemew. The Vancouver Town Planning Commission was aware of "the fact that the planning of bordering municipalities has an important bearing on the value of our own plan." (Vancouver Town Planning Commission, 1943: 5).

The Commission worked to create a Lower Mainland Planning Association in 1937. The Association's members included: Vancouver, Surrey, Burnaby, New Westminster, North Vancouver, West Vancouver, Richmond, Delta, and Coquitlam. By 1938 the Association suggested a Provincial Planning Bureau be formed, and lobbied for a number of years for its creation. It was not until after the Second World War the Provincial Government created a planning organization with the power to co-ordinate regional planning in the Lower Mainland.

in 1948 the Town Planning Act was amended to authorize the definition of 'regional areas' and the establishment of 'regional planning boards'. (LMRPB, 1969: unnumbered first page)

This legislation recognizing the need for planning on a regional basis, and led to the creation in 1949 of the Lower Mainland Regional Planning Board of British Columbia (LMRPB). The LMRPB was empowered to offer planning services to the local municipalities and prepare regional plans.

The Lower Mainland Regional Planning Board, functioned until 1969, at which time its responsibilities were redistributed to four regional districts including the Greater Vancouver Regional District which was created in 1967.

The original function of the Regional District was to provide hospital financing. Other functions included since that time were, planning, parks, water and drainage, and sewerage. In 1983, amendments to The Municipal Act, removed the planning function (Bish, 1987: 37). It was felt by the Provincial Government that the local municipalities were better placed to handle planning matters within their own jurisdictions than to have another level of bureaucracy duplicating their efforts.

the legislation provides for the removal of the power of regional districts to enact and enforce official regional plans. These plans have become an unnecessary level of land use control, particularly in view of the number of comprehensive municipal plans now in place. The government also wishes to strengthen municipal government, and this legislation reinforces the primary role of municipalities in determining the land use pattern of local communities. (Province of B.C., 1983: 473)

The actions by the provincial government on matters of concern to municipalities have not always been welcomed. The municipalities, as illustrated by their desire for a mechanism for co-ordinating matters of regional concern, had to lobby long and hard to achieve their goal. The provincial government on occasion was known to act in an arbitrary manner and infringe upon municipal jurisdiction, and impose obligations while removing the power for municipalities to have a say in activities. The next section will discuss the matter of municipal fears of provincial interference in local jurisdiction.

The Uneasy Municipal-Provincial Relations.

There has traditionally been a sense of mistrust between municipal and provincial politicians and bureaucracies in British Columbia. The municipalities have chafed under provincial inertia in matters of finance and changes in jurisdiction and decision making power. This mistrust has over the years served to preserve the fragmentation of action contributing to the inability of local and provincial governments to resolve regional problems.

Since the early 1950's municipal government has been concerned with the erosion of its powers and jurisdiction. At that time, the Minister of Municipal Affairs conducted a review of the Municipal Act. In 1954, a policy statement of the Union of British Columbia Municipalities expressed the concerns of the municipalities on, "the damaging effect on local government when senior governments invade the fields of endeavour best handled at the local level" (Union of British Columbia Municipalities, 1954: 10), and "the desirability of checking the trend to set up separate authorities for special purposes thereby losing the co-ordinating effect and overall consideration which a municipal council can supply." (Union of British Columbia Municipalities, 1954: 10). The municipalities felt threatened by provincial actions that could be taken without regard for the wishes and concerns of the municipalities.

The fear of the provincial government imposing legislation potentially detrimental to municipal power and freedom of action, spurred the municipal union to seek a strengthening of their position through a more equitable sharing of the powers possessed by both the provincial and federal governments. In October, 1955 at the Dominion-Provincial Conference, "for the first time in the history of Dominion-Provincial relations, the majority of the Provinces of Canada had direct municipal representation on their respective delegations." (Union of British Columbia Municipalities, 1956: 36). The municipal delegates to the Conference suggested the municipalities "use all our influence and all our energy in bringing about, first, a new tax agreement, and secondly, a new allocation of responsibilities." (Union of British Columbia Municipalities, 1956: 37).

At the Dominion-Provincial Conference held the following year, the municipal delegates commented on the possibility of a Federal-Provincial-Municipal Conference being held.

Prior to the last general election the Prime Minister expressed his sympathy with the idea of such a Conference. This naturally raised municipal hopes that municipal representatives would be invited to take their place at the next Federal-Provincial Conference, not as silent observers but as active participants, even if only informally.

Clearly this was bound to raise constitutional issues of some delicacy but it was assumed, perhaps too readily, that even if no place could be found for municipal representatives within the letter of the constitution, the Prime Minister might succeed in finding a place for them within its spirit. . . . we must accept the fact that a three way meeting depends more on the consent of the Premiers of the ten Provinces than it does on the invitation of the Prime Minister of Canada. (Union of British Columbia Municipalities, 1958: 31).

As much as they would like to see a more equitable division of power with both senior levels of governments, the municipalities realized they were under the control of the provincial government, and would ultimately depend upon its good offices for any change in municipal powers and jurisdictions.

There has been a continuing struggle between the provincial and municipal levels of government over jurisdictional matters since the events of the early 1950's. The province on occasion has tried to shift responsibility for the provision of some services to the municipalities while at the same time withholding the decision making powers and not providing extra sources of revenue to cover the costs of the additional services.

An example of the struggle between the two levels of government is illustrated in Bill 72 "land Use Act" (Province of British Columbia, 1982b: 9050) presented to the Legislature in 1982. The President of the Union of British Columbia Municipalities described the proposed legislation as going "much farther than first reports that it would abolish regional planning and co-ordination among municipalities." (The Province, July 28, 1982: A-4). Section 19 was particularly objectionable to municipal politicians. The designated speaker of the official opposition said of the legislation, "the minister will have the authority, personally, to rewrite bylaws--personally to redraw and redesign local plans and local authority in the execution of those plans." (Province of British Columbia, 1982b: 9053). In addition to this feature, the President of the Union of Municipalities noted "another major cause for complaint, . . . is a clause giving cabinet the power to force a municipality to accept a development 'if the cabinet, not the municipality and regardless of local planning, thinks it is in the public interest'." (The Province, July 28, 1982: A-4). A member of the provincial opposition commented on Bill 72 as signalling:

the end of regional government. It signals the beginning of a set of committees that act, so to speak as spiritual advisors to local government. They will have no planning authority, except in the unincorporated areas. Those areas are not where the problems of overlap and duplication ordinarily lie. It is in those areas of built-up community, be it in greater Vancouver, greater Victoria or in some of the other rapidly expanding districts of the province, where those conflicts of land use, problems of duplication and difficulties of planning lie.

This bill spells the end of regional government as a means of resolving disputes between municipalities. . . . In fact, for all practical purposes this bill turns back the clock and will return notions of regional planning to the prewar era when no one believed in these things at all; when municipalities conducted a kind of range warfare, attempting to seize from one another territory and assets; when no regional authority had the opportunity to help them behave in a far more useful and intelligent way. This bill takes us back to a prewar British Columbia, before people realized the value of regional planning, strategies, development and collaboration. (Province of British Columbia, 1982b: 9052).

The municipal union saw the regional districts as having a positive influence through the provision of a structure to resolve inter-municipal concerns. The attempts by the provincial government to reduce the existing functions of the regional districts was seen by the municipal governments as a threat to their powers. The municipal governments had lobbied long and hard during the 1930's and 1940's for the creation of the regional district for the lower mainland, and again for the creation of the smaller regional districts, the legislation for which was passed in 1965 (Bish, 1987: 33). This lobbying was partially initiated by the provincial government reducing its financial contributions to the planning board during the 1950's and early 1960's (Union of British Columbia Municipalities, 1959: 20).

The antagonism is illustrated in a 1982 speech by an opposition member in the provincial legislature.

Greater Vancouver, for many years, has lived with the problems of rapid growth of a residential, commercial and industrial order. They have dealt with those problems as best they could, initially on a voluntary basis. It's a matter of public record that when the former planning review agency for greater Vancouver decided that it could not countenance the Roberts Bank development, W.A.C. Bennett shut them down. In 1968, when the provincial government of the day ran into opposition from the version of regional government of the day that existed, instead of dealing with the planning conflicts they encountered, they wiped out the planners. (Province of British Columbia, 1982b: 9053).

W.A.C. Bennett was the premier of the province for the period 1952 through 1972.

The information provided by the examples, makes it clear that the municipal governments have good reason to fear any attempt by the senior level of government at changing or streamlining local government or bureaucracy. Inevitably within the proposed legislation, there is always the possibility the provincial government will interfere in local jurisdictions and dilute local decision making powers. This fear by local governments of the loss of powers has served to preserve and intensify the fragmented nature of departmental and governmental activities.

7.2 COMPREHENSIVE PLANNING STUDIES.

Between 1952 and 1983, in spite of fragmented authority, the Lower Mainland Planning Board and the Greater Vancouver Regional District prepared a number of major planning studies that had significant impacts upon development within the region. These will be reviewed so the origins of the present day transportation problems can be better understood, in light of the remedies proposed, and those adopted.

The Lower Mainland Looks Ahead. 1952 Study.

This study was the first major undertaking of the Lower Mainland Regional Planning Board. The purpose of the study was to gather the information necessary to outline a plan for the development of the region. The report emphasized the need to co-ordinate development within the region so the best use might be made of the limited developable land. The study found there were developmental pressures upon land in the floodplains and on agricultural lands.

An important observation made by the study was:

since traffic on roads depends on the number and distribution of the people using them the planning of highways must be preceded by the planning of future residential and industrial areas. (Lower Mainland Regional Planning Board, 1952: 32)

The desirability of linking land use and transportation planning, was seen as an important consideration as:

the proportion of automobile owners in the population is still increasing . . . even without any increase in population, traffic volumes can be expected to increase by at least one quarter. (Lower Mainland Regional Planning Board, 1952: 32)

A recommendation to reduce commuting was to move away from the concept of the region being focussed upon a single core, and consider "a constellation of smaller communities . . . clustered around a centre containing the specialized commercial, professional and cultural facilities which none of the smaller communities can afford alone." (LMRPB, 1952: 40). This scheme, however, depended upon a network of good roads linking the centres and the decentralization of work places.

The Land Use Component of the 1955-59 Highway Studies.

The Technical Committee for Metropolitan Highway Planning, recognized the importance of land use in calculating the traffic generation. In the 1955-56 segments of the study, an inventory of land use, and a technical study of population and land use forecasts were included.

The travel desire patterns and traffic usage are, to a large extent, the function of the development of the land use pattern and of the transportation facilities available. . . . detailed information on the existing spatial distribution of land uses is essential to a knowledge of the cause of traffic movement. (Technical Committee for Metropolitan Highway Planning [TCMHP], 1955-56: 18)

The study also recognized the necessity to inventory land use, not only to explain the existing traffic situation, but also to serve as a basis for forecasting what the future transportation needs might be, in relation to different potential land use patterns. It should be noted that the study found the predominant land use in the region was residential, with only three per cent of the total land are devoted to commercial and industrial use (TCMHP, 1955-56: 3).

The travel mode at this time was predominantly by automobile. "An average of 1,227,900 person trips occur daily, of which 979,400 or 80 percent are made by motor vehicle and 248,500 or 20 percent, by public transit." (TCMHP, 1955-56: 3). The objective of the transportation study was focussed upon the highway needs of the region, as the automobile was, not only the predominant mode, it was thought its use would increase even further and the building of more highways would solve any transportation problem that might occur. Public transit, however, was not entirely forgotten. In 1959 the Technical Committee commissioned a report entitled "Freeways with Rapid Transit" (TCMHP, 1958-59c) which suggested the use of high speed buses on the freeways.

The Technical Committee's studies of the region were comprehensive and the data collected served as a basis for future studies of land use and transportation.

Land for Living Reports. 1961/63 Chance and Challenge Report. 1964.

In 1961, it was decided there was a need for a regional plan for the Lower Mainland. The Lower Mainland Regional Planning Board initiated studies of the industrial sector, and the residential sector so future development could be co-ordinated. The Land for Living Report was concerned with residential land development in the Lower Mainland. Haphazard development or urban sprawl was identified as a major problem. There were four supplementary reports covering such aspects of residential land use as, the attitudes of residents in the sprawl areas, the patterns of residential development, the infrastructure needs of suburban areas, and the consequence of urban sprawl.

The Chance and Challenge Report of January, 1964, was a proposed regional plan for the Lower Mainland. The report presented a concept for the region.

The Regional Concept reflects two main ideas:

- 1) the development of a number of Valley Cities of limited size surrounded by belts of farmland, and
- (2) a regional freeway network linking these cities. (LMRPB, 1964a: 7)

The report called for the satellite cities to be as economically independent as possible, though it recognized that the metropolitan core would still be the dominant employment centre (LMRPB, 1964a: 9).

Under the heading of contributory programs, Provincial Highways are identified as important to the implementation of the regional plan.

A freeway network is essential, not only to accommodate automobile and truck traffic but to give the region, through the use of high-speed freeway buses, its best hope of economic public transportation. (LMRPB, 1964a: 22)

This passage indicates planners at this time believed that freeways were the answer to transportation needs, and if public transit were to be initiated, it should make use of this freeway network. There was also the recognition various Provincial and Federal agencies could play an important role in ensuring the recommendations of the plan were achieved. Some of the agencies included: the Provincial Department of Highways, the Ministry of Municipal Affairs, the Department of Lands, B.C. Hydro and the B.C. Telephone Companies, and the Central Housing and Mortgage Corporation (now Canada Housing and Mortgage) (LMRPB, 1964a: 22).

The report recognized the importance of the automobile for travel at that time. "Modern urban life depends on the ability to move freely, chiefly by means of the automobile." (LMRPB, 1964a: 9). It should be noted the report made use of the word "Livable" in reference to the creation of cities. This word would surface again as part of the title of a major report on the quality of life and methods to preserve it, in 1975.

Official Regional Plan for Lower Mainland. 1966.

In 1966, the various agencies involved with planning within the lower mainland region, formulated a plan to guide the development of the region. It stated:

The plan serves as a policy framework within which local policies can be formulated, provides guidelines for private actions, and acts as a vehicle for coordinating the activities of the senior governments and their Agencies within the Region. (LMRPB, 1966b: 2)

The plan focussed on controlling the development of land, to achieve a balance of residential and employment growth. It anticipated a continued increase in population and set out a framework of broad concepts to guide development.

There were a number of general policies: to have orderly development; an adequate environment; most suitable land utilization; an efficient transportation system; and a sound regional economy (LMRPB, 1966b: 3).

As part of the planning process, the LMRPB in 1967 presented a proposal for a metropolitan Vancouver and region transportation study to provide the necessary background for a dynamic growth model for the Lower Mainland (LMRPB, 1967). The study suggested a review of the existing transportation network "with a view to advising on an adequate transportation system to serve transportation demands and to support an accepted regional development pattern." (LMRPB, 1967: 1). The study as envisioned was not carried out when the Lower Mainland was divided into four of regional districts in 1967.

Livable Regions Report. 1975.

In the early 1970's it was recognized by the politicians, some members of the public and planners that the Greater Vancouver Region was growing at a rate far in excess of the rest of the country. The Greater Vancouver Regional District (GVRD) population was growing at 2.9 per-cent per year compared to a country wide growth rate of 1.5 per-cent (GVRD, 1975: 5). This presented a number of challenges to the quality of life within the region. A high rate of population growth created pressures upon the infrastructure and housing within the region, and contributed to traffic problems. The increased demand for housing accelerated the pressures to convert agricultural lands to residential use.

The Livable Region Report identified five strategies for managing growth in order to preserve the quality of life of the region. These strategies were arrived at through a series of consultations, that took place between 1971 and 1975 (GVRD, 1975: 8). The five strategies were:

1. Achieve residential growth targets in each part of the region.
2. Promote a balance of jobs to population in each part of the region.
3. Create regional town centres.
4. Provide a transit-oriented transportation system linking residential areas, regional town centres and major work areas.
5. Protect and develop regional open space. (GVRD, 1975: 10)

These strategies required the regulation of land use so jobs and residences could be located in the same areas to reduce commuting. This necessitated the preservation of industrial land in the suburbs so there would be sufficient land available to accommodate industry when the need arose (GVRD, 1977: 5). The creation of Regional Town Centres linked by public transit (Light Rapid Transit or Fastbus) (GVRD, 1975: 47) would reduce the number of long distance trips and this would lessen the need for highway construction.

Public concern about traffic congestion, air pollution, reduction in the ability to move about freely, lengthening commuting times, and increasing the costs of movement, brought about a change in the emphasis in transportation planning. Public transit began to be seen as the most effective means of moving commuters. In order to make public transit economically viable, there was a need to ensure sufficient population density along the routes. The decentralization of industry and the encouragement of regional centres was seen as the means for creating nodes with sufficient density to make public transit viable.

The concern for efficient transit is expressed in the Livable Region report. One of the suggestions made was to prepare corridor designs for Light Rapid Transit. These designs would have to be made in consultation with agencies such as the Provincial Government, the municipalities, and the GVRD so that "the engineering of the route, the provision of community facilities and land use controls support each other in providing good transportation." (GVRD, 1975: 50). The GVRD recognized the importance of transportation in

the shaping of regional growth and the need to co-ordinate transportation planning with land use to achieve the greatest benefits.

Coquitlam Town Centre Plan. 1976.

In keeping with the concept of creating a series of satellite town centres in the suburbs, the District of Coquitlam in 1973 begun a process to create an "Advance Plan" for a town centre for the District (District of Coquitlam, 1976: 1). The idea of satellite town centres in the suburbs was first proposed in the LMRPB's 1952 Land for Living Report, as a possible means of reducing the amount of travel commuters would have to endure.

Since the late 1960's, Coquitlam and Port Coquitlam vied for the right to locate a regional town centre within their respective boundaries (see Chapter 5 Section 2.4 "Town Centre Controversy" for the background to the rivalry). As the GVRD Directors could not decide where the Town Centre should be located, Coquitlam decide it would build its own. Between 1973 and 1976, there were a series of studies that looked at various aspects and impacts of the possible locations for a town centre.

The issues of concern were that:

1. The GVRD established a policy to create a regional town centre in the Barnet Highway corridor.
2. The GVRD proposed Light Rapid Transit to serve the regional town centres.
3. Negotiations with C.P. Rail were initiated to introduce commuter trains between Mission and Vancouver, thereby establishing a potential in Coquitlam for a major commuter station.
4. The Ministry of Housing announced a large land assembly programme in the Burke Mountain area . . .
5. Several major developments were proposed by private development companies. (District of Coquitlam, 1976: 4)

The studies evaluated the North East Sector for potential regional centre locations and presented the advantages and disadvantages of each site (District of Coquitlam, 1976: 56-57).

For the District of Coquitlam's proposed site, it was found that 51.9 per cent of area was vacant (574.1 acres) (District of Coquitlam, 1976: 76). Also reviewed was the existing transportation infrastructure and future needs of the area. "The area at present is exclusively

automobile-oriented, with no local public transportation except for Fast-Bus connections at Westwood Mall." (District of Coquitlam, 1976: 84). The transportation needs were on two levels, local and regional. Locally, there would have to be extensive road construction to serve the proposed regional town centre and the potential developments that would ultimately be expected to occur in the surrounding vacant lands. Regionally, the existing major roads would have to be upgraded. There was the suggestion Light Rapid Transit should be built to connect the regional town centre and Vancouver, and commuter rail should be considered as a viable means of linking the North East Sector with the downtown core of Vancouver (District of Coquitlam, 1976: 43-46).

The study listed the options Coquitlam had available in order to create a viable town centre, and the likely changes in land use, that could be expected under a variety of transportation and zoning scenarios.

Official Regional Plan Update. 1979/1980.

In 1979, a review of the 1966 Official Regional Plan was undertaken by the four Regional Districts replacing the Lower Mainland Regional Planning Board. A report on the state of the Lower Mainland, entitled *The Way Ahead* was produced. The rationale for the review stemmed from the changes that had occurred over the previous 13 years. There had been accelerated growth in all parts of the lower mainland, the population was aging with an accompanying change in housing, and transportation needs.

