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## 4. TRANSPORTATION DEMAND MANAGEMENT

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### 4.1 TDM OVERVIEW

The Transportation Demand Management (TDM) measures identified in this study are more applicable in Guelph than other parts of the study area. However, TDM will become more relevant outside Guelph as areas in the County continue to grow. At the same time, TDM measures implemented in Guelph will benefit not only Guelph but also the County and the Provincial road systems. The TDM measures applicable to Guelph are described in this section under the following headings:

- Land Use and Urban Design Practices
- Ridesharing
- Cycling and Walking
- Alternative Measures for Reducing Auto Use
- TDM Program

### 4.2 LAND USE AND URBAN DESIGN PRACTICES

#### *4.2.1 Land Use and Transportation*

There are a wide range of approaches and strategies which a municipality can implement and promote to minimize the number of automobile trips, and in particular single occupancy vehicle trips, in the community. This section outlines a number of land use concepts which may be applicable to development in the City of Guelph (and to a lesser extent the County of Wellington), and which can influence transportation behaviour and the choice of alternative modes of travel such as transit, walking, cycling and ridesharing.

The arrangement of land uses and the urban form of the community are the ***most important and effective long-term influences*** on how people move throughout the community. The way in which land is used generates trips which in turn lead to the need for construction of transportation facilities. These transportation facilities provide accessibility which in turn influences land value and affects the use of land. Land uses directly influence transportation systems, and in turn, transportation systems directly influence land uses adjacent to the transportation facilities.

Many communities are putting greater emphasis on the relationships between land use and urban form and their transportation system, particularly in relation to supporting increased walking, cycling and public transit use. Contemporary community planning promotes mixing of land uses, concentration of activities in nodes and corridors and an emphasis on the “3 Ds” (density, diversity and design) in those areas where public transit is provided. The objective is to create highly pedestrian- and bicycle-friendly urban environments which also support the provision of public transit. An urban form based on a series of nodes and corridors provides an ideal setting for an

efficient transit system and continued investment in transit operations. In this manner, activities are concentrated in certain locations, thereby reducing the need to travel by car given the other choices available (walking, cycling and transit). This urban form also maximizes the number of people living and working in close proximity to transit and provides the support base for higher frequency operations.

The City of Guelph Official Plan contains a series of goals and objectives which promote compact urban form, mixed use development, intensification and increased residential densities, and service by all forms of transportation. There is also a goal to increase the transit modal share to 10% of all trips. As discussed in this section, there are some specific urban form and planning policy changes which the municipality should consider in order to strengthen and more effectively implement the objectives of the Official Plan. The strategies are all related and supportive of each other.

### *4.2.2 Urban Form*

An urban form that is supportive of transportation alternatives to the auto would consist of system of nodes and corridors which provide for concentration of activities and mix of land uses in proximity to each other, thereby minimizing the need to use automobiles for many trips. Nodes are locations for a diverse concentration of activities at higher densities while corridors are areas between nodes along transit routes where higher densities and a mix of uses are also found. The nodes provide catchment areas for transit service and the intersection of transit corridors.

Development in nodes and corridors should orient activity towards the street to create very walkable environments.

#### Current Situation

The Downtown, Stone Road Mall area and the University of Guelph are nodes consisting of dense and varied uses and are currently the locations where the highest transit, walking and cycling uses are found. These are the primary nodes of the City. The community shopping areas and recreation centres are secondary nodes.

Major corridors with transit potential include Gordon/Woolwich and Stone Road. Other arterial roads are secondary corridors.

The general objectives of the Official Plan support the development and strengthening of the concept of nodes, mix of use and compact form. As well, the Transportation Strategy Update contains a vision statement emphasizing high density multi-use nodes and medium density mixed-use development along the connecting corridors.

There is not a series of defined nodes and corridors based on transit in the Guelph Official Plan. Policies for shopping centres, the University and the Stone Road Mall area, for example, can be strengthened to promote intensification and a broader mix of use in these nodes. The corridors should be the roads with potential to contain the highest frequency transit routes, and they may not necessarily be the roads carrying the highest traffic volumes.

### Practicality/Appropriate for Guelph

Guelph has logical areas which could intensify as nodes of activity and arterial roads which could serve as corridors connecting the nodes. The mid-sized shopping centres could be more dense and diverse nodes in the long term.

Changes to urban form and density take time to achieve. There will be limited change in the short term and that is a disadvantage of this approach. Economic incentives may be considered to stimulate development while public policy can address some barriers.

### How do we Implement?

In order to implement changes to urban form the City should specifically identify nodes and connecting transit corridors, such as the example in Figure 4.1. The identified nodes and corridors should be integrated with the City's transit route network. A policy framework can be developed to promote this form.

The City should also consider shopping centre policies to accommodate high/medium density residential permissions along with a full range of other appropriate uses. Medium density mixed-use policies can be prepared for application along the corridors. The nodes and corridors form and uses could be facilitated through proactive zoning changes rather than waiting for individual proposals.

The City's design guidelines for new development generally support buildings being located closer to the street at transit stops and place parking at the side and rear of buildings to support pedestrian movement along the street. Policy and zoning in the nodes and corridors could provide incentives for this type of development and minimize regulations. Each node and corridor should have an implementation plan to address density, uses, design and implementation.

Recognizing that a municipality's Official Plan policies regarding urban form are not always consistent with short-term market pressures for development in specific locations, the City should work with the development industry to facilitate urban form and intensification objectives at the nodes.

