



Final Report

Shelbourne Valley Action Plan Transportation Study

Prepared for the
District of Saanich





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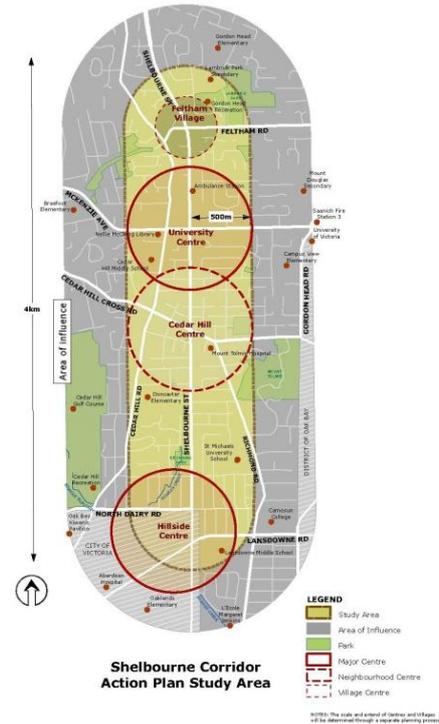
1.0 INTRODUCTION

The Shelbourne Valley area and Shelbourne Street itself is a major north-south travel corridor within the District of Saanich that connects the Gordon Head, Cordova Bay, and Shelbourne communities in the north and east to the City of Victoria and Central Business District to the South. The Valley area consists of over 11,000 residents, with the potential of an additional 7,500 people with the build-out of the area under current and potential zoning. As part of the redevelopment plan, the Shelbourne Valley Action Plan recommends that a vibrant, pedestrian and cyclist-friendly, residential, and commercial environment be created along Shelbourne Street.

Further, Shelbourne Street should act as the backbone of the area, bringing the neighbourhood and its people together. The Action Plan promotes creating strong, vibrant neighbourhoods, preserving but enhancing their unique attributes and developing the nodes into their own unique 'sense of place'. Pedestrian and cyclist safety is paramount as is incorporating public green spaces. Reducing environmental footprints by enhancing sustainable mode shares and encouraging transit will help ensure the viability of the area and continue to support the objectives of the Valley Action Plan. Ultimately, all of these desirable changes aim to transform Shelbourne Street into a "Complete Street".

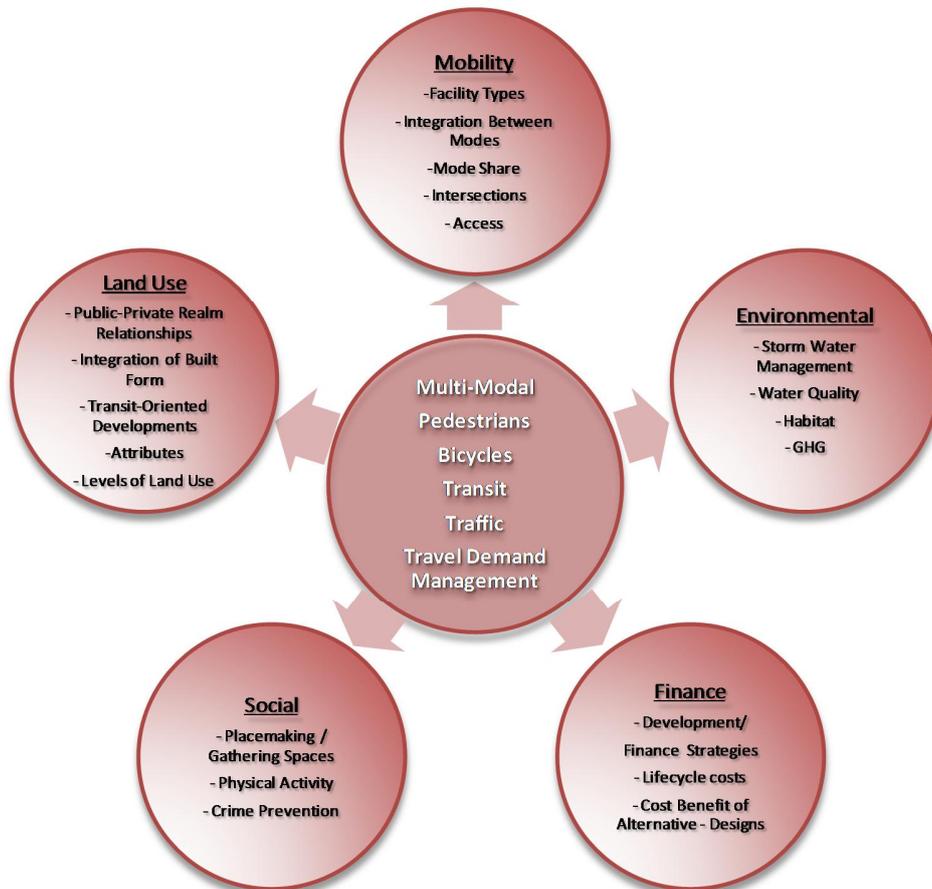
In its existing form, Shelbourne Street is almost entirely vehicle-oriented. The corridor provides a major road function for vehicle travel serving the entire District. As a result, the right-of-way, current number of lanes for traffic, and overall design leave little to offer sustainable modes such as walking, cycling and transit. Given the predominantly low density residential and commercial uses surrounding the corridor, the current state of the roadway does not adequately reflect the needs, desire, or vision of the corridor. The Shelbourne Valley Action Plan provides the opportunity to prepare a concept level plan illustrating possible improvements to the 4km length of Shelbourne Street, applying principles of fiscal, social, and environmental sustainability. A Complete Street ideology will consider all users, their respective needs, and the potential impacts that holistic considerations can have on built form. The vision is to transform the Shelbourne corridor from its current form to a vibrant, multi-faceted corridor which encourages pedestrian and cyclist activity, public transit use, and promotes living in central, higher-density mixed use neighbourhoods. These changes to the built form of Shelbourne Street are part of a much broader objective for the District of Saanich, and has the potential to positively impact housing options, reduce outward development pressure and infrastructure needs, increase transit ridership, improve environmental impacts on the Bowker Creek Watershed, reduce reliance on vehicle use, and potentially provide a flagship project for other municipalities to learn from.

Figure 1.1 – Shelbourne Valley Study Area



This final report provides an overview of the process to exploring optional configurations for the 4km section of the Shelbourne Street corridor illustrated in Figure 1.1. The process begins with a thorough review of existing conditions as well as community aspirations for the corridor that extend beyond transportation to other roles that the corridor serves locally, District-wide and regionally (Figure 1.2). The forecast conditions and challenges to achieving those aspirations are also explored and summarized in this document. Working with District staff and other agencies, the document presents the critical features for the Shelbourne Street corridor to be captured in order to achieve the overarching goals and aspirations identified by community interests that centre on a theme of ‘great streets.’ At the same time, alternative cross-sections of the roadway that include two, three and four lane cross-sections are identified and evaluated through a preliminary screening process. Based on that review and feedback, optional concepts for the Shelbourne Street corridor are outlined and preferred interim and ultimate concepts for the corridor are recommended. It is expected that the conceptual plans for Shelbourne Street will transform the corridor to a ‘great street’ that will not only support the multi-modal aspirations of the District and regionally, but will support the community goals for a vibrant place for people that supports land use change.

Figure 1.2 – Corridor Roles and Interrelationship with Community Goals



2.0 WHERE ARE WE TODAY & WHAT'S PLANNED?

This section of the report highlights and examines existing transportation conditions along the Shelbourne Street corridor and immediate area as well as some of the broader context for planning the transportation system in the area.

The transportation initiatives of the District of Saanich are a result of careful planning and policy processes that not only respect the community's vision for how it wants to manage growth and development, but also are reflective of regional planning goals. The Shelbourne Valley Action Plan is shaped by municipal priorities and community planning principles, but is also clearly influenced by regional district and provincial strategies that encourage sustainability and balanced transportation systems.

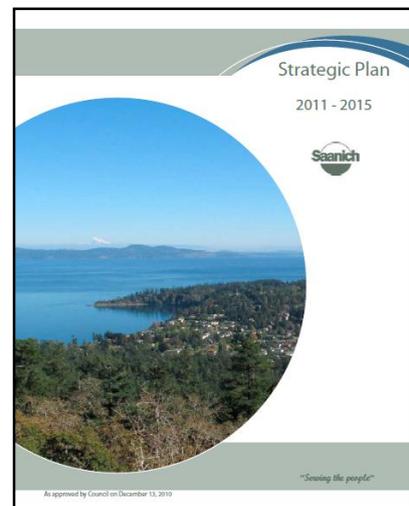
2.1 Within the District

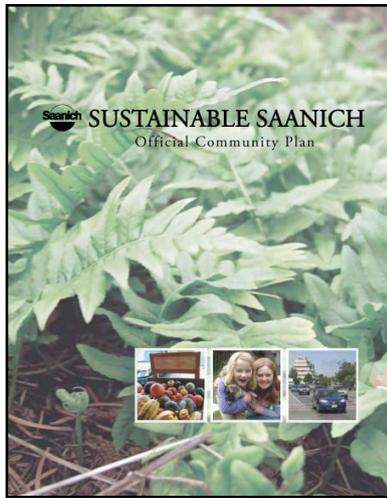
District of Saanich Initiatives and Direction

Sustainability is a clear priority of many District plans and strategies, including the Climate Action Plan, the district-wide Official Community Plan, the Saanich Strategic Plan, and various other documents. These policies all reaffirm the overarching need to move towards a more sustainable transportation system. This section summarizes the relevant portions of the District initiatives that can help influence and shape the direction of the Shelbourne Valley Action Plan.

2011 – 2015 Saanich Strategic Plan – The District's Strategic Plan captures the priorities and initiatives from pre-existing planning documents, and sets the stage for how to move forward. Acknowledging the need for multi-modal transportation corridors, the Plan addresses barriers to alternative transportation through a list of transportation projects. The Shelbourne Valley Action Plan is identified as a key project to define transportation and land use opportunities from Feltham Road to North Dairy Road, that will enable the community to enhance transportation alternatives.

Saanich Climate Action Plan 2010 – The District developed the Climate Action Plan to better position itself to deal with climate change, to promote resiliency and to establish a culture of sustainability. The Plan sets out sector-based strategies to guide the District in achieving its community greenhouse gas (GHG) reduction goal of 33% by the year 2020. Recognizing that vehicle emissions account for 62% of Saanich's community emissions inventory, transportation is a key action area. Targets for increased rates of walking, cycling, and transit ridership shape the Plan's approach to reduce transportation emissions, and are integrally linked to the "Centres" and "Villages" strategy of the OCP. Land use changes are also identified as an important step to reducing GHG's from the current trajectory.





Sustainable Saanich: Official Community Plan 2008 - The Official Community Plan (OCP) is a comprehensive policy framework that guides future land use and servicing in ways that sustain broad community goals. The OCP encourages sustainable transportation and low carbon communities through an Urban Containment Boundary and a “Centres” and “Villages” strategy. Further, 22% of Saanich dwellings are within 500m of a Centre or Village node, and OCP policies encourage the majority of new residential and commercial development to be focussed in these areas. Four nodes are designated on Shelbourne Street (at the Feltham, McKenzie, Cedar Hill Cross, and North Dairy intersections) and OCP policies support traffic calming, transit priority, improved facilities, and parking management to promote sustainable transportation within these nodes and in the broader community.

Access to Transit 2007 – This report, prepared by Urban Aspects Consulting Group, identifies design issues that impede accessibility between conventional public transit, handyDART systems and the built environment in Saanich. Shelbourne Street findings include a lack of curb cuts and inconveniently placed drop-off/pick-up areas. Recommended design solutions provide a framework to ensure improved mobility and access throughout the community.

Saanich Pedestrian Priorities Implementation Plan 2006 - The PPIP shapes the priorities for sidewalks in Saanich, providing the municipality with a framework to systematically identify and prioritize needs for new sidewalks. Due to the presence of sidewalks and crosswalks, the pedestrian facilities on Shelbourne Street were identified as providing an intermediate degree of comfort and safety for pedestrians, and thus it is not considered an immediate District priority. However, the PPIP framework allows the District to evaluate its pedestrian corridors and infrastructure on an ongoing basis.

Shelbourne Local Area Plan 1998 - The Local Area Plan applies detailed policies at the neighbourhood level for Shelbourne, from McKenzie Avenue to North Dairy Road. Shelbourne Street is identified as lacking adequate multimodal facilities, which is addressed in policy through the initiative to undertake a Shelbourne Valley Action Plan. The Action Plan is intended to address future land use, pedestrian and cycling facilities, streetscape elements, and its role as a major community transportation route.

Gordon Head Local Area Plan 1997 The Local Area Plan (LAP) sets out a policy framework for the Gordon Head neighbourhood at the northern end of Shelbourne Street. The goal of the LAP is to achieve a safe, efficient and multi-modal transportation network that maintains the quality of the residential areas. Shelbourne Street is identified as a major road and a key transit route, with cycle friendly conditions and potential as a bike route. Neighbourhood policies support cycle and pedestrian infrastructure requirements, traffic calming studies, and streetscape protection. It is noted that the section of north Arbordale Avenue currently has a wide landscaped median and is also cycle friendly.

External Initiatives and Directions

The basis for the Shelbourne Valley Action Plan is not entirely reliant on the District's policies, but also on the regional and provincial planning initiatives which also provide context to guide the Action Plan, as described in the following sections.

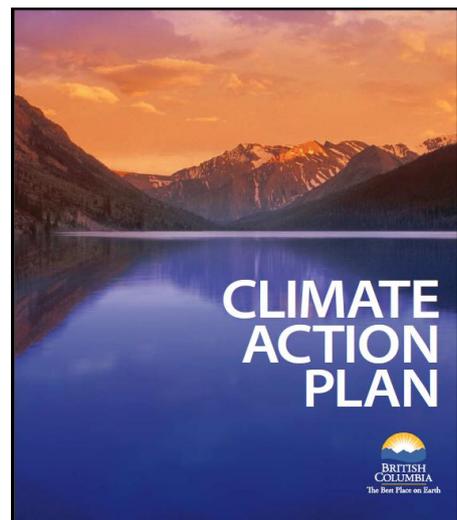
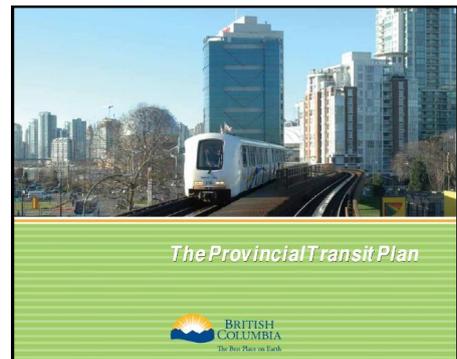
Provincial Government

BC Transit: Transit Future Victoria 2010 - To meet the targets of the Provincial Transit Plan, BC Transit is developing a 25-year strategy to form a vision for transit in Victoria and to guide future transit investment. The future transit network is envisioned to be made up of layers of service, which includes rapid transit, local and regional service, and frequent transit. Shelbourne Street is indicated as a future frequent transit corridor, with service every 5 to 15 minutes, on mixed traffic routes with transit priority. Overall, the Transit Future Plan aims to increase the transit ridership in the Victoria Region from the current level of 24 million annual passengers to 47 million passengers per year by 2030.

Provincial Transit Plan 2008 - In January 2008, the Provincial Government announced a new strategy to increase transit ridership by increasing travel choices for people around the province, with new fleets, green technology, new rapid transit lines, and new innovative services such as express bus services. Investing in expanded transit services is one way of meeting the Province's climate action targets.

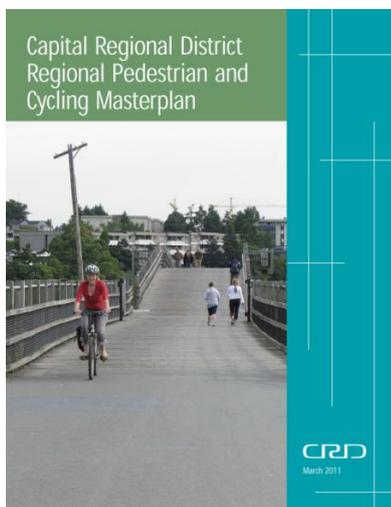
Climate Action Plan 2008 - The Provincial Government has developed several plans and strategies to encourage alternatives to the single occupant vehicle and reduce GHG emissions. The Provincial Climate Action Plan sets targets for British Columbia to reduce its GHG emissions by 33% from 2007 levels by 2020 and by 50% by 2050. In Saanich, vehicle transportation accounts for 62% of the community emissions inventory, and so the Shelbourne Valley Action Plan will play a key role in achieving significant reductions in GHG emissions.

Climate Action Charter - In 2007, the Province of BC developed the Climate Action Charter with the Union of BC Municipalities (UBCM). Almost all of the municipalities in the Province – including the District of Saanich – have signed the Charter with a pledge to be carbon neutral by 2012. By signing the Climate Action Charter, local governments commit to measuring and reporting on their community's greenhouse gas (GHG) emissions profile and working to create compact, more energy efficient communities.



Capital Regional District

Transportation Corridor Plan 2010 – To promote the goals of the Regional Growth Strategy and the TravelChoices Strategy, the CRD's Transportation Corridor Plan identifies corridor characteristics to be maintained and enhanced throughout the region. Shelbourne Street is one of the assessed corridors, and recommendations include promoting transit-oriented development and the establishment of parking restrictions, transit priority measures, and curb side lanes for cyclists. The Plan aims to establish a balanced, integrated, and multimodal transportation network region wide, which would be achieved through adoption of its detailed requirements by the 13 CRD member municipalities.



Pedestrian and Cycle Master Plan 2010 – The Regional Pedestrian and Cycling Master Plan (PCMP) is a collaborative project between the CRD, its member municipalities and stakeholder agencies. It provides a framework to focus planning and investment decisions to increase opportunities for walking and cycling. The project documented public perspectives and existing conditions that reveal some important considerations for the Shelbourne Valley Study. For instance, the project has documented safety and the lack of facilities as the most commonly cited barrier in the CRD to cycling / walking, and finds that programs focussing on education, encouragement and enforcement – in addition to the construction of infrastructure – can ensure long term success for increasing alternative transportation modal share. The document further recommends that Shelbourne Street should include separated bicycle facilities.

Bowker Creek Blueprint: A 100 Year Plan to Restore the Bowker Creek Watershed 2010 – The Bowker Creek Blueprint was developed to provide member municipalities, the CRD, the community and other land stewards with information and guidance to manage and restore the Bowker Creek watershed and creek corridor over the long term (eg. 50 to 100 years). The plan looks to implement specific stormwater and watershed management features and in the long term, restore the sections that are currently contained within storm drains (including along Shelbourne Street) back to the surface.