A number of important trends became evident from the study. There was a continued high rate of growth of households and in the growth of the labour force: the process of urbanization was still spreading into rural lands in the Lower Fraser Valley; increased densities had reduced the rate of land consumption for housing; and finally, there was a greater interdependence between the various parts of the Lower Mainland (GVRD et al., 1979: 16). This information was used to review and revise the 1966 Official Regional Plan.

In 1980, the revised Official Regional Plan for the Lower Mainland of British Columbia was produced. The review found much of the projected population growth was likely to take place outside the Greater Vancouver Region, while the projected growth of employment was likely to continue to occur mainly within downtown Vancouver or the immediately adjacent municipalities (GVRD et al, 1982: 8).

This would lead to an increase in commuting. The projected increase in the numbers of commuters and lengths of trips, "would require a doubling of the highway capacity that was in place in 1980, at a staggering cost in new roads and bridges and in disruption of existing communities in the metropolitan areas." (GVRD et al, 1982: 9). The report went on to say that the dispersed pattern of development encouraged by the availability of the automobile, had created a situation where only the automobile was flexible enough to service the transportation needs of the area.

Without a concerted effort to change land-use patterns in conjunction with transportation improvements, the region will continue to become increasingly dependent on the private automobile and its transportation problems will become increasingly intractable. (GVRD et al, 1982: 9)

The report suggested a number of changes to update the 1966 Official Regional Plan. The first was to create fewer and smaller satellite cities. The second was to define more fully what was meant by the "Sea of Green", to reflect the necessity to preserve farmlands and recreation spaces. Finally, "the emphasis on freeways has been redirected to include other modes of transportation in order to conserve energy and reduce dependence on the private automobile" (GVRD et al, 1982: 16). Thus there was a realization amongst the planners and politicians there had to be a change in thinking on land use and transportation to reduce traffic congestion and community disruption.

Review and Update of Livable Regions Report. 1990.

For a period of nearly 15 years, there had not been a major review of the 1975 GVRD Livable Regions Report (GVRD, 1975). The goals and objectives outlined in the Report had

been followed by the local planning authorities and the results were approximately what had been desired. In 1988, with the population of the Lower Mainland increasing rapidly, the GVRD decided there was a need to review the Livable Regions Concept.

A series of public meetings were held in early 1989 (Burnaby Now, February 15, 1989: 3). There was also a large gathering of experts on various aspects of urban problems, to review the concerns expressed by the public. One of the series of seminars was titled "Urban Mobility." This seminar noted that:

the difficulty of transportation development given the region's wedge shape and water crossings, the coordination of transportation development given the number of authorities involved, and the reliance on automobiles to serve widely dispersed job and residence locations. (GVRD, 1990c: 1).

The seminar also noted the municipalities in the North East Sector were planning for residential growth, but transportation development and employment were not increasing at a sufficient rate to reduce the need for commuting and the resulting traffic congestion (GVRD, 1990c: 5).

The results of this review were expressed in a series of publications which were titled Choosing Our Future (GVRD, 1990c). From the information provided from the review, the steps to the creation of a more livable region were outlined in a report entitled Creating Our Future (GVRD, 1990d). Section 3 of the report, discussing "Conserving our land resources", dealt with the need; to balance land uses throughout the region, tame the automobile through the improvement of public transit, and continue to emphasize the importance of the regional centres concept. The question of means of encouraging people to live close to where they work was also researched (GVRD, 1990e).

7.3 TRANSPORTATION STUDIES.

In the early 1950's the inadequacies of the transportation infrastructure in the Lower Mainland created a need for action. This brought about a series of transportation planning studies and reports. The continued high growth of the region's population and the effects of

automobile oriented suburban development had meant each road improvement which increased accessibility, stimulated greater development which in a short time rendered the improvements inadequate for the increasing needs.

The major transportation studies from 1955 to the present will be reviewed in order to provide pertinent information on the planning process that generated the present transportation infrastructure and influenced the current land use.

The 1955 to 1959 Highway Studies.

In the early 1950's concern about the rapidly increasing population of the Lower Mainland, and the resulting traffic congestion caused the Provincial and Municipal Governments to establish a committee to plan for the highway needs of the region. The Technical Committee for Metropolitan Highway Planning embarked on a lengthy study of the present and possible future transportation needs.

The emphasis of the Committee's mandate was on Highways as the main means of transportation was the automobile. Increased prosperity meant more people could afford to own automobiles and thus avoid the inconvenience of utilizing public transit. It was during the decade after the Second World War, with the decreased dependency upon transit, people were able to locate their residences in those areas not serviced by transit.

The Committee's work involved collecting data on the future transportation needs. The data included trip generation by land use, motor vehicle trip density, origin-destination surveys, screenlines, inventorying the existing roads and bridges that serviced the study area, and listing the current land use in the study area (Technical Committee for Metropolitan Highway Planning, 1955-56). The data was used to calculate current and future transportation demand (Technical Committee for Metropolitan Highway Planning, 1958-59a & 1958-59b).

The 1960's Highway Studies.

The transportation needs of the City of Vancouver were extensively studied during the decades of the 1950's and 1960's. The accepted view at the time was the need for additional crossings of Burrard Inlet so land development could continue to occur on the North Shore (Pendakur, 1972: 17).

During the 1960's a series of transportation studies were commissioned. These studies proposed the construction of the freeways suggested in the 1950's studies, through the city to the C.B.D. These freeways were to connect with the proposed bridges designed to improve traffic access from the North Shore to Vancouver. The rationale for these proposals was to ensure the core of the city would retain its pre-eminence and the value of the land would continue to increase.

A Major redevelopment plan "Project 200", called for the building of a Freeway into the downtown area to link up with the Trans-Canada Highway (Highway #1 or 401), which terminated just at the eastern boundary of the City. One scheme was for a waterfront freeway and another for one cutting its way through the working class neighbourhoods of East Vancouver (Pendakur, 1972: 59). The result of the studies and proposals, was what came to be known as the Great Freeway Debate (refer back to Chapter 4 Section 4 "The Great Freeway Debate in Vancouver" for more details). The ultimate result of the debate was the decision by Council at the insistence of the citizens of the city, not to allow the construction of freeways through Vancouver. This decision has influenced transportation planning within the city to the present day.

Greater Vancouver Area Rapid Transit Study. 1970.

In 1969, the consulting firm of De Leuw Cather & Co. was commissioned to undertake a study of "Is there a role for Rapid Transit in Greater Vancouver within the next 20 years?" This study was undertaken at a time when the concept of freeways solving all urban traffic problems was being discredited in Vancouver. It analysed the existing

transportation needs and projected what would be required in 30 years when the population of the Greater Vancouver Region would be doubled to two million.

The study considered the appropriate routes and the possible costs of construction. It suggested the nature of the Rapid Transit development could follow one of four patterns that would impact on the form of land use. These four patterns were:

1. Trend-existing development pattern projected
2. Satellite sub-centres
3. Corridor development-normal Central Business District
4. Corridor development-strong Central Business District. (De Leuw Cather & Co., 1970: 19)

Each of these patterns involved the distribution of population and employment over the region at different densities and created different transportation needs. If the core of the City were to be enhanced, then the amount of commuter traffic from the suburbs would increase and create the need for one type of transit service. If satellite centres were created in the surrounding suburbs, with employment opportunities being drawn away from the core, then the transportation needs would be different.

The suggestions and the routes projected by the study still have validity and subsequent transit and transportation studies built upon the data and recommendations made in this study.

Transit Studies. 1970's.

With the Public's rejection of freeways within the City of Vancouver, the transportation concerns turned towards transit. In the 1970's a series of transit studies were commissioned. A number of these included: Immediate Improvements to Public Transportation In Greater Vancouver in 1971 by B.E. Sullivan; Regional Transportation as a GVRD Function by A.C. Kelly in 1971; T.E. Parkinson's A Preliminary Study of Light Rapid Transit in Vancouver in 1972; Downtown Vancouver Transit Concepts in 1972 by Wilbur Smith and Associates; City of Vancouver Transport Systems Appraisal in 1974 by N.D. Lea

& Associates; Rapid Transit Investigation in 1978 by the GVRD; and The Rapid Transit Project: final report summaries and staff committee recommendations in 1979 by the GVRD.

The result of the studies was a better understanding of the role transit might play in improving the accessibility of the C.B.D. One of the major obstacles to progress was the fragmented jurisdiction over the different aspects of transportation. The Provincial Government possessed the power to co-ordinate the various departments, ministries, and municipal bodies in order to achieve positive results. However, at this time it appeared to merely allow the various parties to conduct numerous studies, publish reports and make a variety of recommendations, but declined to make a commitment to action. The GVRD report Transportation for a Livable Region produced in 1973 (GVRD, 1973) proposed one political jurisdiction over all planning, operation and financing of regional transportation (GVRD, 1973: 29).

GVRD Transportation/Transit Studies. 1980's.

In 1980, the GVRD negotiated with the Urban Transit Authority (UTA) and the Metro Transit Operating Company (MTOC) to assume responsibility for transit planning for the Greater Vancouver area (Anton Kuipers, 1980: 1). Prior to this the GVRD had authorized a study of rapid transit including possible routes which were presented to the affected communities.

Another report completed in 1980, recognized the impact of land use on transit demand (Urban Transit Authority, 1980b: 5). It stated that if the managed growth concepts outlined in the Livable Region Plan were implemented, this could "reduce travel demand by encouraging people to live closer to where they work, and vice versa." (UTA, 1980b: 5). There was also the realization that managed growth would come about over a long period of time as it was necessary to increase population densities in the regional centres and to create employment close to residences.

In 1982, the GVRD prepared a report discussing the organizational requirements for transit within the region. This report was considered necessary as there appeared to be confusion over the transit functions assigned to the GVRD. The powers held by the UTA, MTOC and GVRD Transit Committee under the enabling legislation appeared to overlap. The report suggested the creation of a Regional Transit Authority as the best means of providing service in the region (Greater Vancouver Transit System [GVTS], 1982a: 34). As a result, B.C. Transit was created, under a Provincial Government Ministry by renaming the Urban Transit Authority to reflect its province wide activity (Province of B.C., July 8, 1982:8656).

In 1983, the GVRD prepared a report titled Automated Light Rapid Transit and Regional Transportation in the GVRD 1986-1996. The report looked at "the level of future commuter travel in relation to the available road and transit system capacity for major travel corridors in our region." (GVRD, 1983: 1). The findings were traffic congestion created by the growth of peak hour traffic would become worse, an ALRT extension to Coquitlam might serve to delay costly road improvements within the North East Sector, and the ALRT extensions to both Surrey and Coquitlam might have:

the potential to enhance the development of regional town centres . . . and . . . This would contribute to achieving the better balance of jobs to resident workers in each area, thereby moderating transportation demand growth in the region. (GVRD, 1983: 1)

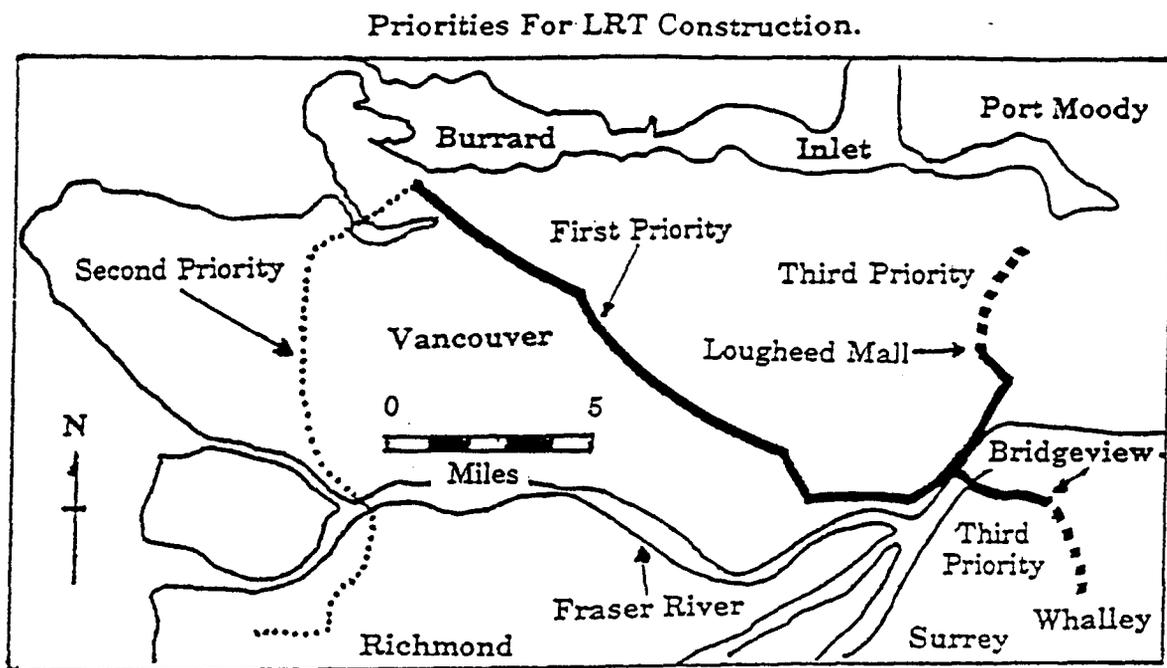
An important point made by the GVRD report was "the most critical weakness in the current approach to transportation infrastructure development in Greater Vancouver: the lack of integrated road, transit and land use planning." (GVRD, 1983: 1). The two key elements of importance in transportation planning within the GVRD area were identified as "the great variety of agencies and perspectives involved in this question, and the necessity of working together on those questions because of the impact of decisions upon other jurisdictions." (GVRD, 1983: 3). The report proposed that the independent transportation and land use agencies co-operate in the collection and analysis of information so the impact of actions of each agency might be viewed in relation to the impacts on others.

1983 Rapid Transit Route Extension Studies.

B.C. Transit, in 1983, commissioned a study of the two possible extensions from the eastern end of the then under construction ALRT line from Vancouver to New Westminster. The study ALRT to Surrey and Coquitlam (B.C. Transit, 1983) considered possible alignments and station locations. In 1984 another study was commissioned dealing specifically with the Surrey extension and the possible impacts of a number of possible routes and station sites on Bridgeview and Whalley (B.C. Transit, 1984). Due to the immense costs of constructing the first phase of the ALRT, and the perceived lack of the population necessary to make the extensions to Coquitlam and Surrey economically viable at that time, neither extension was commenced. Public input was sought in the case of the Surrey study, in early 1985 (B.C. Transit, 1985). The Surrey extension, to Scott Road was begun in 1986 and completed in 1990.

In 1986, a Transit Planning Study on SkyTrain Extension to Coquitlam was prepared (B.C. Transit, 1986). Like the Surrey study, this report discussed several possible routes and the impacts each might have upon existing neighbourhoods and future development. The north route would reach Lougheed Mall from Edmonds Station. The South Route would follow Brunette Street from the New Westminster 4th Street Station. A combination route would originate at the 4th Street Station and follow North Road or Brunette/Lougheed to Lougheed Mall (B.C. Transit, 1986).

Map 7-1 SkyTrain route alignment, Coquitlam/Surrey.



Source: Partridge, Terry. "Rapid Transit: Moving Closer to a Decision." *Quarterly Review Vancouver, B.C.*: Published by the City of Vancouver Planning Department. July, 1980. Volume 7 Number 3. Pages 9 to 11.

The District of Coquitlam considered the implications of this report. One point made was "B.C. Transit has not discussed SkyTrain extension with affected Municipalities so this study was done in isolation." (District of Coquitlam, 1986b). The District of Coquitlam's response to the report was the north route from Edmonds to Lougheed Mall and ultimately to the Coquitlam Town Centre would offer the greatest ridership potential (District of Coquitlam, 1986c: 2).

1989-90 Rapid Transit Studies.

In mid 1989, the Minister in charge of transit announced ALRT (SkyTrain) would be extended to Whalley in Surrey (Babic, 1989: A-2). This statement brought a good deal of indignation from the officials within the North East Sector. They felt the Whalley decision was based upon political considerations rather than actual need. The result of the Mayors' protests, was a decision by the Minister in charge of Transit to announce the first phase of

the Coquitlam extension would be fast tracked (Babic, 1989: A-2). A committee to review possible routes was created and began its work in 1990.

Transportation Planning Overview of British Columbia. 1988.

In 1988, the Provincial Ministry of Transportation and Highways of British Columbia, hired the DelCan Corporation, to undertake a complete study of the transportation needs of the province (The DelCan Report). The purpose of the study was to establish priorities to ensure an effective transportation network. The report provided a general overview of the transportation needs of the province as well as a proposed planning framework. The report, comprised of 18 volumes, was completed within the relatively short time of 5 months (DelCan, 1988a: 1-4).

Volume 3 of the report provided an overview of the provincial situation, while Volume 18 dealt specifically with the south-west region of the province (the Lower Mainland). Volume 3, recommended "the entire Vancouver metropolitan area requires an independent Transportation study." (DelCan, 1988b: 5-31).

The planning framework suggested in the report, was designed to aid the Ministry of Transportation and Highways to co-ordinate the various jurisdictions having responsibility for different components of the transportation system.

Greater Vancouver Transportation Task Force. 1989.

After the Provincial Government had commissioned the major review of the transportation needs of the Province in 1988 (The DelCan Study), the Greater Vancouver Regional District set about to conduct an in depth study of the transportation needs of the Lower Fraser Valley. There had not been a major regional transportation study for the Lower mainland area since the late 1950's (GVRD, 1989c: 10).

One of the main points the study found was:

that this region's transportation problems cannot be resolved by simply building more facilities to feed our addiction to the inefficient use of the private automobile. (GVRD, 1989c: ix)

Another finding of the study was over half the future growth of the Greater Vancouver Region could be "expected to occur in the North East Sector, Dewdney-Alouette, Surrey, Delta and the Langley area." (GVRD, 1989c: 2). The study also projected that in spite of increasing suburban employment, over 40 per cent of the new employment would likely continue to be within the centrally located municipalities (GVRD, 1989c: 2). This state of affairs would result in an increasing amount of commuter traffic. The study recognized the need to improve or construct a number of transportation facilities to ensure the continued accessibility within the region.

In the North East Sector, a number of briefs were presented to the Task Force addressing the problems the community faced and offered possible solutions (Coquitlam Chamber of Commerce, 1989).

The GVRD Transportation Task Force Report suggested a five point transportation strategy to make the best use of the existing transportation infrastructure, manage the traffic demands on the system, encourage the utilization of public transit and improvements to the system, and "funding, policy and institutional arrangements that support coordinated planning, development and improvement of the Region's transportation systems." (GVRD, 1989c: 8). The task Force also called for:

the establishment of an on-going transportation planning process to achieve the cooperation of and the coordination of all provincial, regional and municipal agencies. (GVRD, 1989c: 8)

Burnaby Transportation Task Force. 1989.

The Municipality of Burnaby, in response to the Provincial Government's Freedom to Move (DelCan) Report, and the GVRD's Transportation Task Force Report, initiated a study of its own transportation needs. Public meetings were held to solicit input from local residents.

One such meeting was held on September 28, 1989 at the Burnaby Municipal Hall (District of Burnaby, Transportation Committee, 1989a: Attachment A). A number of the presentations commented on the impacts the projected widening of Barnet Highway and Hastings Street would have upon the North Burnaby neighbourhood. Others were concerned about the massive increases of commuter traffic originating in the North East Sector using the Curtis route to Vancouver. This group suggested the long proposed Gaglardi/Hastings Connector be built.

There were also suggestions for improvements to other modes of transportation. One speaker suggested rapid transit should be emphasized (District of Burnaby, Transportation Committee 1989a: Attachment A, 4). Another suggested commuter rail, along Burrard Inlet, as a solution to the congestion caused by the east/west corridor commuter traffic originating from the North East Sector.

Other road improvement suggested that might not have an adverse impact on neighbourhoods, were to widen the Lougheed Highway, and to construct a Waterfront Freeway.

The District of Burnaby outlined the major issues in the Greater Vancouver Transportation Task Force Report they considered important. One was the need to balance road and transit improvements. It identified the main transportation problem for the municipality, as that of "commuter traffic congestion on both arterials and major collector routes and the spill-over through residential neighbourhoods." (District of Burnaby, Transportation Committee, 1989b: 2).