### *4.2.3 Density*

By increasing the density of residential and employment land uses, they can be located closer to one another, thereby encouraging walk/cycle trips between them. Increased residential densities provide a larger market, which will help sustain nearby business establishments without relying as much on access by car. Future development and intensification in Guelph/Wellington will create more walking and cycling.

Density and transit usage are found to be positively correlated in many situations. Increasing density of uses along established transit corridors will facilitate greater usage, while transit planning should pay attention to providing appropriate service coverage in areas with higher than normal density of uses. As a minimum, a density of 8 units/acre is recommended for residential areas to support local transit service.

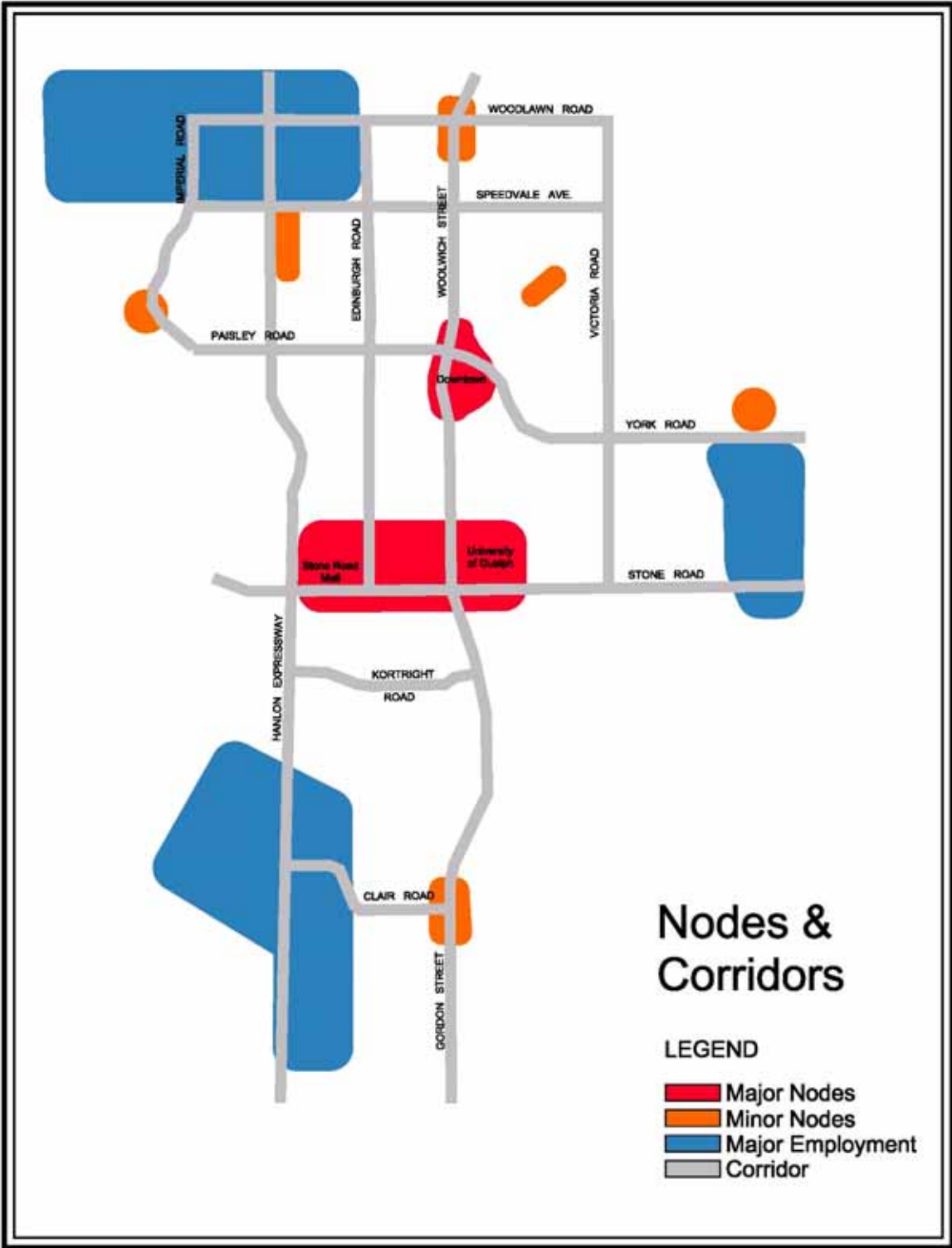


FIGURE 4.1: PROPOSED NODES AND TRANSIT CORRIDORS

Higher density provides a larger market to help support nearby businesses in nodes and corridors, thereby minimizing auto trips to access services. Higher density and a mix of uses are also known to significantly increase the number of walk trips. It provides other benefits such as reduced land consumption, energy use and air pollution.

### Current Situation

Guelph is primarily a low density community with some scattered pockets of high density development outside of the Downtown. Infill projects and higher density development are not always attractive to surrounding neighbourhoods.

### Practicality/Appropriate for Guelph

There are opportunities in Guelph to accommodate higher densities, both through greenfield development and the intensification of already urbanized areas. Guelph's OP policies support intensification subject to certain criteria. Changing demographics and household size also support increased levels of multiple unit development.

Market forces are still strongest for lower density housing forms. Detached residential units are very affordable for many Guelph homebuyers. There are negative perceptions of what an increase in density really means in terms of built form (i.e. need to clarify that higher density does not necessarily mean high rise apartments).