TravelChoices Strategy 2006 – As a long-term transportation planning framework, CRD's TravelChoices Strategy aims to carry out the transportation goals and objectives identified in the 2003 Regional Growth Strategy. To increase use of transit, walking, cycling, and carpooling, the Strategy promotes transit-friendly municipal policies, design treatments for pedestrian and cycling routes, program incentives for sustainable transportation, and parking management policies. Shelbourne Street is part of the Strategy's proposed regional cycling network, and it is also identified as an inter-municipal truck route as it provides access to major services for commercial vehicles. McKenzie Avenue, which intersects Shelbourne Street, is identified as a potential high-capacity transit corridor, which would strongly influence activities on Shelbourne Street.

TravelChoices Bicycle Strategy 2003 – This long-term strategy seeks to increase cycling trips across the Capital Region. Its goals are to encourage use of alternative modes, and to maintain a safe and



affordable transportation system. The Strategy specifically targets an increase in short-distance cyclist trips of 5km or less, with initiatives including the establishment of a continuous network of bicycle routes, safer crossings at major roadways, secure bicycle parking, land use integration with transit, and education programs.

Regional Growth Strategy 2003 – The Regional Growth Strategy guides and manages growth in a way that sustains regional social, economic and environmental goals. The RGS targets two main transportation initiatives: First, to coordinate land use and transportation through compact urban settlement and complete communities. Second, the RGS commits to undertaking a Regional Transportation strategy to enhance regional mobility choices. The direct outcome of this initiative is the Travel Choices Strategy described above. Further, the RGS identifies the University and Hillside Centres along Shelbourne Street as major centres, with improved pedestrian, cycling, and local transit connections targeted for the area.

University of Victoria Transportation Demand Management Study – To manage planned campus growth, and to help ensure a balanced transportation system, the University commissioned a Transportation Demand Management study aimed at developing a list of options which would assist the University in achieving its goal of both reducing motor vehicle traffic to the campus and increasing public transit ridership, cycling and walking. Traffic volumes have remained relatively flat through Shelbourne Street since 2004, and this TDM strategy may have played a contributing factor.

2.2 The Area

One of the core principles of the Saanich Official Community Plan is to provide transportation and mobility choices in a socially, environmentally, and economically responsible way. The Shelbourne Valley Action Plan is built on these key principles, and aims to enhance opportunities for sustainable transportation modes, encourage accessibility, and foster the development of pedestrian friendly streetscapes and complete neighbourhoods. The objectives of the Shelbourne Valley Action Plan reflect and respect the broader goals of the District, and the successful management of transportation activities in the Corridor will ultimately influence the success of the region as a whole.

There are several unique factors that influence transportation patterns on Shelbourne Street and throughout the District, including demographic characteristics, land use patterns, and transportation options. The following section describes each of these considerations.

Demographics

Demographics shape the demand for transportation facilities and services. This section identifies key demographic patterns within the Shelbourne Valley area and how these influence the direction of the Action Plan.

Population: As of the 2006 Census, the District of Saanich has 108,200 residents, making it the largest municipality of the Capital Regional District. The Shelbourne Valley study area has 11,038 people, with an additional 9,976 persons in the area of influence. Altogether, 20% of Saanich residents are impacted by



the Shelbourne Valley Action Plan. Of the four Centres of the Shelbourne area, Cedar Hill and University are the most populous and account for approximately 80% of the corridor's population.

A Growing Community: The Official Community Plan projects the population of Saanich to grow to 119,300 residents by the year 2026, which represents an annual growth rate of approximately 0.3% between 2006 and 2026. Growth within Saanich is restricted to areas within the Urban Containment Boundary, and most new development consists of infill and redevelopment, with a focus on higher density mixed use buildings in designated Centres. Population growth in Saanich is also marked by a change in market preferences, as people under 40 are increasingly choosing to live in compact, mixed-use, walkable neighbourhoods as opposed to in older suburbs. Using the Transportation Area Zones, Saanich projects an additional 7,500 residents in the areas that include and surround the Shelbourne Valley based on the build-out under existing zoning and potential rezoning to 2038. Approximately 50% of these residents are expected to live in the Shelbourne Valley centres and villages, and could be increased depending on the future densities supported through the ongoing land use review.

Age profile: The Shelbourne Valley is home to an aging population, as nearly one quarter of the population is comprised of seniors (65 years and over), compared to 18% for Saanich overall. Further, nearly one-fifth of the Shelbourne Valley population is 20 years old or younger. These two populations are particularly important to focus on for the Corridor Action Plan, as seniors tend to travel more during the mid-day and are also more reliant on transit services as compared to people in the labour force who travel more during peak times for commuting to work. Youth often do not have access to automobiles and are reliant upon transit, walking, cycling and carpooling. By attracting youth to these modes of transportation early in their lives, there is an opportunity to continue these trends to adulthood.

Population Density: The corridor study area currently has a population density of 2760 per square kilometre, which is above the District's average of 1047 people per square kilometre.

Household Size: The corridor has an average household size of 2.2 persons, which is on par with the Capital Regional average of 2.2 persons per household. Since 1981, the average household size in Saanich has dropped from 2.9, due to lower birth rates and an overall increase in single and two adult households. The results are fewer children and smaller dwellings.

Housing Stock: There are approximately 5,660 dwellings in the Shelbourne Valley Study Area, with a density of 15.1 per hectare. While the majority of residential housing in the Corridor is low density, there are many low to mid-rise residential housing developments adjacent to Shelbourne Street that comprise some of the densest areas of the Corridor.

Land Use

The most significant factor affecting how people travel is the proximity of where people live to where they work, shop, and play. The type, scale and mixture of land uses along with the densities of those uses, will largely determine how far, and consequently what mode of transportation, people will use to get to their destinations. The closer people are to their desired destination, the more opportunities there are for them to use sustainable modes of transportation, such as walking, cycling, or taking transit. In addition, certain types of land uses are more easily and efficiently served by sustainable modes of

transportation. For example, lower density residential areas that generate one-way travel demand during peak periods are more difficult to serve by transit than mixed-use corridors with major trip generators at either end.

The Shelbourne Street corridor is surrounded by a majority of low density residential and low to mid rise residential housing developments, and several commercial areas in the form of strip malls and two major mall centres. A small number of low rise office parcels are also present in the south end of the corridor. The Official Community Plan envisions an urban structure in the Shelbourne Valley area focussed around “Villages” and “Centres”. The Centres and Villages of the Shelbourne Valley area differ in size and character, but all have the potential to become areas of concentrated development, where diverse and dense land uses make walking, cycling and transit more viable. The identified nodes on Shelbourne Street are:

- o Feltham Village (Shelbourne Street and Feltham Road): Feltham Village is a small local node that provides local residents with their basic commercial and service needs, and contains limited multiple family housing. Land uses within the Village include seniors housing, low-rise apartments, and small commercial complexes. The commercial services include convenience stores, small scale retail and restaurant, and a medical and veterinary clinic. Parking is largely situated close to the street front, but landscaping elements and building scale provide a pedestrian-accessible node.
- o University Major Centre (Shelbourne Street and McKenzie Avenue): The University Centre is intended to meet a broad range of community and regional commercial and service needs, and as such is characterized by multi-family, institutional, mixed use, and large anchor commercial development. The University Heights Shopping Centre has a mix of large tenants, including Home Depot, a movie theatre, and a grocery store. Another retail node is Tuscany Village, a mixed use commercial and residential development, with restaurant, grocery, fast-food, pharmacy and medical services on the ground floor and apartments above.
- o Cedar Hill (Shelbourne Street and Cedar Hill Cross Road): This centre contains a prominent strip mall development, providing a variety of commercial and institutional services. There is notable mixed commercial and office land uses, institutional uses, and low-medium rise apartment buildings. The broad commercial service offerings of this area entrench this area as a prominent destination for local residents and the community at large.
- o Hillside Centre (Shelbourne Street and North Dairy Road): Located in the southern part of the Shelbourne Valley, this area is predominantly single family housing, with some low to mid rise residential and commercial development. The Lansdowne Middle School is the primary

Figure 2.1 – Existing Land Uses in the Shelbourne Corridor

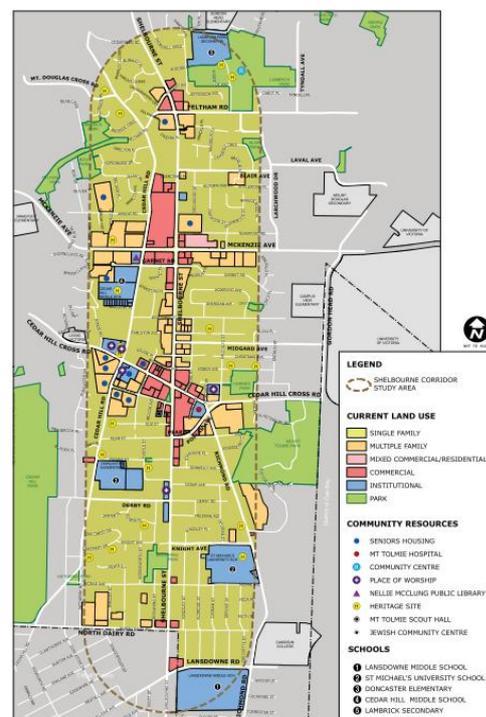
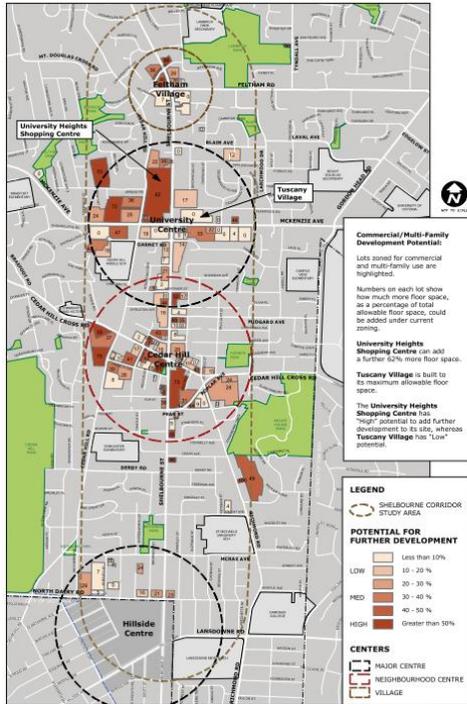


Figure 2.2 – Multi-Family and Commercial Development Potential



institutional use in the area. The Hillside Shopping Centre is at the heart of this node, though it actually falls within the City of Victoria. This major commercial and retail hub has an appreciable influence on the transportation movements and land uses of the Shelbourne Valley as a traffic generator and destination.

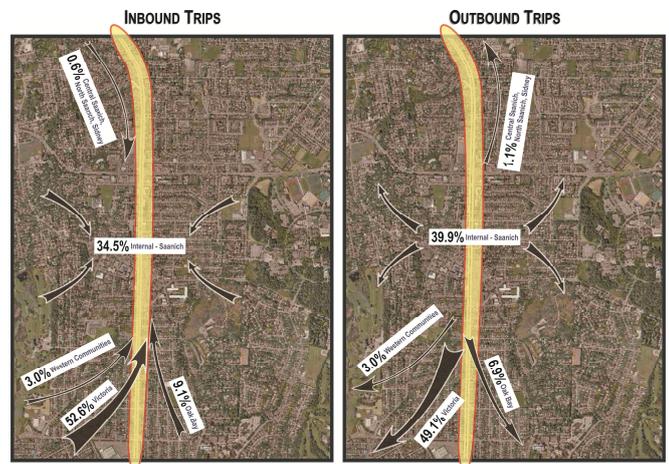
The land use vision of the Shelbourne Valley Action Plan is of a vibrant, pedestrian and cyclist friendly, residential and commercial environment along Shelbourne Street. Currently, the land use and development patterns of the Shelbourne Valley are almost entirely vehicle-oriented. The original intent for Shelbourne Street was for it to act as a primary north/south corridor in the centre of the District. As a result, the right-of-way, current number of lanes of traffic, and overall design leave little to offer non-automotive users. Given the predominantly residential surrounding neighbourhoods, the current land uses of the roadway do not adequately reflect the needs, desire, or vision of the corridor. Figure 2.2 shows the multi-family and commercial development potential identified for the Shelbourne Valley area.

Travel Characteristics

The Shelbourne Valley Plan requires an understanding of the current travel characteristics throughout the community. Key facts about the current travel characteristics include:

- Mode share – The District's Climate Action Plan notes a current estimated mode share of 5.3% for transit, 9.1% for walking, and 2.4% for cycling.
- Trip distribution – Of the estimated 1.2million trips in the CRD per day, 85% of travel is within the same sub-region. Of traffic using the Shelbourne Street, only 1/3 of the total traffic is reported to have origins and destinations within Saanich. Not surprisingly, Shelbourne's regional role is noted with much of the traffic having origins and destinations in the City of Victoria. Figure 2.3 shows the distributions of the PM peak period. Similar patterns are observed for the AM peak period.

Figure 2.3 – Trip Distribution of Traffic Using the Shelbourne Valley (PM)



3.0 TRANSPORTATION SYSTEM

The Shelbourne Corridor Action Plan is shaped by the existing transportation system and the current issues affecting the success of the system. This section provides an overview of the current characteristics of Saanich's multi-modal transportation network and highlights key issues to be addressed in developing a balanced corridor.

The Transportation System review is structured to present general facts and observation and then key issues and opportunities for walking, transit, cycling, the road network, goods movement and Travel Demand Management (TDM).

This section of the report describes the existing roadway network features of the Saanich District Area and summarizes the corridor along Shelbourne Street.

3.1 Roadway Network

The roadway network supports mobility for all modes of travel including general purpose traffic, goods movement, transit, walking and cycling. In many Canadian communities, vehicles are often given preferential treatment on the roadway network, sometimes at the expense of walking, cycling or even transit operations. This can be seen in Saanich on the Shelbourne Corridor, where general purpose traffic and goods movements are often treated as priority modes in the design and operation of the facility. On neighbourhood streets – collectors and local roads – vehicles have been a priority mode in the way communities and streets are designed and managed, sometimes at the expense of other modes to get around a community and quality of life. Whether this preferential treatment toward vehicles is merely a reflection of current travel demand patterns, it can certainly influence the shape of the community and the travel modes that people are most inclined to use in addition to the livability of neighbourhoods and major activity nodes in the District.

The 2006 Census found that the majority of journey-to-work trips, or 69%, in Saanich are made by private vehicle, which is slightly higher than the regional average of 65%. The Capital Region is expected to grow from 325,000 to 400,000 people in the next 25 years, and if present trends continue, congestion will worsen significantly by the year 2026, with all municipalities feeling the impact. The CRD TravelChoices Strategy sets out the target for three quarters of new commuter trips by 2026 to be made by walking, cycling, transit, and ride-sharing. Enhancing the Shelbourne Corridor to support multi-modal activities is an important step to achieving these targets and managing congestion at the municipal and regional levels.

The Saanich Official Community Plan recognizes that as vehicle use will continue to be a primary mode of travel in the future, it is crucial to ensure the road system is working efficiently but increasingly compatible with sustainable and livable communities. The policies of the OCP support increased efficiency of the municipal transportation system, adherence to the TravelChoices Strategy when establishing priorities, use of transportation demand management strategies to address speeding and safety

concerns, and improved road design and construction. The objective of these documents, and that of the Shelbourne Valley Action Plan, is to reduce the dependence on motor vehicles by creating alternatives/options through the creation of a balanced transportation system. This section of the report highlights the current and future conditions along the major roads in the District as well as the neighbourhood street system as a starting point for discussion in the Shelbourne Valley Action Plan.

3.1.1 Facts and Observations

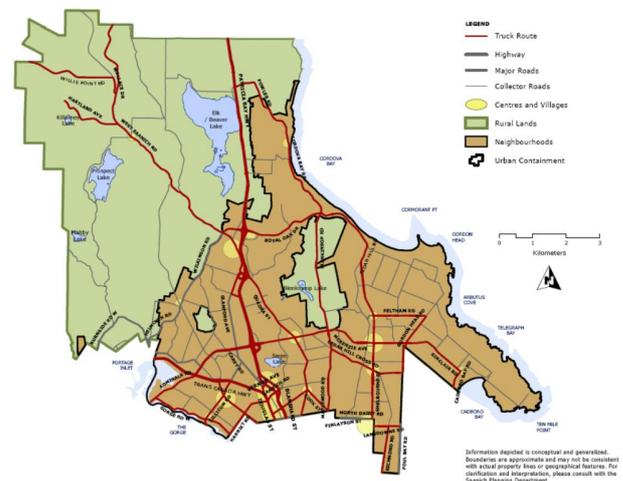
Road Network: The Shelbourne corridor is a 4km long segment supporting a larger network. Shelbourne Street is one of the primary north-route routes in the municipal transportation network. At a regional level, it is a critical route that moves people and goods to and from other areas of the Capital Region District. Residents living within the corridor study area, and those to the north and east of Shelbourne, have few options when it comes to travelling south. The road network surrounding Shelbourne Street is somewhat discontinuous and does not contain many parallel routes aside from Cedar Hill Road and Richmond Road. The long blocks adjacent to the corridor inhibit connectivity, particularly for cyclists and pedestrians. The transportation infrastructure available in the Shelbourne corridor influences the attractiveness of each mode and ultimately will determine people's travel choices.

Shelbourne Street is designated in the Official Community Plan as a major transit route, car and truck route, and commuter bikeway. In the north, it connects road users to Gordon Head, Mt. Douglas Park, and Cordova Bay. For commuters from the south (i.e. Oak Bay and Victoria), Shelbourne is a major arterial for those headed to major institutional destinations such as Camosun College and the University of Victoria. Further, the route is a key spine for east-west collector roads that route commuters to downtown Victoria, Oak Bay, Cadboro Bay, and the Patricia Bay and TransCanada Highway.

Road Classification: Saanich's roadway network consists of major roads, collector, and residential roads that serve distinct needs. These roads provide access to a variety of destinations and allow residents and visitors to fulfill travel needs for employment, education, recreation, shopping, socializing and others. All three types of roads are found within the Shelbourne Valley study area, and can be broken down as follows:

Major Roads: The District defines Major roads as those with limited access, and with major intersections controlled by traffic lights. Major roadways typically carry high volumes of traffic and provide a continuous network with neighbouring municipalities. These roadways can often be retrofitted with transit and cycling facilities in order to accommodate other modes of travel. Major roadways in the study area include: Shelbourne Street, McKenzie Avenue, Cedar Hill Cross Road, North Dairy Road and Hillside Avenue.

Figure 3.1 – Road Classifications



Collector Roads: These roads provide crucial access for residential traffic connecting to the major roads and other collector streets. These streets include Richmond Road and Cedar Hill Road.

Residential Roads: These roadways tend to serve the needs for local travel between neighbourhoods as well as providing access to the collector and major roads for longer distance travel. Residential roads provide access to residential properties and typically have on-street parking available. The District defines these as providing access primarily to low density residential properties.