The geographical position of Burnaby resulted in it becoming a traffic corridor for commuters from the North East Sector, Surrey and North Delta, to Vancouver.

There is however, the fundamental question of the most efficient use of these corridors to carry more people rather than simply more vehicles. Maximizing the people-moving capacity in these corridors will require measures to increase transit use of the highway system. (District of Burnaby, Transportation Committee, 1989b: 2)

On the subject of transportation planning and funding, Burnaby noted:

A major challenge in the future will be to work towards a coordinated approach to planning and funding transportation infrastructure, so that the relative costs and benefits of road and transit alternatives are explicitly recognized. (District of Burnaby, Transportation Committee, 1989b: 2)

7.4 CONCLUSIONS.

Over the past four decades, there has been many regional and local transportation and land use studies. Each has recognized the relationship between transportation and land use. The transportation problems of the North East Sector have long been recognized and the different studies have acknowledged them and offered various solutions. However, after nearly four decades of studies and substantial investment in transportation facilities, the problem of traffic congestion still exists.

The GVRD and its predecessor the LMRPB proposed the development of regional town centres surrounding Vancouver so people could have the choice of living in close proximity to their place of employment. The original town centre plan called for the linking of the town centres and the C.B.D. by freeways or expressways. However, in the late 1960's--early 1970's rapid transit was seen as offering a less disruptive mode of transportation. Since that time, there has been an emphasis on the role of transit to compliment the role of highways within the region.

CHAPTER 8 Interpretation.

8.1 INTRODUCTION.

The purpose of this chapter is sixfold. Firstly, it will summarize the information provided in the case study on transportation in the North East Sector. Secondly, it will review the impact of the fragmented government jurisdiction. Thirdly, it will discuss the role of the "Not In My Back Yard" attitude of neighbourhoods concerning regional transportation projects. Fourthly, it will analyse the information furnished by the case study, and interpret: a) the factors creating transportation difficulties in the North East Sector; and b) the factors influencing land use and transportation planning in the study area. Fifthly it will then discuss the alternatives transportation options which could serve to reduce traffic congestion within the study area. Finally the chapter will end with some observations on the necessity to plan regionally to resolve local transportation problems.

8.2 THE TRANSPORTATION PROBLEM.

Modern urban and suburban areas have experienced increasing traffic congestion. This urban transportation problem originated through changing transportation technologies influencing land use, which created a landscape reflecting the accessibility provided by the automobile.

The advent of reliable inexpensive automobiles enabling large numbers of people to purchase their own vehicles, along with the construction of better roads, freed the average person from having to live close to work or the streetcar line. This availability of private transportation in the early post World War II period, was seen as the panacea for peoples' transportation needs. The land use impact was the movement of people from the expensive lands within and at the fringes of the city, to low density rural areas with substantially lower

prices. People traded lower land prices for longer journeys to work. Low density residential land use in the suburbs created by automobile ownership, made transit uneconomical, forced people to rely upon the automobile. One main feature of the suburbs was the exclusiveness of land use. There was little mixing of industry, commerce or residential uses. This also contributed to the need for automobiles in the suburbs.

8.2.1 Perceptions of Traffic Congestion.

The major premise of this study has been that a problem of traffic congestion exists within the North East Sector. Evidence of the concern the public holds for traffic is illustrated in a newspaper article, which asked local officials to list the items that the public complained most about. "Traffic, traffic, traffic--most of the complaints we get have to do with traffic," says Gary Wirachowsky, producer for the Complaint Department, a Rogers Cable TV phone-in show (The Vancouver Sun, September 22, 1990: C-1). The article also noted that according to the Burnaby deputy municipal clerk "people complain when they are directly affected by a problem, no matter how big or small." (The Vancouver Sun, September 22, 1990: C-1). Examples of some of the titles of newspaper articles on the traffic situation in the region and within the North East Sector further illustrate this perception. For the region such titles as, "Extending rush-hour controls proposed to ease traffic flow" (Krangle, 1982: A-3), "Traffic jams not exactly toast of town" (Priest, 1987: A-9), "How Vancouver got itself in a traffic jam" (Braham, 1989: A-10) with a sub-title of "Gridlock: a system going nowhere," "Transit use up as roads clog up" (Lee, 1989: A-10), "Transport system strained" (The Vancouver Sun, January 5, 1990: D-1), "Gridlock?" (Seelig & Artibise, 1990: B-2, B-3), and "Locked in the grip of traffic" (Macdougall, 1991a: 4).

Title of articles focussed more on the North East Sector include, "Traffic worries growing in PoMo" (Bryce, 1990b), "Transportation concerns top complaint list at land hearings" (Macdougall, 1990: 3), "Traffic ties up Westwood proposal" (Postma, 1990), "Bypass bottleneck relief at least three years away" (Macdougall, 1991b: 8), "More Traffic

for PoCo" (Ross, 1991: 3), "Gridlock prompts gathering" (The Maple Ridge Pitt Meadows News, February 23, 1992: 1), and "Gridlock: No money, no quick fix says Art Charbonneau" (Ross, 1992: 3).

These newspaper articles could very well contribute to the public's perception. Even if there is a problem, the articles could convey the impression that it is far worse than would otherwise be perceived.

8.2.2 Prevailing Regional Developmental Philosophy.

Increased traffic congestion within the region reduced the livability of the region and increased the costs of conducting business. Since the creation of the Lower Mainland Regional Planning Board, and its successor the Greater Vancouver Regional District, there has been an overall philosophy for improving the results of development of the region. It supported by most of the municipal governments of the Lower Mainland, has a long history. It was first expressed as a developmental guide in the Lower Mainland Looks Ahead published in 1952. The philosophy supported a number of themes that were to make the region a better place for the residents to live and work. These were based on the importance of co-ordinating land use and transportation developments was expressed in The Lower Mainland Looks Ahead as well as each of the subsequent reports that have been produced to date. Chapter 6 sections 2.1 to 2.5 provide the background information of these reports. Despite this recognition of the importance of co-ordinating land use and transportation within the Greater Vancouver Region, problems in implementing a co-ordinated planning process still persist.

8.2.3 Population.

A major component of the urban transportation problem, is population change. In the early post Second World War period, there was a sharp increase in the number of family formations and in the birth rate. After this short rise, the numbers of births and the size of family units resumed their previous decline. This declining birth rate has been offset by a

large increase in immigration from other countries. After the War, the Federal Government changed its immigration policies to encourage large numbers of immigrants to settle in this country.

This increase in the population, coupled with the reduction in the size of the family, as well as the short term increase in the birth rate, created pressures upon the available housing stock. This pressure along with a societal desire for a home in a rural like setting, coupled with a shortage of land within urban areas, caused people seeking housing to look to the lower priced lands on the urban fringe. In the period from the early 1950's to early 1960's, rapid suburbanization occurred in the municipalities immediately surrounding the City of Vancouver. Table 8-1 illustrates this shift of population increases from the City of Vancouver to the suburbs.

Table 8-1 Illustrates rates of population growth for various communities comprising the Greater Vancouver Region.

	1941	1951	1961	1971	1981	1991
Province	817,861	1,165,210	1,629,082	2,184,620	2,744,470	3,160,300
GVRD	393,898	562,462	790,741	1,028,334	1,169,831	1,579,500
Vancouver	275,353	344,833	384,522	426,256	414,281	464,200
Burnaby	30,328	58,376	100,157	125,660	136,494	159,200
North Shore	22,514	44,146	88,081	126,544	135,367	154,100
Surrey	14,840	33,670	70,838	98,601	147,138	235,100
Richmond	10,370	19,186	43,323	62,121	96,154	125,300
Coquitlam	7,949	15,697	29,053	53,073	61,077	85,500
Port Coquitlam	1,539	3,232	8,111	19,560	27,535	35,800
Port Moody	1,512	2,246	4,789	10,778	14,967	18,100

Source: Statistics Canada. Population: Census Subdivisions (Historical) Volume 1: Part B (Bulletin 1-2). Table 2: Population of Census Subdivisions, 1921-1971.

Statistics Canada. Population: Geographical Distribution, British Columbia Volume 2: Provincial Series. Table 5: Population for Census Metropolitan Areas and Census Agglomerates, Urbanized Areas and Fringes with Components, 1976 and 1981.

Greater Vancouver Regional District. Greater Vancouver Key Facts December, 1990.

The slower rate of growth for Vancouver and the increase in the rate for the surrounding suburbs is due to a reduction in the available developable lands for residential purposes within the City. It is also due to a resistance on the part of residents and local politicians to increase density to encourage redevelopment of the older low density housing stock (Sarti, 1990: B-3). If Vancouver does not modify its zoning, to allow increased density, most of the population growth will have to be accommodated by those municipalities South of the Fraser River.

Forecasts of population increases for the Greater Vancouver Region, indicate a steady growth is expected. The greatest growth, however, will be in the suburban municipalities,

possessing inventories of developable lands. Surrey, whose population is estimated to be 235,000 in 1991, is projected to have a population in the neighbourhood of 393,000 in the year 2011, an increase of 158,000 (GVRD, 1990a: 51). Vancouver, presently containing the largest population of the region at 464,000, is expected to increase by only 80,000 people (G.V.R.D., 1990b: 42, Forecasts Table).

The North East Sector's population is estimated to rise from 139,400 to 215,200 (G.V.R.D., 1990b: 42 Forecast Table) in the same period, an increase of 75,800. Compared to Surrey, this increase is small but can be attributed to the North East Sector containing only 7 per cent of the region's developable land (Seelig & Artibise, 1991: 43).

8.2.4 Location of Industry and Employment Opportunities.

Over the last century, a process of separating land uses has taken place. The introduction of zoning, to control the location of various uses was designed to prevent the occurrence of incompatible uses. As new areas underwent suburbanization, this caused the separation of residence from the work place, necessitating commuting.

Until the early 1960's, most of the new employment opportunities within the GVRD, occurred in or around the existing commercial areas. Since most of the industrial and commercial activities within the region were in Vancouver, those workers who lived in the suburban fringe, were forced to commute longer distances. As little public transit was available within the suburbs, commuters were forced to use the private automobile. Increased regional population meant more residences located in the suburbs, and more automobiles were used to commute into the city. This steady increase in the numbers of automobiles using the roads, during peak periods, 7:00 to 9:00 am and 4:00 to 6:00 pm, caused increasing traffic congestion.

In recent years as the nature of business and communications changed, more firms located in the suburbs. This was due to lower land values, better accessibility to customers

and suppliers, and proximity to their workforce. The businesses locating in the suburbs required larger sized parcels of land unavailable within the older commercial areas of the city.

This movement of the manufacturing and warehousing concerns to the suburbs, reinforced a separation of land use. Despite this movement, a large percentage of the region's workforce still commute into the C.B.D. The downtown workforce is now composed mainly of office or service workers, while the blue collar workers, employed in industry or warehousing are now employed in scattered locations around the suburbs. When there is a central destination for commuters, easily applicable solutions can be suggested for the traffic congestion experienced during the two rush hour periods. These include carpooling, staggered work-hours, and public transit. However, when the destinations are scattered all around the periphery of the urban area, this complicates the selection of effective transportation options.

The Coquitlam Traffic Study of 1971 (B.C. Department of Highways, 1971) estimated employment within the study area was about 16,000, up from 10,000 in 1965. Since the population of the area was about 76,000, this indicated most workers had to travel to other areas for employment (Associated Engineering Services, 1971: 30).

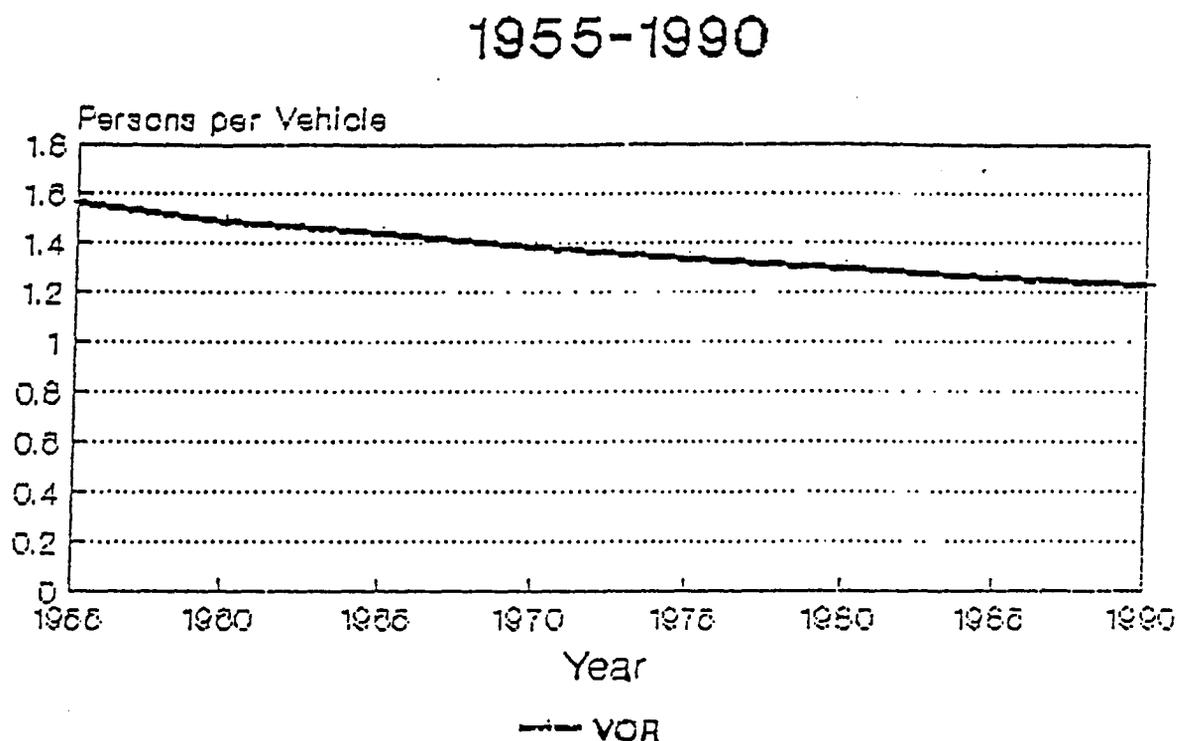
8.2.5 Traffic.

As suburbanization increased in the Greater Vancouver Region, since the early 1950's, volumes of traffic have also increased. This increase was due to a number of factors, which include: a) the rapid increase in the population; b) the better economic conditions enabling people to afford their own home; c) the availability of inexpensive private automobiles; and d) the reduced need to rely upon the available public transit. At the same time little if any expansion of the transit service was initiated. The existing service at the end of the Second World War was provided by obsolete and worn out equipment. During wartime, the transit service was heavily utilized. Many people who had to crowd onto rickety old streetcars, endure long waits for transfers to other routes, and a long walk to their destination, relished the idea of being able to drive to work or where they shopped.

The better economic conditions after the War, allowed more people to purchase their own residences and an automobile. Appendix #1, shows the rapid increase in the numbers of automobiles in the Province, the region and key municipalities.

Graph 8-1 illustrates the decline in the occupancy rate of vehicles in the region from 1955 to 1990.

Graph 8-1 Vehicle Occupancy Rates.



Source: Technical Committee for Metropolitan Highway Planning. A Study of Highway Planning Part II. Technical Report No.2 "Analysis and Forecast of Motor Vehicle Travel." 1958-59.

Greater Vancouver Regional District. The Journey to Work February, 1982.

The findings of the Technical Committee for Metropolitan Transportation, indicate the average vehicle entering Vancouver in 1956 carried 1.54 people. Over the last 35 years, this rate has steadily gone down and now stands at around 1.3 persons per vehicle (Seelig and Artibise, 1991: 64).

North East Sector.

In the North East Sector, there was little transit available aside from an interurban long distance bus service (Pacific Stage Lines) and a local service providing a limited service from a few local centres of population to New Westminster. These services were not convenient for most commuters, thus the private automobile provided the only reliable and convenient transportation alternative.

After the Provincial Government began providing transit in 1973, service was slowly extended, as additional areas were developed within the North East Sector. B.C. Transit conducted studies in 1989-1990, for the provision of transit services into new neighbourhoods of the study area. The survey samples indicated that for work trips, between 73 and 84 per cent of the residents used their automobiles, and of the remainder, between 8 and 11 per cent used transit (B.C. Transit, 1989: 3; B.C. Transit, 1990a: 3). Of the people who responded to the surveys, 98 per cent owned at least one vehicle and 89 per cent owned two or more (B.C. Transit, 1989: 3; B.C. Transit, 1990a: 4).

Traffic congestion in the North East Sector, has been steadily increasing, and this could serve to reduced the accessibility and livability of the area.

Screenlines.

Screenlines are cordon lines established to count the volumes of traffic moving across them. These cordon lines are usually established on main arterial roads crossing some convenient boundary. In the case of the Greater Vancouver Region, the Fraser and Pitt Rivers, and Burrard Inlet provide convenient boundaries. In the North East Sector, the western boundary of the established screenline is North Road, which is crossed by the three main routes. The south and eastern screenlines are at the Port Mann and Pitt River Bridges.

The data from the B.C. Department of Highways' Coquitlam Area Planning Study of 1971, indicated 142,000 vehicles crossed the Municipal boundary of Coquitlam daily. The

largest volume leaving and entering the Municipality in the south-west corner was nearly 50 per cent of all traffic leaving and entering the area (B.C. Department of Highways, 1971: 17).

The data from the 1985 Metropolitan Vancouver Origin-Destination Survey "Vehicle and Passenger Screenline Survey" (GVRD, 1987) stated the Pitt River Bridge, had 3,600 vehicles crossing for the 4:00 to 6:00 pm period. The total increased to 4,616 if the time was increased from 3:00 to 6:00 pm (GVRD, 1987: 51). For the east-bound traffic on the North Road screenline, the three main routes had 8,301 vehicles during the evening rush hour (GVRD, 1987: 27-29). Information provided in the GVRD 1989 Freedom to Move Report (GVRD, 1989c) indicates traffic congestion on many of the bridges in the region as well as the Lougheed and Barnet Highways was reaching or exceeding their design capacity. The Lougheed Highway carried 118.9 per cent of its designed capacity, while the Barnet carried 100 per cent.

Origin/Destination Studies.

The 1955-56 Highway Planning Study data indicated most of the residents of the North East Sector worked within the area in 1955, and of those working outside the area, the majority worked in the immediately adjacent municipalities with New Westminster being the destination of most. As the population of the North East Sector increased the employment locations became more diversified.

In the 1971 Coquitlam Area Planning Study, the Planning Branch of the B.C. Department of Highways, found the majority of the trips were home based (B.C. Department of Highways, 1971: 15). As mentioned earlier, the employment in the area was estimated in 1971 to be about 16,000, which indicated that with a population of about 76,00, most of the workers travelled outside the area (Associated Engineering Services, 1971: 3).

In the 1985 Metropolitan Vancouver Origin-Destination Study, the North East Sector home to work trips totalled 36,800. Table 8-2 illustrates the inter-municipal travel patterns in 1985.