Community acceptance and political commitment to intensification are essential for this strategy to succeed. Educating the public on the benefits of intensification and gaining their support for infilling is also important.

### How do we Implement?

In conjunction with the previous discussion on nodes and corridors, the City of Guelph should identify appropriate areas where higher residential densities should be permitted and consider proactive OP and zoning changes to permit higher densities as of right in these areas. Key sites in nodes and corridors should also have minimum densities in addition to maximums in order to achieve desired results. Guidelines and zoning criteria should be prepared to ensure that medium and high density development next to neighbouring low rise areas is sensitively designed and sited to promote compatibility.

The strategy to promote intensification and re-urbanization needs firm political commitment and public acceptance. Strategies to educate and promote intensification may be necessary.

#### *4.2.4 Mix of Uses*

Locating a mix of residential, commercial, recreational, institutional and employment land uses in close proximity to each other directly connected by footpaths, sidewalks and bicycle routes reduces the need to drive for many trips. Travel distances are reduced, thereby increasing the probability that trips will be made by walking or cycling rather than by auto. Locating residential and commercial

developments close to the street with parking in behind also creates a more interesting, pedestrian-oriented environment which encourages walking and cycling. This will reduce the need for auto trips for work, school, shopping, recreation and personal business. An additional benefit is that both daytime and nighttime activity is created, promoting safer streets and neighbourhoods.

Mixed use development can be vertically integrated in a building, extended along a corridor, or included in a node. As Guelph matures, opportunities for vertically mixed buildings should increase.

### Current Situation

The Downtown is the most diverse area in the City of Guelph in terms of land use. Other areas such as the Stone Road Mall area and the University of Guelph are also diverse but have lower densities. These areas generate a high frequency of walking, cycling and transit trips which support the notion that mixed use and higher densities encourage these modes of travel.

The Official Plan has mixed use designations but they have specific applications and are not used extensively. There is limited application of Mixed Office-Residential, Commercial Mixed Use and Mixed Industrial-Residential designations across the City.

### Practicality/Appropriate for Guelph

Many areas of the city could support a mix of uses, particularly the nodes and corridors and sites along the major roads. Opportunities include intensifying shopping centres by adding residential or office buildings to the site and providing for a variety of different land uses along transit routes/arterial roads at medium and high densities, depending on the location.

The primary barriers to promoting mixed use development in Guelph include the current policies' limitations, economic factors and specialization of the development industry, including difficulties in obtaining financing for mixed use projects.

There is a need to influence a change in the prevailing mindset of the development industry and the financial institutions to consider the notion of mixed uses.

### How do we Implement?

Firstly, it is necessary to identify appropriate locations for mixed use development, in conjunction with the nodes and corridors review. The Official Plan can be amended to create new mixed use policies and integrate them with nodes and corridors. This would lead to implementation of new zoning in these areas, including design guidelines to ensure that development supports all modes of transportation and is appropriately scaled to its neighbourhood.

#### *4.2.5 Neighbourhood Design*

Urban design can provide and promote a comfortable pedestrian environment which encourages people to walk, cycle or take public transit. There are also growing public health concerns being identified which appear to be related to community design. People are driving for almost all trips in

many communities, particularly newer neighbourhoods where uses are segregated and neighbourhood design does not promote alternative modes of travel. Rates of obesity, asthma, and poor air quality are all growing and are high, in particular, in newer greenfield communities.

Good neighbourhood design, especially the street network, is important to avoid future problems (such as speeding and shortcutting) which require retrofit actions.

### Current Situation

The City of Guelph has had mixed results in terms of walkability/transit supportive neighbourhood design. Generally there is car-oriented design in newer communities and more pedestrian-oriented design in older communities. The City has general Urban Design Guidelines and specific guidelines for the Stone Road Mall Area and South Guelph District Centre. The wide “over-designed” road networks in some communities lack the enclosure and quality of the public realm necessary for pedestrian-oriented streets. There are no guidelines to encourage good design of new communities to promote walking, cycling and transit use.

### Practicality/Appropriate for Guelph

The City of Guelph can implement this strategy through the subdivision and site plan process using design guidelines. However, there is a need to educate and promote the City’s approach with the development industry. There may be some increased private and public cost to develop better streets and neighbourhoods.

### How do we Implement?

In order to implement more pedestrian, cycling and transit friendly urban design, a series of actions are recommended. Community Plans should be prepared for new communities to identify the road network and the neighbourhood design principles. Grid-oriented street systems should be promoted to obtain a high level of connectivity and minimize off-road walkway connections. Street right-of-ways should be narrow and provide on-street parking opportunities in appropriate locations. Buildings should be oriented to the street (physical location and activity) and with extensive streetscaping to provide a good public realm which supports walking and transit.

In addition, City public works and street improvements should have a high quality of design, similar to that undertaken in the South Gordon node and as proposed in the Gordon/Norfolk EA study.

## **4.3 RIDESHARING**

### *4.3.1 Car Pooling*

Car pooling increases the average number of persons per vehicle during the peak hours and thereby reduces the number of vehicles using the road network while transporting the same number of people. This involves a small investment for large return (1 carpool trip every 10 working days means 10% less traffic). This can be achieved through the use of employer vanpools and employee

carpools and provision of park and ride facilities. In Guelph and Wellington, where multiple car ownership in households is increasing, promoting home-based ride-sharing will contribute to reduced auto use and less traffic on roads.