Corridor Configuration: Shelbourne Street is primarily a four lane, undivided, roadway with auxiliary turn lanes at select intersections. There are seven traffic signals throughout the length of the corridor; two of which are pedestrian controlled signals. Figure 3.2 highlights a typical midblock configuration while Figure 3.3 displays the entire corridor complete with laning configurations at intersections and bus stop locations. (Note: Unmarked intersections are unsignalized). Accesses to everything from single family to commercial centres are provided along Shelbourne Street. Accesses are, for the most part, unrestricted and allow for full vehicle turning movements in and out. No on-street parking is noted to be currently present along the corridor.

Figure 3.2 – Typical Mid-Block Cross Section of Shelbourne Street

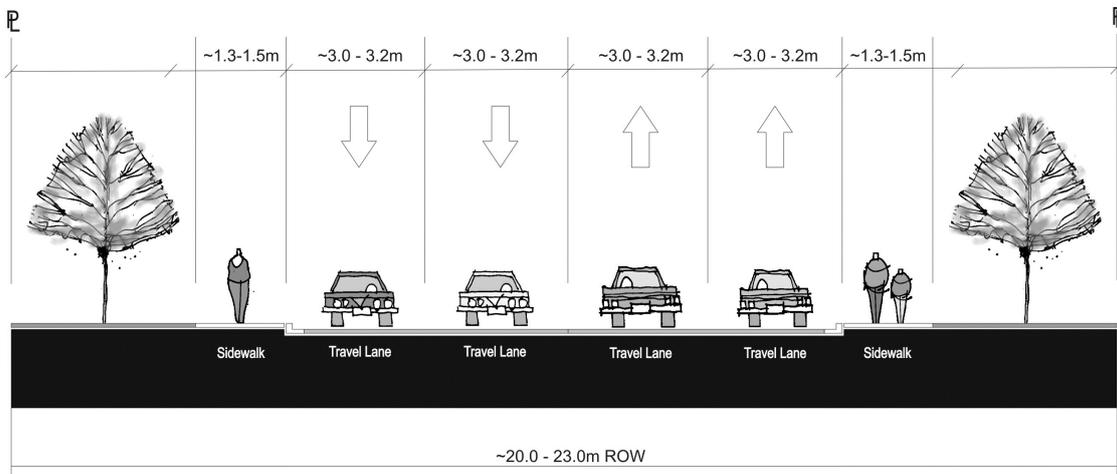
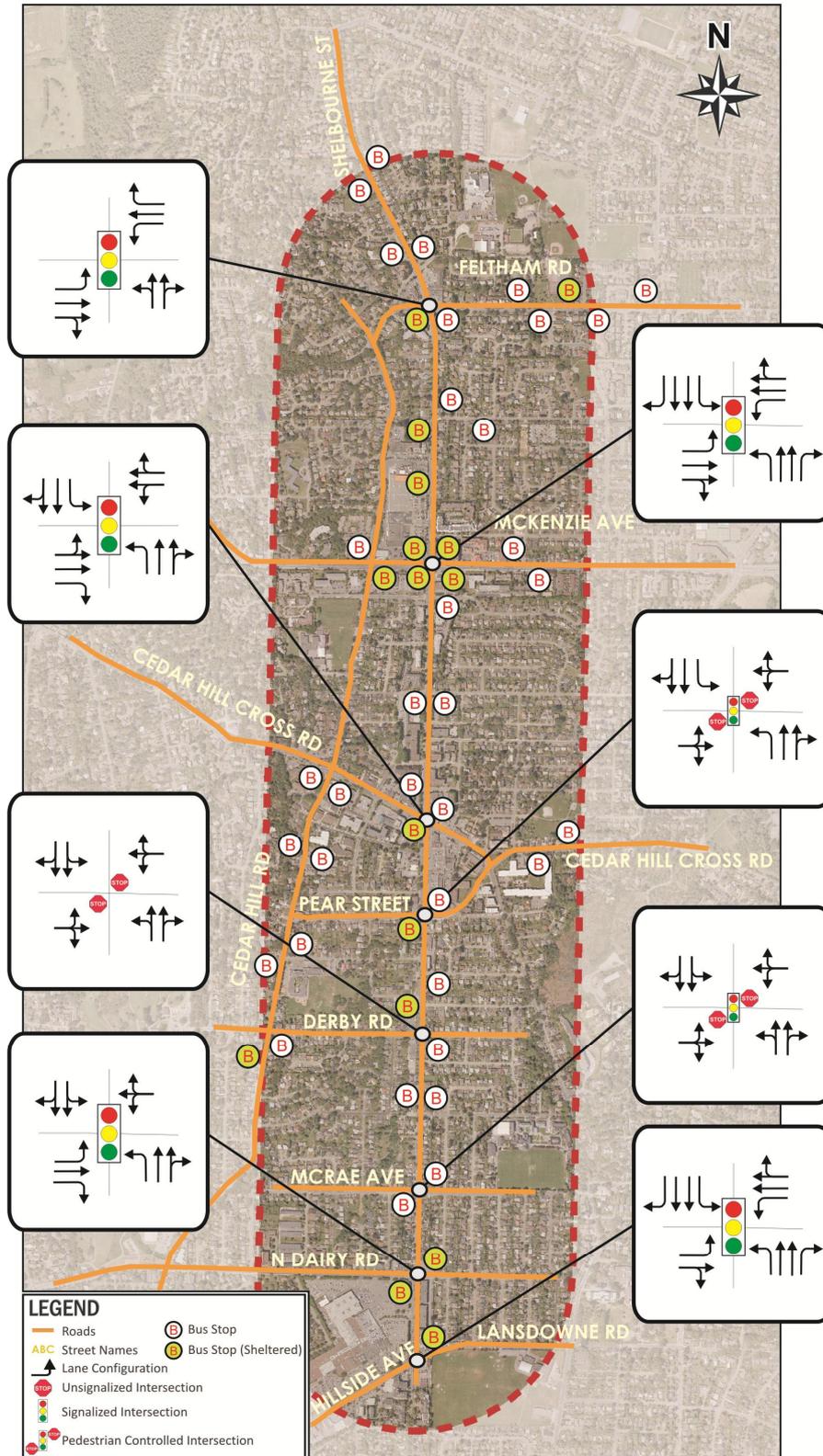


Figure 3.3 – Shelbourne Street Configuration and Intersection Controls



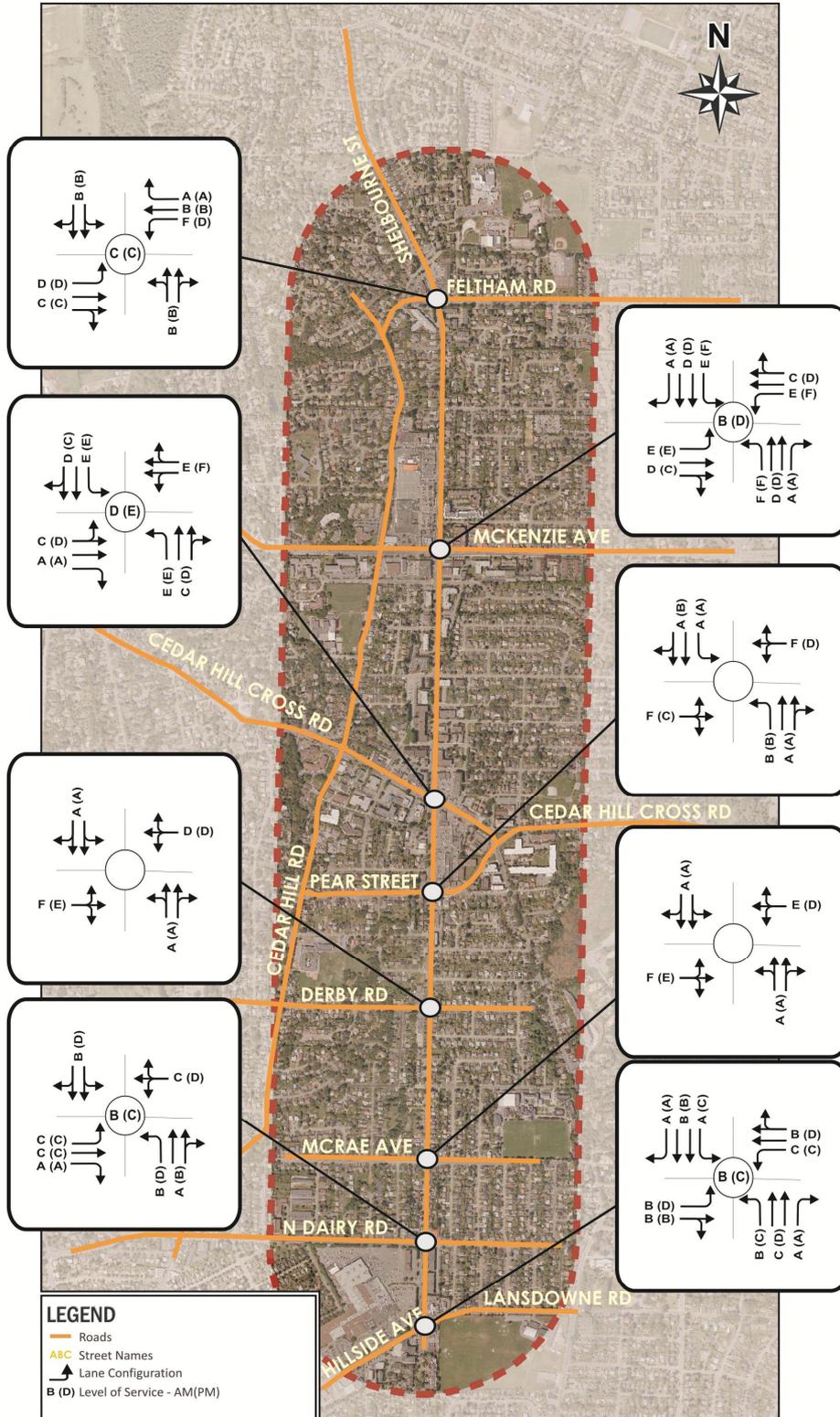


Traffic Patterns: Shelbourne Street is noted to provide a key network link north-south within Saanich. Existing traffic volumes, provided by the District of Saanich and the Capital Regional District, are in the order of 1000-1200 vehicles per hour in the peak direction in the peak hour. Existing traffic volumes for the AM and PM peak hour turning movements and corridor volumes at each major study intersection along Shelbourne Street are highlighted in Figure 3.4. It is observed that traffic demands are greatest along the southern portion of the corridor, with dominant network connections occurring at Cedar Hill Cross Road and McKenzie Avenue.

Traffic Performance: The overall performance of an urban roadway is typically measured by the delays experienced at major intersections, also referred to as Level of Service (LOS). The LOS assigned to a signalized intersection can range between A and F. LOS A through C generally indicates that the intersection experiences very few delays during the peak hour whereas LOS F suggests the delays are significant (greater than 60 seconds / vehicle) and that the intersection is failing. For planning purposes, signalized intersections LOS D or better are generally acceptable, with no left-turn movement operating below LOS E. For unsignalized intersections, the level of service is measured for the critical movements that cross free flow traffic, such as from the minor street or turning left on the main street. LOS E or better is generally acceptable for these critical movements at unsignalized intersections.

The AM and PM peak hour levels of service for each of the signalized and unsignalized intersections with available traffic data are summarized in Figure 3.5. In general, most intersections perform within acceptable levels, however the intersections at Cedar Hill Cross Road and at McKenzie Avenue are noted to have deteriorated and failing levels of service on some movements. Congestion in the southern sections of the network was noted in simulation and side street traffic movements at unsignalized locations were noted to have poor performance as a result of the traffic volumes on Shelbourne Street.

Figure 3.5 – Existing Levels of Service (AM (PM))



Collisions: Based on historical ICBC and Saanich Police reported collision data, the four core intersections that are at the heart of each established villages or centre on Shelbourne Street are noted for the comparatively higher incidence of vehicle collisions than any other intersections along the corridor. This speaks to the role of these nodes as key community destination and service centres. Figure 3.6 below, showing overall accident rates and locations, including reported collisions with bicyclists and pedestrians. The intersection at McKenzie Avenue shows the largest number of collisions in the corridor – 1026 between the 1996 and 2009 – however, the accident rates noted in Saanich’s 2010 Annual Accident Statistics report indicates that the intersections at Feltham Road and North Dairy are the highest at 2.17 accidents per million entering vehicles for the corridor. The intersections with noted accident rates in Figure 3.6 are all within the top 20 collision locations in Saanich. The intersection at McKenzie also is shown to have the highest number of collisions with pedestrians and cyclists, as reported by the Saanich Police, in the corridor.

Figure 3.6 – Historical Collisions on Shelbourne Street





Planned Network Changes: Planned network changes include the introduction of the Douglas Street LRT, McKenzie Overpass and various improvements to the Pat Bay Highway as per the Highway 17 Corridor Strategy (USL, 2007). Safety concerns have been identified at the intersections of Cedar Hill Cross Road, Richmond Road and Poplar Street. Concepts for a roundabout or a conventional T-intersection have been developed.

The District of Saanich also has plans to upgrade the pedestrian controlled traffic signal at Shelbourne Street and Pear Street to a full traffic signal. In addition to providing a safe crossing, it should help alleviate some congestion from the intersection of Cedar Hill Cross Road and Shelbourne Street.

Forecast Traffic Volumes. The forecast demographic changes previously described as well as the planned and potential network improvements are included in the TransCAD model to project peak hour traffic patterns for 2038. The relative changes to existing traffic volumes were applied to the observed patterns previously described and are summarized in Figure 3.7. Average corridor traffic growth is approximately 0.5%/year, based on a linear growth rate, and is generally in line with historical growth rates which have been relatively flat.

Forecast Levels of Service. The forecast levels of service throughout Shelbourne Street reflect a modest change from the existing conditions. All are noted to perform within acceptable ranges with the exception of the intersection of Cedar Hill Cross Road which sees failing levels of service. Intersection and movement levels of service are summarized in Figure 3.8.

Figure 3.7 – Forecast 2038 Traffic Volumes (AM (PM))

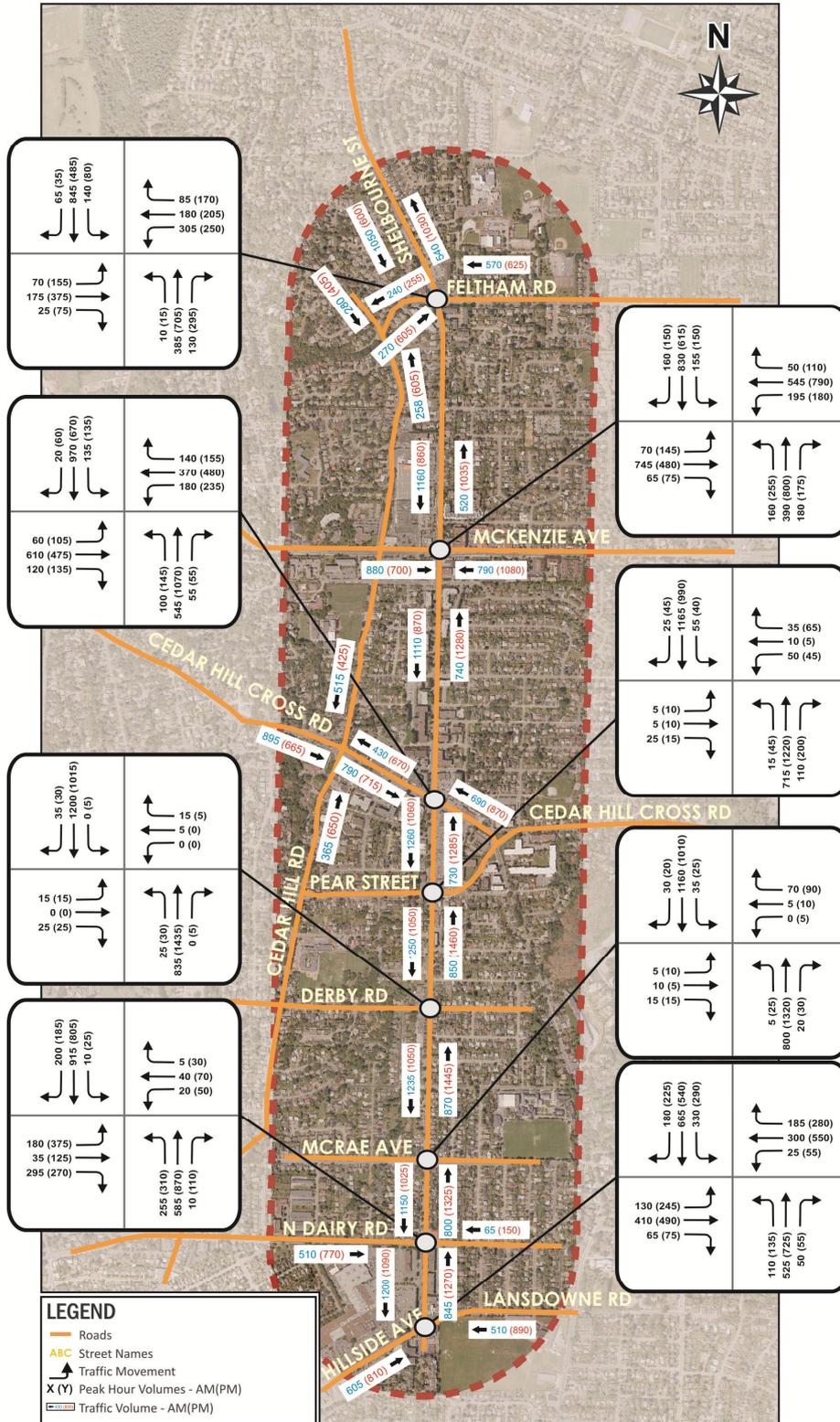
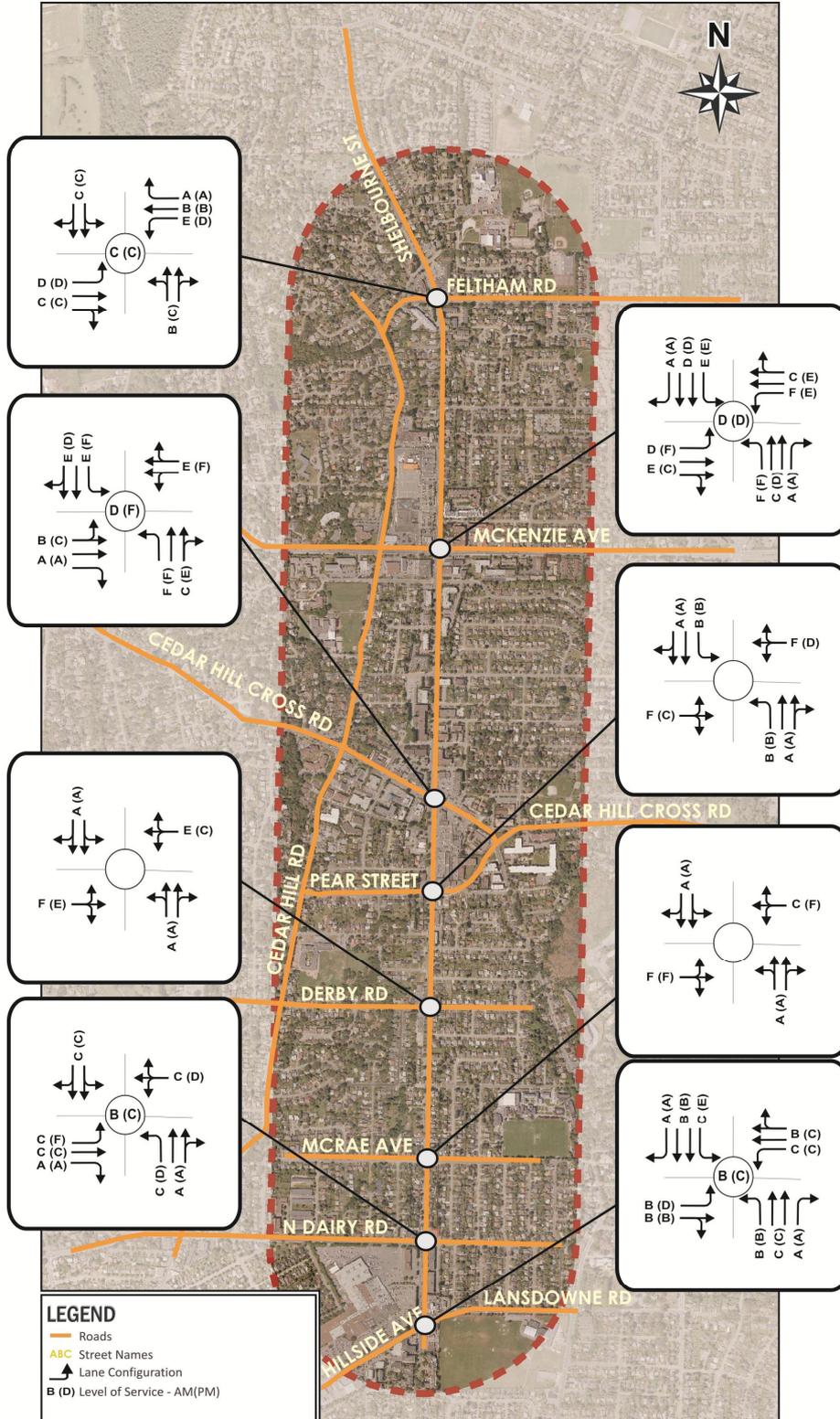


Figure 3.8 – Forecast 2038 Levels of Service (AM (PM))





3.1.2 What the District Has Heard

Balanced Transportation Network: Respondents to the Map and Vision Survey identified that a balanced transportation system was the greatest priority for the corridor.