Table 8-2 1985 GVRD Inter-municipal Travel Patterns.**1985 GVRD Home to Work Trips.**

From/To	Belcar	Burn	Coquit	Delta	N Van	New West	Pt Coq	Pt Moody	Richmond	Surrey
Belcar	53	88	35	0	35	53	0	36	17	18
Burn	0	14043	1041	871	1865	2294	297	388	2684	1491
Coquit	72	5238	3177	501	610	2004	1170	618	906	1084
Delta	0	1645	255	5342	232	877	142	63	4138	3478
New West	0	3016	374	349	240	2595	216	100	1132	956
N Van	0	2702	285	250	11275	228	73	76	895	318
Pt Coq	47	1378	1246	156	314	435	1587	300	228	354
Pt Moody	17	966	819	157	40	451	213	77	163	156
Richmond	0	1676	111	845	365	494	41	41	16267	499
Surrey	68	5191	1321	3121	874	2866	532	200	4107	16123
U.E.L.	0	69	17	17	0	0	0	0	0	0
Van	0	9780	1029	1145	3117	1485	566	307	9985	1989
C.B.D.	0	859	94	46	447	138	51	27	531	111
W Van	0	724	123	0	1254	78	20	22	256	84
W Rock	0	131	16	123	0	123	0	0	302	1071
M Ridge	39	1317	1009	259	181	551	801	311	187	401
Langley	18	1330	312	632	247	627	123	55	823	3664
Extern	0	0	0	0	0	0	0	0	0	0
Total	314	50153	11264	13814	21096	15299	5832	2621	42621	31797

1985 GVRD Home to Work Trips.

From/To	U.E.L.	Van	C.B.D.	W Van	W Rock	M Ridge	Langley	Extern	Total
Belcar	0	71	70	0	0	18	0	0	494
Burn	454	13544	7637	385	84	336	332	441	48187
Coquit	59	3622	3107	100	22	362	357	189	23198
Delta	228	4704	2711	86	252	100	348	250	24851
New West	108	1910	1337	137	0	98	196	167	12931
N Van	337	6152	9095	2911	17	38	189	476	35317
Pt Coq	48	1342	824	69	0	305	138	0	8771
Pt Moody	44	753	752	17	0	54	61	94	4834
Richmond	720	8652	5600	288	56	44	135	125	36009
Surrey	192	6132	4105	162	1496	294	2419	660	49863
U.E.L.	154	256	102	0	0	0	0	0	615
Van	4579	54348	31844	1082	146	170	639	611	122822
C.B.D.	360	5010	3564	92	26	29	46	86	11517
W Van	113	2253	3570	1954	0	18	0	230	10699
W Rock	0	409	376	0	614	0	270	16	3451
M Ridge	0	1168	621	38	19	5269	236	161	12568
Langley	42	1411	1078	63	121	281	7343	958	19128
Extern	0	0	0	0	0	0	0	0	0
Total	7438	111737	76393	7384	2853	7416	12759	4464	425255

Source: Greater Vancouver Regional District. 1985 Metropolitan Vancouver Origin-Destination Survey Inter-Municipal Travel Patterns. Burnaby, B.C.: GVRD, 1987.

Of the 36,800 home to work trips: 4,800 work within their own municipality (4,366 work within one of the other North East Sector municipalities); 5,700 travel to Vancouver; 7,580 to Burnaby; and 2,800 to New Westminster. Of the total work trips; approximately 25 per cent are located within the North East Sector; approximately 44 per cent are to locations within Vancouver, Burnaby and New Westminster; with the remainder scattered amongst the rest of the regions' municipalities. Thus 69 per cent of the workforce are employed within the Burrard Peninsula and do not have to cross one of the bridges in the Greater Vancouver Region.

The B.C. Transit studies commissioned between 1989 and 1990, found between 36 and 39 per cent of the residents in the new subdivision areas within the North East Sector worked in Vancouver, between 24 and 31 per cent worked in Burnaby or New Westminster, and between 18 and 23 per cent worked within the North East Sector. In total between 82 and 88 per cent of the respondents to the Transit Studies work within these three areas which comprise the Burrard Peninsula (B.C. Transit, 1989: 2; B.C. Transit, 1990a: 4; B.C. Transit, 1990b: 4). From this information, one can conclude that the available resources should be directed to improve accessibility within the Burrard Peninsula.

8.2.6 Summary of Development Trends.

The information provided from the screenline, origin-destination studies, the census statistics, and the employment statistics, indicate that despite a large increase in the employment opportunities within the study area, a large per cent of the work force still needs to commute outside the area. The ever increasing population attracted by the availability of attractively priced homes, and a suburban life-style, will likely cause the numbers of commuters to increase. At present, roughly 80 per cent of the commuters utilize the automobile to travel to and from their work places, the levels of traffic congestion will likely increase, unless some form of action is undertaken.

The option of building new roads or drastically improving the existing highways is limited due to the geology and geography of the study area. This leaves as solutions: managing traffic (reversible traffic lanes during peak periods, and co-ordinating traffic signals, restricting the number of automobiles from entering congested areas at peak periods, reducing the number of parking spaces while at the same time increasing the parking costs in the C.B.D.); encouraging carpooling; providing better transit service through improved bus service or extending some form of Light Rapid Transit to the commercial centres of the area; and/or improving the employment opportunities for the residents of the area. This last option makes the assumption most people would prefer to live close to where they work. This assumption of economic rationality precludes some individuals who choose to reside in an area because of other factors, such as being close to friends or relatives, or a preference for the landscape or amenities of an area.

Another option involves density and types of land use allowed within the study area. Increased density coupled with a mixture of complementary uses would offer people the opportunity to live in close proximity to their place of work. This would reduce the amount of time and the distance people would have to spend commuting, and help reduce the level of traffic congestion. This would require a change in the philosophy behind the present zoning, as well as a change in the vision politicians, planners and residents have for the area.

8.3 FRAGMENTATION OF THE PLANNING PROCESS.

Fragmentation of the planning process contributes to the traffic congestion experienced by the North East Sector as well as the region as a whole. This fragmentation has its origins in the legal division of jurisdiction and authority between the different levels of governments, as well as between departments within each level of government. The division of power between the federal, provincial, and municipal levels of government was discussed in the Literature Review, Chapter 2 Section 8 "Sources of Authority and Jurisdiction." The

situation created by this fragmentation of authority and jurisdiction was illustrated within the case study, specifically in Chapter 4 Section 7 "A Lack of Governmental Co-operation."

The fragmentation of authority and its impact upon the planning process has been recognized by those in positions of power. The federal Minister of Urban Affairs in 1975, recognized the need for the different levels of government and departments to seek input from each other, to make the best use of the limited resources available. At the time, the Minister described a tri-level planning process his department had instituted (The Columbian, August 29, 1975: 25) to attempt to initiate discussion between federal, provincial, and municipal leaders about projects before they progressed beyond the planning stage. The obvious intended result of this discussion amongst interested parties would be a co-ordination of each party's concerns for positive and negative impacts of a project. However, it has to be recognized that each level of government and each department of the various levels of government has its own mandate. Attempts at consensus building about the benefits of projects might be viewed by some departments as infringement upon their mandate.

The provincial Minister of Municipal Affairs, had attempted to encourage co-operation and co-ordination of regional efforts through legislation establishing regional districts in 1965. In 1971, however, the Minister had "gone out of his way to discourage the regional districts from hiring personnel or consultants when there is provincial government staff assigned to the area that could do the same job." (Hrushowy, 1971: 16). The lack of co-ordination was attributed to an "us verses them" attitude, between the regional districts and the provincial government. Coupled with this was an observation made in 1971 by some regional district representatives that "the difficulty in dealing with various governmental departments, especially lands, is a manifestation of a power struggle between Campbell and other cabinet ministers." (Hrushowy, 1971: 16). Mr. Dan Campbell was the Minister of Municipal Affairs at that time.

The inclination of various levels of governments and departments to guard their authority, has resulted in each placing its own concerns first, to the potential detriment of

others. This jealousy may stem from a desire to achieve higher status and exclusive control. It may even result in withholding information from another department. These attitudes may mean that the needs and concerns of one department would be met, while the concerns of others may or may not be met.

In the mid 1960's the provincial government passed legislation creating regional districts. As a result of extensive lobbying by the Union of B.C. Municipalities. As with the lobbying to create the Lower Mainland Regional Planning Board, the efforts of the municipalities took an extended period (see Chapter 7 Section 1 "Introduction" for the background information). The regional districts were to co-ordinate functions which could be better planned and provided on the regional basis.

Mr. Dan Campbell, provincial Minister of Municipal Affairs, observed that one of the problems of fragmented authority was a compartmentalization of the decision making process (Hrushowy, 1971: 16). In his capacity as Minister of Municipal Affairs, he created regional districts to provide a means for local municipalities to discuss matters of a regional concern to arrive at mutually agreed solutions. Not all local politicians, however, viewed the creation of the regional districts as beneficial. The mayor of Port Moody in 1976, described the GVRD as "a monolithic monster feeding on its own bureaucracy. . . . taking over many of the functions of the municipality." (The Columbian, January 6, 1976: 2). The mayor viewed the purpose of the regional district as being the co-ordination of agencies between the municipalities (The Columbian, January 6, 1976: 2). Instead it had become another level of government seeking to acquire powers and functions that were beyond its mandate.

The provincial government's creation of regional districts to co-ordinate municipal and to a lesser extent provincial government activities, has suffered from changes in the provincial government. However, the different political parties' philosophy was not always in accord with its actions. The party forming the government in the early to mid 1970's supported the need for inter-governmental co-ordination, but embarked upon major land use and transportation projects with little or no consultation with those municipalities directly

affected. The \$1 billion Burke Mountain Project is an example of a land use project where the local governments of the affected communities were not consulted until the planning was well under way. The Highway improvements suggested by the planning process to access the Burke Mountain Project are an example of the lack of consultation between provincial and local governments. In the mid 1970's, a newspaper article made the announcement "despite the fact that Coquitlam District officials were only told of the massive project moments before newsmen were informed, Mayor Jim Tonn said he views it with a positive attitude." (Coffin, 1974: 1) The title of the article was "\$1 billion housing Plan set for Burke Mountain." "The Burke Mountain affair is symptomatic of this government's penchant for planning from the top, virtually without consultation with those most directly affected" (The Province, February 24, 1975: 4). This goes against the government's commitment to foster co-operation and the co-ordination of planning through the utilization of the regional districts.

One positive aspect of the creation of the regional districts has been to provide a forum for local governments to discuss issues of a regional nature. This has served to resolve some of the regional concerns of municipalities, though it has not removed all the rivalry between municipalities. Examples of the rivalry would be the situation described in the case study in Chapter 5 Section 2.4 "The Town Centre Controversy" where the GVRD decided a regional town centre should be constructed within the North East Sector, but could not reach a decision on the location in which municipality, either the District of Coquitlam or the City of Port Coquitlam, should be the site. In the end the matter was resolved through Coquitlam embarking upon its own program of development, and effectively establishing its claim to be the site of the regional town centre.

Prior to 1976, the G.V.R.D. and the two municipalities could only debate the relative merits of each site, as the provincial government of the day had its own plans for the area and would not allow Coquitlam to proceed with plans for the construction of the shopping centre when Coquitlam first sought permission in the early 1970's. Chapter 5 Section 2.4 the "Town Centre Controversy," provides background information on this period. The change in

the provincial government in early 1976 brought a change in developmental philosophy. It felt private initiative was better than governmental sponsorship.

The provincial government, despite an apparent desire to co-ordinate actions, neglected to provide a workable mechanism to co-ordinate transportation planning and construction between different provincial departments and the municipalities. In a 1977 newspaper article, it was noted the Lower Mainland was the only metropolitan region in the country without a regional transportation planning and operating authority (The Vancouver Sun, October 18, 1977: A-4). The article also noted people in the Lower Mainland were becoming increasingly upset with the problem of traffic congestion. The traffic problem was not being addressed properly "because urban transportation in Greater Vancouver is on the threshold of chaos, created, fed and fanned alive by a level of planning and responsibility that is pure bush-league small town" (The Vancouver Sun, October 18, 1977: A-4).

In the period of the early 1970's, there were two provincial government controlled agencies involved with public transit. The Bureau of Transit looked after planning, while B.C. Hydro looked after the operation of the transit services Chapter 6 Section 3 "Transit in the Study Area" provides background information on this separation of the operating and planning for public transit. In the late 1970's, the Urban Transit Authority was created to handle planning and the Metro Transit Operating Company was created to take over transit operations from B.C. Hydro.

An example of the fragmentation of authority for transit was the reorganization of transit in 1980, with "transit operations . . . controlled by the provincially appointed Urban Transit Authority (UTA), the regionally represented GVRD, and the Metro Transit Operating Company (MTOC). The MTOC runs the buses; the UTA-GVRD combine does everything else." (Ingram-Johnson, 1982: 4). The citizens:

don't realize what 'a bureaucratic nightmare' the transit agreement is. 'You have to have a unified organization which is able to plan its capital expenditures and its operating costs. As it stands now, we're spending capital dollars, not knowing what the operating costs are going to be.' (Ingram-Johnson, 1982: 4)

A further example of this lack of co-operation involves the city of Vancouver and B.C. Transit, a Crown corporation.

B.C. Transit, has also started running the city. It is ignoring the official city council position on the rapid transit line along Commercial Drive and is merrily proceeding with its own plans as though the city government had been disbanded." (Hossic, 1983: A-12)

Chapter 4 Section 4 "Transit in the Region" provides more background information on these events.

In effect the provincial government created two bureaucratic organizations controlling two aspects of the same function. This fragmentation did not aid in the planning and provision of efficient transit. Coupled with this fragmentation was the creation of a separate organization to plan rapid transit to the region. The creation of three separate organizations to plan and operate public transit meant an overall vision of the region's needs could not be produced.

Since the early 1980's, the transit functions have been amalgamated under the control of B.C. Transit, a provincial government agency reporting to the Minister of Municipal Affairs, and mandated to plan and provide transit services to communities in the province. The local municipal governments do not have a direct say in service changes. There has been a process for the local municipalities to offer suggestions on local transit matters, but there is no mechanism which would compel B.C. Transit to act upon them.

In the late 1970's the Greater Vancouver Regional District was given a role in the planning of transit service, as well as planning for the route of Light Rapid Transit. The provincial government, however, in 1983 decided this power should be taken back by B.C.

Transit. This left the region with little effective input into the transit planning process, and this state of affairs persists today.

The Ministry of Transportation and Highways, formerly the Ministry of Highways, was another component of the transportation function. This Ministry possessed immense powers over the designation of provincial routes within municipalities. The Ministry of Highways could operate according to its own mandate, and build or improve the routes it felt were needed, and did not have to co-ordinate its activities to take into account the concerns of the local municipalities.

It is apparent from the information provided in Chapter 3, and the case study, that one of the major sources of fragmentation of transportation planning, is the separation of the two major components of transportation. These two components are the B.C. Ministry of Highways and B.C. Transit. Ideally the functions of both ministries should be integrated, to enable a unified approach to the transportation needs of the region.

In 1980, the provincial government created an urban land policy in response to the 1979/80 Official Community Plan review for the region. It was designed to focus new land development north of the Fraser River, to relieve the suburbanizing pressures being exerted upon the agricultural lands and floodplains of the municipalities south of the Fraser River. Developers' attentions were directed to the vacant or underdeveloped lands within the North East Sector. However, despite a great deal of improvements to the transportation infrastructure to handle the increased traffic resulting from the urban land policy, it proved insufficient to handle the increased volumes of traffic. It should be noted the provincial government had made promises to improve local transit services, upgrade the existing highway infrastructure, and initiate commuter rail service. In spite of these promises, most of which had been carried out, there still existed a problem with traffic congestion.

In more recent times, in 1989, the Provincial Government decided to offer for sale a large tract of vacant Crown owned land in Coquitlam, known as the Westwood Plateau. The current zoning in the surrounding area, would allow for the construction of a total of about

5,000 housing units (District of Coquitlam, 1990b). This sale was made despite fervent protests from the municipal leaders and large segments of the public, on grounds of traffic congestion.

At this same time, there were a number of transportation proposals under discussion in order to improve accessibility to the study area. Commuter Rail, was repeatedly supported and rejected by the provincial authorities (see Appendix 2, Commuter Rail for additional details); Light Rapid Transit was proposed, and a route study was announced, but this solution was at least five years way from operation; there was talk and later an announcement of a widening of part of the Barnet Highway to reduce the traffic congestion in the northern area; and there was talk of improved bus service to the area. However, none of this was in place before the sale and it would appear the impact of the change in land use of the Westwood Lands on transportation within the area was not considered.

As a result of the public outcry over the likely traffic impacts of the new residential projects either being constructed or proposed including the Westwood Lands, the provincial government somewhat belatedly began a process in late 1990 to improve the transportation situation in the North East Sector. The process was also designed to address the concerns of the surrounding municipalities which were being negatively impacted by the traffic congestion created by commuter traffic originating from the study area. A Barnet/Hastings People Moving Project was announced at this time. This project would see the widening of the Barnet Highway, and the inclusion of bus and carpool lanes on Barnet Highway and Hastings Street. The people in North Burnaby have expressed their opposition to the project while some have considered the whole public process to be a waste as the project is "a done deal" (Prince, 1991b: 5). The Municipality of Burnaby used a 1990 "Park Referendum" to seek the authorization of the voters to dedicate park lands to prevent their use for highways and transit (SkyTrain) projects. The dedication of the Barnet Marine Park lands allowed council to stall the Barnet Highway widening project (Burnaby Now, February 13, 1991: 1, 4).

A Coquitlam SkyTrain route selection committee was organized by the provincial government to make recommendations on which of three routes was the better. A leaked confidential memo, suggested a decision had already been made on the route to be recommended despite the assurances of those involved there would be public hearings and all points of view would be considered (Horn, 1991a: 1; Hilborn, 1991c: 1, 5). The question arose as to whether the provincial government had stacked the committee (Hilborn, 1991c: 5) and the process of gathering information and soliciting opinions from the public was merely for show. One of the members of the Committee commented that:

We had very little information that would support anything but that conclusion (Edmonds route) . . . Some of the committee members were concerned that with such a narrow source of information it may precluded any reasonable alternatives. (Hilborn, 1991c: 1)

The information gained from this state of affairs suggests the decision making process was fragmented. The municipality most affected by the decision did not have any effective input into the process, as it would appear a decision had already been reached by the provincial government before the undertaking had been announced. The Municipality of Burnaby's 1990 "Park Referendum" was again used as a stalling mechanism to influence the SkyTrain route choice (Hilborn, 1991f: 1, 3). The Mayor of Coquitlam remarked "That means you've now got one municipality working against another for transportation." (Hilborn, 1991e: 1).

Regional Co-operation.

The need for co-ordination and co-operation between the various municipal and provincial authority was seen as necessary by many of the municipal governments in the lower mainland. There were many problems of a regional nature, such as the provision of water and sewerage, hospitals, and parks which needed a regional approach. Chapter 7 Section 1 discussed the origins and evolution of the present regional districts.

There are nevertheless some politicians and members of the public who view the function of the G.V.R.D. as a fourth level of government. In fact the Regional District was

designed to serve as a co-operative forum for the discussion of problems of a regional nature, not as another level of government. In reality however, the G.V.R.D. does function as a quasi-government. The members municipalities forming the board of the G.V.R.D. have produced a series of documents that outline the type development they propose for the region. This vision has its origins in the The Lower Mainland Looks Ahead report of 1952. It envisioned the development of the region focussed around a strong central core in Vancouver, surrounded by a series of regional town centres. These town centres and their core would be linked by efficient transportation. The discussion of geographic theory in Chapter 3, provides a background for the concepts of the regional town centres.

The vision of a strong central core surrounded by regional town centres has not been altered appreciably in subsequent revisions of the Regional Board's concept plans. The recognition of the need for efficient transportation links between the individual regional town centres and central core has also not changed. What has changed has been the type of transportation technology suggested. In 1952, automobile dominance was accepted, while in the late 1950's, with traffic congestion becoming a problem, the use of buses on the freeways was suggested as an alternative. When the 1976 update of the vision for development of the region was produced, public transit was seen as the best means of connecting the centres. The last update, the Creating Our Future Report of 1990 (GVRD, 1990d), supported the need to encourage the use of public transit over the private automobile.

The vision of regional town centres has altered the role of the Central Business District. Prior to 1950, the C.B.D. was the focus of most of the distribution and industrial activities for the region, and was the focus of the transportation system. This in turn encouraged business and industry to locate there. At present the C.B.D. is still an important destination, but its importance lies in its role as an office centre compared to its past role which included manufacturing and distribution activities. Solutions to the problem of traffic congestion can thus no longer be focussed on the C.B.D., but now have to take into account the scattered destinations of the workforce.

The G.V.R.D. of course tried to encourage co-operation between the municipalities in order to achieve the goal of making the region more livable through an ordering of the land use and co-ordinating of the investments in transportation. This might sound achievable in theory, however each municipality had its own vision of what developments it would like to create.

The idea that there should be a mechanism available to help the municipalities achieve some sense of regional needs and their own position within the region possessed positive and negative aspects. On one hand the municipalities were concerned about the need for co-ordinating efforts on issues of mutual concern, while on the other hand, they vigorously protested any attempt or apparent attempt by the provincial government to intrude upon areas they saw as part of their jurisdiction. These concerns were best expressed in the policy statement of the Union of British Columbia Municipalities in 1954. This statement was discussed in Chapter 7 Section 1 "Introduction."