Carpools or vanpools can be introduced as area wide programs sponsored by public/private agencies, informal arrangements, formed by a group of individuals acting on their own, or they can be formal, formed deliberately by a public agencies or an employer. The driver and the automobile can be alternated to adjust expenses and the participants are able to reduce the cost of driving alone. Ridesharing inherently recognizes the convenience of the automobile in the absence of alternatives to reduce auto travel.

### Current Situation

The current average PM peak hour auto occupancy is 1.26 persons per vehicle and appears to be on a decreasing trend as shown in Figure 3.3. The low rate of auto-occupancy indicates that most auto trips involve single-occupancy vehicles (SOVs) rather than carpooling.

### Practicality/Appropriate for Guelph

Carpooling in Guelph could be promoted at the community level by encouraging households to minimize the use of separate cars for normal household travel purposes. Long-distance commuters, such as Guelph residents who work outside of Guelph and Wellington residents who work in Guelph, should be encouraged to carpool for their home-work trips.

Carpooling could also be promoted at the employer level by encouraging employees to carpool to work. Limiting parking facilities or giving preferential parking to carpooling employees is a common form of incentive offered by employers. In Guelph, the major employers should be encouraged to provide carpooling incentives to their employees.

### Barriers

Among the barriers to carpooling are:

- Trip chaining (multiple destinations) behaviour makes carpooling more difficult.
- Work schedules are demanding and variable.
- Employee carpooling will be practical only at workplaces with reasonably large workforces.

### How do we Implement?

Educational and promotional measures will be required to promote carpooling at the community level and in workplaces. Examples of carpooling incentives include:

- Preferential spaces in City-owned lots to car pooling vehicles.
- Discounts for carpools (i.e. 50% parking reduction for 2, 100% for 3).
- A reduction or end to free parking at major employers.
- Home-based ride sharing as a community initiative.

### 4.3.2 Parking Supply Management

Preferential parking, reduced parking fees or free parking are incentives which have been used to encourage carpooling, particularly for long stay employee parking. Employers who promote carpooling provide parking for rideshares close to buildings or in designated stalls. A more effective approach to encourage ridesharing is to require employees who drive alone to pay higher rates for parking. Limiting the number of long stay stalls that an employer or developer can provide is also effective in promoting carpooling.

Parking supply management includes managing the supply of parking to ensure that parking is not over-supplied and priced appropriately. It includes discouraging or limiting the use of long-term “storage” parking and recognition that surface parking lots are an inefficient use of land in Downtown. The over-supply of parking encourages SOV travel. As redevelopment occurs in Downtown without increased management of parking the City will be required to invest in structured parking @ \$25,000 per stall. Experience elsewhere indicates that it is difficult to recover the money invested in construction and maintenance of a parking structure.

#### Current Situation

Currently, there is pay parking in Downtown Guelph with the City controlling a significant share of the available lots. There is pay parking in place at the University of Guelph, but most major employers offer free parking to their employees.

#### Practicality/Appropriate for Guelph

Parking in Downtown Guelph is already not free, so there is little opportunity to affect change in that area beyond parking rate increases. Considering the City as a whole, however, opportunities may present themselves as the City continues to mature and land becomes more valuable.

#### Barriers

It may be difficult to change the status quo of free parking offered by major employers, particularly outside of Downtown Guelph where land is available and relatively inexpensive. There are concerns that limiting parking supply or forcing employers to pay high charges for parking may discourage growth and economic development. Parking rates must also be carefully set, because rates that are too high may cause parking spill over into adjacent residential areas.

In the Downtown area, demand for core redevelopment is currently limited, which means that surface parking is a viable business. Reducing the availability of short term parking may cause difficulties for established small businesses in the area.

#### How do we Implement?

A parking supply management program must start with a critical review of parking needs and available supply. After this review, parking supply management would have two separate components, one for Downtown Guelph parking and one for parking outside of the Downtown.

One possibility for managing Downtown parking supply is to increase parking rates until usage drops to a sustainable level. Some spaces could be converted to preferential carpool parking or to bicycle storage. Ideally, such spaces would be close to high activity areas such as large buildings or transit stops.

Outside of the Downtown area, the parking supply management plan could be developed in conjunction with the nodes and corridors concept shown in Figure 4.1. Since the nodes and corridors are intended to support transit routes, the Zoning By-law for these locations could be amended by removing the minimum parking requirement and perhaps by setting a maximum parking standard. This could also allow the nodes and corridors to achieve higher density, since more land might become available for development.

### *4.3.3 Guaranteed Ride Home*

Guaranteed Ride Home (GRH) measures are often included as part of a ridesharing program and provide employees a free or reduced cost ride home in the event of occasional inability to utilize the car or vanpool due to illness, an emergency or working late. The GRH can be provided by a backup vehicle, subsidized taxi ride home, use of a company car or subsidized public transit. It has been found that the cost to employers who provide this is very small as it is used infrequently. However, it is effective in encouraging participation in ridesharing.

A guaranteed ride home is part of the supporting strategy for carpoolers as well as cyclists and transit users. The program knocks down the barrier/perception of being “trapped” or “missing my ride” if emergencies arise.

#### Current Situation

There is no known GRH program in Guelph.

#### Practicality/Appropriate for Guelph

A GRH program cannot operate in the absence of other programs such as carpooling, so this would have to be offered in coordination with other services. Employers could offer the service directly or in conjunction with local taxi companies.