Top Destinations in the Corridor: The top destinations noted in the Corridor were polled with the Vision Survey. The top three include Hillside Mall (located just outside the study area), University Heights Mall, and Cedar Hill Centre.

Obstacles or Issues: Respondents to the Vision Survey noted the following obstacles to using routes within the corridor:

- Too many cars, traffic congestion
- Too many traffic lights on Shelbourne Street
- Awkward Left-Turns off Shelbourne Street
- Speeding
- Lack of Through Streets in Corridor

What's Missing or Needs Improvement: A significant portion of the respondents (nearly 45%) of the Vision Survey noted that adding bicycle lanes on Shelbourne Street was the key improvement they felt was missing. However, there were still some respondents noting that wider travel lanes, more turning lanes, and traffic calming are also important.

3.1.3 Key Issues and Challenges

Roadway Designation and Function: There is a need to review the existing roadway network to ensure that key facilities are operating as intended. The future of the transportation system on Shelbourne Street will likely focus on a multi-modal roadway network that accommodates many different modes of travel, not just cars. Saanich has several plans and policies that provide support for a multi-use roadway network for cars and for transit vehicles, cyclists, pedestrians, carpools and vanpools as well as commercial vehicles. As such, the concept of "complete streets" will provide a holistic approach and guiding principle to roadway planning that considers the needs of all users. Furthermore, the roadway network design will likely provide for the safety and efficiency of vulnerable road users such as pedestrians and cyclists.

Role and Function: The role of Shelbourne Street is to serve regional travel, but the function is that of regional, district, neighbourhood and access/circulation.

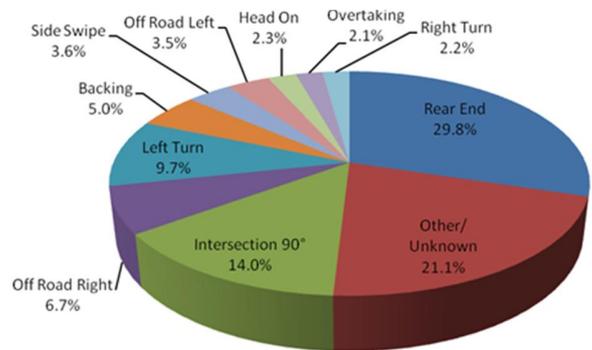
Growth Impacts: Traffic growth forecasts show an average of approximately 0.5% growth in traffic volumes per year on Shelbourne Street. Although population forecasts are in the range of an additional 7500 people for the Shelbourne Valley area, the impacts on the traffic growth rate remains minimal. This is likely due in part to an aging population and changes in mode share. Traffic patterns reflect those of today.

Delays and Congestion: Delays, and associated congestion, are expected to increase in the corridor, particularly at Cedar Hill Cross Road. The relative overall speeds through the corridor are anticipated to decrease by approximately 5% by 2038, with delays focused mostly at the four primary intersections. Balancing the needs of all road users will be important in the consideration of treatments at intersections, and throughout the corridor.

Collision Patterns: The four village and centre areas indicate high collisions relative to the rest of the corridor with the intersection at McKenzie Avenue noting the highest number for collisions involving vehicles, as well as for bicycles and pedestrians. Many reported collisions are noted to be rear end collisions and other forms of conflict at intersections. Accommodation of full movement accesses to properties throughout the corridor can be a contributor to collisions as well as introducing additional sources of delay and conflict. The corridor serves many roles however, and consideration of each will be important to consider.

Limited Right-Of-Way for Accomplishing More: The current ROW ranges from approximately 20m to 23m throughout most of the corridor. Accommodating additional width will be challenging and may require that redevelopment occur to acquire the additional space to support the goals for the area and corridor.

Figure 3.8 – Summary of Collision Types on Shelbourne Street (Saanich Police)



3.2 Transit Services and Facilities

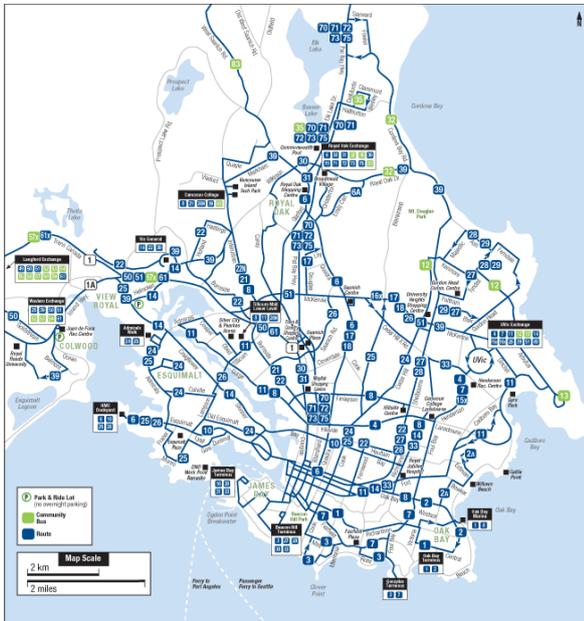
Transit is the primary alternative to automobile travel across the region, as it can offer competitive travel times and reduce overall environmental and community impacts of vehicle transportation. For those who do not drive in Saanich, transit may be the only option for getting to jobs, shopping areas, and recreational centres. The existing transit system in Saanich is operated by BC Transit and is comprised of conventional bus service and HandyDART.

The Saanich Official Community Plan includes transit-oriented policies that involve support of BC transit in service upgrades, integration of transit with other modes, and support for new transit routes in the “Centres” and “Villages” that run along major roads. The OCP also supports Light Rapid Transit (LRT) as a possible option when considering development along major transportation corridors.



3.2.1 Facts and Observations

Figure 3.9 – Existing Bus Routes



Modal Share / Transit Ridership: Currently, the modal share for transit in Saanich is approximately 5.3%, and the municipality has set a target increase to 8% by 2020. BC Transit has set a target to double transit ridership province-wide by 2030, and the CRD TravelChoices Strategy aims to increase regional transit ridership to 10% of all travel by 2026 (the equivalent of 160,000 to 220,000 people daily).

Types of Transit Service: There are currently two main types of transit service in Saanich – conventional buses and custom service (ie. HandyDart). These different service types are aligned with the transit markets in Saanich. These services provide routes that operate locally within Saanich and they also provide connections to neighbouring municipalities and beyond.

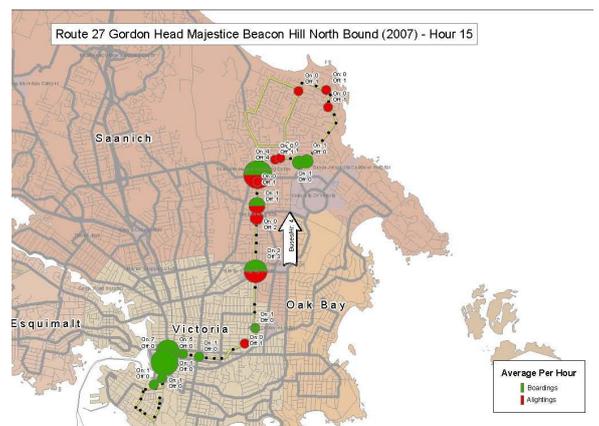
Route Description: There are currently four bus routes that provide service locally and regionally along Shelbourne Street.

- o #27 – Gordon Head, Downtown, Beacon Hill express bus service
- o #28 – Majestic, Downtown, Beacon Hill
- o #29 – Uvic
- o #39 – Royal Roads, Camosun College, Royal Oak Exchange, University of Victoria

Other routes are also noted along the parallel roadways of Cedar Hill Road, Foul Bay Road and Richmond Road.

The predominantly north-south configuration of the bus routes connects transit users to the major commercial nodes along Shelbourne Street, downtown Victoria, and to Camosun College and the University of Victoria. Throughout the Shelbourne Valley area, high passenger activity is occurring based on boarding and departure activity, as reported by BC Transit and illustrated in Figure 3.10. The highest activity transit stops include the intersection at Shelbourne Street and McKenzie Avenue (University Heights Centre) and at Shelbourne Street and Lansdowne Road (Hillside Centre). Shelbourne Street has 25 bus stops, of which 11 are sheltered.

Figure 3.10 – Typical Boarding and Alighting Patterns on Shelbourne Street



Transit Stops & Exchanges: No transit exchanges are located within the Shelbourne Valley area. Bus service on Shelbourne Street is primarily sourced from the University of Victoria Exchange, the Royal Oak Exchange, and the Beacon Hill Exchange (in downtown Victoria). All transit stops on Shelbourne Street and the cross roads are on-street. Most routes generally utilize the Beacon Hill and UVic transit exchanges.

Service Frequencies: Buses along Shelbourne Street currently operate at a 7 minute frequency during peak periods. BC Transit has noted delays of 5-6 minutes during the peak travel times versus off-peak periods, with most delay occurring at the McKenzie Avenue and Cedar Hill Cross Road intersections.

Figure 3.11 – Forecast 25 Year Transit Network



Ridership: Average ridership level of buses on Shelbourne Street is approximately 45 riders per service hour. Of the 8,000 transit passengers travelling on routes that use Shelbourne Street each day, approximately 3,200 passengers board their bus in the study section of the corridor. Transit stops at Shelbourne Street and McKenzie Avenue support the highest boarding and alighting passenger activity in the corridor.

Transit Future: BC Transit has identified Shelbourne Street as a Frequent Transit Corridor in their 25 year long term plan. This would mean direct, frequent transit with service every 5 to 15 minutes. BC Transit expects off-board fare collection on the frequent bus routes. The routes would be mixed with traffic, but would include some transit priority where needed, and may include standard or high capacity bus, streetcar/tram

systems. Hillside and Feltham are recognized as frequent transit corridors, and McKenzie Avenue as a rapid transit corridor with priority treatments. Attractive, higher capacity transit stop facilities and bus layby areas may be required on Shelbourne Street at McKenzie Avenue in addition to considering opportunities for transit queue jumpers at intersections and transit signal priority and pre-emption. Access to the terminal for local buses on Garnet west of Shelbourne Street needs to be retained.

3.2.2 What the District Has Heard

Balanced Transportation Network: Respondents to the Map and Vision Survey identified that a balanced transportation system was the greatest priority for the corridor. Transit will be a key element of that balance.

Obstacles or Issues to Transit: Respondents to the Vision Survey noted that buses are too crowded, although, this represented only 4% of the total responses that noted it as a key priority. Similar comments to what was noted within the Roadway Network comments apply such as too many cars, traffic congestion, and too many traffic lights on Shelbourne.

What's Missing or Needs Improvement: As previously noted, bike lanes were the priority when it came to what respondents felt was missing from the corridor, but it is noted that improved bus service was the next highest priority.

3.2.3 Key Issues and Challenges

BC Transit is generally working with local municipalities to address the issues and challenges with transit service and facilities. As part of the corridor plan however, other matters can be considered to address the following issues:



Passenger Facilities and Amenities – For transit to be successful and to accommodate existing and projected demands, the district needs to ensure that there are comfortable passenger facilities. At present, only a few select stops throughout the corridor have shelters and seating – generally at high boarding and alighting locations. Accessibility features at bus stops should be included such as widened sidewalks for wheelchair access, adequate room for waiting passengers without blocking the sidewalk, and enhancing safety and security.

Traffic Delays and Congestion affect transit passengers. Traffic signals are not currently coordinated through the corridor which affects delays. With an average of over 3,200 transit customers boarding buses on Shelbourne Street per day, it will be important to enhance mobility for transit. Increases in travel time along the corridor for general purpose traffic and the significant delays at key intersections suggest that transit priority measures at intersections through signal timing and coordination (or using other technologies) should be explored.

Transit supportive land uses – The success of transit in the corridor relies on transit supportive land use patterns. Today, much of the corridor is somewhat auto-oriented in terms of the scale, mixture, density and form of uses. For transit to be successful, land use patterns that include densification mixed uses will prove to have the greatest benefit.

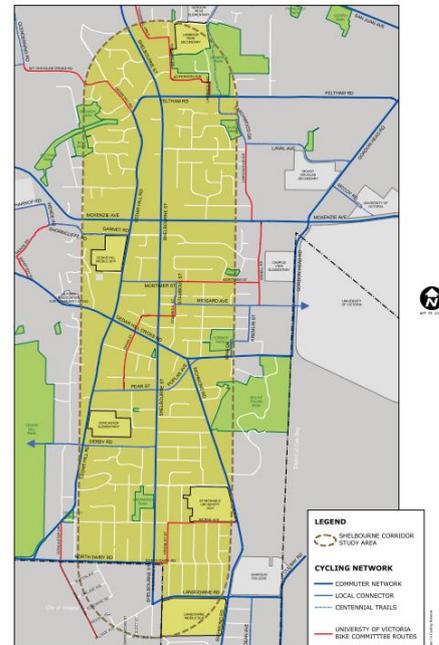
Transit Supportive Practices – The District of Saanich has policies that support transit at a broad level. Enacting them will require more assertive approaches and incentives for developers and the broader community. For example, the amount and price of parking may be more actively managed through practices as redevelopment occurs throughout the corridor.

3.3 Bicycle Network

Cycling is already a success in much of the Greater Victoria area. It is an attractive mode for commuting, local travel and recreational purposes. With appropriate facilities, cycling can be time-competitive with both automobiles and transit, particularly over short-to-moderate distances during peak travel periods.

The OCP supports improving opportunities for cycling as the financial, health, and environmental benefits are compatible with building a sustainable community. Bicycle-specific policies contained within the OCP include requirements for bicycle parking and shower facilities in appropriate commercial, institutional, and recreational buildings. The OCP policy framework also supports constructing cycling improvements at the time of road upgrades or improvements, and the identification of bikeways at the time of rezoning and subdivision. The creation of a bicycle network is tightly integrated with the development of the centres and villages throughout Saanich, and the existence of dense, diverse, and non-auto oriented neighbourhoods.

Figure 3.12 – Existing Bicycle Network



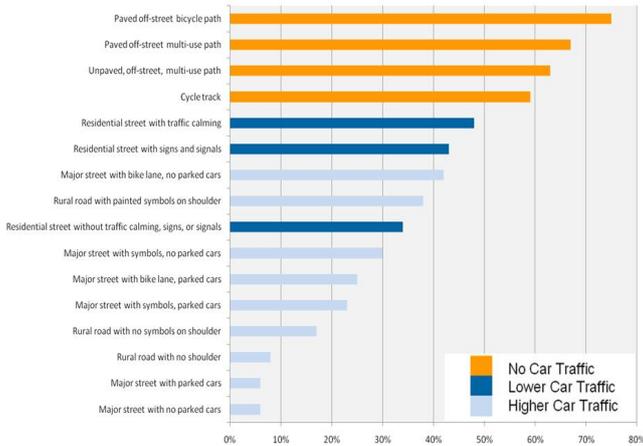
3.3.1 Facts and Observations

Bicycle Use: Currently in Saanich, cycling accounts for 2.9% of all trips. This compares with 3.3% modal share of bicycling region-wide. The municipality has set a 2020 target of 5%, which is closely aligned with CRD modal share goals that aim to increase region-wide bicycling trips from the current level of approximately 29,000 to 80,000 trips daily by 2026. The Regional Sustainability Strategy targets suggest that bike trips could account for approximately 15% of all trips by 2038.

Bicycle Level of Service: Bicycle level of service (BLOS) - a similarly styled performance scale rating as used for traffic - is calculated through a series of measurable site characteristics to describe existing conditions or suitability of bicycle facilities. Using methodologies outlined in the National Cooperative Highway Research Program's (NCHRP) report on Multimodal Levels of Service on Urban Streets, Shelbourne Street's existing bicycle facilities show a BLOS of E to F, depending on location and traffic volumes through the corridor. This level of service reflects stakeholder and community input that the current facilities are undesirable and unsafe.

Bicycle Network: The Shelbourne Valley and surrounding area consists of commuter bikeways, local connector bikeways, and centennial trails. The existing bicycle network is limited surrounding Shelbourne Street. Although defined as part of the commuter network, the actual physical bicycle facilities on Shelbourne Street are limited to shared travel lanes on-street. North of the study area, Shelbourne Street has on-street bike lanes. Bicycle lanes are noted on Cedar Hill Road, north of McKenzie. Some local roads, parallel to Shelbourne Street, are also noted for bicycle use, although not specifically designated on the maps. These streets, such as Carman Street, Service Street, Aldridge and others, include bicycle

Figure 3.13 – Bicycle Facility Preferences



Data source: UBC Cycling in Cities Research

bicycle facilities that were separated from motorized traffic – such as off-street pathways or separated bicycle lanes. Responses to that particular survey are summarized in Figure 3.13. This preference reflects community and stakeholder input as well as other studies for Shelbourne.