The municipalities found themselves in a situation where they wanted mechanisms to facilitate co-operation between municipal and provincial organizations, but did not want to lose any of their own powers in the process. They lobbied for the creation of a regional planning board during the 1930's and the 1940's. Once this legislation was passed and the regional planning board was created for the whole Lower Fraser Valley, the municipalities found they might be better served by an organization covering a smaller area. Repeated lobbying resulted in the creation of four regional districts in 1965. Once again however, some of the smaller municipalities felt threatened by the Regional District powers. There was a fear amongst some as expressed by the Mayor of Port Moody in 1976, that "the GVRD had become a monolithic monster feeding on its own bureaucracy . . . taking over many of the functions of the municipalities." (The Columbian, January 6, 1976: 2). despite this fear, the GVRD was also perceived as a mechanism to create a united front which could lobby the provincial government on regional needs.

8.4 THE ROLE OF THE "NOT IN MY NEIGHBOURHOOD" ATTITUDE.

The term "NIMBY" or "Not In My Back Yard" was coined to describe an attitude amongst some residents of a neighbourhood who, while they might acknowledge the need for a project to solve a regional problem, do not want it in their neighbourhood. This aversion to having one's neighbourhood disrupted, has its origins in most peoples' reluctance to see radical changes occur in their lives. Most people like stability, and though most are not against change of any kind, they become defensive if the proposed changes confer benefits to others and has negative impacts to them. The importance of NIMBY lies in the pressures a widespread campaign against a project has upon the political decision making process.

The problem that arises concerns the rationalization of what public benefit means, who should benefit and who should make a sacrifice. If all residents of a region are expected to contribute to a project benefiting all, then there could be a case made for a project. If however, a handful of neighbourhoods have to absorb all the negative impacts of a project while those benefiting make little or no sacrifice, then the residents of the impacted neighbourhoods will likely react to stop the project.

Information presented in the case study indicates one of the obstacles to improving the transportation infrastructure within the G.V.R.D. is a reluctance of residents to see their neighbourhoods disrupted by the widening of roads and/or the construction of rapid transit. There are several examples presented in the case study which illustrate this point. In the City of Vancouver in the late 1960's and early 1970's, the Great Freeway Debate, discussed in Chapter 4 section 4.5, was in reaction to attempts by the City government to push a freeway through long established neighbourhoods, without taking into consideration the impacts this would have on the residents and their neighbourhoods. The result of the freeway debate was a recognition on the part of the city officials that the citizens were not prepared to tolerate any major roadways being constructed that could disrupt their neighbourhoods.

The provincial government in constructing the ALRT line through East Vancouver in the early 1980's, chose to ignore the negative impacts this project, and sacrificed the quality

of life enjoyed by these residents for the benefit of the region as a whole. The lesson of this incident has not been lost on other residents and neighbourhoods which have found themselves in the path of potential routes of new rapid transit lines.

In more recent times, the developments in the North East Sector have increased the traffic volumes on the main routes through Burnaby and New Westminster, creating problems of congestion. The provincial government, through the Ministry of Transportation and Highways and B.C. Transit have offered proposals to improve the existing transportation network. The Barnet/Hastings People Moving Project discussed in Chapter 6 Section 4, was one project that has caused the local residents to pressure local and provincial politicians to shift it away from their neighbourhood to the Lougheed and/or the Freeway. The local residents feel those who live in the North East Sector should make use of transit instead of single occupant automobiles.

Within the North east Sector, the City of Port Moody has experienced traffic congestion from residents living in more easterly communities. The residents of Port Moody have for several years sought a remedy to the problem through the construction of a bypass as was described in Chapter 6 Section 2.2 "The Chines Expressway" or the more recent "Spring Street Bypass."

The suggestion of a transit remedy as an alternate to widening existing highways has been offered. The residents and politicians within the North East Sector have actively supported the proposal to extend the ALRT line to Lougheed Mall and later to the Coquitlam Centre Mall. Chapter 6 Section 3.1.3 "Current LRT Proposals. 1990" describes the routes and provides some background information. The reaction of the residents in the East Burnaby neighbourhood likely to be impacted by one of the proposed routes is described in Chapter 6 Section 4 "Impacts on Adjacent Municipalities." The residents see the choice of this route for the ALRT as being politically motivated. It would require the shortest time and the least expense to construct, and would fulfill a politically promise. The residents of the affected neighbourhood pointed out, the choice of the route would not take into account the long term

needs of the region and its construction would only provide short term benefits to the North east Sector.

The introduction of the NIMBY attitude into the process of rationalizing the transportation infrastructure to better serve the region, has complicated the search for a solution to the problem of traffic congestion. There is a need for improvements to both the highway and transit components of the transportation infrastructure, and if every affected neighbourhood while acknowledging the need for improved transportation infrastructure chooses to fight to exclude it from impacting on their neighbourhood, little positive can be accomplished.

8.5 FACTORS CREATING TRANSPORTATION DIFFICULTIES.

Traffic congestion in the study area has been created by a number of local and regional factors. These include, the position of the study area in relation to the rest of the region, the geographical and geological make-up of the area, and the division of political jurisdiction and power within the area.

8.5.1 Position of Study Area in Region.

The North East Sector occupies a peripheral position, in the region. In the past most of the region's urban and economic development was focused around the C.B.D. of Vancouver, with a few smaller centres such as New Westminster and North Vancouver serving as focal points for smaller more local developments. The roads and transit lines radiated out from the centre of Vancouver serving to reinforce its importance to the region.

The suburbanization process which began after the Second World War saw most of the early developments occur in the City of Vancouver and the adjacent municipalities. The municipalities in the North East Sector, were just after the War considered to be the suburbs of New Westminster, as the existing road system drew residents to work and shop there. There were some early developmental pressures for the conversion of land to small urban

sized lots, but this was mainly located in the areas adjacent to New Westminster or the few commercial points that existed in the North East Sector.

The North East Sector was initially bypassed by large scale suburbanization since large tracts of level cleared lands were available in Richmond and Surrey, or the mountain side view lots of North Vancouver. It was only after the available developable lands closer in to Vancouver began to fill, that the lands within the North East Sector began to attract home seekers.

This lack of early suburban development also had an impact upon the road system in the North East Sector. Municipalities which were developed earlier, either commissioned plans for developing an arterial road system such as in the case of Vancouver in the late 1920's, or due to the nature of the original land surveys possessed a blueprint for road building as in the case of Richmond in the 1960's. Chapter 4 Section 2.3 "Roads" provides additional background information. Thus the lack of an earlier plan to locate a complete network of internal arterial roads to service the study area, prior to the beginning of suburbanization has contributed immensely to the area's traffic problems.

Since the mid 1960's the North East Sector has had good highway access to the rest of the region. The study area lies across or adjacent to the main regional highways linking the Eastern Fraser Valley to Vancouver. However, the 401 Freeway, and the Lougheed Highway. The main railway lines also either pass through, as in the case of the Canadian Pacific Railway, or pass by the southern edge of the study area, as in the case of the Canadian National Railway and the Burlington Northern Railway.

The study area was initially bypassed by the great suburban movement of people seeking inexpensive residences or a rural lifestyle. The lack of good road access prior to the 1960's, as well as the costs of clearing the hilly tree covered lands persuaded house seekers to locate elsewhere. Later a shortage of inexpensive developable lands elsewhere brought the North East Sector to the attention of developers and home seekers.

Geological and Geographical Limitations.

The geographical nature of the North East Sector has played a major role in influencing the transportation options. The geographical and geological history of the study area has been covered in Chapter 4 Section 2 "Physical Nature of Study Area." Access to the central business district is restricted by water on three sides, while the remaining side is partially blocked by a high ridge of land. The available routes around this central ridge are limited to a narrow space between the sea and a steep unstable mountain side to the north and a slightly wider space curving between the south of the central ridge and a low swampy river floodplain. Both the northern and southern routes have engineering problems due to the existence of unstable soils.

These limitations cause traffic choke-points where traffic has to funnel through the two main roads, and heavy traffic volumes or a traffic accident can cause congestion to occur. These geological limitations can be overcome, but the costs are high.

Political Considerations.

As noted in Chapter 2 Section 8 "Sources of Jurisdiction and Authority" and in the case study, both land use and transportation fall under different governmental jurisdiction. The provincial government gave municipalities control over land use within their boundaries, but retained control of regional transportation.

Provincial Government.

The provincial government controls regional transportation through the Ministry of Transportation and Highways. The province also controls the regional transit authority. In the past the highways and transit planners did not appear to co-ordinate their planning activities.

Municipal Government.

The municipalities were given the power to control land use. As each of the three municipalities was primarily concerned about its own development, there was friction between

them over which one would receive the lion's share of development. An example of this friction was the battle between Coquitlam and Port Coquitlam over the location of the regional town centre proposed in the early 1950's by the Regional Planning Authority.

The traffic problems in the North East Sector have reach a level that is forcing the municipalities to co-operate to find solutions. North East Sector municipal planners and politicians have attempting to cope with the increasing traffic. But, practical routes for the construction of new roads were few, and as the Provincial Highways Department had the power and resources to construct them, little could be done. One of the few alternative routes available was the Burnaby Mountain Expressway, paralleling the Barnet Highway with the exception of passing to the south of Burnaby Mountain. The Highways Department studies indicated in the late 1960's and early 1970's, the transportation demand for the region was southwest from the C.B.D. and thus despite the concerns shown by the local municipalities over the future need for this roadway, nothing was done.

In recent years, there has been considerable co-operation between the political leaders of the three municipalities of the study area to resolve some of the more pressing urban problems. This is particularly evident in the collective actions they have taken in the matter of improving the road and transit services to the area. The local politicians and planners have a better record of co-operating on matters of area concern then do the other levels of government. Their actions concerning the interrelationship of land use and transportation reflect an understanding of the importance of this relationship. They have collectively attempted to attract the necessary businesses and employment opportunities that would theoretically reduce the need of local residents from having to commute to employment elsewhere in the region.

They have tried to keep the Provincial Highways and Transit Authorities informed of the needs of the area, but on many occasions have found that in spite of their concerns, these two bodies have made decisions in isolation.

8.5.2 Factors Influencing Land Use and Transportation in the North East Sector.

Both land use and transportation are influenced, singly or collectively, by factors which impact on them. The factors include, the political alliances of the politicians of the area and the party forming the provincial government, the vision of the area's development held by the local municipal leaders planners and residents, the influence of the Greater Vancouver Regional District's long range development plans for the area, the number of transportation infrastructure improvements funded by the provincial government, and the number of new and/or improved transit services.

Political Affiliations.

The party affiliation of local and provincial politicians in relation to the party in power has an important effect. Most major transportation projects are funded by the province, and it has been suggested that these decisions are based on the party affiliation of the Member of the Legislative Assembly. For example, when the provincial budget for British Columbia was presented to the Legislative Assembly in late March, 1992, it was noted in a local newspaper column that "the reduction of the highways (budget) was a matter of routine: B.C. governments have always cut spending on roads and bridges in the year after a provincial election." (Palmer, 1992: A-18).

In the early 1970's the Member of the Legislative Assembly for the North East Sector was also premier of the province. It was during his term of office that many new land use and transportation projects were planned for the area. After the next election and another political party formed the government, and many of the plans were shelved. Later, in the late 1970's and early 1980's some of the transportation projects were constructed as traffic congestion worsened.

In the late 1970's the provincial government promoted the North East Sector as the place where most of the regional residential development should occur. This action was to reduce the demand for more transportation capacity to the south of the Fraser River.

The importance of the political affiliation of the politicians to the source of the decision making and ultimately funding is evident. Those politicians who form part of the provincial government are in a better position to express their constituents' views and needs.

Developmental Visions for the North East Sector.

Most people develop over time a sense of belonging, and pride in their community. They perceive their community to have the potential to achieve greatness through the continued development of its position of importance within its region. To most people, continued growth of population and the development of land into higher uses such as commercial, industrial, and higher density residential indicate their community is dynamic. This vision of continued growth is evident in the planning activities of the municipalities within the North East Sector. The Official Community Plans for each set out programs and blueprints on the extent and direction of future growth. The Regional District also developed a vision for the region as a whole. Prior to 1983, the Regional District had the power to plan regionally, but the loss of this planning function in 1983, left the individual municipalities to work out their own plans. An example of what can happen if adjacent communities cannot agree on what is the best for the region as a whole is the North East Sector Regional Town Centre controversy of the 1970's.

Each of the municipalities forming the region has its own vision of greatness. "Municipalities, not surprisingly, tend to look after their own citizens first, with little regard for the regional impacts of their decisions." (Seelig & Artibise, 1991: 87). This lack of co-operation and co-ordination complicated the achievement of a unified vision for the region.

Transportation Infrastructure Improvements.

In spite of the increasing traffic congestion and the complaints of residents of the inadequacy of the existing transportation infrastructure, and the need for more bridges and road capacity, over the last twenty years there has been large sums of money spent on improving access to the North East Sector. As illustrated in Chapter 6 "Transportation in the North East Sector, 1951 to 1990," there were many improvements to the area's

transportation infrastructure though often their construction has been long overdue, and when built provided capacity for the existing congestion, without providing much excess capacity to accommodate future traffic growth.

Transit Service Improvements.

As related in Chapter 6 Section 3.1 "Transit in the Study Area," the study area was not serviced by the regional transit authority until 1973. Over time, as the population increased and more land was converted to residential use, transit service was slowly increased. In recent times, improved transit service has been seen as a means of reducing the traffic congestion. "Every 50 people diverted to transit means 38 fewer automobiles on the road." (Seelig & Artibise, 1991: 64). Information provided in Chapter 8 Section 2.5 "Traffic" indicates that at present only from 8 to 11 per cent of the residents of the North East Sector utilize transit to commute to and from work. To provide full transit service would be costly since the study area has a low density of development, and congestion is limited to the two rush hour periods. Transit has provided a rush hour express service from bus interchanges to Vancouver and New Westminster. However, since the buses have to use the same roads as automobile traffic, it has to contend with the existing traffic congestion, and many commuters believe it is more convenient to use their own vehicles.

Transit could provide a viable option to the automobile and help relieve congestion, provided the service could prove to be more convenient. To achieve this, bus only lanes or High Occupancy vehicle lanes reserved for transit vehicles and automobiles carrying three or more people, would enable transit to provide a service that could be faster than a single occupancy automobile. The suggestion for bus lanes as well as Rapid Transit using its own right-of-way have been planned and discussed but not yet implemented.

8.6 TRANSPORTATION OPTIONS.

There have been other options to reducing the urban transportation problem. These include controlling the supply of parking spaces, ridesharing, commuter bus service, bicycling,

and staggered work hours. The first major local attempt to use these alternatives was the City of Vancouver 1976 rideshare program. The city also promoted cycling as an alternative to the automobile. There were attempts by the city and local cycling enthusiasts to permit bicycles on the SkyTrain, or to have bicycle lockers at the stations. B.C. Transit has finally initiated a pilot program of lockers at several park-and-ride lots and the Scott Road SkyTrain Station in early 1992. As of October 5, 1991, B.C. Transit decided to allow bicycles on the Seabus (B.C. Transit, 1991b: 5).

Some municipalities have instituted staggered hours amongst their staff, though large scale employers such as the provincial government have until recently resisted this option. Municipalities do have some direct say in encouraging alternative transportation options through rezoning and reducing the parking requirements when a company commits to encouraging carpooling or transit use amongst its staff.

Another option related to parking is to increase the price of parking which may cause commuters to leave their vehicles. In the case of Vancouver, the City owns a number of parkades in the C.B.D. and can control the pricing. The City could also influence the price of parking at other lots through changes in its bylaws.

The provincial government though having the power to promote and encourage the use of alternatives to the automobile has until very recently declined to act. Its recent initiative, the Go Green program, is still too new to judge how effective it might be in reducing traffic congestion, or how well the planning and decision making will be co-ordinated between the different levels and departments of the government.

8.7 PLANNING ON A REGIONAL BASIS.

Officially there has been regional planning of one form or another in the Greater Vancouver Area since the late 1940's. The Lower Mainland Regional Planning Board (LMRPB) and its successor, the Greater Vancouver Regional District (GVRD), have produced and modified development guidelines which included both the land use and transportation

components. These two bodies have produced a series of reports, which have reflected the concerns of planners, politicians and citizens about the impacts of development upon the future livability of the region. The GVRD which assumed the functions of the LMRPB in 1967, has provided services of a regional nature.

The Regional Planning Board began the development of the series of regional plans in 1952, emphasizing the interrelationship between land use and transportation. The first report was *The Lower Mainland Looks Ahead*, (LMRPB, 1952) published in 1952. It emphasized the importance of co-ordinating development so the best use might be made of the limited developable land. The study recognized the importance of planning future land use in the suburban areas to control the growth of traffic. The report recommended the creation of a number of satellite towns in the suburbs around Vancouver to provide alternate sites for employment and the provision of services. It also recommended that these satellite communities be linked together by the provision of good transportation infrastructure. At that time, the type of transportation infrastructure suggested was freeways, as the automobile was still considered the best available means of providing efficient transportation.

The Land for Living report of 1964 (LMRPB, 1964b) supported the recommendation for satellite towns connected by freeways, though there was an acknowledgement of the role of transit, since it suggested express buses on the freeways. In 1966, the importance of co-ordinating land use, was recognized and an Official Regional Plan was developed for the whole of the Lower Fraser Valley, from Vancouver to Hope.

The next major study was the Livable Regions report of 1975 (GVRD, 1975). This report recognized the need to balance the rate of population growth in the region, balance the provision of jobs and residences, create regional town centre and provide a transit oriented transportation system. In this study there was a recognition of the need to find another solution to automobile traffic congestion.

Accelerated growth over the previous decade and a change in the transportation emphasis from the automobile to public transit, forced a review of the Official Regional Plan

in 1979/80. Additional work on the Regional Plan was halted in 1983, due to the provincial government removing its planning power.

In 1990, the GVRD embarked upon a review of the 15 year old Livable Regions Program. This review was entitled Choosing Our Future (GVRD, 1990c) and from this a series of reports entitled Creating Our Future (GVRD, 1990d) were produced. These updated studies re-emphasized the need to "tame" the automobile.

Several studies of the impact of the automobile upon the quality of air were also completed. Transit and the Environment and Clouds of Change noted that between 75.9 per cent (B.C. Transit, 1990c: 3) and 80 per cent (City of Vancouver, 1990: 17) of the air pollution in the region was the result of vehicle exhaust fumes.

Traffic congestion is a region wide problem, and a region wide plan of action is required. The fragmentation of the different levels of governments and departments may not be easily resolved. However, a regional approach enabling the local municipalities to identify their individual and mutual problems, and present a united front to the provincial government holds the best promise for the future.

8.8 CONCLUSIONS.

The main conclusion which can be drawn from this study is, the principle cause of the inability of those charged with the task of resolving the problem of traffic congestion within the North East Sector as well as the Greater Vancouver Region as a whole, is the fragmentation of the planning and decision making process. This fragmentation is due to the separation of jurisdiction over the two factors that have the greatest influence over traffic generation. These two factors are land use and transportation.

There has been a recognition by those agencies involved in planning for land use and transportation, of the importance of the interrelationship that exists between the two. Despite this recognition, plans and decisions have been made on changes to land use and transportation, without any effective attempt being made to seek co-operation between the

responsible agencies, to co-ordinate their action to produce the best result with the minimum negative impacts.

There are of course, other factors contributing to the North East Sector's problem of traffic congestion. These include, locational limitations, the lack of an early arterial road plan, the political divisions with the area, the regional pressures of an increasing population seeking developable land for new housing, the construction of automobile dependent residential developments, and the increasing separation of residence from workplace. Some of these factors could be dealt with by the authorities within the North East Sector, while some require a more regional approach.

Regional Planning Boards has existed in the Lower Mainland since the late 1940's. They has long recognized the need to co-ordinate land use and transportation planning to reduce the negative impacts of suburbanization. Forty years of planning studies have identified the problems facing the region and have suggested solutions. Unfortunately, due to the fragmentation of control over land use and transportation, and the lack of a mechanism to facilitate effective co-operation, the traffic problems that reduce the livability of the North East Sector and the Greater Vancouver Region as a whole, exist and are worsening.

