# City of Kamloops
# Draft
# Network Classification Strategy

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# 1.0 INTRODUCTION

Traditionally, the roadway classification system in many North American communities has been largely driven by the need to define adequate rights-of-way necessary to plan and develop communities as well as for the purpose of guiding the design of urban and rural roadways. The hierarchy of streets are often clearly defined, from local streets which are designed to provide access through to expressways and freeways that primary serve through travel. In many cases, this approach has fostered the goals for mobility and accessibility, but has not supported other critical community goals such as the quality of life and safety. Over the last twenty years, there has been growing recognition that a broader spectrum of factors such as those involved in land use and network decisions need to be considered in determining and managing the roadway classification system.

This document identifies and examines those factors that contribute toward ***defining*** and ***managing*** the roadway classification system in Kamloops. In particular, the specific objectives are:

- To describe the multiple goals that may be served by a classified network in the City of Kamloops, including safety and other municipal interests.

- To identify those features of a classified network which contribute most toward achieving the overall goals. Although consideration is given to all features affected by the classification system, specific emphasis is directed towards those guidelines that may be use to proactively address ***safety of the transportation system***.

- To define a classification system and guidelines for the City that best reflect the range of roadways in Kamloops and will support safety as an explicit priority.

- To evaluate the preliminary classified network according to the recommended guidelines and identify areas of inconsistency. Evaluation was performed based on the Geographic Information System (GIS) software called Planet GIS, which is a tailored program developed for Kamloops that contains database information (land use, network, access, intersections, road form, accident, etc.) for thematic mapping and assessment purposes.

- To identify a recommended classified network for Kamloops and implementation initiatives that should be advanced to provide the City with a system to proactively achieve safety and other municipal goals and objectives for the roadway system.

## 2.0 WHY A CLASSIFIED NETWORK?

The roadway classification system in the City of Kamloops defines the primary functions of each roadway which typically range from providing access to individual properties (i.e. local and collector roads) through to supporting mobility for vehicles (i.e. arterials and highways). A hierarchy of urban streets in the City of Kamloops will generally enable each class of street to serve its primary function, while promoting operational efficiency and safety throughout the network. This section of the report examines some of the primary safety goals for a classified network along with other goals of the City which extend well beyond.

Consistent with many other communities, the roadway classification system within Kamloops has been historically borne out of the need to plan and design roadways. In this regard, the foundation of the roadway classification system originated through subdivision control bylaws and engineering design manuals, with very few support policies. The primary assumption was that once the street system is classified and an adequate level of service is provided, there is very little need to alter the functional network.

Today, the primary goals for a classified network in the City extend beyond merely the design of roads. The classified network is expected to:

- Support quality of life goals along all streets by maintaining a hierarchy of roads that support local and non-local traffic where appropriate, and accommodate desired levels of traffic.
- Shape land use patterns and decisions are consistent with the designated role of each roadway throughout the City.
- Maximize the effectiveness and efficiency of existing roadways within the City by maintaining and enhancing mobility along primary routes, such as the arterials and highways.
- Support the movement of alternative modes – walking, cycling, automobiles, trucks and transit – as appropriate along different classes of roads.

In this regard, the roadway classification system and the overall management of the system will promote the goals of the City that extend well beyond the design of the roadway itself.

Although the City promotes road safety, it is not recognized as an explicit priority in the current classification system and ongoing management of the roadway network. Similar to many other communities in North America, the roadway classification system provides a means of designing roadways, as well as managing the quality of life for residents, while supporting goals for mobility. For example, local and collector streets are typically designed with consideration of the relationships to quality of life of residents that surround the roadway, while serving a role for access and circulation. In fact, decisions that may influence the classification of the roadway network are typically made based on impacts on quality of life, mobility or for economic development reasons, without

adequate consideration of safety. In this regard, safety is not generally used as an explicit priority in designating and managing the roadway classification system.

The roadway classification system contributes to the overall goals for safety in several ways which are broadly highlighted as follows:

i. ***To Minimize exposure to collisions*** through reduced automobile travel as measured in vehicle-kilometres. This can be achieved through a roadway classification system that ***provides an efficient network shape*** in which drivers can use the most direct (and appropriate) routes for the majority of travel within and through the community. Additionally, a roadway classification system that ***promotes the use of alternative modes***, such as transit, cycling and walking can also serve to reduce total vehicle-kilometres travel. This assumes that these transportation alternatives are provided in a way that promotes safety as an explicit priority.

ii. ***Minimize the risk of collisions*** occurring for travel that does take place. In this regard, a roadway classification system can be used to ***establish a functional network*** in which various classes of roadways support primary travel patterns. For example, arterial roadways typically support longer distance travel, with some local trips to and from the adjacent community. In cases where the arterial road also supports several local accesses, the safety risks through increased conflicts between local and through travel. As such, the roadway classification system can also minimize the risk of collisions by ***promoting greater predictability of the driving task***. Managing the land use and the types of accesses along all major roads, therefore, must be consistent with the expectations of drivers along these roadway classes.

iii. ***Minimize consequences of collisions*** that do occur. In cases where there are inconsistencies between the roadway classification system and the features that influence the safety of the roadway (and the features can not be easily changed) additional steps may be necessary to minimize the consequences of collisions that do occur. For example, there are several factors that influence safety along various classes of roadways, such as the spacing of intersections and accesses as well as the land use shape and form. Where these factors can not be changed and are generally in conflict with the primary function of the roadway class, actions to reduce vehicle speeds or alter routes of travel at high risk locations may be necessary to minimize the consequences of any collisions that may occur.

Therefore, a roadway classification system in Kamloops is needed to recognize specific safety, mobility, quality of life and other municipal goals that should either influence the designated roadway class or the way in which a specific roadway is designed and managed.

Because much of the network in Kamloops is built, the primary challenge facing the City is in ***managing*** the desired roadway classification system. New developments along existing roadways and redevelopment of land uses in many areas of the City presents many challenges to supporting the desired roadway classification system, and therefore achieving many other goals as previously stated. This is not to suggest that development should not occur, but rather that the land use decisions need to be equally supportive of the network classification system which serves many other community goals in addition to the needs of development. In this regard, the recommendations of the Network Classification Strategy should become part of the decision-making framework in which future developments are considered in order to achieve community and safety goals as previously described.

# 3.0 RECOGNIZING 'SAFETY' IN CLASSIFICATION GUIDELINES

The network classification system in most communities is generally distinguished by highway, arterial, collector and local roadways with particular characteristics and features that are unique to each class. For example, highway and arterial roadways are typically reserved for four or more lanes of travel, while local and collector roadways support two travel lanes. Similarly, land access on highway and arterial roadways is typically restricted, and conversely the primary purpose of the collector and local road system is to support access to adjacent properties.