Cycling Potential – Shelbourne Street is an ideal roadway for cycling facilities because of its relatively flat grades, direct north-south route, and connections to the broader network. Based on experience in other communities, analysis has found that the highest potential for cycling is in areas with high density, mixed use, flat topography, and a well-connected, grid street network. As such, Shelbourne Street has been highlighted in numerous plans to be an important element of the bicycle network. In particular, the recently completed CRD Pedestrian and Bicycle Master Plan which recommends that Shelbourne Street should include on-street (Class I) type facilities. Figure 3.14 shows the different classes of facilities noted within the Pedestrian and Cycling Master Plan (PCMP) document.

Figure 3.15 – Recommended Bicycle Network

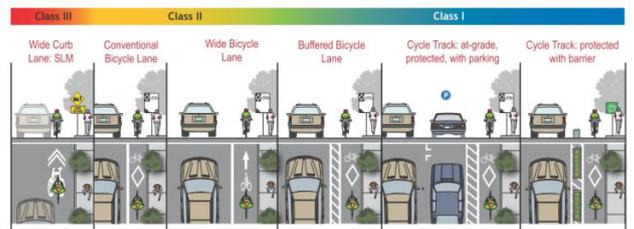


Planned Bicycle Improvements: Recently completed plans such as Travel Choices, the CRD’s Pedestrian and Cycling Master Plan (PCMP), and the CRD’s Transportation Corridor Plan all identify key routes including Shelbourne. In total, the Pedestrian and Bicycle Master Plan identifies 49km of bikeway improvements local to Saanich while Saanich’s own Strategic Plan identifies a target of 1.5km/year of new bike lanes. With similar recommendations to those for Shelbourne Street, major cross street connections identified include Hillside Avenue, North Dairy Road, and McKenzie Avenue. The PCMP recommended bicycle network are shown in Figure 3.15.

only access provisions at some key intersections. Barriers within these adjacent network connections result in forcing cyclists onto the more hazardous main arteries.

Preferred Bicycle Facilities: A network of bicycle facilities is crucial to get people cycling, but careful consideration needs to be given to the selection and design of bicycle facilities, as different types of bicycle facilities vary in their desirability. It is important to consider the types of cyclists and ensure that the type of facility matches the target user group. Research at the University of British Columbia, as part of ‘Cycling in Cities’, asked about preferences for different types of bicycle facilities, and found that for roadways with higher car traffic, all types of cyclists showed a preference for

Figure 3.14 – Classes of Bicycle Facility Types





3.3.2 What the District Has Heard

Balanced Transportation Network: Respondents to the Map and Vision Survey identified that a balanced transportation system was the greatest priority for the corridor. Bicycle lanes and routes through the corridor comprised a significant amount of responses.

Obstacles or Issues: The largest response item in the Vision Survey on Obstacles or Issues was that Shelbourne is not bike friendly and that it is narrow and dangerous for cyclists. Issues such as the traffic volumes and congestion are also linked with the perception of the bicycle facilities. When it comes to the routes mapped, it is noted that there is no continuous linkage through the corridor that was classified as being a safe route. Many segments along Shelbourne Street and the major cross streets were noted as dangerous routes.

What's Missing or Needs Improvement Regarding Transportation: Similar to the Obstacles or Issues, 45% of respondents indicated the need for 'more bike lanes\bike lanes on Shelbourne.'

3.3.3 Key Issues and Challenges

Although the District has made significant progress implementing bicycle facilities in recent years, the following issues with the bicycle network have been identified:

Accommodating Bicycle Tracks or Bicycle Lanes: The existing ROW is approximately 20-23m throughout much of Shelbourne Street. With existing laning, this leaves approximately 3.5 – 4.5m of available right-of-way behind the curb edge (both sides) to accommodate bicycle lanes, sidewalks, and buffers. Accommodating bicycle lanes or cycle tracks may require anywhere from 1.5m to 2.5m depending on the facility configuration and type.

Crossings for Cyclists: Crossings are a significant barrier for cyclists, especially where turn lanes are involved. Along Shelbourne Street, major crossings at Hillside Road, North Dairy Road, Cedar Hill Cross Road, McKenzie Avenue, and Feltham Road have all been noted as challenges.

Bicycle Support Policies and Facilities: The lack of 'visible' support facilities within public and private lands for cyclists – such as bike racks, lockers, or other facilities – suggests that cyclists destined to the area may not have a safe place to store a bike or other facilities that are welcoming for cyclists.

Connections to Trails or Other Regionally Significant Corridors: Shelbourne Street will provide a major connector with significant other routes such as on Hillside Avenue, North Dairy Road, and McKenzie Avenue helping give connections within Saanich as well as to areas within Victoria, Oak Bay, and other municipalities. Other trails and local connections are also scattered throughout the corridor. The lack of cycling facilities to the key activity nodes and through the Shelbourne Valley area is compromised without these direct linkages.

3.4 Pedestrian Facilities

Walking is the most fundamental form of transportation. Walking is part of every trip, whether that trip is made by car, transit, or bicycle. If suitable conditions exist within a community – such as having a complete, connected sidewalk network and major destinations close to where people live – walking can also be a convenient alternative to the automobile for almost all short trips. Walking can become not just a mode of transportation, but a contributor to the street environment, encouraging place making and other qualities of a Great Street. Promoting walking can help reduce automobile dependence and GHG emissions, improve public health outcomes and help to create more livable and vibrant communities.

Overall, the District encourages the development of high quality pedestrian environments, especially with a focus on designated “Centres” and “Villages”. The policies of the Saanich Official Community Plan support the provision of safe walking networks, separated sidewalks, safe routes-to-school, improved way finding, and pedestrian networks in “Centres” and “Villages” that will accommodate future growth and support non-vehicular transportation.

3.4.1 Facts and Observations

Walking Mode Share: Currently in Saanich, walking accounts for 7.4% of trips, which is aligned with the region-wide modal share of 10.5%. The District has set a target to increase the walking modal share to 12% by the year 2020. In the CRD, TravelChoices Strategy envisions a regional increase in walking from 138,000 daily walking trips per day to 240,000 (to a total 15% modal share).

Sidewalk Requirements: The District’s Subdivision Bylaw requires that sidewalks be installed on each side of all major streets, and on one side of all collector streets. Sidewalks are required to be 1.5m minimum in width and constructed of cement concrete pavement. It is noted that these requirements are currently under review, and may include wider sidewalk requirements, sidewalk requirements on both sides of the road, and further enhancements in Centres and Villages.

Sidewalk Improvements: The District has a priority towards improving the pedestrian network and has identified an annual goal of constructing 3.0km of sidewalk per year.

Pedestrian Generators: Key pedestrian generators, such as schools, parks, commercial areas, and transit facilities are located throughout the Shelbourne Corridor. Attractive and comfortable pedestrian facilities around these generators are necessary in order to encourage pedestrian activity in and around these areas, particularly within relatively short walking distances to these areas, such as a 10-minute walking distance, or approximately 800 metres.

Figure 3.16 – Key Pedestrian Generators



Pedestrian Generators in the Corridor, noted in Figure 3.16, include the shopping and commercial centres that comprise each of the four villages / centres. Doncaster Elementary School, Cedar Hill Middle School, Lansdowne Middle School, Lambrick Park Secondary, St. Michaels University School, and Camosun College are some of the key institutional generators. Civic buildings such as the Nellie McClung public library, the Mt. Tolmie Scout Hall, and the Jewish Community Centre, and various churches are popular community destinations and generators.

Pedestrian Facilities: Sidewalks along Shelbourne Street have varying widths, material types and buffer widths from the adjacent roadway. For the most part, sidewalks on Shelbourne Street are concrete or asphalt and vary in width from approximately 1.0m to 1.7m. Buffers, where provided, are approximately 0.5m wide – roughly enough to accommodate the placement of utility poles. Sidewalks in the core areas are widened in some locations, however the treatments and facilities are not conducive to developing a vibrant commercial district. There are several pedestrian crossing locations across Shelbourne Street; however, the spacing of some can be as much as 600m apart. Figure 3.17 highlights the key crossing areas. Through the rest of the corridor, there is a lack of public sidewalks on local streets feeding into the Corridor’s centres which is a detriment to walkability. Overall, community surveys have indicated that people currently don’t feel the corridor is attractive, or safe, and don’t generally have desire to spend time there. Sample photographs of locations throughout the corridor are shown in Figure 3.18.

Figure 3.17 – Key Pedestrian Crossings

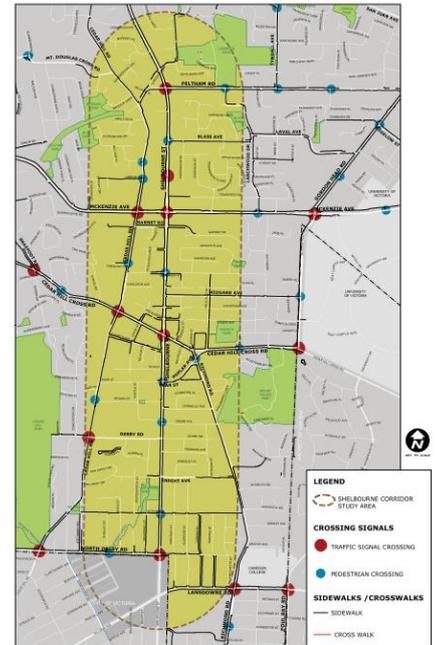


Figure 3.18 – Typical Pedestrian Facilities along Shelbourne Street



Pedestrian Activity: Pedestrian activity is moderate throughout the corridor with peak volumes occurring at the major intersections at Cedar Hill Cross Road and McKenzie Avenue. In the peak hour, traffic counts indicate that the intersection of McKenzie Avenue and Shelbourne Street has approximately 300 crossings on the four legs of the intersection. These intersection locations in particular see higher

pedestrian activity given their connections to the University of Victoria. They are also notably key transit boarding and alighting locations.

Barriers to Accessibility: The existing corridor has several barriers to accessibility. Some segments of sidewalk are in poor condition, are narrow, and have obstructions such as power poles within the sidewalk area. Inconsistent crossing treatments have been noted and there has been community comment regarding the length of time required to cross intersections such as Cedar Hill Cross Road and McKenzie Avenue, particularly for the elderly.

Pedestrian Level of Service: The Pedestrian Level of Service model quantifies pedestrians' perception of safety and comfort in the roadside environment, measuring how well roadways accommodate pedestrian travel. A Pedestrian Safety Index was previously calculated as part of the Pedestrian Priorities Implementation Plan (USL, 2006). It noted a PSI of 3, which translates to a Pedestrian LOS of C, for Shelbourne Street. This reflects that Shelbourne Street currently has sidewalk facilities, however not to the desired standard. This also reflects stakeholder and community input on the quality and accommodation of these existing facilities.

3.4.2 What the District Has Heard

Balanced Transportation Network: Similar to the other modes, pedestrian facilities comprise a component of the desire for a balanced transportation network. Again, this overarching goal is the greatest priority noted by respondents of the Vision Survey.

Obstacles or Issues: Several issues noted within the Vision Survey in terms of obstacles or issues were relevant to pedestrian facilities. Traffic volumes and congestion will create significant barriers, and this has been noted by the public when it comes to crossing times allocated, as well as opportunities to cross at other locations throughout the corridor. Individual comments have noted that the facilities themselves are lacking and are unattractive.

What's Missing or Needs Improvement Regarding Transportation: Wider sidewalks were the third largest response item for what's missing or needs improvement. Incorporating public spaces that foster a sense of community was also noted. Overall, the desire is to make the corridor more walkable.

3.4.3 Key Issues and Challenges

There are a number of issues that currently affect the walkability of the community and the integration of walking with other modes, particularly transit. These issues are highlighted below:

Sidewalk quality and accessibility: Although sidewalks exist along Shelbourne Street, some existing sidewalks are not perceived to be comfortable, attractive, and accessible. There are several factors that can detract from the quality of walking along a sidewalk. For example, many existing sidewalks do not have buffers between the curb and sidewalk, meaning that pedestrians have to walk adjacent to moving traffic, which is particularly uncomfortable for pedestrians walking on major roads. In some cases, on-street parking can act as an effective buffer between pedestrians and automobiles. In other cases, utility poles, newspaper boxes, overgrown bushes, or other street furniture which are often located on the



sidewalk, limit the usable sidewalk width and creates accessibility challenges for persons using mobility aids. Stakeholders and the community have also indicated that there is a lack of crossings across Shelbourne Street.

Wide road crossings: The width of Shelbourne Street, and the other major roads crossing it, can create challenging environments for pedestrians which in turn creates significant barriers to walking. These wide road crossings are particularly difficult for persons with disabilities and the elderly. Wide streets also tend to encourage motorists to speed and to not stop for pedestrians who are waiting to cross the street. Review of the walking speeds of the elderly used in intersection timing plans should occur. However, it is noted that this additional allowance in

walk time would be expected to have impact on delays to general purpose traffic as well.

Topography: Physical challenges are presented by areas of steep topography surrounding the Shelbourne Valley. Steep hills make walking more difficult for pedestrians, particularly those using mobility aids and the elderly. Additionally, curb letdowns “not consistently provided” off Shelbourne Street, meaning that accessibility for persons using mobility aids is not universal.

Attractiveness and Vibrancy of the Shelbourne Valley: The provision of attractive and accessible pedestrian facilities within commercial areas is seen as an important way to support local businesses and to encourage residents and visitors to access the District’s commercial areas on foot. For those who drive, pedestrian facilities are also important as they connect between parking areas with commercial establishments. Stakeholders and the community have been quite vocal in stating that Shelbourne doesn’t currently have an attractive, community feel. Place making elements, street furniture, public art, decorative treatments and landscaping will be important in developing the attractiveness and vibrancy desired. These elements can also have a significant role in encouraging pedestrian activity and even in crime prevention.

3.5 Environmental Considerations

The District of Saanich has adopted many goals on environmental sustainability. The OCP and Climate Action Plan and Climate Change Adaptation Plan indicate several goals towards transportation, buildings, waste, and energy alternatives. The community and stakeholders have also included this as a priority for the Shelbourne Valley and any environmental considerations will have direct relationship to the transportation systems chosen and their built form.

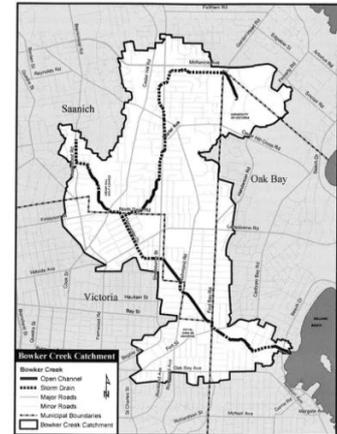
3.5.1 Facts and Observations

Interrelationship with Watercourses: Shelbourne Street is located in the Bowker Creek Watershed, noted in Figure 3.18. Much of length of Bowker Creek is currently captured within a storm drain – some of which runs under Shelbourne Street. The Bowker Creek Blueprint looks to implement specific stormwater and watershed management features and in the long term, daylight sections of the creek that are currently contained within storm drains (including along the Shelbourne Corridor).

Ecosystems and Habitat: There are remaining elements of the Garry Oak Ecosystems within the Shelbourne Valley study area. In the 1890's, the Garry Oak Ecosystems occupied 341 hectares – equivalent to 87% of the Valley study area's total. At present, only 5.1 hectares remain which is approximately 1.5% of the Valley study area.

Landscaping on Shelbourne: Shelbourne Street currently has areas of high tree quality and landscaping in some segments. Memorial trees were planted north of Feltham Street, and were, at one point planned for the remainder of the corridor. Grassed buffer strips between the road edge and sidewalks are also provided along some segments of the corridor.

Figure 3.18 – Bowker Creek Watershed



3.5.2 What the District Has Heard

Protection and Enhancement of Natural Areas: Respondents to the Map and Vision Survey identified that the protection and enhancement of natural areas was the second greatest priority for the corridor.

Natural Environment: Respondents to the Vision Survey noted that more green space was needed as well as more trees and shrubs. The daylighting of Bowker Creek was third in the list of responses to the natural environment and the need for community gardens was fourth. It is noted that although stormwater management/permeable sidewalks was lower on the list of priorities, it would potentially be incorporated within any of the above in supporting sustainable development techniques.

3.5.3 Key Issues and Challenges

Accommodating Bowker Creek: The Bowker Creek Blueprint outlines goals to bring Bowker Creek back to the surface in the next 50-100 years. Similar to what's been noted in previous sections, finding available space within the current right-of-way configuration will be challenging. Intermediate steps to mimic the creek's function and support related benefits may be explored through innovative

Figure 3.19 – Conceptual Sketch of the Long-Term Vision for Bowker Creek





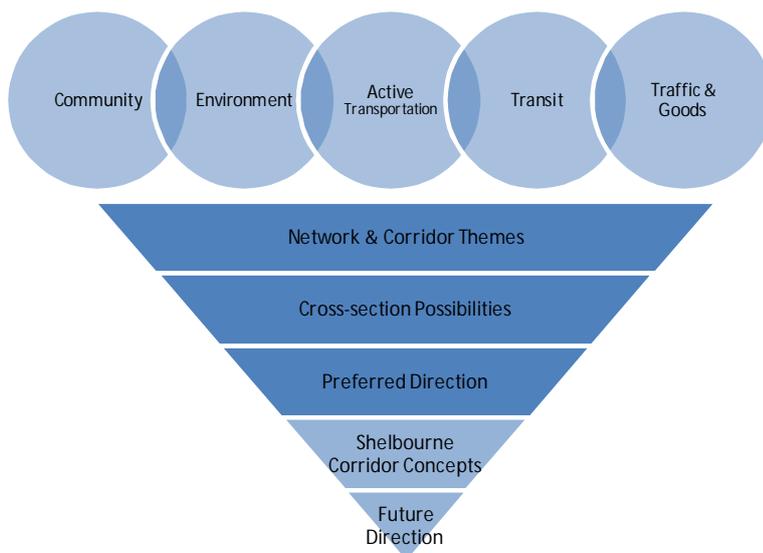
rainwater management and landscape features. Understanding how short term actions can support the long term vision for the creek will be important. A conceptual sketch of Shelbourne Street from the Bowker Creek Blueprint is shown in Figure 3.19.

Managing Environmental Issues through Corridor Design: There will be many opportunities to address environmental issues with the corridor design. Elements of landscaping can provide opportunities for stormwater retention and treatment, while livening and adding vibrancy to the corridor and providing habitat for birds and insects. Thoughtful and purposeful design can also have influence on crime reduction. There will be possibilities in alternative materials for construction (ie, permeable pavements), and enhancing, creating or managing ecosystems and habitat. All of these elements should be considered for the overall vision for the corridor, however, common constraints of available right-of-way, interaction with other required elements, costs and accommodation through redevelopment may need to be considered.