To many residents and politicians, the best solution to congestion is to provide increased capacity through the building of new highways and bridges or the widening of existing ones. This solution, however, has in the past encouraged the creation of low density development in the suburbs, and served to generate more traffic. The disruption caused by traffic and the expansion of roads through existing neighbourhoods has led the development of an attitude amongst those affected of "Not In My Back Yard." The organization of local residents to campaign against improvements to the region's arterial road system has increasingly served to pressure the politician to rethink the option of increasing the region's road capacity.

Alternatives have been suggested, which would see better utilization of the existing transportation infrastructure, through the introduction of a philosophy of moving people not

vehicles. Viable options include, greater utilization of transit, ridesharing, telework, living closer to work, using bicycling, and allowing higher density land use along transit corridors, amongst other options. Some of these would require the government encouragement, while others would require a change in attitude by members of the public.

A recommendation that could be made to aid in resolving the region's traffic problems, would be to create some mechanism to produce effective co-operation between the levels of government and their agencies to co-ordinate planning. This could serve to allow planning on a regional basis, to produce the best results with the least negative impacts for the region.

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Appendices

Appendix 1The Number of Automobiles in British ColumbiaTable Appendix 1-1

The number of automobiles in local municipalities within the Greater Vancouver Regional District, 1945 to 1985.

	Passenger Vehicles in 000's.								
	1945	1950	1955	1960	1965	1970	1975	1980	1985
Province	99.4	270	405	446	623	811	845	1,131	1,219
GVRD	54.3	105	149	242	329	447.7	448	536.5	729
Vancouver	37.8	72.8	109	158	208	269	171.8	194	236
New Westminster	16.5	33.9	40.8	55	74	81	48.9	63	82
Surrey				13	20	31	62.6	93	132
North Shore				16	27	40	56.2	67.7	105
Richmond						25	55.1	82	105
Burnaby						1.7	53.6	70	86

-The heading for Surrey includes Surrey and Cloverdale.

-The heading for Burnaby indicates that an office was opened in the Municipality late in 1971.

-The Heading for New Westminster included Surrey, Burnaby, Coquitlam, Port Coquitlam, Port Moody and Haney prior to 1971.

-The heading Vancouver included the North Shore (North and West Vancouver), Richmond, Delta (Ladner area) plus parts of Burnaby, prior to new Motor Vehicle License Offices being established as increases in vehicle registrations necessitated this.

The information presented in the Table, indicated the numbers of passenger vehicles only. It does not include commercial vehicles.

The statistics presented in the table, illustrate the increase in the numbers of automobiles in the province as a whole and the Greater Vancouver Region. The breakdown of the numbers for the municipalities or areas within the region indicate, that over time, there was a steady increase in the numbers of automobiles registered in the suburbs. Up until the late 1950's, the main Motor Vehicle licensing outlets were located in Vancouver and New Westminster. In 1960, the population and thus the numbers of automobiles in Surrey and North Vancouver had risen to the point where it was economical for the provincial government to establish new Motor Vehicle licensing offices. The decrease in the numbers of vehicles registered in Vancouver and New Westminster in 1975 coincide with the opening of branch offices in Burnaby and Richmond. All the municipalities or regions have experienced

large increases in the numbers of automobiles that originate from them. This increase is a reflection of the increasing population, particularly in the suburbs, as well as the reliance of the residents of the suburbs on the automobile to move about, as the density of land use is too low to allow for efficient public transit.

1985 was the last year listed in the table, since after 1988, statistics for motor vehicle numbers were calculated from Insurance Corporation of British Columbia (ICBC) data which provides the number of vehicles registered for each municipality. The information prior to 1988 was the number of vehicles registered for each license issuing office.

The statistics presented in this table were obtained from a number of sources. The sources were:

Province of British Columbia. Department of the Attorney-General. Annual Report of the Motor Vehicles Branch for the years: 1945 (1946 Report), 1950 (1951 Report), 1955 (1956 Report), 1960 (1961 Report).

Province of British Columbia. Department of Transportation and Communication. Annual Report of the Motor-Vehicle Branch 1970. Published 1971.

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The Period Prior to 1945

Statistics for the numbers of motor vehicles registered in the Province of British Columbia prior to 1945 are available, but there is no break-down for region. Registration of motor vehicles began in the Province on February 29, 1905. (Taylor, 1984: 63)

Table Appendix 1-2

The number of vehicles in British Columbia, 1905 to 1940.

Numbers in 000's

Years	1905	1910	1915	1920	1925	1930	1935	1940
Vehicles Registered	(58)	1.02	7	28	56	98	98	128
Passenger Vehicles							78.9	101

The number for 1905, (58) indicates that only 58 motor vehicles were registered for the year. (Taylor, 1984: 67) For 1910, the number was 1,026. (Taylor, 1984: 82) For 1935 and 1940, there is available the number of the passenger vehicles in the Province. Prior to 1931, the information is not available. There is no break-down of statistics for regions prior to 1945.

The sources for the information in this table were:

Province of British Columbia. Department of the Attorney-General. Reports of the Commissioner of Provincial Police Victoria: King's Printer, 1938, 1940.

British Columbia Ministry of Highways. (Baines, Raymond) Frontier to Freeway Victoria, B.C.: Queen's Printer for British Columbia, 1986 (Incorporates "A Short Illustrated History of Roads in British Columbia." 1980).

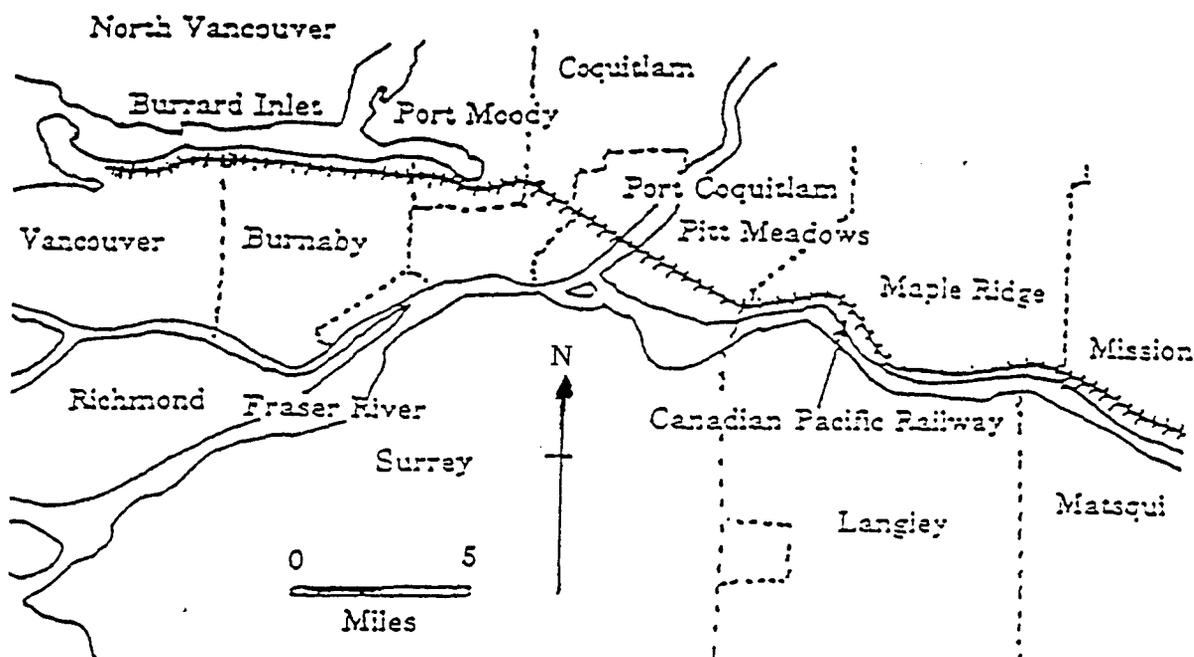
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Appendix #2.

Commuter Rail.

One of the most talked about possible solutions to the transportation problems affecting the GVRD North East Sector has been Commuter Rail. Over the last twenty years the concept of Commuter Rail has been discussed, studied, and on a number of occasions there have been deadlines given for the start-up of the service. Map # Appendix 2-1 illustrates the location of the proposed commuter rail line along Canadian Pacific Railway tracks from the North East Sector to Vancouver.

Map Appendix 2-1 Location of commuter rail line to study area.



Source: Urban Transit Authority. On Track for the 80's Vancouver, B.C.: May, 1981. Exhibit 2.1 "The Service Corridor in the Context of the Lower Mainland." Located between pages 9 and 10.

According to an annotated list of studies and events relating to Commuter Rail proposals in the Greater Vancouver and the North East Sector, there were a number of proposals for commuter rail made public between 1955 and 1970 (N.D. Lea Consultants Ltd., 1988: Appendix 1). The early proposals made reference to the use of most of the existing railway lines in and around the Greater Vancouver Region for commuter rail services in order to reduce or resolve the ever worsening traffic congestion experienced by motorists. In 1967 the Lower Mainland Regional Planning Board (LMRPB), in a proposal to study the transportation needs of the region, put forth the suggestion to begin an in depth look at the feasibility of utilizing the railway lines for commuter rail (LMRPB, 1967: 1).

In 1968, there was considerable discussion between the officials of Port Coquitlam and Coquitlam over the location of a regional town centre for the area. The LMRPB, in an early

1950's planning document (The Lower Mainland Looks Ahead LMRPB, 1952) had suggested the creation of a series of small town centres surrounding the central urban area of the City of Vancouver as a means of reducing the problems created by urban sprawl, and after the creation of the Greater Vancouver Regional District in 1967, this suggestion was brought forward for debate. The argument over which of the North East Sector Municipalities would be the site of this regional town centre raged for over a decade until the completion of the construction of Coquitlam Centre Shopping Mall in 1979 fixed the location within Coquitlam (The Province, January 10, 1975: 8; The Province, March 3, 1977: 31).

One of the reasons presented for Port Coquitlam being the better site for the location of the Regional Town Centre was based on the existing business and urban area being located adjacent to the Canadian Pacific Railway line which could be utilized for commuter rail (Oberfeld, 1975b: 17). The emphasis on the importance of commuter rail as a reason for siting the Regional Town Centre was related to the development concept proposed by the Lower Mainland Regional Planning Board and later the Greater Vancouver Regional District to create satellite towns around the existing urban centre and link these with efficient transportation links. In the early 1950's to the 1960's the transportation links were to be freeways or expressways, while in the 1970's and 1980's rapid transit was considered the best transportation mode. There was also a school of thought suggesting there was a need for both efficient road and transit systems as people were not the only transportation consideration. The economy requires the movement of goods and an efficient road system is necessary to accomplish this.

In 1970, the De Leuw Cather Report on the transit needs of the Greater Vancouver Region, recommended the need to plan for rapid transit as the forecasts of population increases over the next thirty years projected a doubling of the population. The report suggested utilizing four routes to serve the Metropolitan Vancouver Area. The routes were to focus travel to the existing central business area of the City as did the earlier streetcar and interurban transit systems existing prior to 1955. One of the routes designed to serve the North East Sector, was to travel east from Clark Street to Willingdon Avenue in Burnaby, and later when sufficient passenger demand warranted it, the line could be extended out to the vicinity of Lougheed Mall (De Leuw Cather & Co., 1970: 42).

The 1972 Kelly Report on Transit for the Greater Vancouver Region was the first study to formally propose commuter rail, (N.D. Lea Consultants Ltd., 1988: 1-2) though its recommendation was more to study the concept as one type of transit option to be considered as a solution for the reduction of automobile traffic congestion.

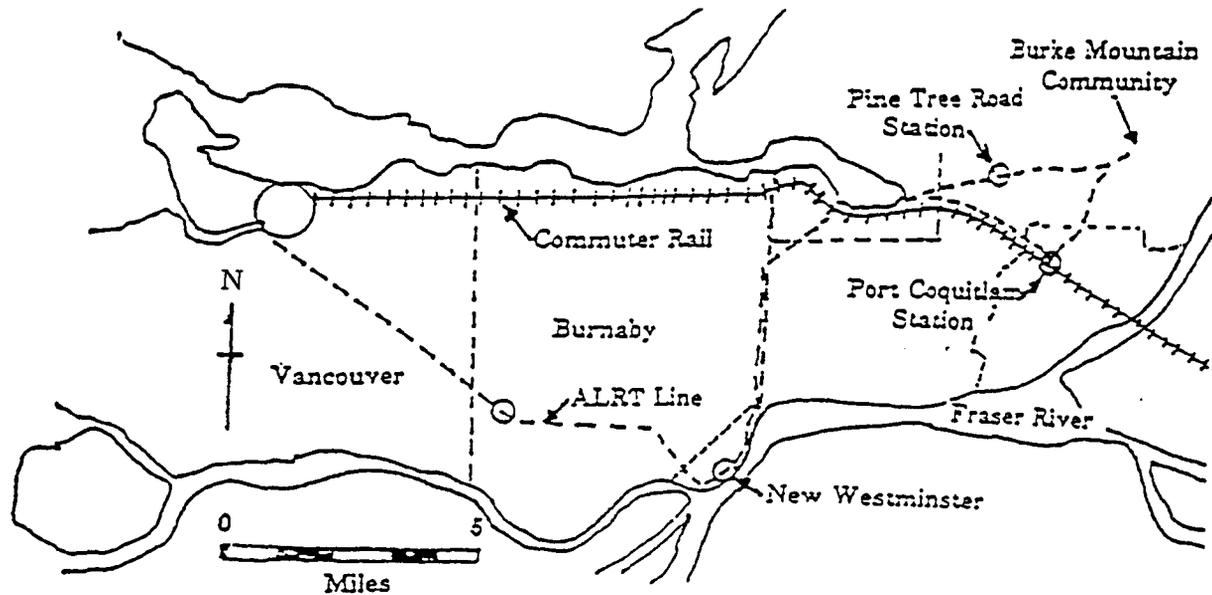
The Coquitlam Planning Department, in a 1973 policy report, identified the transportation problem of the area as being regional in nature. The report suggested it might be preferable to use the C.P.R. mainline for commuter rail, instead of considering the building of an expressway parallel to Barnet Highway (District of Coquitlam Planning Department, 1973: 4). There was also the suggestion of using the Westminster branch of the C.P.R. (from Port Coquitlam to New Westminster) for Light Rail Transit. The Coquitlam Planning Department suggested:

A shift to transit seems the only way to avoid a further expressway, over and above improvements to Barnet and Lougheed Highways and the Mary Hill Bypass. (District of Coquitlam Planning Department, 1973: 4)

The concept of Commuter Rail moved from the realm of a suggestion to a viable alternative to the automobile in the mid 1970's when the then Provincial Government decided to resolve an existing housing shortage by proposing to construct a major residential community upon large vacant public and private land holdings along the lower slopes of Burke Mountain in Coquitlam. The firm of N.D. Lea Consultants Ltd., was hired to conduct a transportation impact study for the project. The designs for the Burke Mountain Project show a route for commuter rail with stations at Port Coquitlam (city centre), Coquitlam (Pinetree

Way (alignment south of Barnet Hwy now part of relocated Lougheed Highway) and C.P. Rail Line) and a third station at Port Moody. There was also a proposal for an Light Rapid Transit line extending from New Westminster along the C.P. Rail line to the Commuter Rail station at Pinetree Way and the C.P.R. mainline. The transit line would then extend north to the proposed site of the town centre (see Map # Appendix 2-2), and follow the Pathan Avenue/David Avenue alignment to Burke Mountain.

Map Appendix 2-2 1975 plan for commuter rail and Light Rapid Transit.



Source: Dunhill Development Corporation Ltd. A Master Plan Concept by the Burke Mountain Team for the New Burke Mountain Community Vancouver, B.C.: 1975. Sheet 1.

A feasibility study was undertaken in 1975 by the Canadian Pacific Consulting Service (Urban Transit Authority, 1980a: 15) which would indicate the concept was workable provided there were a number of improvements made to the existing C.P.R. line to Vancouver. Negotiations were begun between the Provincial Government and the C.P. Rail for the initiation of commuter rail service from Port Coquitlam to the C.P. Waterfront Station in Vancouver (N.D. Lea Consultants, 1988: 1-2). A change in the political party forming the government in late 1975, resulted in the Burke Mountain Community plan being abandoned and the Commuter Rail plans being placed on hold.

In 1978 a major transit study for the Greater Vancouver Region was undertaken. The concept of commuter rail was included in this new study. The result of this renewed interest was a feasibility study undertaken by the Urban Transit Authority of North East Sector Commuter Rail and this study was completed in 1980. The study offered four possible transit strategies for the area. The four strategies included: conventional bus, articulated bus, bus priority measures, and commuter rail.

The study, N.E Sector Commuter Rail Feasibility Study was essentially a review of existing transit services along the Barnet Highway transportation corridor within the North East Sector, along with a review of the viability of commuter rail service linking Port Moody and the other North East Sector municipalities to Vancouver (Urban Transit Authority, 1980a: 1). The study evaluated the four transit strategies in light of a number of population growth forecasts. The conclusion reached by the study was:

a peak-period commuter-rail service operating on the C.P. tracks is viable and offers the least-cost solution to the needs of the North East Sector residents. (Urban Transit Authority, 1980a: 1)

One important point the study made about commuter rail was it should be viewed as a medium to long term investment "as it only offers costs advantages over an all-bus option after approximately 10-20 years, depending on the rate of growth in demand." (Urban Transit Authority, 1980a: 1) The major benefit of Commuter Rail to the North East Sector as well as the District of Burnaby and the City of Vancouver would be the reduction in the numbers of automobiles congesting the local arterial roads and neighbourhood streets during rush hour periods.

In November, 1980, the Burnaby planning Department produced a report on the subject of the feasibility of commuter rail service along Burrard Inlet. The report reviewed the previous studies on the subject, listing the pros and cons of each study. Of importance to the District of Burnaby was the indirect benefits of Commuter Rail implementation. As there were no stations planned for Burnaby, there would be not direct benefit to the municipality. However, there would be an indirect benefit of a reduction in the numbers of automobiles using the arterial roadways passing through the municipality (District of Burnaby, Manager's Report, 1980: 4).

This report also outlined the drawbacks of the service. The major one being the use of the C.P. Rail line being limited to two runs in the morning and two runs in the evening, due to freight train movement demand on the existing track capacity (District of Burnaby, Manager's report, 1980: 4).

The following year, a full study was completed on the creation of a integrated commuter transit system to serve the North East Sector and the eastern municipalities comprising the Dewdney-Alouette Regional District. This study had been undertaken in reaction to an announcement by the Provincial Government in December, 1980 of "an 'Urban Strategy for the Lower Mainland', focussing major new residential development in the North East Sector" (Urban Transit Authority, 1981: 1). This announcement meant there would be a large sustained increase in population within the North East Sector with a corresponding large increase in transportation demand. A large increase in demand would mean congestion upon the existing road and transit infrastructure, and Commuter Rail might offer a solution to the likely traffic congestion by reducing or postponing the need for upgrading of the existing roadways as well as the construction of new highways.

The advantage of Commuter Rail over conventional bus style transit was the fact it did not have to share the roads with automobile traffic and it thus would not be negatively impacted by the likely increase in road traffic. It was recognized by the study that most of the traffic congestion was a result of peak period demand and Commuter Rail could provide a viable solution to the expected future demand for transportation.

The study concluded Commuter Rail service would be viable from Vancouver to Port Coquitlam, however, service via rail east to Mission would be a different matter due to a number of considerations. The first involved the number of potential passengers being great enough to justify the expense of extending the service east. Part of the additional expense was brought about due to the possible need to construct a rail line parallel to the existing C.P. Rail line from Port Coquitlam to Mission necessitated by the large amount of freight traffic on this stretch of the rail line (Urban Transit Authority, 1981: 3).

An alternative to the expensive construction of the parallel rail line east of Port Coquitlam would be an extension of transit services linking up with the Commuter Rail at Port Coquitlam. The cost estimates of the capital and operating expenditures for an all rail service versus a bus/rail service would serve to dictate the system most likely to be introduced.