#### Barriers

As noted above, Guaranteed Ride Home programs cannot function in the absence of carpools, improved transit, and so on. This would only be one aspect of a coordinated approach.

#### How do we Implement?

A GRH program could be implemented in a pilot project with the City, University of Guelph or some other major employer as part of a coordinated carpool initiative. Education and promotion of the program could be performed together with the Chamber of Commerce, Economic Development Department and other business groups.

### 4.3.4 HOV Lanes

This is a travel lane especially dedicated to vehicles with more than one person. It is used to encourage ridesharing by providing preferential treatment and shorter travel time for carpools, vanpools and buses in congested areas.

#### Why?

HOV lanes help enhance more efficient use of roadway infrastructure. Since roadway capacity is determined by the number of vehicles in a certain area, having more passengers in each vehicle helps increase the number of people served by the roadway without requiring additional construction. Also, HOV lanes can be used to create priority for transit vehicles.

#### Current Situation

There are currently no HOV lanes in Guelph or Wellington County.

#### Practicality/Appropriate for Guelph

The current narrow right-of-way of many Guelph roadways means that HOV lanes cannot be introduced without eliminating vehicle or parking lanes. Since HOV lanes are typically considered only when examining the widening of roadways to 6 lanes, there are few locations where they would be practical. The Hanlon Expressway is one location where they might be introduced. Transit Queue Bypass Lanes, which are discussed further in section 5.3.4, are another related option that could be added at key locations.

#### Barriers

There are limited corridor opportunities for 6 lane roadways. Woodlawn Road and Watson Road are possibilities, but these roads are on the periphery and currently serve only limited amounts of traffic in many locations.

#### How do we Implement?

HOV lanes could be considered as an option for evaluation in EA studies for roadway improvements that may involve a six-lane cross section. The City may wish to consider a policy whereby roads cannot be widened from 4 to 6 lanes unless HOV lanes are provided.

### 4.3.5 Ridesharing Education/Promotion

In order to initiate ridesharing programs and to ensure that they continue to be effective, education and encouragement programs are necessary. Public sector and private employers must provide staffing to maintain and enhance the programs. The initiative requires continuous and ongoing programs and time commitment by public and private agencies to constantly promote and manage programs. Social marketing is an important aspect of the education component. Many individuals are unaware of the potential benefits of ridesharing. Others have tried it once and perhaps had a bad

experience and never reconsidered it. Still others would like to but finding a partner is difficult. It is important to reconnect with those people.

### Current Situation

There is no known ridesharing education and promotion plan in Guelph/Wellington.

### Practicality/Appropriate for Guelph

An education and promotion program should be included as part of a comprehensive TDM strategy.

### Barriers?

Education programs require continuous and ongoing time commitment by public and private agencies to promote and manage them.

### How do we Implement?

These programs actively promote ridesharing and other TDM measures. The program would ensure that municipal publications on conservation and recycling include transportation information such as public transit and carpooling. Carpooling can be assisted through active relationships with [www.carpool.ca](http://www.carpool.ca), such as already exists at the University of Guelph, and [www.carpooltool.com](http://www.carpooltool.com), two Canadian carpooling resources.

## **4.4 CYCLING AND WALKING**

### *4.4.1 Cycling Routes and Facilities*

Providing direct connections to major points of attraction through the construction of a network of bicycle lanes and paths which provide safe and convenient access to major origin/destination points (such as transit stations or bus stops places of employment, shopping, institutions, recreation centres) has been planned by the City of Guelph. Also, providing showers and secure and preferential bicycle parking at places of employment will encourage cycling. The lack of linkages and facilities and the resulting safety issues associated with cycling on or adjacent to major roadways are significant barriers to walking and cycling.

Improved opportunities for cycling as an alternative transportation choice through both on road and off road routes provides an alternative non-polluting means of travel, promotes a healthy lifestyle and can be part of a longer trip (i.e. cycle to transit stop).

### Current Situation

About 1.5% of all trips made in Guelph are on bicycles. There are some trail and cycling lanes in place across the City, but there is currently a lack of overall connectivity between areas. The new Trail Master Plan establishes suggested cycling routes and proposes locations for the creation of new

cycling lanes. On-street bike lanes identified in the 1994 GATS are implemented as part of roadway improvements.

### Practicality/Appropriate for Guelph

There are opportunities to implement an improved cycling network with better route connectivity. Guelph has a culture supportive of cycling, with a young population, heavy use in the University area and active cycling clubs.

### Barriers

Inclement weather and the winter climate limit cycling as an option for many people. A general lack of facilities at employment locations (i.e. secure parking/storage, showers) is also a problem.

Commuter cyclists must be in good physical condition and be comfortable riding in traffic. There are currently gaps in cycling lanes on major roads. The provision of on-road bicycle facilities may require road widening or fewer lanes for buses and cars, and may reduce the ability to provide on-street parking. Driver attitudes and awareness of cyclists also need improvement.

### How do we Implement?

Implementing the proposed Trails Master Plan will provide a comprehensive cycling network for the City. The site planning process should encourage the provision of secure bicycle storage and locker/shower facilities where possible. Bicycle parking space criteria can also be added to design guidelines, and some spaces in parking structures can be converted to bicycle parking spaces.

The cycling network also needs to be improved. Route and network connectivity (i.e. through a grid system) should be improved in all new communities. The City should continue to improve on-street cycling facilities as part of road reconstruction. Mixed use urban form, higher densities and infill projects will all contribute to shortening trip distances, and cycling routes should be better integrated with transit routes and building locations.