4.0 CONCEPT DEVELOPMENT

4.1 Developing and Evaluating Options

There are a myriad of improvement concepts and permutations of enhancements that can be developed for the Shelbourne Valley area. Many of these ideas have been identified through discussions with the District of Saanich, the Shelbourne Valley Action Plan Stakeholders Committee as well as other agencies and stakeholders. The basic challenge is to effectively streamline the development and evaluation process that does not overlook possibilities, yet recognizes the need to narrow down options that may be pursued in the long-term. This section of the document begins that process of identifying and evaluating the ideas and possibilities before developing a few preferred concepts that may be developed for the Shelbourne Street corridor.



The foundational elements of this process are shaped by the aspirations or *Vision* for the corridor in all aspects from land use through to the transportation systems. In this regard, the Vision for Shelbourne Valley as established from background plans and discussions with agency and public stakeholders are being used to form and evaluate various concepts and directions for the corridor. As such, the Vision is the 'end' and the transportation and other improvements along the corridor examined within this study are merely a means to a bigger community goal. It is anticipated that this Vision will be further shaped by the land use study for the Shelbourne Valley.

In developing the concepts to support the Vision, *Network and Corridor Themes* are identified to guide the different scales of transportation solutions and strategies that may be considered recognizing that the regional and district transportation systems extend beyond the influence of the Shelbourne Street corridor. Potential changes to the Shelbourne cross-section – *Cross-section Possibilities* – essentially include all potential ways of addressing current and future base transportation conditions in order to achieve the aspirations laid out in the Vision. In this regard, the Possibilities serve as a 'tool-kit' in which to capture many of the ideas and suggestions that have been gathered through this process. Regional, district, area and corridor specific transportation improvement Possibilities are identified in general terms. These Possibilities are screened at a preliminary level that will highlight the general features of each concept as well as the high level benefits and impacts in order to identify a *Preferred Direction* that may be considered further with District and other agency staff in the next step of this process. Optional *Corridor Concepts* with specific cross-sections are developed that support the

Preferred Direction. These Concepts in turn are exposed to a more detailed evaluation of the impacts and benefits in which to consider as part of a long-term strategy with staff. The *Future Direction(s)* will then be recommended based on input and feedback from staff, and incorporated into other initiatives such as the *Urban Design Guidelines Study* for the Shelbourne Valley area.

4.2 Corridor Vision

The Vision for the Shelbourne Valley recognizes the larger role that the corridor plays for the community beyond the transportation system. Transportation improvement possibilities examined in this study must be aligned with and support the features of the Vision highlighted below. This Vision outlined below has been established based on input and dialogue with public and agency stakeholders as well as other District policies and plans.

a. *Community – support the development of the Shelbourne Valley as a vibrant area of the District of Saanich that will be planned to:*

- Encourage mixed use development patterns that front onto the street
- Support vibrant places for people along the corridor
- Bolster the provision of community services by providing access for walking, cycling and transit
- Promote the use of trees along the corridor to give definition to the street, protection of people environments and to celebrate the historical significance

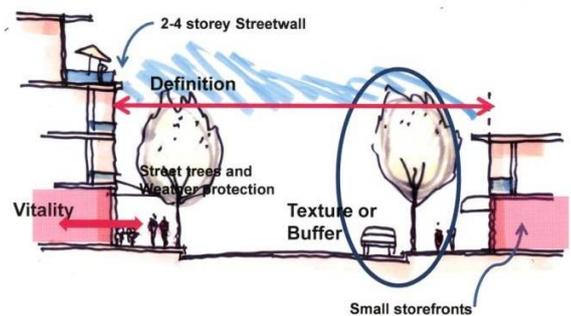
b. *Environment - promote environmentally conscious plans and designs to help meet/exceed District of Saanich goals for GHG reductions and protection and enhancement of the natural environment.*

- Reduce GHGs through managing travel patterns, enhancing opportunities for cycling, walking and transit.
- Manage sustainable design principles with incorporation of environmentally supportive treatments
- Recognize and integrate the Bowker Creek Watershed Management Plan and the Bowker Creek Blueprint

c. *Active Transportation – promote attractive choices in active transportation to encourage mode shift in support of a Sustainable Saanich.*

- Create a balanced transportation network
- Promote safe and accessible pedestrian environment
- Promote cycling with safe, comfortable and accessible facilities

Elements of a High Street



- d. *Transit – encourage transit increased use to meet regional and district targets through corridor design objectives and land use choices*
 - Maintain and improve transit travel time and reliability along Shelbourne Street to accommodate increased services
 - Develop accessible, transit friendly stops
 - Support/encourage mixed use, higher density, transit oriented development

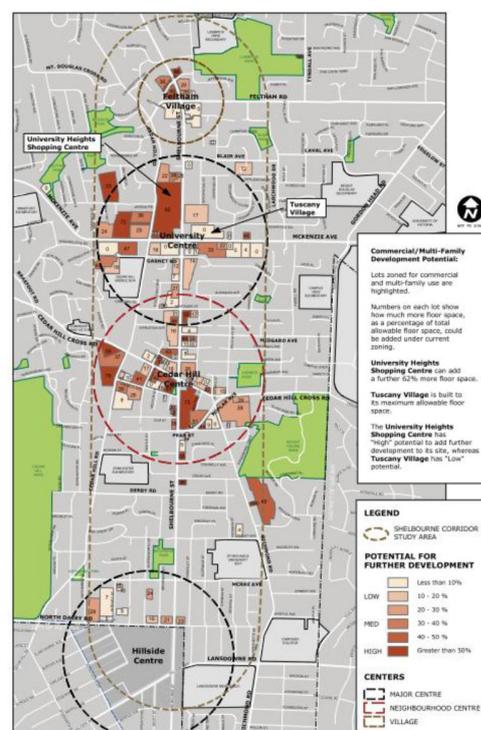
- e. *Vehicles Travel & Goods Movement*
 - Support local, district and regional role of Shelbourne Street
 - Support economic needs of the corridor for adequate vehicle access and circulation

4.3 Network & Corridor Themes

While this Action Plan is largely concentrated on long-term improvements for Shelbourne Street and cross-streets, it must be supported by broader area actions as well as integrated solutions that support the Vision. This section of the report examines those broader *network and corridor themes* that shape the local and district level transportation strategies to advance the development of concepts for the Shelbourne Valley area.

- a. Parallel Networks is the first theme of improvements to consider in developing the long-term possibilities for the Shelbourne corridor. Beyond Shelbourne Street, other roadways may serve regional and district-wide vehicle, transit and cycling needs, especially where restricted space on Shelbourne makes accommodating all modes difficult.

- b. Shelbourne Street Corridor includes more focused improvement strategies along Shelbourne Street, cross-streets and the immediate area as a way of supporting not only transportation needs, but also the aspirations for a more integrated community today and in the long-term.

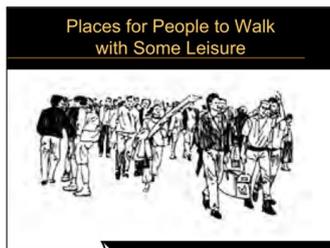


- c. Nodal & Linear Corridor Treatments – The Shelbourne Valley Action Plan and discussions to date have highlighted the general nature of the corridor in terms of nodes – village and neighbourhood centres – and linear areas along the corridor. Within the village and neighbourhood centres – Hillside, Cedar Hill, University, and Feltham – redevelopment opportunities have been identified as part of Saanich’s Official Community Plan and Zoning Bylaw and generally reflect a very small area around some primary cross-streets. The linear parts of the corridor between the nodes are being considered as areas that could be redeveloped especially between Cedar Hill and Hillside centres. While different themes for improvements may be a reality for the linear and nodal areas of change in the corridor, the future directions will be further shaped as part of the forthcoming *Shelbourne Valley Land Use*

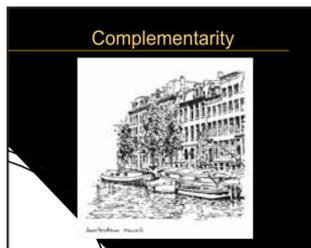
and Urban Design Plan that will examine corridor land use patterns. For the purpose of this study, development patterns and corridor treatments may be focussed at key nodes or the entire corridor where redevelopment would enhance opportunities for accommodating all modes.

- d. Great Streets – As suggested by the Vision, the Shelbourne Street serves many roles that go well beyond the transportation system. It serves a social, economic, environmental and transportation roles at local, district and regional levels. Interestingly enough, the corridor also has some historical significance as a ceremonial route to commemorate those that died during World War 1, while at the same time plays a future role in shaping land use patterns and a community of the future for Saanich. In this regard, the ‘Great Streets’ theme may be used to capture some of the elements needed for the long-term direction to accomplish the Vision and support the historical significance of the corridor as much as the future opportunities for a vibrant community. The foundation principles for a Great Street identified by Allan Jacobs – author of Great Streets – that will be applied to Shelbourne Street and key cross-streets include the attributes highlighted below.

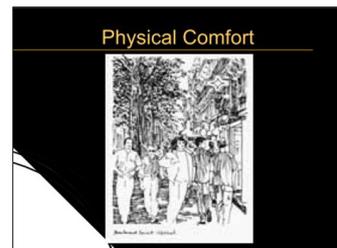
Place for Walk & Leisure



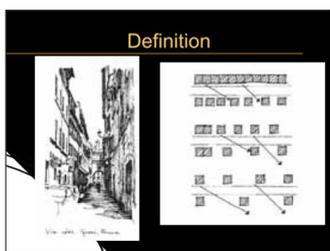
Complimentarity



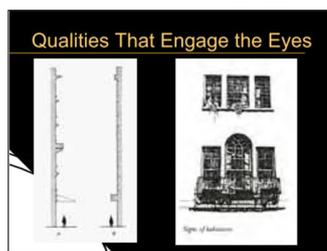
Physical Comfort



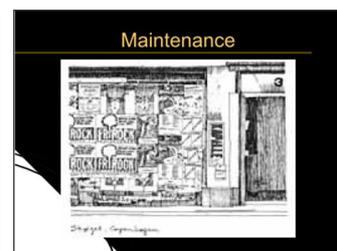
Street Definition



Qualities to Engage



Maintenance



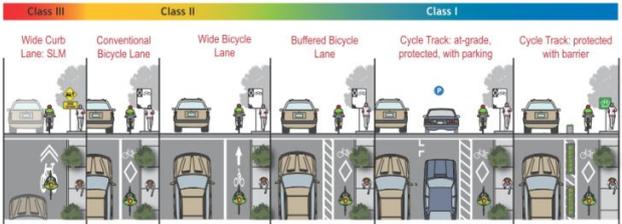
Source: "Great Streets", Alan Jacobs

4.4 Network & Cross-section Possibilities

In keeping with the themes previously described, this section of the report examines the specific possibilities for the larger area network that may be considered in combination with possible corridor specific improvements along Shelbourne Street. In this regard, network level improvements may or may not be required to support options on Shelbourne Street. For example, strategies that cannot effectively accommodate bicycle facilities or frequent transit services on Shelbourne Street will require that more emphasis be placed on parallel corridor improvements. All the possible improvement strategies are briefly described in Table 4.1 below. Prior to developing any specific improvement concepts, the possible

improvement strategies for Shelbourne Street are evaluated and will be used to inform the development of feasible concepts to consider for the long-term.

Table 4.1 – Possible Shelbourne Street and Parallel Network Improvements

A. Parallel Networks	
<p style="text-align: center;">i. Transit Corridors</p> 	<p>Where frequent transit service along Shelbourne Street as per the <i>Transit Future Plan</i> may be constrained by street options that increase congestion, options for parallel improvements may include:</p> <ul style="list-style-type: none"> • Strengthen the role of Foul Bay Road/Henderson Road between Downtown Victoria and the University of Victoria as the primary corridor serving the frequent transit network • Increase frequency of transit services on parallel corridors such as Cedar Hill Road and Richmond Road to connect to University of Victoria and/or planned rapid bus services along McKenzie Avenue • Provide transit accommodation strategies on parallel roadways that include signal timing coordination, traffic signal pre-emption and queue jumpers where possible
<p style="text-align: center;">ii. Bicycle Facilities</p> 	<p>Where the regionally significant, 'separated on-street' bicycle facilities (such as cycle track) included in the CRD Pedestrian and Cycling Masterplan along Shelbourne Street may be constrained by a lack of re-development and opportunities for increased right-of-way, possibilities for parallel corridors may include:</p>  <ul style="list-style-type: none"> • Separated bicycle facilities along Cedar Hill Road between Hillside Avenue and McKenzie Avenue • Separated bicycle facilities along Richmond Road/ Cedar Hill Cross Road/Gordon Head between McKenzie Avenue and Lansdowne • Consider the potential of separated bicycle facilities along Foul Bay Road and Henderson Road

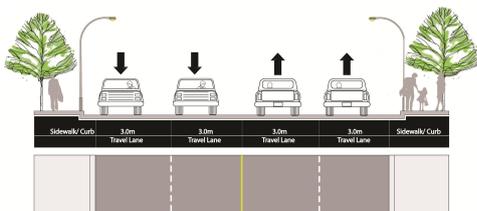
iii. Network Improvements



- Capacity improvements (turn lanes) to primary intersections along parallel routes such as Cedar Hill Road and Richmond Road to reduce delays and support Shelbourne corridor.
- Signal system coordination along parallel corridors to support north-south progression for District traffic patterns

A. Shelbourne Street/Corridor

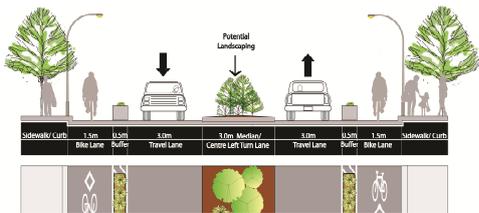
- i. 4 Lane
 - a. Existing ROW (20-23 metres)



*Sample configuration shown

- *Transit* – accommodate Transit Signal Priority (TSPs) treatments at signalized intersections to pre-empt signals for transit progression along Shelbourne, provide enhanced transit passenger facilities at key activity nodes along corridor, enhance connections and passenger facilities at key cross-street services such as at Hillside, Cedar Hill Cross Road, McKenzie Ave, Feltham Road, etc
- *Pedestrian facilities* – areas with minor sidewalk widenings and/or buffer space to roadway, accessibility treatments, enhanced cross-street pedestrian areas, etc
- *Bicycle Facilities* – locally serving bicycle corridors running parallel to Shelbourne Street, such as Browning Street, Thistle Street, and Ophir Street (potential route of Bowker Greenway), as well as Larchwood Street, connect with planned cross corridor routes such as Christmas Avenue, Pear Street, and Mortimer Street, with end of trip facilities within the corridor achieved through redevelopment and new bicycle parking requirements.
- *Vehicles & goods movement* – preserve corridor and intersection laning, provide signal coordination favouring Shelbourne Street, support existing traffic levels and corridor performance
- *Great Street features* – nominal opportunities to implement trees along the street edge approaching key nodes.
- *Transit* – same as above with wider passenger areas at

<p>b. Widened ROW (at key nodes or along the entire section of Shelbourne Street)</p>	<p>key stop locations along with passenger amenities such as seating, shelter and other transit information</p> <ul style="list-style-type: none"> • <i>Pedestrian facilities</i> – wider sidewalks on both sides of Shelbourne Street as well as buffer areas from the street, enhanced people environment either at development nodes or along the entire corridor • <i>Bicycle Facilities</i> – Separated bicycle facilities (cycle tracks) along Shelbourne Street in combination with other cross-street improvements (see above) • <i>Vehicles & goods movement</i> – same as above • <i>Great Street features</i> – same as above with significant opportunity for enhancements to people spaces, corridor edge/trees, and other elements. Through redevelopment at key nodes and/or along the entire corridor, may provide separation, building frontages facing Shelbourne street, place making opportunities at key nodes, improved comfort to all users, complimenting designs with the areas style/influences, etc
<p>ii. 3 Lane Reversible</p> <ul style="list-style-type: none"> - AM Peak – 2SB + 1NB - PM Peak – 2NB + 1SB - No intersection turn lanes <p>a. Existing ROW</p> <p>Sample configuration shown</p> <p>b. Widened ROW</p>	<ul style="list-style-type: none"> • <i>Transit</i> – Same as with 4 lane existing ROW. Three lane operation and limited corridor capacity may limit effectiveness of frequent transit service and require use of alternative corridors. • <i>Pedestrian facilities</i> – minor widening to sidewalks with limited buffer to roadway • <i>Bicycle Facilities</i> – Separated bicycle facilities (cycle tracks) along Shelbourne Street in combination with other cross-street improvements (see above) • <i>Vehicles & goods movement</i> – features reversible centre lane, restricted turns at minor intersections, no turn lanes at primary intersections, reduced vehicle carrying capacity on Shelbourne Street. Network improvements may be required for neighbouring corridors for both peak and off-peak directions • <i>Great Street features</i> – Limited areas/space for trees to define edge of streets and buffer pedestrians from street other than in key redevelopment nodes. • <i>Transit</i> – Same as with the 4 lane widened ROW scenario, network transit improvements will be required as previously noted to off-set impacts on transit operation with 3 lane corridor. Three lane operation and limited corridor capacity may limit effectiveness of frequent transit service and require use of alternative corridors. • <i>Pedestrian facilities</i> – wider sidewalks and significant

	<p>buffer areas</p> <ul style="list-style-type: none"> • <i>Bicycle Facilities</i> – Separated bicycle facilities (cycle tracks) along Shelbourne Street in combination with other cross-street improvements (see above) • <i>Vehicles & goods movement</i> – same as above, turn restrictions required at most minor intersections, no turn lanes at primary intersections, and network improvements for neighbouring corridors may be needed for both peak and off-peak directions • <i>Great Street features</i> – same as above with significant opportunity for enhancements to spaces, landscaping, and other elements.
<p>iii. 2 Lane Existing ROW</p>  <p><i>sample configuration shown</i></p>	<ul style="list-style-type: none"> • <i>Transit</i> – Same as with the 4 lane widened ROW scenario, network transit improvements will be required as previously noted to off-set impacts on transit operation with 2 lane corridor. The limited corridor capacity would limit effectiveness of frequent transit service and require use of alternative corridors. • <i>Pedestrian facilities</i> – wider sidewalk and buffer areas and passenger space • <i>Bicycle Facilities</i> – Separated bicycle facilities (cycle tracks) along Shelbourne Street in combination with other cross-street improvements (see above) • <i>Vehicles & goods movement</i> – alternate routes for north-south travel will need to be utilized. Reduced vehicle carrying capacity on Shelbourne Street (dispersion into broader network) giving improved comfort to other users. • <i>Great Street features</i> – same as above with further opportunity for enhancements to spaces, landscaping, and other elements.