An all rail system from Vancouver to Mission would require a sum of \$45.62 million for capital costs with yearly operating costs estimated to be in the range of \$3.75 million dollars per year. A combination bus/rail system, with commuter rail from Vancouver to Port

Coquitlam and express buses to Mission would require \$22.63 million for capital expenditures and \$2.25 million for yearly operating costs (Urban Transit Authority, 1981: 4).

In 1981, the Urban Transit Authority was sufficiently certain of implementation of Commuter Rail service that it purchased 5 locomotives and a piece of land in Coquitlam for a station (Lee, 1988: A-3).

Over ten years ago, five ex-Quebec North Shore and Labrador GP9s (Nos. 133, 147, 157, 167 and 169) were purchased by the Provincial Government for such a service and have been in storage at North Bay, Ont., ever since. (Pacific Rail News, November, 1989: 36)

The Urban Transit Authority study on Commuter Rail of 1981 noted that in order to begin to implement Commuter Rail service, the co-operation of agencies of all three levels of government and with a number of private companies would be required (Urban transit Authority, 1981: 5). Negotiations were begun with C.P. Rail and the Federal Government to establish the needs and costs of establishing commuter rail operations on C.P. trackage. The Federal Government was involved in the negotiations as C.P. came under the powers of the Federal Railways Act. It was also hoped the Federal Government might assist in the financing of the project. The negotiations faltered on the question of how much money would have to be spent to upgrade the C.P. Rail line so commuter rail service could operate two trips in the morning and two trips in the evening.

It seems that every time you negotiate with them (C.P.R.) they want more money, so the negotiations don't seem to work in our favour. The 1981 analysis was reviewed and updated: C.P. revised its \$2 million cost estimate to \$35.5 million, and total costs were now revised upward to \$61 million. (Province of British Columbia, 1988: 4943)

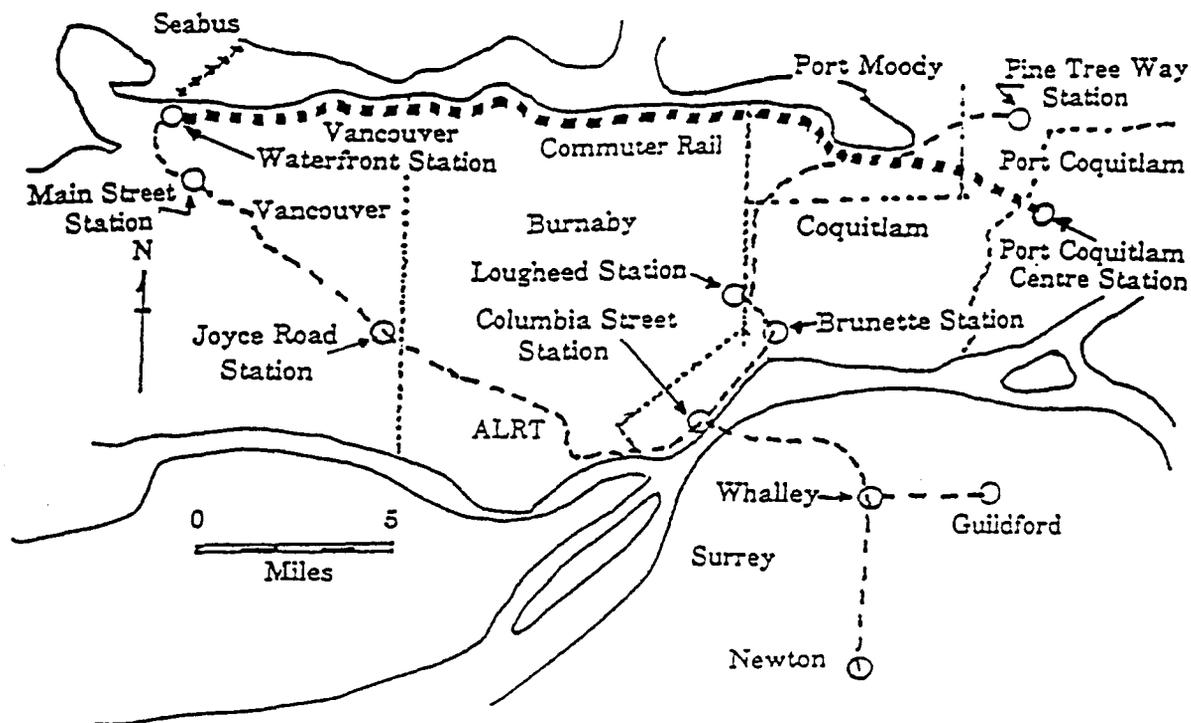
In 1982, the Greater Vancouver Transit System produced a five year conceptual plan for transit. One section of the plan was concerned with Commuter Rail and ALRT (Advanced Light Rapid Transit) (Greater Vancouver Transit System, 1982b: 42-44). The plan noted B.C. Transit was in the process of negotiating with C.P. Rail at that time to begin Commuter Rail service. It was estimated in 1982, commuter rail service could likely commence as early as 1984 should the negotiations be successfully concluded (Greater Vancouver Transit System, 1982b: 42-44).

The impact of ALRT upon the region would not only be the shaping of the patterns of urban growth within the GVRD through the linking of the regional town centres with the existing Central Business District, but also servicing the most densely populated corridor served by transit, thus releasing a large number of buses for use in other areas (Greater Vancouver Transit System, 1982b: 42-45). The ALRT line was also intended:

to replace most of the long distance Fastbus routes originating from the North East Sector, Surrey and North Delta, as these routes have become increasingly less efficient and more costly to operate (Greater Vancouver Transit System, 1982b: 44)

The plan also envisioned the possible extension of the ALRT line from Vancouver to New Westminister, then to the Coquitlam Centre in the North East Sector. This would create a circular route allowing a passenger to travel from Coquitlam to the Waterfront SkyTrain Station by Commuter Rail, then switch to ALRT and return via another route that would allow access to the most populated areas of the Vancouver Metropolitan area (Greater Vancouver Transit System, 1982b: 43, Figure 2.10). Map # Appendix 2-3 illustrates the routes from Burke Mountain into New Westminister and Vancouver. The plan allowed for either commuter rail or some form of Light Rapid Transit.

Map Appendix 2-3 Integrated ALRT and Commuter Rail.



Source: Greater Vancouver Transit System. A Five Year Conceptual Plan for Transit 1983 to 1987 Vancouver, B.C.: Page 43. "ALRT and Commuter Rail."

The negotiations between B.C. Transit and C.P. Rail broke down in 1982 over the increased costs of improving the rail line to accommodate commuter Rail traffic (N.D. Lea Consultants, 1988: 1-2). The estimates of improving the line had doubled from the original estimates calculated by C.P. Consulting Services in 1976.

(Vancouver) Council noted that the estimated costs to C.P.R. have escalated from \$1 million in 1976 to \$2 million in 1981 and by late 1982 the figure had grown to \$35 million (eventually reduced to \$30 Million). (City of Vancouver, Council Notes, 1984)

The Council notes also mention the project could proceed immediately and service be in place within 12 months if the deadlock with C.P. did not exist. The C.P. Railway conducted a detailed cost estimate for commuter rail and listed the necessary upgrading of the Port Coquitlam to Vancouver rail line, and suggested this upgrading could take place over a four year period. The breakdown of costs would be "\$6.5 million in the first year, \$10.5 million the second, \$9.1 million the third and \$9.3 million for the fourth year" (C.P. Ltd, 1982). The total cost, including land and servicing would be \$35.6 million.

To this estimate of costs, there was also the costs to B.C. Transit to construct the necessary station buildings, or modification to existing buildings, the purchase of equipment

such as locomotives (this was done), passenger cars, storage and maintenance facilities and other material. The locomotive and Coquitlam station site purchases had already meant the expenditure of \$10 million already and at this time, the Provincial Government through B.C. Transit began to look towards ALRT (SkyTrain) as a better answer to the transportation needs of the whole region. As the costs of implementing commuter rail service to the North East Sector rose, the more the Provincial Government began to have second thought of committing themselves to the project.

The subject of commuter rail once more moved from a service potentially operational within a year to one in a state of limbo. The mayors from the North East Sector communities, continued to see commuter rail as the best available alternative, but their attempts to operationalize the service were stymied by B.C. Transit and the Provincial Government's view there was not sufficient demand to make the service viable, and ALRT or buses could provide better service.

In a 1984 memorandum on the subject of Commuter Rail, sent by the Port Moody Director of Planning to the Mayor, (City of Port Moody, Planning Department, 1984) outlining the feelings of adjacent municipalities, a number of agreed points of interest were listed. Amongst these points were several deemed necessary for the affected municipalities to provide a common front of support in dealings with the Provincial Government. The first point was, commuter rail was desirable as a transportation service for the North East Sector since the situation with commuter traffic can only become worse. A second point was the desire of the affected municipalities to ensure the Provincial Government did not see commuter rail as a rationale for not constructing the ALRT line to the North East Sector, as both forms of transportation would be required as the population continued to grow. A third point was the lack of need for another study as there was sufficient data available to justify the construction of commuter rail. If the Provincial Government felt an additional study was needed, then it should fund it as the local municipalities do not have the necessary staff or funding to undertake another study. A fourth point involved a possible source of financing the project. This would be through the seeking of an Economic and Regional Development Agreement (ERDA) (Macdougall, 1987) with the Federal Government (For information on ERDAs, see Savoie, 1986). This would involve negotiations with the Provincial Government and there was a danger that "political" differences might become involved.

One concern noted that the conflict between the two is heavily political, based on the Province not being willing to accept additional Federal funding prior to a Federal election. (City of Port Moody, Planning Department, 1984: 2)

A final point involved demonstrating the cost effectiveness of commuter rail possibly through the use of the GVRD Transportation Model, although at the same time there was also need to press the C.P.R. to reduce their cost estimates.

In 1985, there was a great deal of discussion in the press and council chambers on the subjects of commuter rail and ALRT. In November, 1985, the Provincial Minister of Transit, Grace McCarthy wrote Mayor Sekora of Coquitlam stating:

The commuter rail proposal is no longer a reasonable way to meet the transportation needs of the residents of the Port Moody, Coquitlam and Port Coquitlam area. . . . The extension of the ALRT system offers a much more exciting and effective solution for the transportation problems of the residents of the area. (McCarthy, 1985)

The Federal Member of Parliament for the area, Gerry St. Germain stated in a letter the Federal Government "very clearly . . . support the proposal, and are eager to start negotiation, but they must be invited to do so by the Province." (City of Port Moody, Council Minutes, 1985: 2)

The attitude of the Provincial Government towards the commuter rail proposal can be perceived by the fact B.C. Transit began a study of extending the ALRT out to Coquitlam Centre, and also there was a news bulletin issued by the Provincial Government in October, 1985 stating two park-and-ride lots would be established in Coquitlam and linked to the New Westminster ALRT Stations through the use of Fast buses (B.C. Government News Release, October 21, 1985). The same News Release also mentioned B.C. Transit was to begin a \$3 million engineering feasibility study of rapid transit to the Coquitlam area (B.C. Government News Release, October 21, 1985: 2). Thus it was becoming apparent the Provincial Government had changed its mind on the commuter rail project and decided ALRT might be a better solution to the transportation problems of the North East Sector. This change of mind of course did not take into account the length of time needed to plan and construct the ALRT line or the necessity to upgrade the existing arterial road network serving the study area to meet the already congested traffic problems facing the rapidly growing population of the area.

1986 Railbus Demonstration.

One attempt to institute a form of commuter rail service on a demonstration basis occurred in conjunction with Expo 86.

The service came about after municipal politicians from the valley and New Westminster pressed the provincial government for the demonstration project. They received the enthusiastic backing of cabinet minister Bill Richie and with his work, were able to secure the necessary approvals for the service on a limited time basis. (The News (Burnaby & New Westminster), June 29, 1986: A-5)

This was accomplished through the use of British Leyland Railbuses on the 40 mile B.C. Hydro Rail line from Abbotsford to New Westminster, as a demonstration of this form of transit and the efficiency of this type of equipment (Burnaby Now, April 23, 1986: A-11). British Rail Engineering Ltd of Great Britain, was using the demonstration as a means of marketing this technology to North America (Vancouver Sun, June 19, 1986: F-5). The Railbuses could carry approximately 100 passengers (with two cars coupled together), and made a return trip in about 2 hours 20 minutes (Shatner, 1986: C-1). The cost of fuel for one trip was estimated at \$14 worth of Diesel (at 1986 prices), or about five miles per gallon of diesel fuel (Davies, 1986: B-20). The demonstration runs were to last from June 24, to August 10, 1986 (Vancouver Sun, June 19, 1986: F-5), and the price of a ticket was set at \$10. The operating costs of the service were approximately \$1,000 per day (Shatner, 1986: C-1).

The demonstration did not appear to be well supported by patrons, though it was designed to carry passengers whose destination was the Expo 86 fair grounds. Some days we have as few as 50 passengers over six trips. (Shatner, 1986: C-1). The reason given for the lack of patronage was a lack of advertising. "I had to make eight phone calls before I could find out where to buy tickets, said Frank Horne" (Shatner, 1986: C-1). The Railbus service had in fact been intended as an alternative transportation option for people from the Central Fraser Valley enabling them to travel to the fair without using automobiles. This alternative option was to be designed to help reduce the existing traffic congestion, and shortage of parking spaces around the fairgrounds.

Another consideration was many people might make use of the SkyTrain to reach Expo 86 and thus drive into the surrounding municipalities serviced by SkyTrain and park around the stations. The additional traffic would disrupt traffic movement on the roads leading into town and around the stations, as well as the likely disruption to the lives of the residents who lived near the stations. Except at what is now the Scott Road Station, B.C. Transit's policy concerning parking around SkyTrain stations was it had nothing to do with them. Transit's view was, people should take the buses to reach SkyTrain. Unfortunately

there were parking problems around most of the stations after SkyTrain opened in early 1985 for revenue service. Vancouver was prepared for the problem with a number of solutions. These involved resident only parking signage, the issuing of resident parking decals, or signage that limited the time a vehicle could be parked on the street near or adjacent to a SkyTrain Station (no all day parking) (District of Surrey, 1990: 13). Burnaby and New Westminster did not have specific Skytrain Station parking policies in place prior to and for a time after service began. They relied instead upon local Bylaws which restricted parking on streets adjacent to private property to a maximum of three hours. In the case of Burnaby, enforcement would only be at the request of the owner of the affected property (District of Surrey, 1990: 15).

The use of the B.C. Hydro Railway right-of-way has since 1988 been complicated through the Provincial Government of B.C.'s decision to sell the Railway to a private concern. This was done in August, 1988 (B.C. Hydro & Power Authority, 1988: 43). It is unknown what powers if any the Provincial Government might have retained to allow for the use of the right-of-way for railbuses or commuter rail. It has been suggested by opposition groups that the rationale for the removing of the possibility of initiating of railbus or commuter rail service to the Fraser Valley was a desire to reduce the viable alternatives to express buses and possibly an ALRT extension to service the region.

In the B.C. Provincial Election of 1986, Premier Vander Zalm in his election speeches, promised to ensure commuter rail would be a priority after his party was elected. Negotiations between the various Provincial, Federal and Railway Company officials were to continue on and off over the next few years.

In September, 1987, the Premier of British Columbia, made an announcement of funding for the commuter rail project. The Premier committed the Province "to fund half the \$16 million service and will hammer out the details with C.P. Rail, the provincial treasury board and transportation ministries." (*Burnaby Now*, September 30, 1987: 5) Just after this announcement, the mayors of the North East Sector, Len Traboulay, Lou Sekora of Coquitlam, Dave Driscoll of Port Moody, as well as Mayor Bill Lewarne of Burnaby and other interested parties went to Ottawa to talk with Len Mazankowski, Federal Deputy Prime Minister and President of the Privy Council, in an attempt to gain federal support for the commuter rail project. At this time, C.P. Rail was viewed as the agency hindering progress in initiating commuter rail service through their demands for expensive improvements to the existing rail line.

while B.C. Transit would be required to pay for these improvements, they would be owned by C.P.R. and would be of benefit to C.P.R. freight operations. (B.C. Transit, 1987: 4)

The result of the visit was Federal Minister of International Trade, John Crosbie "announced that federal funding and legislative support, if necessary, would be thrown behind the project" (Macdougall, 1987).

In October, 1987, B.C. Transit conducted an overview of the commuter rail project (B.C. Transit, 1987). The overview noted that in 1977 the C.P.R. estimated that \$1 million worth of improvements would enable commuter rail trains to use the trackage, and that by March, 1982, this amount had risen to \$2 million. However, by May, 1982 the figure had risen to \$16.5 million. It should be noted, after 1978, VIA Rail had taken over passenger service from C.P.R. The 1982 cost estimates, including the purchasing of rolling stock, land for stations and the construction of necessary facilities, coupled with the \$16.5 million of improvements to the C.P. Rail trackage would bring the total capital costs to \$43 million (B.C. Transit, 1987: 3). If the improvements to the trackage were agreed to by B.C. Transit, and other matters satisfactorily negotiated, commuter rail service could be initiated by 1984. The C.P.R. also indicated once commuter rail was underway, after 1986 further track improvements would be necessary and these would cost another \$18.5 million. This additional requirement would bring the capital budget for commuter rail to \$61.5 million (B.C. Transit,

1987: 3). It was estimated that if 1 million commuters used the service per year, the capital requirement, combined with operating costs would mean a cost per rider of about \$13. If buses were used, the costs of transporting passengers from the North East Sector would be approximately \$2.50 per passenger (B.C. Transit, 1987: 4). Thus on this basis commuter rail would not be economically viable in comparison to improved bus service to the North East Sector.

The study also noted that B.C. Transit was not alone in its difficulties with the C.P.R.. Both Ontario and Quebec, faced the same financial demands from the Railway Company when they wished to begin operation of commuter trains into Toronto and Montreal.

For example, the economies of the Toronto to Streetville line, which GO Transit operates on C.P. tracks appears to be very similar to those in the Vancouver to Port Coquitlam corridor. (B.C. Transit, 1987: 4)

B.C., Ontario and Quebec had in 1982 formed a task force to examine possible legislative changes which might be needed give the provinces greater powers to better deal with both the C.P. and C.N. Railways (B.C. Transit, 1987: 4).

In 1988, the Provincial Government initiated a further look at Commuter Rail and commissioned the firm of N.D. Lea Consultants Ltd., to review the past events associated with the previous studies concerning the implementing of Commuter Rail. The purpose of the review was:

to evaluate the concept and available information on the proposed commuter rail service from Coquitlam, Port Moody, Port Coquitlam, Pitt Meadows and Maple Ridge to Vancouver or to Downtown New Westminster. (N.D. Lea Consultants Ltd., 1988: 1-1)

The study also examined a number of proposed transportation plans that if initiated could have an impact upon the commuter rail project.

If one or more of those projects were to proceed prior to a decision being taken on commuter rail, the potential patronage for a commuter rail service and the projected revenue could be seriously affected. (N.D. Lea Consultants, 1988: 1-6)

The reverse of this scenario could also be valid if commuter rail were initiated and then one or more of these transportation projects were constructed, there could again be an impact on the numbers of passengers carried and thus the amount of revenue collected.

The study reviewed the proposed transportation projects (there were 14) that could have an impact on the traffic movement to and from the North East Sector. These projects ranged from the construction of additional river crossings, to improvements to existing bridges and highways, to SkyTrain extensions to the North East Sector and to the use of busways and articulated buses (N.D. Lea Consultants Ltd., 1988: Table II).