The basis in which most communities have established a roadway classification system and specific guidelines is generally designed to serve a range of municipal goals as previously described in Section 2.0 of the Strategy. The purpose of this section of the report is to identify all those features (land use, network, access, intersection and road form) that should be recognized in the network classification system for Kamloops and to elaborate on those features that specifically support safety goals. All these features and goals will be used to develop the network classification guidelines for City of Kamloops in Section 4.0 of the report.

Table 3.1 below summarizes the desired features to be recognized in the Kamloops network classification guidelines and highlights the primary goals served in terms of safety or other municipal interests. For example, land use related guidelines to be recognized in the roadway classification system in Kamloops should include desirability for specific land use densities, high traffic generators and vulnerable pedestrian uses (i.e. schools and senior's residences) adjacent to specific roadway classes. While the guidelines for land use density and high traffic generating uses may be designed to achieve specific municipal goals such as mobility and quality of life, locating vulnerable pedestrian uses along specific classes of roadways recognizes safety as a governing feature in these decisions.

# Table 3.1 – Governing Features Influencing Roadway Class

| CHARACTERISTICS | DESCRIPTIONS | PRIMARY GOALS SERVED | |
|---|---|---|---|
| | | Safety | Others (mobility, quality of life, etc.) |
| **LAND USE** | | | |
| a. Density | high/medium/low | | √ |
| b. High Traffic Generators | encouraged/moderate support/ discouraged | | √ |
| c. Vulnerable Pedestrian Uses | encouraged/ conditional support/ discouraged | √ | |
| **NETWORK** | | | |
| a. Service Function | primary traffic/ land access | | √ |
| b. Typical Traffic Volumes | daily volume | √ | √ |
| c. Vehicle Mix | % Trucks | √ | √ |
| d. Traffic Mix | Local/through/distribution | √ | √ |
| e. Accommodation of: | | | |
| Transit | express/local/paratransit services | | √ |
| Bicycle Facilities | bike lanes/marked-wide curb lanes/shared lanes | | √ |
| Sidewalks | 1 / 2 sides | √ | |
| **ACCESS** | | | |
| a. Land Access | None/limited/all-way | √ | √ |
| b. Density | Full accesses/km | √ | |
| c. Auxiliary Lanes | Yes/no turn lanes | | √ |
| **INTERSECTIONS** | | | |
| a. Interconnecting Roadways | locals/collectors/arterials/ highways | √ | |
| b. Minimum Intersection Spacing | Metres | √ | √ |
| c. Controls for Primary Road | none / signals / stops / roundabouts/grade separation | | √ |
| d. Auxiliary Lanes | Yes/no turn lanes | √ | √ |
| **ROAD FORM** | | | |
| a. Right-of-way Width | metres | | √ |
| b. Grades | % slope | | √ |
| c. Maximum Posted & Design Speeds | km/hr | √ | |
| d. # Lanes | 2 / 3 /4 / >4 | | √ |
| e. Minimum Travel Lane Widths | metres | | √ |
| f. Median | required/optional/ prohibited | | √ |
| g. Median Width | metres | | √ |
| h. On-street Parking | yes / no | | √ |

Although there may be more than one reason to recognize specific features in the classification guidelines, there are several areas in which safety is considered a primary goal in the classification guidelines and system in the City of Kamloops. The following discussion examines the safety relationships to each feature identified in Table 3.1 to different roadway classes.

## LAND USE

Land uses adjacent to a given roadway are an important aspect of the overall classification system. For example, the type and density of land uses often shape the number and types of accesses onto the adjacent street system. Additionally, different land uses will also generate unique travel patterns. The presence of vulnerable pedestrian uses is the primary feature influencing safety along different roadway classes as briefly described below.

### Vulnerable Pedestrian Uses

*Vulnerable pedestrian uses*, such as schools and seniors facilities, that attract significant volumes of pedestrians and / vulnerable road users may be discouraged along major roadways such as arterial and freeway facilities for safety purposes. The types of uses that would attract vulnerable road users such as seniors and students include specific types of residences and / or institutional facilities. In those cases where vulnerable pedestrian uses are already located (or must be located) adjacent to higher roadway classes, specific safety measures to address key features may be considered – such as the provision of special pedestrian facilities, route or speed management initiatives, and / or changes to the roadway class itself.

[INSERT PHOTO OF SCHOOLS ALONG TRANQUILLE ROAD]

## NETWORK

The overall network classification system in a community can influence traffic characteristics in terms of the amount, type and mixture of vehicles on various classes of roads. For example, the arterial road system will generally support higher traffic volumes, much of which will likely be generated outside the immediate area – or 'through' traffic – and will support travel of cars, trucks, transit, cycling and walking. Conversely, local and collector roads will carry substantially lower volumes of traffic primarily to and from the local area, and consist largely of passenger vehicles and more localized forms of transportation including walking, cycling and some neighbourhood transit services.

In general terms, the roadway network within a given area can influence safety in several ways. A ***functional network*** in which various classes of roadways to support a range of travel patterns is essential. In this regard, highway and major arterial classes of roadways are available for longer distance travel and neighbourhood streets – such as local and collector roads – are present to serve community travel as appropriate. In

addition to having a functional classification system, an ***efficient network shape*** can also influence the safety of the transportation system. On one hand, an efficient network shape reduces the overall distance of travel in a community, thus limiting exposure to collisions. Further, an efficient network shape of specific classes of roads can also influence the objective for roadway classes having a "*primary function*." For example, the arterial road system will be used by all local, distribution and through traffic if there were no local and collector road system. Similarly, local and collector roads may be used by longer distance travel if there are no alternate arterial roadways.

Among those network features incorporated in the classification systems for Kamloops, typical daily traffic volumes, vehicle mix and traffic mix influence safety of different classes of roadways as briefly described below.

## Traffic Volumes

In general, roadways with higher traffic volumes experience more collisions. On average however, the differences between the collision rates for a given roadway class tend to be relatively consistent as identified below.