4.5 Preferred Directions

The network and Shelbourne Street possibilities previously described can provide tremendous benefits but can also present several challenges. In an effort to reduce the number of possibilities, this section highlights other critical issues and identifies a preferred long-term direction in which to develop improvement concepts for the Shelbourne Street corridor discussed with agency staff. Table 4.2 summarizes the projected traffic outcomes as well as the critical issues presented by each of the corridor possibilities (2 lane, 3 lane and 4 lane).

Table 4.2 – Summary of Preliminary Scan of Shelbourne Street Possibilities

	Potential Roadway Configurations for Shelbourne Street		
	4 Lane	3 Lane	2 Lane
Existing Traffic Volume			
<i>AM (peak/off-peak dir)</i>			
<i>North of McKenzie</i>	1,020/680	800/500	700/570
<i>South of McKenzie</i>	1,100/800	800/500	600/600
<i>PM (peak/off-peak dir)</i>			
<i>North of McKenzie</i>	1,150/770	900/500	760/580
<i>South of McKenzie</i>	1,220/890	1,000/400	900/450
% Local Traffic	40%	60%	70%
AM LOS	LOS B-D	LOS E-F	LOS D-E
PM LOS	LOS C-E	LOS E-F	LOS D-E
Forecast Traffic 2038			
<i>AM (peak/off-peak dir)</i>			
<i>North of McKenzie</i>	1,110/740,	850/550,	730/550,
<i>South of McKenzie</i>	1,230/870	850/550	620/580
<i>PM (peak/off-peak dir)</i>			
<i>North of McKenzie</i>	1,280/870,	950/550,	810/590
<i>South of McKenzie</i>	1,450/1050	1,100/450	1,000/470
AM LOS	LOS B-D	LOS F	LOS D-E
PM LOS	LOS C-E	LOS F	LOS D-E
Traffic Diversion to:	<ul style="list-style-type: none"> No diversion 	<ul style="list-style-type: none"> Cedar Hill Rd, Blenkinshop/ Maplewood Rd Richmond Rd, Foul Bay Rd, Gordon Head Rd 	<ul style="list-style-type: none"> Cedar Hill Rd, Blenkinshop/ Maplewood Rd Richmond Rd, Foul Bay Rd, Gordon Head Rd

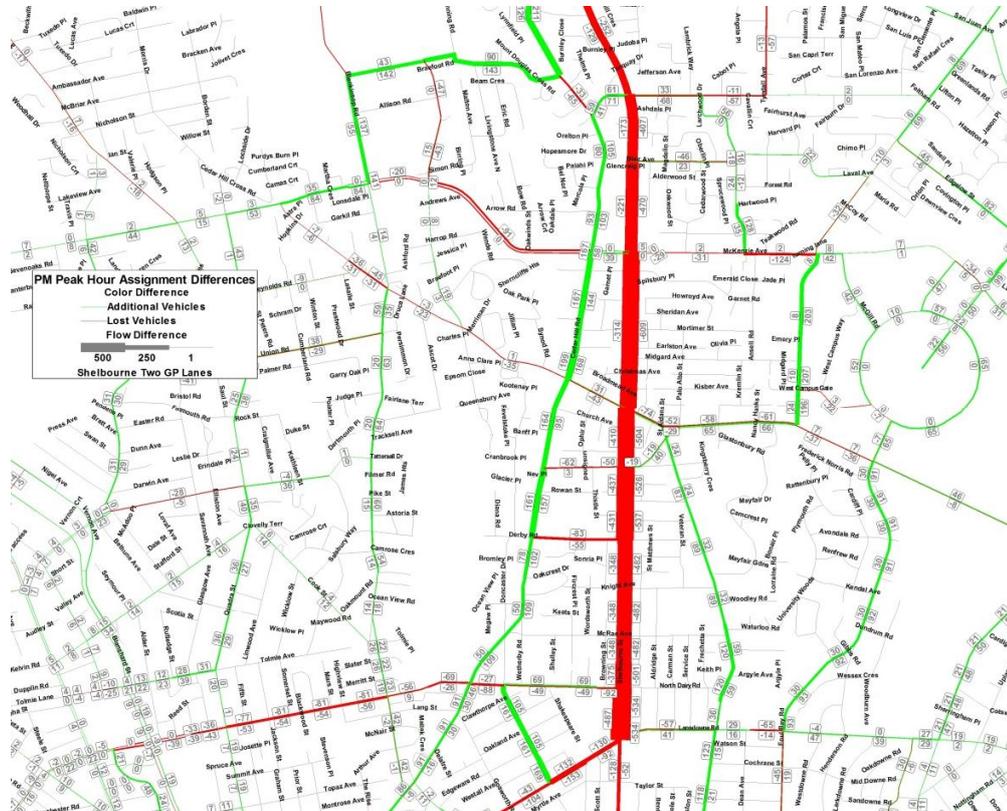
The traffic characteristics and differences between improvement possibilities are briefly highlighted below.

- Not surprisingly, the four lane roadway configurations generate the highest volume of traffic on Shelbourne Street. Today, approximately 2,000 vehicles use the Shelbourne Street corridor during the peak hour, or 20,000+ vehicles per day. As a 4 lane roadway, the daily traffic volume is projected to increase 3,000 to 4,000 vehicles by 2038. With any narrowing of the roadway to 2 or 3 lanes, traffic volumes would fall by more than 20% during the typical weekday.



- *The 2 and 3 lane configurations of Shelbourne Street would result in significantly higher levels of congestion at most signalized intersections along the corridor due to the reduced capacity.* Today and in the long-term, the Shelbourne Street corridor would operate with modest to higher levels of delay and congestion as a 4 lane roadway, mostly during the peak periods. With any reduction to 2 or 3 lanes, the corridor would experience significant delays and congestion, particularly with the 3 lane concepts where left-turn lanes would be removed at most major intersections.
- *Reduced capacity with any 2 and 3 lane configurations would change the function of Shelbourne Street from a district-wide serving corridor to a neighbourhood 'collector' street serving local area and neighbourhood traffic.* Today, approximately 40% of the peak period traffic along Shelbourne Street is considered local in that they have an origin or destination located along the corridor or in the immediate area. In other words, 60% of the vehicle trips are regional or district-wide in nature. Reducing the capacity with any 2 and 3 lane concepts will make Shelbourne Street much less attractive as a 'commuter route' and functioning more as a collector roadway within the District than an arterial.
- *The volume of driveways and turning traffic along the corridor would be problematic from a safety perspective for any form of 3 lane reversible system on Shelbourne Street.* Where there are several intersections and intermediate traffic generators, lane changing and weaving can be a significant challenge for any reversible lane system. In fact, it is anticipated that Shelbourne Street would likely experience an increase in side-swipe collisions with a 3 lane reversible system.
- *Local streets and other major roadways are projected to experience an increase of 600 to 900 vehicles during the peak hours with a 2 or 3 lane configuration (6,000 to 9,000 vehicles per day).* While there may be some decline in net vehicle trips on the system with less capacity along Shelbourne Street, a significant proportion of the traffic would choose to use other streets. It is anticipated that any significant reduction in capacity along the Shelbourne Street corridor would result in the undesirable spillover of traffic onto neighbourhood streets, not just other major roads.

Figure 4.1 – Network Traffic Changes - 2-Lane Shelbourne Street Scenario (PM)



- *Because of potential increased delays along Shelbourne Street, the efficiency and effectiveness of planned frequent transit services would be dramatically reduced with the 2 and 3 lane corridor concepts.* Even with proper coordination of signals and TSP to minimize delays for buses, a 2 lane corridor concept would increase corridor travel times by approximately 4-5 minutes during the peak periods of the day, and significantly more delay is expected with a 3 lane concept given the reported failing levels of service. Potential improvements to transit facilities along the corridor that may be gained with the 2 and 3 lane concepts do not off-set the impact of the increased travel times on future ridership and effectiveness of the increased service levels.
- *Additional space for pedestrians and cyclists along the Shelbourne Street corridor can only be accomplished with the 2 or 3 lane cross-section, or a 4 lane with additional right-of-way.* Unfortunately, the constrained right-of-way along the Shelbourne Street corridor does not permit the provision of adequate pedestrian and bicycle facilities without redevelopment. Improved pedestrian and 'place making' treatments for people can either occur through redevelopment of key communities' nodes or along the corridor between these areas. However, attractive bicycle facilities – such as cycle tracks – can only be accommodated with complete redevelopment or any 2 and 3 lane concepts. Minor widening of the right-of-way may be achieved to provide a parallel facility for parts of the corridor.



- *Unlike any 2 and 3 lane concepts, opportunities to create many of the 'Great Street' features along Shelbourne Street are constrained with any 4 lane concepts if the right-of-way isn't increase through redevelopment at key nodes or along the corridor. The 2 and 3 lane concepts provide opportunity to create more people space and to give definition to the corridor through street trees that recognize the historical significance of Shelbourne Street to celebrate the veterans of World War 1, in addition to the provision of water course treatments. With a wider right-of-way at the various community nodes that line the corridor or throughout, the potential for creating a great street environment can be realized.*

The preliminary screening of possible 2, 3 and 4 lane concepts generally points toward the need for preserving the 4 travel lanes along Shelbourne Street as discussed with agency staff. Improvement concepts that generally support enhanced walking and transit along and across the corridor can be developed using the existing right-of-way. In the event that additional rights-of-way can be captured around the neighbourhood centres of through redevelopment (or for the entire stretch of Shelbourne), additional space can be used to implement 'great street' and environmental features as well as cycle track facilities. A complete street concept for many transportation and community aspirations for the corridor would generally require a widened mid-block right-of-way to approximately 25-28 m where much of the corridor is currently between 20-23 metres. With relatively shallow single family properties that surround much of the corridor, the District will need to confirm the redevelopment potential with reduced property depths.

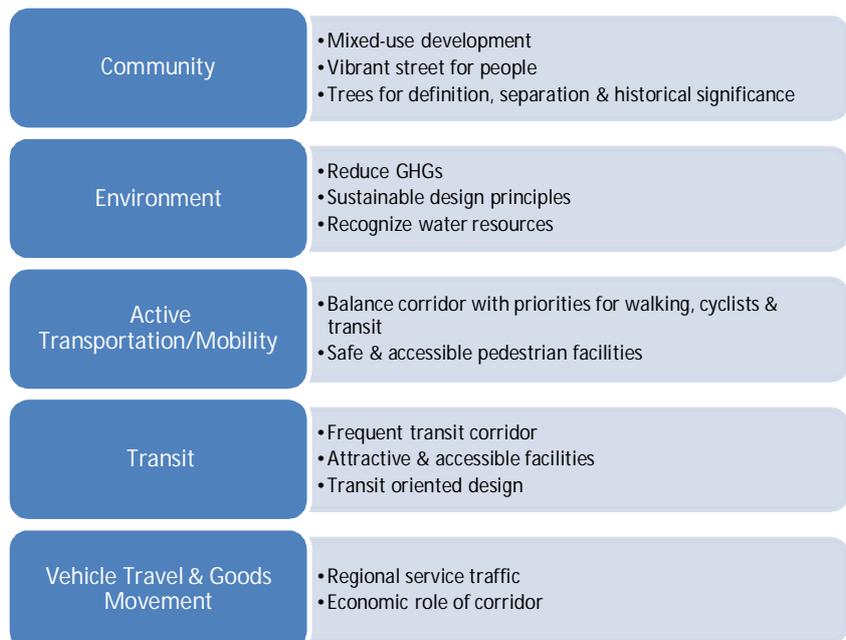
5.0 RECOMMENDED CORRIDOR IMPROVEMENTS

The Shelbourne Valley area supports a variety of neighbourhood, local and regional land uses and activities. On one hand, the corridor is a community street where people walk, bike and drive locally to work, shop, visit and live. Shelbourne Street (and many cross-roads) is also a regionally important link for transit and cars to access areas beyond the corridor – such as to and from the downtown, the University of Victoria and many residential areas in the District of Saanich. Rather than address these functions simply as competing interests in which there are no win-win solutions, the strategy strives to integrate these important functions for Shelbourne Street in a more balanced way for the long-term future of the area and the District.

In working with staff and the community, the Vision for the Shelbourne Valley area is not simply to balance the transportation needs of the corridor. The transportation demands and aspirations for the corridor are a means to a bigger community aspiration. For the purpose of this assignment, the foundation vision for Shelbourne Street is to become ‘Great Street.’ The proposed treatments and allocation of space within the right-of-way should be designed to create the look and feel of a ‘great street’ by providing an environment that will make and shape the community that surrounds it. Shelbourne Street should be a place that provides physical comfort to people and feels safe to travel as well as to spend time. The corridor could become a place that encourages people to participate and interact with others along-side the street. In this regard, the physical qualities of the Shelbourne Street corridor must contribute to providing a strong sense of place that complements adjacent planned land uses in addition to supporting mobility for all modes.

As part of the ‘great street’ features, Shelbourne Street must become a significantly more comfortable place for people to walk, bike and use transit. Shelbourne Street also supports the movement of goods and services to and from the area. At the broadest level, the improvement strategies for the corridor are designed to balance six key goals and objectives established early in the process.

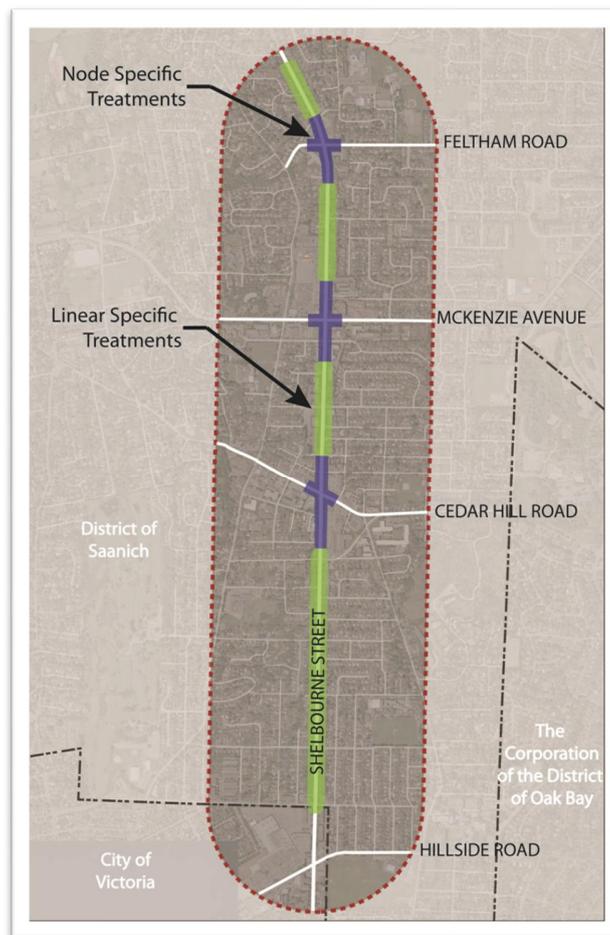
Shelbourne Street Goals & Objectives



Achieving the 'great street' qualities and overarching goals and objectives requires a transformation of Shelbourne Street that can only occur over time and with changes to adjacent land uses and urban form. The Official Community Plan envisions a transformation of the suburban corridor character for Shelbourne Street to more urbanized with a focus on three 'centres' – University Major Centre, Cedar Hill and Hillside – and one 'village' - Feltham. Land use changes between the centres and village are being considered, however interim features and treatments can be achieved prior to redevelopment occurring.

Recognizing that there are plans to create four mixed-use, higher density activity nodes along Shelbourne Street that will support the 'great street' vision, the ultimate features and general treatments are defined to influence future planning and design of the right-of-way within and approaching these areas. For the mid-corridor sections between the villages and centres, interim features and treatments that can be achieved within the current right-of-way are identified along with ultimate cross-sections if redevelopment occurs and a wider right-of-way could be available. The node and mid-corridor areas for Shelbourne Street are illustrated in Figure 5.1 below.

Figure 5.1 – Mid-Corridor and Node Areas along Shelbourne Street



5.1 Mid-corridor Treatments

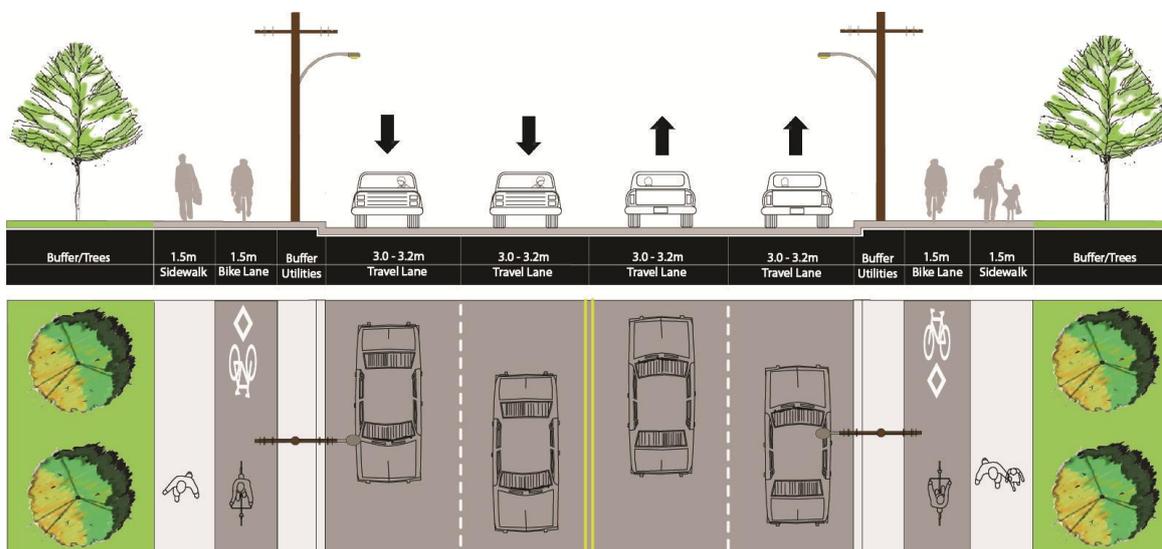
Between the growth nodes, the mid-corridor features and treatments include an 'interim' condition for the existing right-of-way along Shelbourne Street if no significant land use changes occur, and two 'ultimate' cross-section options if more right-of-way were made available through redevelopment. This section of the document describes those optional mid-corridor treatments between Tourquay Drive and North Dairy Road. North of Tourquay Drive, Shelbourne Street will be reduced from four to two travel lanes.

a. Interim Cross-section Guidelines

The interim concept recommended for the mid-corridor areas of Shelbourne Street is illustrated below in Figure 5.2. Similar to all other options, the interim concept maintains the 12 metre roadway width of four travel lanes to serve transit and vehicle travel as well as the movement of goods and services. Other features of the interim improvement concept for mid-corridor sections are briefly described below.