#### *4.4.2 Pedestrian Trails and Walkways*

The provision of sidewalks on all streets, smaller intersections, increased protection and right-of-way priority at crosswalks and intersections, a more attractive streetscape, adequate lighting for security and where possible protection from inclement weather are important measures to promote increased walking. Walking is a low cost transportation alternative and is non-polluting in nature. It promotes a healthy lifestyle, is a key part of the transit trip at both ends and requires a pedestrian-supportive urban environment.

### Current Situation

Currently, about 8% of all trips in Guelph are made on foot. These numbers are highly variable dependent on distance and purpose: there are many walking trips made in the Guelph Downtown and University of Guelph area, and many walking trips are from home to school. On the other hand,

some of the newer communities are not as supportive of walking as they could be, and the number of trips declines significantly with distance.

### Practicality/Appropriate for Guelph

Walking in Guelph is currently a popular recreational activity. If this aspect can be connected with other health and environmental benefits, it will likely become more attractive for other short trips.

A long term method of making walking a more feasible travel mode is to encourage changes in urban form towards more mixed use development, which will decrease the average trip distance.

### Barriers

There is currently a lack of compact, mixed use urban form at the periphery of the City. Many new developments are also planned as largely single use, which increases the average trip distance and discourages walking. Weather conditions and unfavourable winter climate for walking are also barriers which are largely impossible to mitigate.

Improvements to walking infrastructure, such as wider sidewalks and improved crosswalks, often compete with the efficient movement of vehicles. Widening sidewalks often requires wider right-of-ways or narrower on-street parking and vehicle travel lanes.

### How do we Implement?

Improvements to existing sidewalks and walking trails can include better physical infrastructure, but can also include improved maintenance. Existing sidewalks and trails should be improved, with pedestrian-oriented streetscapes through the use of street trees, seating areas and street-oriented building design. Better connectivity and shorter walking distances can be created through mixed use urban form, higher densities and infill development.

New communities can be made more accessible on foot by improving the street connectivity and walking network, such as through the use of a grid system. The relationship of the transit network to the walking network can also be improved through a better integration of transit routes and stops to building locations.

#### *4.4.3 Education and Encouragement*

Other ways to increase the number of walk and cycle trips are complimentary programs and promotions that increase awareness about the social and environmental impacts of auto use and more roads, and the health benefits of walking and cycling. Adult cycling programs such as “Can Bike” increase rider skills and address fears about riding in traffic, thus resulting in increased cycling use. Working with employers to provide support and related facilities and programs (travel cost incentives) to increase walking and cycling and reduce parking needs (i.e. bicycle parking and showers). Increased education and awareness will build a social conscience within the community and health benefits will offer encouragement.

### Current Situation

There is currently no known comprehensive education and encouragement program for the City and County area, beyond periodic efforts such as those mentioned above.

### Practicality/Appropriate for Guelph

While alone it cannot hope to have a great impact on trip making behaviour, education and encouragement programs will be an integral part of any comprehensive strategy to promote TDM measures.

### Barriers

Continuous and ongoing time commitment by both public and private agencies is required to ensure that these programs are properly promoted and managed.

### How do we Implement?

Educational programs should actively promote walking and cycling. Municipal publications on energy conservation and the environment should include transportation information, both on the environmental effects of automobile use and the benefits of walking and cycling.

Such social marketing campaigns also require branding to promote their identity and increase their profile. The public relations and media officer would be a key resource to help promote the programs.

## **4.5 ALTERNATIVE MEASURES FOR REDUCING AUTO USE**

### *4.5.1 Parking Pricing/Supply Management*

Limiting the supply of long stay employee parking in Guelph/Wellington through zoning bylaws can reduce auto use as Guelph/Wellington employees would then have to consider alternative modes to the automobile. Free parking by employers provides a strong incentive to drive alone to and from work. Encouraging employers to charge for parking or to pay a transportation benefit to employees who do not use parking are measures which are being used in other cities to encourage transit ridership, ridesharing and use of non-auto modes. Reducing the amount of parking provided by employers and increasing the price charges for long stay parking would further discourage auto use and increase public transit, walk and/or bicycle trips.

One of the main barriers to this approach is that limiting long stay employee parking in Guelph/Wellington to a significant degree may discourage economic development in downtown as employers may choose to move or locate in suburban areas where sufficient parking for employees is available and free.

### *4.5.2 Telecommuting*

With the advent of the personal computer and other ancillary communications equipment, an increasing number of workers may not need to leave their neighbourhood or homes to commute to work. Telecommuting means working at least part time in a location other than a central office such as at home or in some sort of regional centre. A recent study by the U.S. Department of Transportation estimates that work trip commuting could be reduced by 4.5% over the next decade due to growth in telecommuting.

Issues associated with lack of supervision, changes in management style, lower productivity, liability of personnel and computer equipment, file access and security and lack of social interaction are the major barriers to this strategy.

### *4.5.3 Alternative Work Schedules*

Another means of reducing peak hour traffic is to encourage work trips during other hours of the day. This can be done if employers are more flexible with their employees' working hours. Staggered work hours require employees to start and end work at different times, which can have a significant effect on peak traffic where large employers are involved. Flextime or variable time programs require employees to be at work during core periods (say 9:00 AM to 3:00 PM). Start or finish times are then flexible and up to the employee. A four day work week with longer hours each day is another way of reducing peak hour traffic demands.