**Table 3.1**
**Sample Collision Rates for**
**Different Roadway Classes**

| | Urban Arterial | Urban Expressway | Rural Arterial | Rural Expressway | Rural Freeway |
|---|---|---|---|---|---|
| **Average Rate** | 1.4 | 1.5 | 0.7 | 1.2 | 0.6 |

*Source: Provincial Accident Rates (Jan 1, 1991 to December 31, 1993), Ministry of Transportation*

The safety of the roadway network is impacted where the traffic volumes along a given roadway class are inconsistent with the form and features of the specific class itself. In particular, where the traffic volumes are significantly higher than the typical design of a given road, the collision rate may be higher than the average condition for that roadway class. For example, local and collector roadways that are typically designed for lower volumes of traffic may experience higher collision rates than expected if the volumes were significant higher – which may be attributed to many factors. In this regard, desirable daily traffic volumes are established for each class of road. Safety concerns will arise where the traffic patterns dramatically exceed the desired levels. In all cases, ranges given for each class of roadway are wide and overlap that of other roadway classes. Where the daily traffic volumes exceed the typical range for a given class of road, specific measures may be taken to address any inconsistencies for the function that is being served, or to minimize undesirable levels of traffic through route management initiatives that provide and attract drivers to alternate and more desirable corridors.

## Traffic Mix

The roadway classification system can also be used to promote safety and other municipal goals through the "mono-functionality" of a given roadway class. In this regard, specific classes of roadways are expected to serve primarily either local, distribution or through traffic. For example, highway and major arterial related roadways are planned and designed to primarily support through – or non-local travel – as opposed to local access and circulation. Conversely, local and collector roadways primarily support local and distribution traffic patterns.

For different reasons, the primary safety concerns arise when local and collector roadways support significant portions of through traffic, and when highway and arterial roads accommodate significant portions of local travel. In general, the design and layout of highways and arterial roads – consistent with the classification and design guidelines - support higher traffic volumes and vehicle speeds for longer distance trip makers travelling between communities. In this regard, drivers using the highway and arterial road system do not expect significant stop and delay activity attributed to a local access function. Safety issues arise therefore, where the proportion of local travel – trips between nearby uses – occur along the highway and arterial road system. A significant proportion of local traffic on the major road system will also present mobility issues to a given community.

Along the local and collector road system however, the primary function of serving local and distribution trip making has also been used to define the layout and design of these road classes in terms of land uses and access provisions. In this regard, a significant proportion of through traffic will also present safety concerns where the expectation of the driver may not be consistent with the primary role for access and circulation along the collector and local road system. In addition to presenting a safety issue, a high proportion of non-local traffic on collector and local roadways will often result in resident quality of life concerns.

In order to address concerns regarding traffic mix on all classes of roadways, several solutions may be considered ranging from ensuring a full hierarchy of roadways in a given community to support these different needs through to route and speed management measures that help to support desired activity along different classes of roads.

## Vehicle Mix

Similar to traffic mix, the mixture of vehicles (trucks and passenger cars) also presents safety and quality of life issues along specific classes of roadways. In particular, the presence of a large proportion of trucks along the collector and local road system will influence safety primarily due to the presence of alternative modes such as cyclists and pedestrians. In most communities, the amount of pedestrian and cycling activity along the collector and local road system is higher than that of the major roadways. In most

cases, a significant volume of truck activity would not only conflict with these alternative modes, but create perceived and real safety issues.

In order to address concerns regarding vehicle mix on collector and local roadway classes, the City may need to either restrict truck activity along these roadways and / or consider designating more appropriate routes where the vehicle mixture does not present the same safety concern.

## ACCESS

In many communities, the type and degree of access control are directly related to the classification of individual roads. For those higher classified roadways – such as highways and arterial roads – direct access is typically prohibited or limited. Conversely, lower classified roads are typically designed for land access and circulation. Guidelines for access to adjacent properties are recognized as a safety issue for various classes of roadways. The relationships between the type and density of accesses for different classes of roadways are briefly described below.

### Type of Access

The access arrangement to individual land uses surrounding a given roadway will have a significant influence not only on the mobility along the road and functional characteristics, but on the overall safety of the roadway itself. In general, the traffic moving into and out of driveways travel more slowly than through traffic. This speed difference often produces conflicts that may lead to roadside and rear-end collisions between vehicles. The Transportation Association of Canada *Geometric Design Guide for Canadian Roads* presents comparisons of collision and fatality rates with varying degrees of access management along urban and rural roads (See Table 3.2 below).

**Table 3.2 –**
**Effects of Access on Collisions and Fatalities**
**in Urban & Rural Areas**

| | Urban | | Rural | |
|---|---|---|---|---|
| **Access Control** | **Total** | **Fatal** | **Total** | **Fatal** |
| **Full** | 1.12 | 0.01 | 0.91 | 0.02 |
| **Partial** | 2.98 | 0.03 | 1.27 | 0.04 |
| **None** | 3.16 | 0.02 | 2.0 | 0.05 |

*Source: Transportation Association of Canada, Geometric Design Guide for Canadian Roads, September 1999.*

These patterns indicate that the collision rates can be three and two times higher in urban and rural areas respectively along roadways with no access in comparison to those with full access. In order to support safety goals for the City, access restrictions along highway and arterial roadways are a recognized priority in the roadways classification system.

Generally, new roadways are not problematic, however for established roadways, access management may need to be implemented. An access strategy applied to a roadway classification system identifies where access to individual developments can be allowed, and where access should be discouraged, limited or prohibited. Additionally the strategy may be used to define the types of access that are suitable along various classes of roadways. Table 3.3 summarizes the different types of access controls for various classes of roadways identified by TAC.

**Table 3.3 –**
**Desired Property Access and**
**Roadway Classification**

| | Access Description |
|---|---|
| **URBAN** | |
| Freeway | No direct access |
| Expressway | No direct access preferable. Consideration may be given to a right-in / right-out access in conjunction with minor road access. |
| Major Arterial | Right-turn access only or<br>Right & Left-turn access in, with right-turn egress |
| Minor Arterial | Right turn and left-turn access in and out, with left-turn lanes |
| Collector | Right-turn and left-turn access in and out, with optional left-turn lanes |
| Local / Frontage Road | Right and left-turn access into and out, with spacing limited by safety requirements only |
| **RURAL** | |
| Freeway | No access preferable. One way access ramps to sites that are located at least 1.6km from interchange acceptable. |
| Expressway | No access preferable. Right-in / right-out access to sites that are located at least 800 m from intersection acceptable. |
| Arterials | Right turn and left-turn access in and out, with left-turn lanes to larger developments. |
| Collectors | Right-turn and left-turn access in and out, with optional left-turn lanes. |

*Source: Synthesized from Transportation Association of Canada, Geometric Design Guide for Canadian Roads, September 1999.*

These categories of access control are generally consistent with the goals for safety as well as other City of Kamloops goals such as mobility along the major roadway system in particular. In new and expanding areas of the City, guidelines on the type of access control such as referenced above may be implemented in combination with overall land use strategies. In built environments, a range of initiatives may be explored to address access issues including access management as well as speed management strategies.