The study also reviewed the population forecasts of growth for the region to be served by commuter rail and the amount of developable lands with an estimate of the likely development time table (N.D. Lea Consultants Ltd., 1988: Appendix 5). A major point the study emphasized was the assumption high rates of growth forecast for the North East Sector would remain, and there would be no downturn in the economy to disrupt development. The study concluded the commuter rail project was viable, and:

Given the limited opportunities to add to the peak hour capacity in the corridor, particularly in downtown Vancouver, we concluded that the project should not be abandoned but should be retained for future development. (N.D. Lea Consultants Ltd., 1988: 7-6)

In mid-1988, the Provincial Government announced it was no longer willing to contribute \$16 million for commuter rail, in spite of the fact the Federal Government was willing to contribute a matching sum of \$16 million (Burnaby Now, August 3, 1988: 1). The rationale for this decision was there was need of further studies. At this time, the Provincial Government estimated \$83 million would have to be spent to initiate the service, then the annual cost of operations, assuming passenger usage of one million persons per year, would be \$16 million. Since the Provincial Government would be responsible for 75 per-cent of any operating deficit, it estimated it could be responsible for supplying subsidies of up to \$11.5 million per year initially (Lee, 1988: A-3). Mayor Len Traboulay of Port Coquitlam, in the same article made the observation "It is going to be a lot cheaper to build then SkyTrain, or rebuilding the Barnet or Lougheed Highways" (Lee, 1988: A-3).

1989 Commuter Rail Lobbying Meeting.

The Mayors and Councils of the North East Sector and adjacent municipalities met on August 22, 1989 at Port Moody to discuss strategies concerning initiating commuter rail to serve the area and the lack of support for the concept from the Provincial Government. The meeting was held in response to the Minister of Transit announcing, due to increasing costs, that commuter rail was no longer a viable option at that time (Macdougall, 1989: B-3). The Mayor of Coquitlam supported commuter rail, but preferred to have a branch of the SkyTrain built to the centre of the municipality. He viewed commuter rail as a stop gap measure to lessen the congestion of the local arterial road system, until a better type of transportation such as SkyTrain could be built into Coquitlam. His rationale for this view was transportation technologies such as SkyTrain would serve to better assist in the development of larger areas of the North East Sector than would Commuter Rail.

All the speakers agreed the traffic problems were becoming greater as time went on and the population of the North of the Fraser municipalities continued to grow at a rate faster than the other areas within the Lower Mainland. The Mayor of Maple Ridge mentioned the growth rate of his municipality as being at 7 1/2 per cent, and "every hour is rush hour coming to or from Maple Ridge" (Commuter Rail Meeting, August 22, 1989).

The Mayor of Pitt Meadows had reservations as to the effectiveness of using the C.P. Rail line since the Pitt River rail bridge was affected by barge traffic. Movement of commercial river traffic came under the Federal Harbours Board jurisdiction and this meant another level of bureaucracy to be dealt with. The traffic problems east of the Pitt River were not only felt during rush hours but also during the day. Commuter rail on the C.P. line was to make trips only twice in the mornings and twice in the evenings, thus the area might be better served if a high level bridge were built across the Pitt River and there be designated bus lanes to provide scheduled bus service to Coquitlam Centre. The commuters could then either take the Commuter Rail line into Vancouver or the Transit bus routes south to New Westminster, South Burnaby, Vancouver, or Richmond.

An Alderman for Coquitlam noted the ALRT (SkyTrain) may not be the answer to all the transportation problems facing the North East Sector, since the costs of operating SkyTrain resulted in 13 per cent of ridership accounting for 35 per cent of Transit's total costs (Commuter Rail Meeting, August 22, 1989). There had not been any increase in the number of buses operating along routes in the North East Sector to move passengers to the SkyTrain Stations in New Westminster. The result was overcrowding of the existing buses (buses described as being like cattle cars) and people being discouraged from using the service. If they could afford to, they switched to automobiles thus compounded an already serious problem of rush hour traffic congestion.

It has been noted there exists a lack of communication between local government and the Provincial Government in British Columbia. In Alberta, the cities and Provincial Government worked together to resolve major problems facing the urban areas. The result of the co-operation was the planning and construction of LRT transit lines in Calgary and

Edmonton, with the Provincial Government of Alberta providing the funding. In British Columbia, Transit capital costs were normally split between the communities served and the Provincial Government. On Major highway projects, the capital costs were the Provincial Government's responsibility.

the present financing formula for rapid transit doesn't work . . . to finance the construction of the capital works part--the right-of-way for the rapid transit system--like a secondary highway, which is fifty-fifty cost sharing . . . rapid transit system is the same as the 401 freeway . . . It should be 100 percent financed by the provincial government, because it is an alternative to a six-to eight-lane freeway. (Province of British Columbia, 1988: 4939)

It was suggested transit capital costs should be the responsibility of the Provincial Government as transit is as much a part of transportation as highways.

Don Bellamy, Alderman for the City of Vancouver, noted there was insufficient space to widen roads with in the City of Vancouver and the existing roads are at or near gridlock, so the best solution would have to be the creation of a better system of transit. The system would have to have three basic elements: be fast, convenient and cheap (Commuter Rail Meeting, August 22, 1989).

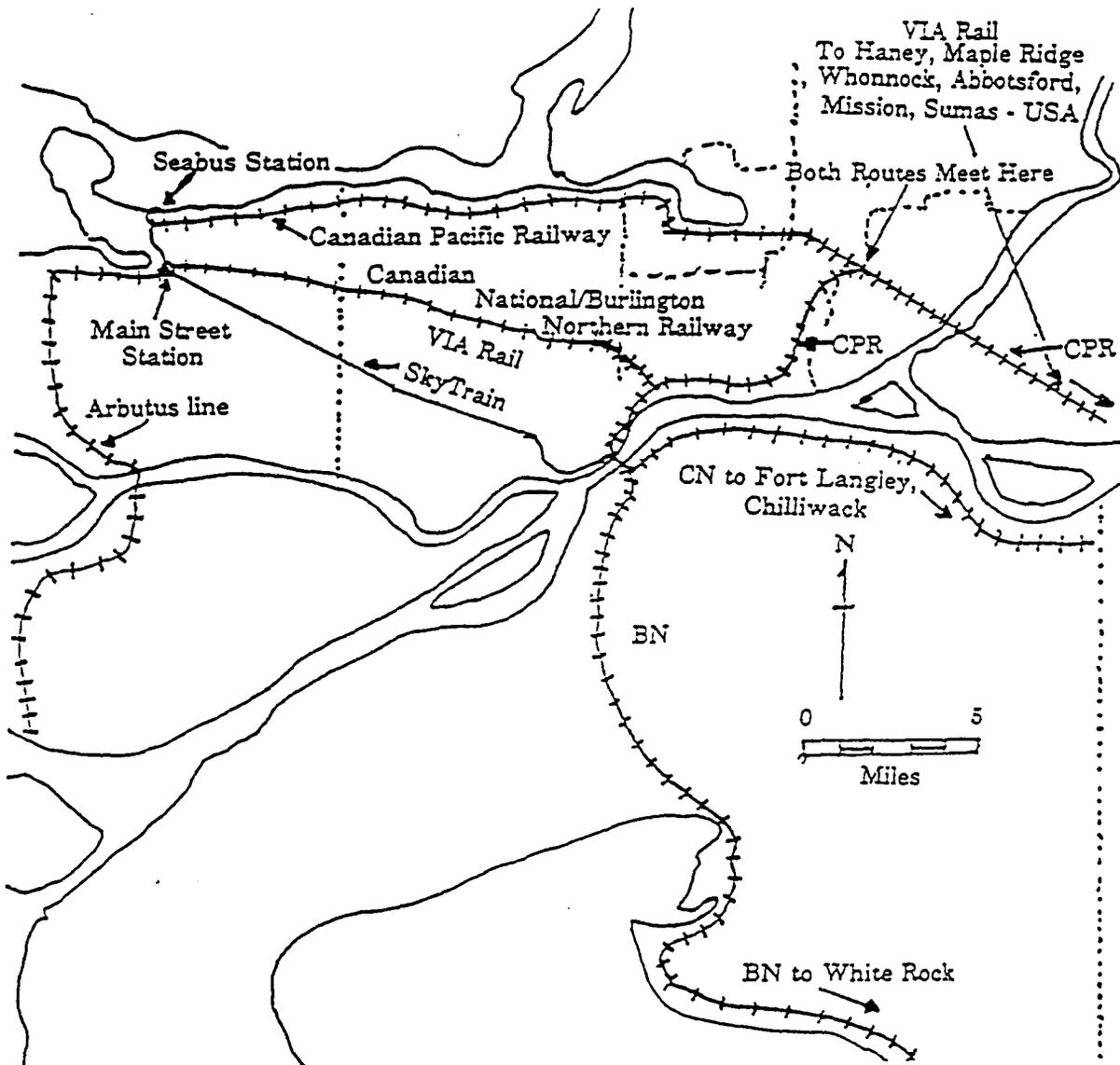
The result of this meeting amongst the municipalities likely to be impacted by commuter rail was the need for a common front to discuss and negotiate with the various parties involved in transit and commuter rail. "It is political will--not money--that's sidetracking a badly-needed commuter rail system Greater Vancouver politicians say." (Smith, 1989b: 4)

1989 VIA Rail Trackage for Commuter Service.

In 1989, the Government of Canada decided the Government subsidy to cross country railway passenger service, (VIA Rail) was to be cut as a means of reducing the federal deficit (Smith, 1989c: 3). The VIA Rail operation required a subsidy of \$641 million per year and the federal Government announced this would be reduced to \$541 in 1989, and would be further reduced to \$250 million in 1993 (Vancouver Sun, October 2, 1989: A-8). To British Columbia, this meant there would be a reduction in the number of weekly passenger trains and the abandonment of the use of the C.P. Rail lines. The remaining service was to make exclusive use of the C.N. Rail lines. There was some suggestion the better location of commuter rail in the lower mainland might be along the C.N. line through the centre of Burnaby to provide more access for the population in the region instead of using the C.P. line. The C.P. alignment with accessibility to large numbers of passengers limited by its location between Burrard Inlet, and steep escarpments could only service the North East Sector and downtown Vancouver.

A formal proposal was initiated by one Bryan Vogler, a long time VIA Rail employee (Smith, 1989c: 3). Not only would his proposal serve to preserve employment for the large numbers of VIA employees about to lose their jobs (The Burnaby & New Westminster News, August 30, 1989: 21), but it would make use of the soon to be surplus VIA passenger cars and other equipment likely destined to be sold or scrapped. His suggestion received nominal support from a number of local politicians (Mayor Copeland of Burnaby and Mayor Campbell of Vancouver (Smith, 1989c: 3; Macdougall & Horn, 1989: 1) and Port Moody Alderman Burnside and Superintendent D. Kayne of Burlington Northern Railways (Dawson, 1989a: 28)). Mr. Vogler sent a letter to Mr. Svend Robinson, Federal Member of Parliament for North Burnaby-Kingsway, outlining the nature of the commuter rail proposal (Vogler, 1989). The initial proposal called for using the C.N./B.N. rail line extending east from the Main Street VIA Rail Terminal to New Westminster, then making use of the C.P. line to Port Coquitlam that had been used by VIA Rail. Mr. Vogler included a map with his letter which outlined the first part of his commuter rail proposal (see Map # Appendix 2-4)

Map Appendix 2-4 Map illustrating Mr. Vogler's Commuter Rail Proposal.



Source: Information from map supplied with letter by Mr. Bryan Vogler to Mr. Svend Robinson, federal Member of Parliament for Burnaby-Kingsway. Subject: "Proposal for Commuter Rail on the VIA Rail-route from Vancouver to Port Coquitlam." 1989.

The initiating of commuter rail along the VIA Rail trackage was to be only the first step in a region wide commuter rail scheme which would ultimately see all local trackage used to provide passenger service which would serve to relieve much of the traffic congestion experience upon local roads. Commuter rail was seen as offering an efficient and convenient alternative to the private automobile.

the Map (see Map # Appendix 2-4) shows that my proposal is more centrally located through Burnaby, has access to the south-west via B.N. to Langley-Cloverdale and Crescent Beach-White Rock as Well . . . it has access to the C.N. mainline to Surrey, Fort Langley, Abbotsford-Matsqui, and Chilliwack . . . has access to the Arbutus corridor with a possible rail link to the Airport and Richmond Park and Ride . . . a future route through the Willingdon Tunnel to Lynn Creek Station which has interchange tracks to the B.C. Rail Passenger Station for transfer to Whistler and Northern parts. (Vogler, 1989)

A petition for the utilization of the VIA Rail trackage for commuter rail was begun, and resulted in over 3,000 names being collected. The local newspapers wrote a large number of articles and published numerous letters to the editor on the subject of the reduction of VIA Rail service and the possible use of the trackage and equipment for initiating commuter rail. Articles such as "Rail link backed" (Dawson, 1989b: 4), and "Commuter Rail Still Alive" (Macdougall & Horn, 1989: 1) serve to illustrate this interest in the proposal.

BC Transit became involved in the proposal by announcing a consultant was to be hired to study the feasibility of the VIA Rail scheme (Burnaby Now, October 11, 1989: 4). The result of the study was transit service could be better provided through other methods more effectively than through the VIA Rail proposal.

Pacific Rail News in its November, 1989 issue noted in its "Province of B.C. news" that:

despite last years promise from the B.C. Government that Vancouver would get commuter rail service between Coquitlam and Vancouver (over C.P. Rail) starting August 1, 1989, that date came and went with no sign that such a service is any closer than it has ever been (Pacific Rail News, November, 1989: 36)

The reason for this lack of movement on the commuter rail question was:

Not unexpectedly, the provincial government puts the blame on C.P.R., claiming the railroad wants the government to pay for 'gold plated' track improvements not within the budget of the project. (Pacific Rail News, November, 1989: 36)

The solution to the commuter traffic problem suffered by the residents of the North East Sector and the Municipalities to the east of the Pitt River, was to be a high speed commuter ferry or hydro foil to move commuter passengers from Port Moody to the Seabus Terminal in Vancouver. The Provincial Government commissioned a feasibility study of the suggestion.

In March, 1990, the GVRD held a public meeting in the North East Sector to seek information for the GVRD Transportation Task Force commissioned by the Provincial Government to study the transportation needs and priorities of the region. One of the speakers made the statement, "we cannot solve our problems through spending, we have to manage demand" (Choosing Our Futures Public Meeting, March 29, 1990). It was noted 35 per cent of the workforce were employed in Vancouver while 45 per cent were employed south of the Fraser (Surrey, Delta (Annacis Island) and Richmond).

A local resident, commented, it was a widely known fact the North East Sector had been ignored by the Provincial Government on transit and highway projects, and there were

too many bodies operating independently with a lack of co-operation. Other speakers suggested a number of possible responses to the problem of inadequate transportation infrastructure. Some of these included carpooling, articulated buses on designated bus lanes, controlling development rates within the North East Sector until adequate transportation facilities are in place, and lobby the Provincial Government to initiate commuter rail service. The rationale for initiating the service, even if it is only short term, stems from the fact it could be operational within a short time, possibly within a year, whereas projects such as SkyTrain would require at least 3 to 5 years of design and construction before they could be operational. Even improvements to the local highways would require lead in times of a year or more and then they would possibly be at capacity within a short span of time.

At the present time, the concept of commuter rail as a possible means of resolving the ever increasing traffic congestion of the North East Sector communities is still being discussed and arguments for or against are presented. The Provincial Government, which has the power to negotiate with the Federal authorities and the C.P. Railway as well as to authorize B.C. Transit to initiate the service, has not shown a willingness to do so.

Richmond, has been promised a rapid transit line of some type by the Provincial Government, and preliminary studies as to route choice are presently underway (1990). The estimated costs of this rapid transit line have been in the range of \$700 million, while at the same time, the North East Sector, which has and has had for a good number of years, a major traffic congestion problem, has received almost as an afterthought, the promise of improvements to the Barnet Highway with the extra lanes to be used for bus and carpooling.

A resident of Port Moody, in a letter to the editor stated in response to the Provincial Government's announcement the concept of commuter rail was dead and that SkyTrain to Coquitlam Centre would solve transportation problems, that "We can only hope that government study after study telling all of us who live here what we already know won't delay its development any further." (Moore, 1990: 7)

In November, 1990, the Minister of Highways met with a number of merchants and concerned citizens from the Hastings Street area of North Burnaby. The Minister had announced earlier in the year the Barnet Highway and Hastings Street were to be widened, which would have a very negative impact upon the neighbourhoods along the route and upon the merchants along a stretch of Hastings Street that depended upon street front parking in order to attract customers. In justifying the decision to widen the Street, instead of using commuter rail, the Minister stated the government had "pretty well given up on the idea of backing a commuter rail line from Mission to Vancouver via the C.P.R. line." (The Burnaby & New Westminster News, November 21, 1990: 10) The opposition MLA (Member of the Legislative Assembly) for Burnaby North, Mr. Barry Jones, in an interview to a local newspaper mentioned the \$16 million in federal government aid for commuter rail was still available. However, the provincial government had still not submitted any formal proposal for funding to the Federal Minister of Transportation. Mr. Jones stated:

Everyone, except the Social Credit cabinet, seems to agree that commuter rail is the best short-term solution to the tremendous number of problems caused by the obscene amounts of automobile traffic through Burnaby. (Hilborn, 1991g: 1)

During the October, 1991, provincial election, Mrs. Margaret Woods, a candidate in the Burnaby North riding, revived the concept of commuter rail. In a full page campaign advertisement in a local newspaper, Mrs. Woods addressed one of the main concerns of local residents. The concern was the increasing commuter traffic loads on local roads in North Burnaby, and Mrs. Woods offered the solution of commuter rail as a viable means to reduce commuter traffic (The Burnaby News, October 2, 1991: 5). Mrs. Woods suggested a plan she labelled Interurban 2000, which would see "the use of local rail lines for commuter rail service" (McManus, 1991: 5).

In the first phase of Woods' plan, BUDD cars would use the BN line which parallels the Lougheed Hwy. from Coquitlam to Vancouver. In the second phase, BUDD cars would use CPR lines past Brunette, which she said are underutilized, east to Maple Ridge and Mission and eventually to the southern valley through to White Rock. (D'Andrea, 1991: 11).

The term BUDD cars refers to a self-propelled diesel-electric railway car designed for passenger use which had at one time been built by the Budd Corporation in the United States.

In a newspaper interview, Mrs. Woods noted there would be a number of benefits created by the introduction of commuter rail. These benefits would include, a relieving of commuter traffic congestion through Burnaby, reduction in pollution caused by automobiles, and creation of jobs through the construction and operation of commuter rail (McManus, 1991: 5). A few days before the election, the Provincial Transportation Minister announced a feasibility study of Mrs. Woods' proposal.

The incumbent Member of the Legislative Assembly (MLA), Mr. Barry Jones, a member of the opposition, reacted to Mrs. Woods' suggestion by saying:

I find it incredible that a year ago, the idea was rejected out of hand, six months ago it was rejected out of hand and now, three days before the election, we're going to have a feasibility study (D'Andrea, 1991: 11).

In effect, Mr. Jones was suggesting the concept of commuter rail was once again being used for political purposes. When the election was over, depending upon which political party won, it might again fade into obscurity until the concept was revived to serve another political purpose. A local newspaper reporter noted, "The plan is similar to one first floated during the 1986 election campaign . . . and then subsequently dropped." (Buttle, 1991: B-3).

After the October 17th, provincial election, there was a change in the political party forming the government. This fact has great importance in relation to which lower mainland rapid transit route will receive priority for study and possible construction.

The political status of a riding is a concern when a government decides to construct expensive transportation links. Everything else being equal, any government, regardless of political stripe, tends to reward the faithful first. (Lamb, 1991: A-4).

Mr. Lamb makes a number of observations in his article. The first is, the ridings the Vancouver-Coquitlam route crosses are all represented by members of the governing political party. The other is, the Vancouver-Richmond transit route crosses ridings represented by politicians from three different parties. "Put another way, the argument for an east-west commuter line (Vancouver-Coquitlam) is strong . . . because . . . there is a high degree of agreement along its length as to over-all benefits . . . The same kind of agreement cannot be found along the proposed Vancouver-Richmond corridor." (Lamb, 1991: A-4).

It is still too early to predict, but the question of if or when commuter rail might be implemented may soon be resolved.

Conclusions.

Over the last twenty years the concept of commuter rail as a means of resolving the transportation problems caused by a combination of geographical constraints and a rapidly increasing population, has repeatedly been promised and then been shelved. At the present time, the Provincial Government has the ultimate authority to order the commuter rail project into operation. However, due to its own reasoning, the project is still in limbo and may at some time in the future be again considered as a possible solution to the commuter traffic congestion affecting the North East Sector.