Many employers already have flex time or variable work hours, so the benefits of this initiative may be minimal. This type of program also makes carpooling less effective.

### *4.5.4 Allow Traffic Congestion to Increase*

Traffic congestion on its own will discourage auto trips and increase the use of alternative modes while causing discretionary trips to occur during other periods of the day due to delays which are experienced as a result. This involves making no improvements to accommodate vehicular traffic.

This approach raises issues associated with increased time and operating costs for business and transit trips, emergency vehicle response times, increased use of streets in residential neighbourhoods and increased air emissions and fuel consumption. Economic development and maintaining vitality in Guelph/Wellington are other barriers to this approach.

### *4.5.5 Congestion Pricing*

This term is used to describe measures which could be used to increase the cost of travel by automobile, especially during peak hours, in order to reduce/eliminate trips, encourage them to occur during less congested periods or by alternative modes. Toll roads are especially suited for this as charges for using roadways will discourage unnecessary trip making. Further, higher tolls could be charged during peak periods to reduce discretionary trips. Increasing parking charges during peak

hours is another form of congestion pricing. Technology associated with electronic toll and automatic vehicle identification (which is currently being tested in North America) provides the potential for congestion pricing to have greater application throughout cities without the delays and costs associated with toll collection as it is applied to-day.

Toll roads will be difficult to operate in a grid type network such as Guelph/Wellington and will create issues associated with social equity and negative impacts on economic development and maintaining vitality of Guelph/Wellington.

### *4.5.6 Increase Driving Cost*

Reducing peak hour congestion could be accomplished by raising the cost of driving in order to discourage single occupancy auto use. Driving costs can be increased through higher gasoline prices, insurance rates, import or sales taxes and licensing.

Lack of public support, impact on the business community, changes to legislation and economic development issues are associated with this approach.

### *4.5.7 Vehicle Use Restrictions*

Vehicle use restrictions can be voluntary or mandatory and can include a wide variety of programs such as “no-drive” days and route or area specific restrictions such as auto restricted zones (ARZ), pedestrian malls, transit malls, and residential traffic controls. No-drive days can apply on a special occasion or throughout the year in a specified area.

In a region-wide program, no drive days for certain license numbers may be applied for alternating days or certain days throughout the year. Route or area restrictions are sometimes implemented for a specific reason, such as reducing auto congestion in a popular tourist location or improving air quality. Reserving lanes for transit use only or high occupancy vehicle lanes is a special case of auto restriction covered previously. Vehicle use restrictions have been used in Freiburg (Germany), Athens, Mexico City, Santiago, New York City, Denver (Colorado), Singapore and Boston.

Lack of public support, requires special legislation or regulations, and affects personal choice and individual freedom. May affect economic development and encourage relocation of business to suburban locations.

## **4.6 TRANSPORTATION DEMAND MANAGEMENT PROGRAM**

### *4.6.1 Recommended TDM Measures*

TDM focuses on reducing auto trips by increasing the use of alternative modes of travel such as transit, cycling and walking. In addition to diverting trips from the auto to other modes, TDM includes programs to increase the number of people in a car through efforts such as ridesharing. The

measures that are recommended can be implemented through education and promotion programs, employer trip reduction programs, changes to land use planning policies and provision of improved facilities.

Table 4.1 summarizes the preceding discussion of alternative TDM measures considered appropriate for Guelph, along with their barriers and limitations, below:

**TABLE 4.1: ALTERNATIVE TDM STRATEGIES**

	<b>Strategy</b>	<b>Practical</b>	<b>Limitations/Barriers</b>
Encourage Walking, Cycling, Transit and Ridesharing	Urban Form	Yes	Long term effectiveness, market barriers
	Increased Density	Yes	Community acceptance, political commitment
	Mixed Uses	Yes	Development specialization, economics
	Neighbourhood Design	Yes	Some increase in private and public cost
	Car Pool/Van Pool Programs	Yes	Large employers, longer distance trips
	Guaranteed Ride Home	Yes	Part of a TDM program - not stand alone
	Parking Supply Management	Yes	Large employers and downtown
	HOV Lanes	No	Road right of way restrictions
	Cycling Routes and Facilities	Yes	Climate, fitness level, cost, trip length
	Pedestrian Trails and Walkways	Yes	Climate, fitness level, cost, trip length
	Increased Transit Service and Routes	Yes	Budget constraints, bus shelters, traffic congestion
	Transit Fare Strategies	Yes	Lack of tax incentives, cost
Programs to Discourage Auto Use	Preferential Transit Facilities	Yes	Right of way constraints, traffic congestion
	Improved Inter-City Transit	Yes	Inter-city licensing, reduced fare
	Telecommuting	Yes	Type of work, lack of supervision, security issues
	Alternative Work Schedules	Yes	Many in use - benefits may be minimal
	Vehicle Use Restrictions	No	Public acceptance and economic development issues
	Increasing Traffic Congestion	No	Emissions, emergency service, neighbourhood infiltration
	Congestion Pricing	No	Public acceptance and economic development issues
Increase Driving Cost	No	Legislation changes, economic development issues	
	Parking Pricing and Supply Management	Yes	Limited to downtown and University, economic development issues

*4.6.2 TDM Roles and Responsibilities*

Ideally, responsibility for implementing TDM programs should be led by one department of the City of Guelph. A full time staff person from this department, with a title such as TDM Coordinator, should be focused on the TDM program to initiate actions and provide input into all decision-making matters which may affect increased use of alternative modes to low occupancy automobiles (e.g. land use, zoning, parking, bicycle routes, pedestrian issues, etc.). Many municipalities currently have TDM Coordinators with similar responsibilities.