## Access Density

Although there are no firm 'standards' for the spacing or the design of accesses, they often vary considerably from place to place. In some communities, guidelines have been established for urban and rural areas for the desired spacing and density of accesses for various classes of roadways. Other communities use the Transportation Association of Canada guidelines for urban and rural roads.

The spacing of driveways may be based on a combination of several factors including posted speed limits, the classification of the roadway system and the amount of traffic generated by a development. Most often, the spacing of accesses are influenced by the existing land use characteristics, local development objectives as well as other engineering conditions and needs. Recent research has indicated that there is a direct relationship between access density and safety along the roadway network. Table 3.4 summarizes the potential collision reduction through changes to access density as briefly highlighted below.

- A reduction of accesses from 50 to 40 per mile (80% decline) would result in an 8% to 17% reduction in collision potential.

- A doubling of access spacing from 10 to 20 driveways per mile would increase accident exposure by approximately 29%.

**Table 3.4 –**
**Comparison of**
**Changes to Access Density**
**with Collision Patterns**

| Access Density (unit / distance) Before / After | Collision Change from Study | Collision Changes from Research |
|---|---|---|
| 1.0 | 1.0 | 1.0 |
| 1.5 | 1.2 | 1.2 |
| 2.0 | 1.4 | 1.4 |
| 2.5 | 1.5 | 1.6 |
| 3.0 | 1.8 | 1.8 |
| 4.0 | 2.1 | 2.1 |
| 5.0 | 2.3 | 2.5 |
| 6.0 | 2.5 | 3.0 |
| 7.0 | 2.9 | 3.5 |

*Source: Levinson, H., Access Spacing & Accidents, Transportation Research Circular, Urban Street Symposium, June, 1999.*

The Transportation Association of Canada's *Geometric Design Guide for Canadian Roads* provides comparisons of collision rates for selected types of highways within urban and rural areas by number of business accesses (September 1999, Figure 1.1.3.3). Consistent with the above research, collision rates are significantly influenced by the density of accesses along a given roadway. In fact, the collision rates within an urban area increase by anywhere from 30% to 50% with a doubling in access density. In rural areas, collision rates also increase by similar proportions with increase access density.

Access density is considered a governing factor in the roadway classification system in order to proactively achieve goals for safety. The access density guidelines established for the roadway classification system may be used to shape land use and transportation decisions in new and expanding areas of the City. In the established areas however, inconsistencies in access density may be addressed through access management as well as speed management strategies.

## INTERSECTIONS

Insurance claims data provided in the City's Planet GIS system indicates that the majority of collisions on the roadway network in Kamloops occur at intersections. The roadway classification system for the City can be used to provide guidelines for planning and implementing the roadway network that support goals for safety. The primary intersection features that may be incorporated in the roadway classification guidelines to influence safety are briefly summarized as follows.

[INSERT PHOTO OF BUSY INTERSECTION IN KAMLOOPS]

### Intersecting Roadways

The classification of intersecting roadways along highway and major arterial facilities in particular can influence the mix of traffic – local versus through traffic – and ultimately the safety of the corridor. For most major roadways, intersecting streets are limited to other major and minor arterials. Although this is largely intended to maintain mobility along the major street system for through traffic, it also minimizes the conflict between local traffic wishing to turn on and off the major streets and non-local vehicle travel. In this regard, safety concerns arise when major roads connect with several local and collector roadways in the City.

[INSERT SHOW PHOTO OF INTERSECTIONS ALONG TCH EAST SUCH AS AT VICARS]

Although new roadways may be designed to support intersection guidelines consistent with the roadway class, mitigation measures may be considered along existing major roadways that reflect the scale of the problems at a given location.

### Minimum Intersection Spacing

Similar to the spacing or density of accesses, intersection spacing can significantly influence both mobility and safety along a given roadway class. For example, expressway facilities typically support an intersection spacing of greater than 800 metres in order to minimize turning movements and conflict points along a corridor. Conversely, local roadways may support a minimum intersection spacing of as little as 35 metres with intersecting roadways such as laneways. As part of the network classification guidelines, minimum intersection spacing guidelines are used to plan the network in Kamloops in order to maximize mobility and safety goals.

## ROAD FORM

The classification of different roadways in the City already influences decisions of the overall road form characteristics from the overall right-of-way that is reserved through to the number of travel lanes and presence of on-street parking. For example, highway and arterial roadway rights-of-way are typically over 25 metres wide and support four or more travel lanes, while local and collector roadways have less than 20 metres right-of-way and accommodate two travel lanes plus parking. In order to support safety goals, the roadway form must be compatible with the classified network in the City. Although the roadway classification system to be used in the City of Kamloops will identify several road form features, only the posted and design speeds of each roadway class have significant influence on road safety.

### Posted & Design Speed

The posted and design speeds are a critical factor in the horizontal and vertical geometry of a roadway in the City. The posted and design speed of individual roadway classes also influence the safety of the roadway network, particularly where the speeds exceed that which would be appropriate for the form and function of the roadway. In particular, highways are typically implemented with a posted speed above 70km/hr and design speed of at least 80 km/hr, while local and collector roadways are generally designed and posted at around 50 km/hr. Depending on the roadway class, the higher or lower design and posted speeds are intended to support the primary function of the roadway to serve local, distribution and through traffic. In the City of Kamloops, safety concerns arise when the design and posted speeds support travel that is higher than what is suitable for the roadway class and function. For example, a 70 km/hr design speed for local and collector roadways can encourage speeding along roadways with significant local travel as well as pedestrian and cycling activity.

Although the roadway classification guidelines may be used to design and construct new roadways, speed management strategies may be explored along established roadways in the City.

# 4.0 EXISTING SYSTEM & CHALLENGES FOR KAMLOOPS

This section of the Strategy examines the current network classification system in the City of Kamloops, and describes some of the primary challenges to defining and maintaining a classified network that will support municipal goals as well as proactively address safety as an explicit priority.

## 4.1 Kamloops Network Classification

The City of Kamloops network classification system has evolved over several years and is reflected within current guidelines for the design of roadways. The City's Engineering Design Manual outlines four classes of municipal roads as follows:

- ***Major Arterials*** are intended to carry large volumes of traffic moving at medium to high speeds, and serve the primary purpose of moving longer distance traffic efficiently. The average daily traffic along the major arterial street system is typically above 20,000 vehicles. Strict access control, from both private property and minor streets is required along major arterials.

- ***Minor Arterials*** are also intended to carry large volumes of traffic moving at medium speeds. The primary function of the road is to move traffic with trip lengths exceeding 1.5 km and with daily traffic ranging anywhere from 5,000 to 30,000 vehicles. Access will be regulated to minimize the impact on the arterial traffic, and prohibit access to single family developments.