- o *Coordinated signal timings* along Shelbourne Street with *transit signal pre-emption* to accommodate increased transit services and to minimize delays for customers. Signals and buses could be equipped with communication technologies that would recognize approaching vehicles and pre-empt green times for cross-street traffic in an effort to minimize travel times for buses along Shelbourne Street. It should be noted that managing cross-street green times beyond what is required for pedestrians to prioritize transit along Shelbourne Street will be important as redevelopment throughout the Shelbourne Valley and other areas occur.
- o *Above ground hydro poles* retained and in some areas relocated closer to the roadway edge in a 0.5m buffer.
- o *1.5 metre cycle track facilities* located adjacent to the roadway and buffered utility corridor. The cycle tracks are one-way facilities for cyclists with the northbound and southbound cycle tracks located on the east and west sides of the Shelbourne Street corridor respectively.
- o *More consistent and accessible 1.5 metre sidewalks* separated from the roadway edge by the adjacent cycle tracks and utility pole buffer.
- o *Trees lining the entire mid-corridor area* on both sides of the street to define the visual edges of Shelbourne Street and to potentially capture some historical significance. These trees may be located on public and private property where necessary.
- o All improvement concepts are generally working within the existing *20-23 metre right-of-way* throughout the mid-node areas of the corridor.

Figure 5.2 – Interim Mid-Corridor Concept



b. Ultimate Cross-section Guidelines

The ultimate concepts recommended for the mid-corridor areas of Shelbourne Street are illustrated below in Figures 5.3 and 5.4. Once again, these concepts maintain the existing 12 metre roadway width and four travel lanes. Through redevelopment, a wider right-of-way would permit more generous space for pedestrians and cyclists as well as space for trees and environmental features that could line the corridor as briefly highlighted in the description of treatments noted below.

- o *Coordinated signal timings* along Shelbourne Street with *transit signal pre-emption* to enhance progression and to minimize delays for frequent transit services along the corridor.
- o *Buffered treed area of approximately 2 metres* lining the entire corridor to define the ‘street edge’ and to provide separation for sidewalks and other pedestrian areas. A tree lined buffer area immediately adjacent to the edge of road will serve to provide a visually narrower corridor (Figure 5.3). Alternatively, the tree buffer may also be used to provide separation between the cycle track and sidewalk areas as illustrated in Figure 5.4. Either way, these buffer areas could be complemented with rain garden treatments for drainage as well as with tree species that would suit the soil conditions and possibly recognize the heritage significance of the corridor.
- o *2.0 to 3.0 metre cycle track* facilities located alongside the road as illustrated in Figure 5.4 or alongside the sidewalk as shown in Figure 5.3. Although not necessary, separating cycle tracks and pedestrian areas with the treed buffer will serve to limit conflicts between modes, particularly through busy pedestrian areas of the corridor.
- o More *consistent and accessible 2.0 to 5.0 metre sidewalk* areas separated from the roadway edge by the adjacent cycle tracks and treed buffer area. These wider walkways can also provide opportunities for place making along the corridor either in connection

- with adjacent storefronts and street uses or simply areas within the right-of-way for small gatherings and spending time.
- o *Below ground hydro* in a landscape buffer or *above ground hydro* adjacent to the road edge and cycle track area.
- o All improvement concepts and treatments are generally achieved within a *26 to 32 metre right-of way* throughout the corridor.

Figure 5.3 – Ultimate Mid-Corridor Concept

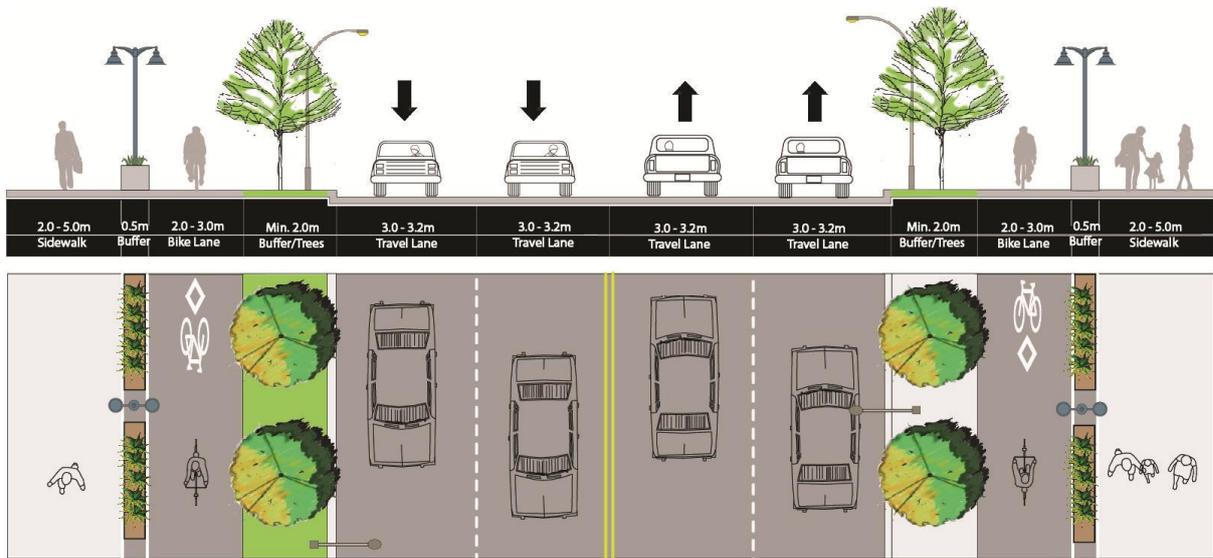
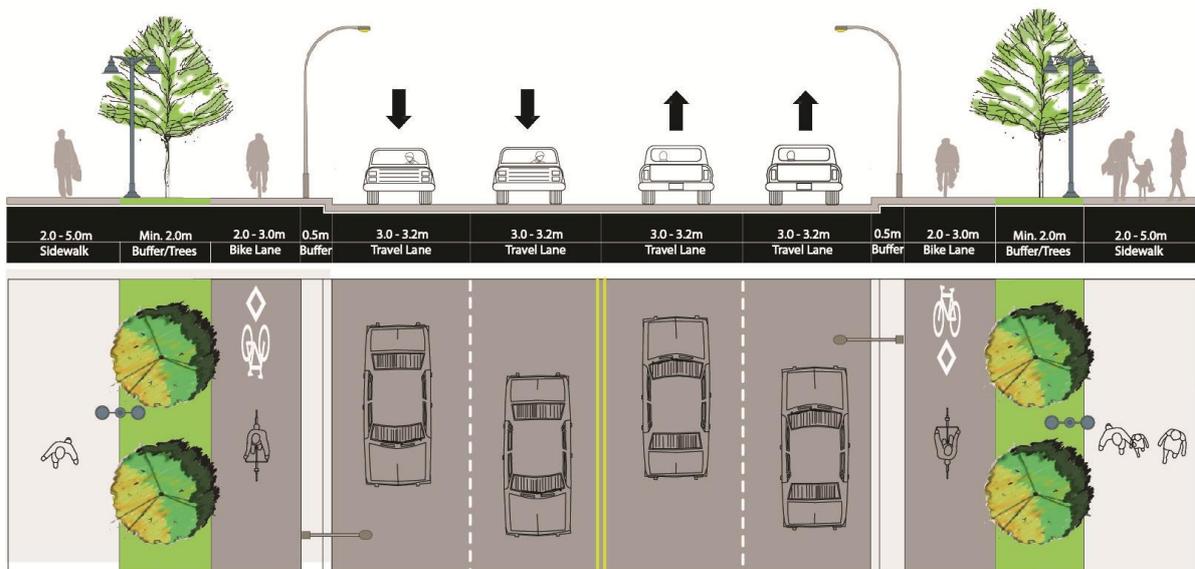


Figure 5.4 – Ultimate Mid-Corridor Concept (above or below ground utility poles)



5.2 Urban Node Treatments

The treatments and design guidelines for the University Major Centre, Cedar Hill and Feltham nodes are created not only to balance the multi-modal aspirations along and crossing Shelbourne Street, but to become 'gateways' that define community nodes and raise the importance of place making for people living in and visiting these urbanized areas. In this regard, these nodes represent destinations where the urban character of the corridor is visibly different than today with buildings and associated activities for adjacent uses that occur at the street edge.

Street treatments are used to manage travel speeds and to enhance space for people to spend time on Shelbourne Street, walk the corridor, wait for buses and cross the street. In this regard, walking and cycling for people of all ages and levels of mobility are the priority within these urban nodes of the Shelbourne Valley.

The following discussion highlights the conceptual features and treatments for the public rights-of-way through the three urban nodes as illustrated in Figures 5.5 through 5.7.



- o Combined with changes to the urban form of buildings that front Shelbourne Street, the gateway treatments are created with the continuation of trees along the edge of the roadway leading to and from the urban nodes as well as in the centre of a roadway median. Wide landscaped centre median areas and trees (among other potential treatments) are used to create a visual transition for drivers traveling through the area as well as for those visiting the centres themselves.



- o Driveways to and from adjacent properties are either managed to right-in/right-out and with a centre median throughout these urban nodes and reduced significantly with building frontages that will line Shelbourne Street.
- o Wide, accessible pedestrian areas in front of buildings of 3 to 5 metres that may be located entirely within the right-of-way or partly on private property where direct building access is provided. Weather protection may also be provided through building features where possible.
- o Pedestrian crossings at intersections are enhanced with narrower crossings of Shelbourne Street by modifying the bus pull-outs that run through the intersection at McKenzie and Cedar Hill Cross. This will in turn reduce crossing times for pedestrians. The provision of special

pedestrian push buttons at signals could be used to specifically request additional crossing time of Shelbourne Street for those that need more time to cross than the standard walk time, such as for seniors or people with other mobility challenges. It should be noted that the narrowing of the crossing of McKenzie Avenue at the intersection may be altered in the long-term with rapid transit along the corridor in order to facilitate eastbound and westbound bus queue jumpers at the Shelbourne Street signal.

- **Bicycle facilities are provided in the form of 1.5 to 2.0 metre cycle tracks located adjacent to the roadway edge** on both sides of Shelbourne Street through the urban nodes. A tree line buffer area will not only define the roadway edge, but could serve to separate cyclists and pedestrians along the corridor. These cycle tracks would connect with planned bicycle routes along Cedar Hill Cross and McKenzie Avenue.
- **Managing the conflicts between cyclists and pedestrians at intersections through separation as well as appropriate pavement markings and signage.** Pedestrian crossing areas of intersections and sidestreets are provided for the cycle track facility using 'elephant's feet' markings. In general, pedestrians walking north-south along the corridor would remain separate from the cycle track facilities, while pedestrians crossing Shelbourne Street would cross-over the cycle track. As is the case at most intersections, design treatments to highlight conflicts and care would be required for both cyclists and pedestrians.
- **Transit shelters and waiting areas are provided at key nodes** between the roadway edge and bicycle tracks. Except at McKenzie Avenue, **bus pull-outs are removed** along much of the Shelbourne Street corridor in order to manage the road cross-section and to allow for more 'people space' between the road edge and buildings. Bus pull-outs remain on Shelbourne Street north and south of McKenzie Avenue to allow buses to wait for passengers as this is a time transfer point between cross-street routes.
- All improvement concepts and treatments are generally achieved within a **30 to 33 metre right-of-way** throughout each of the urban node areas.



Figure 5.5 – Feltham Village Conceptual Treatments

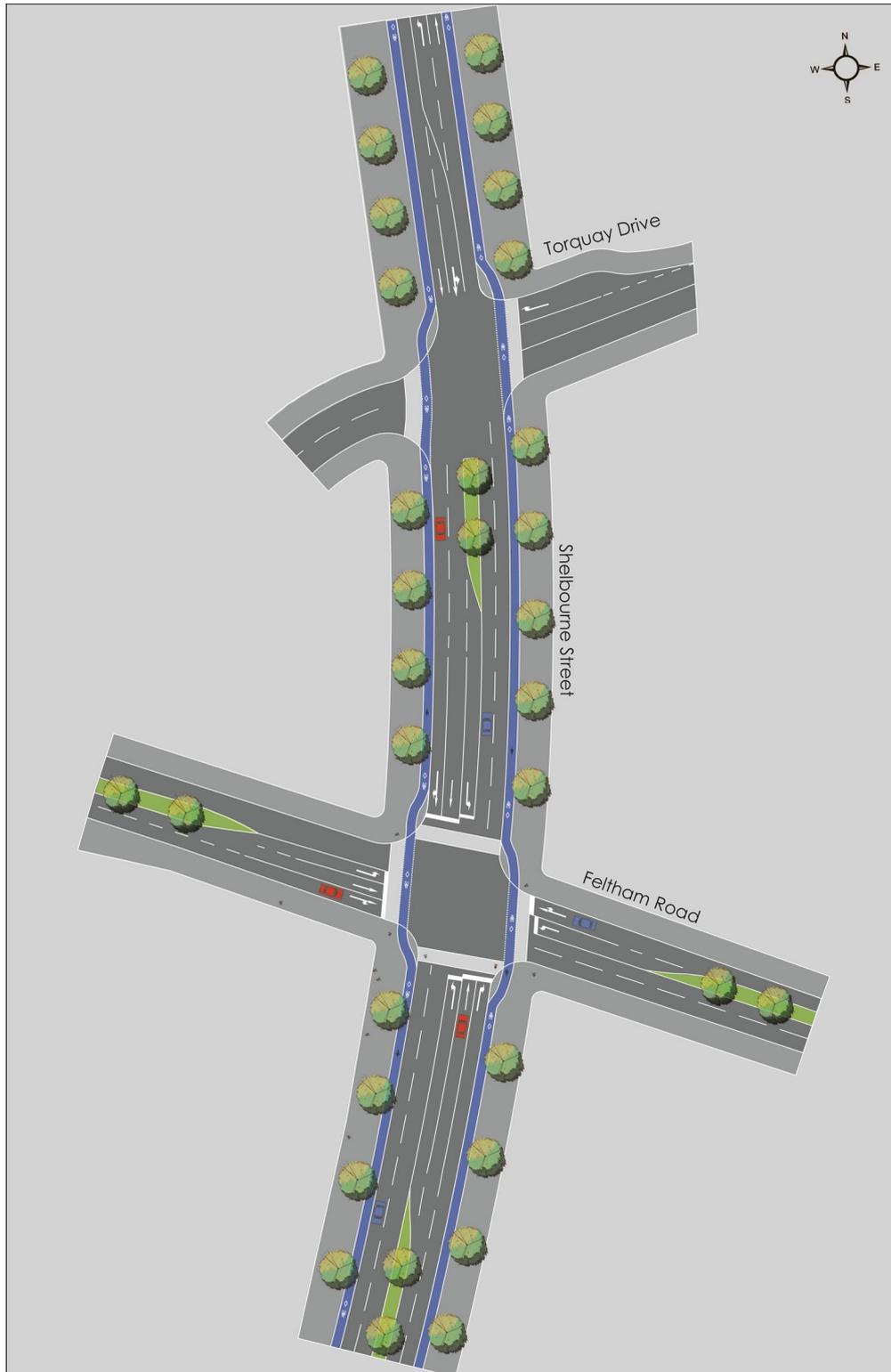


Figure 5.6 – University Major Centre Conceptual Treatments

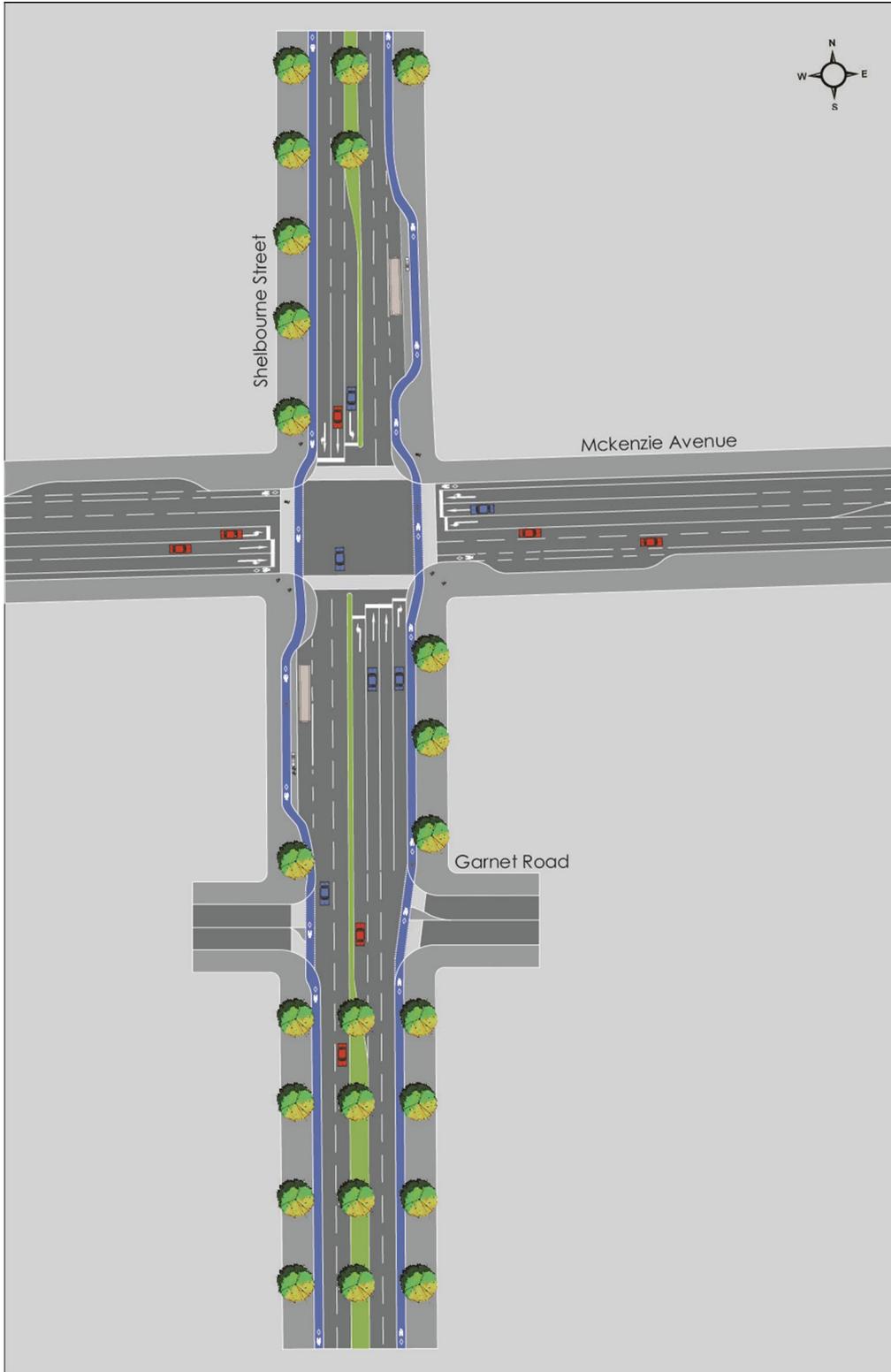


Figure 5.7 – Cedar Hill Conceptual Treatments