However, as an initial step Guelph could start by establishing a TDM Implementation Committee to provide direction for implementation and assist with various components of the implementation actions. This group should include representation from the following outside agencies, Wellington County and City Departments:

- University of Guelph
- Businesses/Employers/Institutions
- Chamber of Commerce
- Wellington County
- City of Guelph (Engineering, Planning, Transit, Traffic, Parking, Parks)

The TDM Implementation Committee would be responsible for detailing the necessary work plan and associated schedule for the TDM implementation strategy outlined in this report.

This Implementation Committee should also solicit input from stakeholders who are both advocates of TDM and others who may be potentially adversely impacted by some of these initiatives. This includes, but would not be limited to: environmental groups, bicycle user groups, urban development institutes and industry and community groups.

### *4.6.3 Develop Education and Promotion Programs*

One of the most important components of the TDM implementation strategy is the development of educational and encouragement materials to support the TDM initiative and to assist in influencing current travel characteristics and trends with respect to frequency, mode and time of travel by single occupancy vehicle. Promotional materials would include the preparation of flyers, newsletters, newspaper articles, slide shows and video presentations designed to increase public awareness regarding:

- the rationale for TDM including the financial, environmental and social benefits for the City of Guelph;
- information on TDM programs and initiatives in other cities;
- facts about local travel characteristics and the existing and potential future impacts of continuing these trends (e.g. cost to society, employers and individuals to travel by single occupancy vehicle versus other modes, frequency of short distance trips by auto, environmental benefits of ride sharing, etc.);
- experience with area wide or employer TDM programs in other cities including programs such as ridesharing, telecommuting, staggered work hours, parking pricing, etc.;
- the healthy living benefits of walking and cycling; and
- elimination of discretionary trips.

Encouragement programs which should be considered include presentations to community, business groups, large employers and schools, implementing a “ride share” week campaign and soliciting employers to implement TDM programs. Training programs and manuals can be provided to assist employers in developing trip reduction plans.

As noted previously, many cities, regions and agencies in North America have already developed marketing materials and implemented promotional programs to assist with TDM implementation. Therefore, there is no need for Guelph to develop them; rather, they can be enhanced or customized to meet local needs. It is recommended that the City of Guelph obtain information on the programs, materials and experience in other communities and “build” upon this already existing base of information.

Continuous and regular promotional efforts are required to build community support for TDM and

to create a public conscience about transportation consumption as has been done with waste management, water consumption and energy use. Promotional material should be developed by the TDM Coordinator with direction from the TDM Implementation Committee.

### *4.6.4 Identify Specific TDM Market and Barriers*

Implementation of a successful TDM program requires a good understanding of the travel market in order to select the specific TDM strategies which are likely to be effective. For example, efforts to shift the peak time of travel through staggered work hours or flex time may not be very effective if employee start and end times are already well spread out. Information is also required to determine the most effective mechanisms by which to implement the TDM, identify specific issues which must be addressed and initiate their resolution.

For the City of Guelph, it is recommended that TDM planning be focused initially at high employment nodes such as the downtown, University of Guelph and large employers such as McNeil and Linamar and Co-operators. Of highest priority are the downtown and University areas as they offer the greatest potential benefit for trip reduction, and road network deficiencies are expected to occur. For these employment areas, the following approach is recommended:

- Identify major employers in the selected areas and solicit their participation in a market survey and partnership in the TDM program.
- Design a market survey to obtain data on employee profiles and commuting characteristics. This will provide specific information on the number of daytime employees, work start and end times, mode of travel to work, degree of employer subsidized parking, location of employee parking, charges for parking, need for access to car at work and barriers to increased use of transit, ridesharing, telecommuting and use of other travel modes. An internet based survey has been used in other similar situations.
- Conduct the survey and summarize the results.

Based on the above, identify the TDM approaches which are likely to be most effective and develop the implementation mechanisms and incentives necessary to initiate the trip reduction plan. The TDM Market Survey would be directed by the TDM Implementation Committee.

### *4.6.5 Employer Trip Reduction Programs*

Reported experience with employer trip reduction programs have resulted in as much as a 30-40% reduction in peak hour trip making at some individual sites. At other locations, the effectiveness has been much lower due to a lack of corporate commitment, legislation or employee incentives. Actions recommended for promoting and assisting employers with trip reduction programs should focus on the downtown and other areas of employment concentration as note earlier and include:

- distributing marketing and promotion materials to major employers;
- obtaining senior corporate commitment to implement a trip reduction program and

- identify staff coordinator;
- providing employer trip reduction manual and staff training;
- collecting work site data on employment profiles and travel characteristics;
- evaluating the appropriateness of TDM alternatives including telecommuting, ridesharing, transit subsidies, eliminating parking subsidies, staggered work hours, transportation allowances, car pool matching, showers/bicycle racks, etc.; and
- establishing trip reduction targets as well as identifying incentives and disincentives to assist with the trip reduction plan.

The City of Guelph should lead by example and develop its own trip reduction program using TDM strategies. This experience will assist with broader application to other employers, and could begin by selecting a pilot project.

The City should consider the need to implement a trip reduction bylaw to encourage greater private sector involvement.