- ***Collector Roads*** are intended to carry traffic between local and arterial roads. The collector road system supports both an access and through traffic functions, and accommodates volumes ranging from 1,000 to 12,000 vehicles per day, most trips of which are under 1.5 km.

- ***Local Roads*** are intended to provide land access to all abutting properties and are not expected to move large volumes of traffic. Trip lengths on local roads are generally less than 0.75 km.

The City's road design manual also identifies standards for cul-de-sacs and lanes which are generally less of a safety concern within the overall classification system. Within the design manual, there are specific design standards for each given class of roadway that influence the right-of-way and roadway width, design speed, roadway cross-section features, horizontal and vertical alignments, intersection/access curb radii and angles, as well as other sub-surface features.

Although the City's design manual identifies two classes of arterial roadways, the overall classification system recognized in current planning policies do not reflect separate classes. Figure 4.1 illustrates the current network classification system for the City of Kamloops. The guidelines for planning and managing these roadway classes are loosely contained in several documents such as the City's OCP as well as TravelSmart.

## 4.2 Current Challenges & Opportunities

As previously indicated, the roadway classification system in the City is generally incorporated in design documents, and only moderately recognized in other plans and policies that influence a broad range of decisions. For the most part, the roadway classification system is principally used to guide the design of specific classes of roadways. The following discussion highlights the challenges and opportunities facing the City based on the current classification system itself, as well as the guidelines that shape how specific roadway classes are planned, designed and managed to support safety as well as other municipal goals.

- ***The four roadway classes identified through most City policies are generally too broad to reflect desired guidelines needed to support safety and other municipal goals.*** As experienced in most communities, the arterial and collector roadway classes defined by the City typically encompass a broad range of conditions from road form to the interrelationships with the surrounding land uses. For example, Columbia Street, Victoria Street (downtown core) and Valleyview Drive are all classified as arterial roadways. Although the goals for these roadways are extremely different, the narrow range of roadway classes used in the City, do not allow them to be planned, designed and managed significantly different. A broader range of roadway classes would serve to better recognize current conditions in addition to achieving long-term goals in the City.

- ***The City needs clearly defined roadway classification guidelines in order to realistically achieve those long-term goals for safety, mobility, quality of life and other municipal interests as highlighted in Section 2.*** The roadway classification guidelines for the City of Kamloops should be designed to address those very features – land use, network, access, intersection and road form – that affect those goals as highlighted in Table 3.1.

- ***Roadway classification guidelines that recognize safety and other municipal goals are needed to proactively support municipal policies, plans and designs of roadways as well as land uses that surround them.*** These guidelines could be applied to a broader range of roadway classes and reflected in all new initiatives in the City that influence the roadway network.

- ***A broader range of roadway classes and corresponding guidelines that affect all planning, design and management activities impact both new and existing roadways in the City.*** An enhanced classification system and guidelines can be used in the planning, design and construction of all new roadways in the City once adopted. A more significant challenge however remains with the existing roadway network. The expanded roadway classes envisioned within the Strategy and assigned to individual corridors must fit the current role and function desired for a given roadway for the long-term. In other

words, the very reason for establishing the expanded classification system is to better match the existing roadways within the City. In many cases however, the existing roadways will not likely meet the desired guidelines for a given roadway class. While it is not necessary – or even desirable – to modify all roadways to meet the design guidelines, a range of strategies may be explored where there are certain inconsistencies if specific problems arise (negatively impacting safety or other municipal goals). Those roadway classification guidelines for Kamloops (see Section 5) that specifically influence safety along the existing roadways are considered in the Strategy along with the range of potential responses that the City may consider.

- ***Managing the classified network on an ongoing basis requires a decision-making framework that can enforce the very guidelines that define each roadway class.*** The City is faced with decisions that influence municipal and safety goals along all existing roadways on a routine basis. Roadway capital and rehabilitation initiatives generally result in the need to make decisions on roadway features that affect the overall function and class of a particular corridor. Further, land use decisions are frequently made along existing roadways that affect the desired character and function of the corridor. A broader range of roadway classes along with explicit guidelines that influence both safety and other municipal goals are needed to provide input to ongoing land use and transportation decisions in the City.

# 5.0 RECOMMENDED CLASSIFICATION SYSTEM & GUIDELINES

This section of the Strategy outlines the recommended roadway classes for the City of Kamloops, guidelines for each roadway class to achieve safety and other municipal goals and a preliminary classified network for the City.

## 5.1 Roadway Classes

The range of roadway classes for the City of Kamloops will need to reflect the many roles and functions expected of the network. Today, the highway, arterial, collector and local street classes recognized in most City policies do not sufficiently recognize these different needs or the conditions. Expanding the roadway classes as described below will serve to better suit the varied conditions within the City and will serve to achieve both safety and other municipal goals more effectively. The broad role and function of these different roadway classes are briefly highlighted below. The recommended roadway classes have been established based on discussions with City staff regarding the unique conditions in Kamloops and desired goals for different roadways.

**Freeway and Expressways** are both designed to accommodate high volumes of traffic moving at high speeds under free-flowing conditions. In urban and rural areas, Freeway and Expressway facilities can connect major areas of the City and serve longer-distance travel from outside the community. In view of the need to serve through traffic at higher speeds, mobility and safety goals generally restrict access to these roadways.

**Major Arterials** are planned and designed to carry large volumes of through traffic from one area of the City to another. These roadways are often longer, continuous corridors supporting long-distance travel at medium-to-high speeds between the collector and highway road system as well as major areas. Access to a major arterial impacts safety and mobility and is generally not permitted or is limited to major traffic generating land uses only. Support for transit, pedestrians and cyclists is provided through dedicated facilities as much as possible.

**Minor Arterials** are also designed and planned to support large volumes of through traffic unrelated to an area and serves a distribution function to get traffic to and from the collector and local road systems. Access to adjacent land uses will be limited and concentrated on several fixed locations which should be shared between properties wherever possible. Support for transit, pedestrians and cyclists are also provided through dedicated facilities as appropriate.

**Downtown Commercial Arterials** are intended to support large volumes of traffic within the commercial districts of the City that are primarily generated to the area itself. Consistent with the goals for a vibrant commercial district, these arterial roadways will support significant pedestrian, cyclist and transit activity and provide access for commercial vehicles. In this regard, vehicle speeds along commercial arterials are generally very low, allowing for access and circulation throughout the corridor, as well as integration of pedestrians and cyclists.

**Primary collectors** are intended to provide traffic service and land access service for a range of areas including commercial, residential and office uses. The traffic service function of this type of roadway is to carry moderate volumes of traffic between local roads and the arterial road system. Access to adjacent uses is important along primary collectors.

**Neighbourhood Collectors** are intended to provide traffic service and land access service primarily for smaller residential areas – where traffic volumes are generally lower and familiar with the community. The traffic service function of this type of roadway is to carry low volumes between local roads and the arterial road system. Access to adjacent residential uses is also essential along neighbourhood collectors. Pedestrian and cyclist activity will be moderately high along neighbourhood collector streets in which specific measures will be taken to manage vehicle conflicts.

**Local Roads** in urban and rural areas are intended to provide land access, particularly in residential areas. Therefore, local roads are designed to carry low volumes of traffic that originates or is destined to adjacent uses. It is anticipated that the local road system will support significant pedestrian and cyclist activity in which to manage conflicts with vehicle traffic.

**Industrial Roads** as suggested, are designed to support a moderate volume of traffic, largely consisting of commercial vehicles and other business traffic. Although some access restrictions may apply, the industrial roads typically link surrounding area properties with the arterial road system.

**Hillside Roads** are unique to Kamloops due to the topographic conditions of the City. Hillside roads are intended to support moderate-to-high traffic volumes between key hillside areas to other parts of the City. Depending on the length of the roadway and scale of development served by the area, Hillside Roads may be 2 or 4 lanes and some access restrictions may apply. Although walking and cycling may be modest in these areas, dedicated facilities are needed to support goals for safety and enhanced mobility.

## 5.2 Classification Guidelines

The classification guidelines are merely intended to support the primary role and function of the different roadway classes, and to provide definition on those land use, network, access, intersection and road form features suitable for each road class. In order to proactively support safety, mobility, quality of life and other municipal goals, these guidelines have been established based on a range of sources including existing City guidelines and policies, Transportation Association of Canada practices as well as those safety features as described in Section 3 of the Strategy. Table 5.1 summarizes the recommended roadway classification guidelines for the City of Kamloops.

## 5.3 Preliminary Classified Network

The preliminary classified network for the City of Kamloops is presented in Figure 5.1. The range of roadway classes and corresponding guidelines presented in Sections 5.1 and 5.2 respectively were used to develop the classified network for the City. As previously discussed, this classified network should not imply that existing roadways currently meet all the guidelines presented in Table 5.1. Rather, the intended function of the roadway and the general conditions today and in the long-term are best reflected through the designated roadway classes. For the purpose of this Strategy, inconsistencies between the guidelines assigned to each roadway class and existing conditions along each corridor may influence the recommended classified network. Alternatively, these inconsistencies may be addressed over time to proactively address safety and other municipal goals.

# 6.0 NETWORK ASSESSMENT

As previously discussed, the classification guidelines presented in Table 5.1 can be used to plan, design and manage new roadway facilities in the City. Although it is not anticipated that the existing roadways in the City will necessarily support all these guidelines, an assessment of those 'safety' related features are compared with the existing network. This assessment will not only identify the degree of the inconsistencies, but will serve to provide guidance on the need to respond to these differences in order to proactively address safety.

Using the City's Planet GIS software, this section of the Strategy compares existing conditions with those 'safety' related guidelines. This assessment is concentrated on the arterial and collector roadway classes of the City as illustrated in Figure 5.1.

## 6.1 Land Use Conditions

***Vulnerable pedestrian uses*** such as schools and seniors residences are the primary land use issue affecting the classified network. The roadway classifiication guidelines suggest that vulnerable pedestrian uses are discouraged along freeways, expressways and major arterial roads and provide conditional support along other arterial and primary collector roads.

Figures 6.1 and 6.2 illustrate the location of all vulnerable pedestrian uses contained in the database and those corridors in the City where vulnerable pedestrian uses are located within 200 metres of those major roadway facilities. In general, vulnerable pedestrian uses are located at nearby major roadway facilities in the downtown, Brocklehurst and Valleyview Drive areas. Only a few are located along major arterial roads – such as Columbia Street, Victoria Street West and Fortune Drive – where vulnerable pedestrian related uses are discouraged.

## 6.2 Network Conditions

Among those network features incorporated in the classification systems for Kamloops, typical daily traffic volumes, vehicle mix and traffic mix influence safety for different classes of roadways as briefly described below.

### Traffic Volumes

The safety of the roadway network is impacted where the traffic volumes along a given roadway class are inconsistent with the form and features of the specific class itself. In particular, where the traffic volumes are significantly higher than the typical design of a given class of road, the collision rate may be higher than the average condition. In this regard, desirable daily traffic volumes are established for each class of road.

Figure 6.3 and 6.4 illustrate the daily traffic volumes along each roadway in Kamloops and where the current conditions exceed the guidelines for the given roadway class. Figure 6.4 indicate that most inconsistencies exist along the primary and neighbourhood collector road system such as Dalhousie Drive and Lethbridge Avenue.

### Traffic Mix

The primary safety concerns arise when local and collector roadways support significant portions of through traffic, and when highway and arterial roads accommodate significant portions of local travel. In short, the differential in vehicle speeds and driver awareness can often increase the potential of collisions.

Figures 6.5 and 6.6 illustrate the proportion of through and local traffic along all major roadways in the City along with those locations where the proportions are sufficiently different from the guidelines. Travel patterns in the North Shore area indicate that Schubert Drive and other interconnecting roadways such as Richmond Avenue, York Avenue and Lethbridge Avenue support a larger proportion of non-local travel than desired for collector roadways. Other minor collectors such as Dalhousie Drive in the Southgate area, in addition to Comazzetto Road, Vicars Road and Oriole Road all carry through traffic greater than that anticipated for minor collector roads.

### Sidewalks

A lack of sidewalks along most arterial and collector roads presents a safety concern for this vulnerable road user group. The City's guidelines suggest that sidewalks should ideally be provided along both sides of these roadway classes.

Figures 6.7 and 6.8 illustrate the number of sidewalks along all arterial and collector roadways and those roadways where there are inconsistencies with the desired guidelines. These results indicate that there are sidewalk deficiencies within the downtown, Valleyview, portions of the North Shore areas and in particular the Sahali area.

## 6.3 Access Conditions

The type and density of access control are directly related to the classification of individual roads. For those higher classified roadways – such as highways and arterial roads – direct access is typically prohibited or limited. Conversely, lower level roadways are typically designed for land access and circulation. The following discussion compares access types and densities for certain roadway classes and identifies inconsistencies with the guidelines.

### Access Type

The access arrangement to individual land uses surrounding a given roadway will have a significant influence not only on the mobility along the road and functional

characteristics, but on the overall safety of the roadway itself. The guidelines outlined in Table 5.1 indicate that access to the major and minor arterial roads should be limited. Figure 6.9 summarizes the number of full accesses (including any left-turn out movements) along each major and minor arterial road segment where existing conditions do not meet the classification guidelines. These results indicate that the inconsistent road segments include portions of Tranquille Road, Fortune Drive, Victoria Street, Columbia Street, Summit Drive, McGill Road, Notre Dame and Hugh Allan Drive.

### Access Density

Access density along most major roadways in the City will influence safety. As such, the guidelines for the City of Kamloops outlines the desired access density (full accesses and other accesses with left-out movements per km) along various roadway classes ranging 0 to 5 access per km along major arterials up to 50 accesses per km along local roads.

Figures 6.10 and 6.11 illustrate the density of accesses along the arterial and collector road system in the City (except right-turn entry and exit accesses) and the inconsistencies with the desired guidelines respectively. These patterns indicate that several major roadways in the City exceed the desired guidelines for that of a new road. In addition to contributing toward the safety concerns, longer-term mobility particularly along those major and minor arterials are considered problematic.

## 6.4 Intersection Conditions

The intersection features incorporated in the roadway classification guidelines to influence safety are primarily attributed to the types of interconnecting roadways, spacing of intersections and the provision of auxiliary lanes at intersections of major roadways. This section examines intersection spacing conditions along the arterial and collector road system.

Intersection spacing can significantly influence both mobility and safety along a given roadway class. The minimum intersection spacing guidelines for the major and minor arterial system in Kamloops is 400 and 200 metres respectively and 60 m for collector roadways. Figure 6.12 illustrates the arterial and collector roadways where the spacing exceed the guidelines for the specific roadway class. These results indicate that the core area of the City Centre along sections of Columbia Street, Seymour Street and Lansdowne Street are inconsistent with the guidelines of an arterial roadway. Additionally, few roadways of mainly collector roads in the North Shore also support intersection spacing that exceeds the desired guidelines.

## 6.5 Road Form Conditions

Among the road form guidelines, posted and design speeds are also considered in terms of their suitability to support safety goals. As previously discussed, the posted and design speeds are a critical factor in the horizontal and vertical geometry of a roadway in the City. The posted and design speed of individual roadway classes also influences

the safety of the roadway network, particularly where the speeds exceed that which would be appropriate for the form and function of the roadway.

Figures 6.13 and 6.14 illustrate the posted speeds along each arterial and collector roadway in the City and an assessment of the locations that are inconsistent with the guidelines for the specific road class. Figure 6.14 indicates that there are no significant inconsistencies with the recommended roadway classification guidelines. Though, Princeton-Kamloops Highway is classified as a major arterial roadway, highway conditions dominate, therefore the speed inconsistency is not considered.

## 6.6 Overall Comparison

Figure 6.15 provides an overall comparison that shows combination of inconsistencies (specifically three or more) in land use, network, access, intersection and road form for arterial and collector roadways.

Prime inconsistent areas identified include portions of the North Shore, Dowtown, Southgate, and Sahali. Section 7 further explores the inconsistencies with respect to the safety guidelines for the different areas of the City.

# 7.0 ROADWAY CLASSIFICATION SUMMARY

This section of the Strategy provides a summary of the network conditions for each major area in the Kamloops, and provides further guidance to the City on the full implementation of the Network Classification Strategy.

## 7.1 Summary of Network Conditions

The network assessment described in Section 6 of the Strategy was concentrated on the individual corridors throughout the City and their inconsistency with those safety related guidelines for each given roadway class. Considering that the network is an interactive collection of roadways, this section provides an overview of these inconsistencies for different areas of the City as a means of examining the suitability of the classified network and recommends any changes.

Different areas of the City include:

- North Shore – a relatively flat-graded area east of the Kamloops airport that consists of mainly residential parcels, education facilities, parks and dispersed commercial service centres. Local roads make up most of the road system in this area.
- Downtown – the core of the City that encompasses the major business sector, and the City's main hospital. Downtown arterial roads form the road system in this area.
- Valleyview – east of the Downtown area, and just south of the TransCanada Highway, it is mostly a residential area with commercial services alongside TransCanada Highway. Hillside conditions exist on the southern edge of Valleyview.
- Southgate/UCC/Hillside – area located between the downtown area and Upper Sahali / Aberdeen area. It serves the University College of the Cariboo and a mixture of major shopping centres, hotels, restaurants and other commercial services.
- Upper Sahali/Aberdeen – just south of the Southgate/UCC/Hillside area, it is mainly a residential neighbourhood with hillside conditions and is fairly accessible to the TransCanada Highway.

Table 7.1 below summarizes the network conditions for the North Shore area of the City. These results indicate that the predominant issues on the North Shore are largely related to the mix of traffic on the primary and neighbourhood collector roadways and access conditions along both major and minor arterials. These access issues along the arterial roadways can only be addressed as part of a comprehesive strategy for the area, and will take several years to change in order to practively address safety concerns. Through traffic on the primary and neighbourhood collector system should primarily be addressed through speed management along the subject corridors and route management along the major roadways.

**Table 7.1 –**
**North Shore Area Network Problem**
**(Guidelines vs. Existing Conditions)**

| Safety Related Guidelines | Roadway Classes | | | | |
|---|---|---|---|---|---|
| | Major Arterial | Minor Arterial | Commercial Arterial | Primary Collector | Neighbourhood Collector |
| Vunerable Pedestrian Uses | | | | | |
| Traffic Volumes | | | | | |
| Traffic Mix | √ | | | √ | √ |
| Sidewalks | | | | | |
| Type of Access | √ | √ | | | |
| Density | √ | √ | | √ | |
| Intersection Spacing | | | | | |
| Speed | | | | | |

Table 7.2 below summarizes the network assessment results for the Downtown area of the City. These results indicate that the network issues facing the downtown area are largely concentrated on the major arterial system. In particular, attractive and safe pedestrian facilities are needed along and across the arterial system within this area. Further, the access type and density as well as the intersection spacing is incompatible with that of major arterial roads. While consideration may be given toward re-classifying the network, it may be more appropriate to address any safety issues through speed management as well as special provisions to respond to conflicts with pedestrians and other vulnerable user groups along these corridors.

**Table 7.2 –**
**Downtown Area Network Problem**
**(Guidelines vs. Existing Conditions)**

| Safety Related Guidelines | Roadway Classes | | | | |
|---|---|---|---|---|---|
| | Major Arterial | Minor Arterial | Commercial Arterial | Primary Collector | Neighbourhood Collector |
| Vunerable Pedestrian Uses | √ | | | √ | |
| Traffic Volumes | | | | | |
| Traffic Mix | | | | | √ |
| Sidewalks | √ | | | √ | |
| Type of Access | √ | | | | |
| Density | √ | | | | |
| Intersection Spacing | √ | | | | |
| Speed | | | | | |

Table 7.3 below summarizes the network for the Valleyview area of the City. These results suggest that the network issues in the Valleyview area are primarily concentrated along the primary collectors and some neighbourhood collectors. Special provisions are needed along the primary collector system – namely Valleyview Drive – to support the needs of pedestrians and vulnerable pedestrian uses [include PHOTOS] as with the recent implementation for much of the corridor and further speed management may be necessary to manage access density issues. The north-south neighbourhood collectors between Valleyview Drive and the Highway will require route and speed management measures to discourage short-cutting and concentrate most traffic along the TransCanada Highway.

**Table 7.3 –**
**Valleyview Area Network Problem**
**(Guidelines vs. Existing Conditions)**

| Safety Related Guidelines | Roadway Classes | | | | |
|---|---|---|---|---|---|
| | Major Arterial | Minor Arterial | Commercial Arterial | Primary Collector | Neighbourhood Collector |
| Vunerable Pedestrian Uses | | | | √ | |
| Traffic Volumes | | | | | |
| Traffic Mix | | | | | √ |
| Sidewalks | | | | √ | |
| Type of Access | | √ | | | |
| Density | | | | √ | |
| Intersection Spacing | | | | | |
| Speed | | | | | |

Table 7.4 below summarizes the network related issues for the Southgate/UCC/Hillside Drive area of the City. These results indicate that inconsistencies are primarily concentrated on the major and minor arterial system, with some guidelines not being achieved along a single neighbourhood collector – namely Dalhousie Drive. In the long-term, it is anticipated that Dalhousie will serve a larger proportion of through traffic with the completion of the Hillside Drive, but may still be re-classified and managed as a Primary Collector Roadway serving slightly higher traffic volumes. Futher measures are needed along the major and minor arterial road system in the area, particularly in relation to access management to preserve safety and long-term mobility.

**Table 7.4 –**
**Southgate / UCC / Hillside Drive Area Network Problem**
**(Guidelines vs. Existing Conditions)**

| Safety Related Guidelines | Roadway Classes | | | | |
|---|---|---|---|---|---|
| | Major Arterial | Minor Arterial | Commercial Arterial | Primary Collector | Neighbourhood Collector |
| Vunerable Pedestrian Uses | √ | | | | |
| Traffic Volumes | | | | | √ |
| Traffic Mix | | | | | √ |
| Sidewalks | √ | √ | | | |
| Type of Access | √ | √ | | | |
| Density | √ | √ | | | |
| Intersection Spacing | | | | | |
| Speed | | | | | |

Table 7.5 below summarizes the network related issues for the Upper Sahali / Aberdeen area. Overall, the network inconsistencies are generally concentrated on the major arterials in terms of traffic mix and types of access and along the primary collectors in terms of vulnerable pedestrian uses, sidewalks and access density. Consideration may be given toward re-classifying those major arterial roadways such as Aberdeen Drive and Pacific Way as either minor arterials or Hillside Roadways to better reflect their local serving roles and function. Further, the primary collectors of Springhill Drive, Gleneagles Drive, Robson Drive, Van Horne Drive and Laurier Drive may also be re-classified as neighbourhood collectors to reflect their local serving role. Other implementation initiatives may also be required to support these road class changes.

**Table 7.5 –**
**Upper Sahali / Aberdeen Area Network Problem**
**(Guidelines vs. Existing Conditions)**

| Safety Related Compared | Roadway Classes | | | | |
|---|---|---|---|---|---|
| | Major Arterial | Minor Arterial | Commercial Arterial | Primary Collector | Neighbourhood Collector |
| Vunerable Pedestrian Uses | | | | √ | |
| Traffic Volumes | | | | | |
| Traffic Mix | √ | | | | |
| Sidewalks | √ | √ | | √ | |
| Type of Access | √ | √ | | | |
| Density | | √ | | √ | |
| Intersection Spacing | | | | | |
| Speed | | | | | |

The recommended classified network is developed in response to the assessment of existing conditions along the primary roadways in the City and is illustrated in Figure 7.1.

## 7.2 Proactively Addressing Safety

The Roadway Classification Strategy provides a comprehensive approach to proactively achieve safety and other municipal goals in Kamloops through a broader range of roadway classes, guidelines that support each class and a recommended classified network for all City streets.

It is not anticipated that the Classification Strategy can be implemented immediately. In fact, it may take several years before the recommendations of the Strategy are reflected in policies, plans and procedures to be effective. Once the recommeded classification system and guidelines as well as the classified network in the Strategy are fully supported in principle by the City, steps may be taken to incorporate them in policies and plans that influence transportation and land use. For example, future updates to the City's Official Community Plan (OCP) and transportation plan provide the forum for introducing a classification system. It must be recognized that the primary reason for these changes and the new approach is not only to better reflect the range of roadways conditions in the City today, but to achieve the goals for safety, mobility, quality of life and other City-wide interests. Other policies and bylaws may also be modified to incorporate the expanded guidelines for each roadway class which explicitly define the desired approach to designing, constructing and managing each roadway class.

Once there is broader acceptance and understanding of the updated classification system in Kamloops, the City will want to use these guidelines for the planning and design of all new roadways. Further, the City will also want to establish procedures to manage the classified network and to address those inconsistencies described in Section 5 of the Strategy. In these circumstances, responses to those differences between the guidelines and existing conditions may or may not require immediate action. These actions may include:

- ***Network Change*** – Address the inconsistency through changes to the condition where inconsistencies exist between the guidelines and existing roadway.
- ***Speed management*** – Reduce traffic speeds on less safe travelled roadways to decrease or prevent accidents.
- ***Route management*** – Modify route choice to enhance mobility on certain routes and discourage usage of less desirable routes (via signage or physical barriers).

In general terms, the timing for the implementation of the following responses may vary.

1. Address inconsistency as part of an upcoming or planned development project;

2. Actively monitor conditions along the roadway and plan to address inconsistencies in the next five years for significant problem areas. Speed or route management may be needed as an interim condition to proactively address safety;
3. Actively monitor conditions along the roadway and plan to address inconsistencies in the next ten years for moderate problem areas. Speed or route management may be needed as an interim condition to proactively address safety; and
4. Actively monitor conditions along the roadway and live with conditions as it may not be too serious or feasible to change. In these circumstances, speed or route management may be part of the long term solution.

The responses and implementation strategy along the existing roadway network may be determined once the City adopts policies and procedures that reflect the expanded classified system, guidelines and network for Kamloops.