EXECUTIVE SUMMARY

1.0 EXISTING SYSTEM ANALYSIS

1.1 Study Direction

The Windsor Area Long Range Transportation Study (WALTS) was conducted in 1997 and 1998 to provide the involved municipalities with a master plan to guide future development of transportation services in the Windsor area. The study area, established in 1997, includes the City of Windsor, Towns of LaSalle and Tecumseh, Townships of Sandwich South and Maidstone, and the Village of St. Clair Beach[1]. The study determines the impacts of population and employment growth on the need for roads, transit, cycling and walking facilities within the area by the year 2016, along with access to air, marine, rail and trucking services.

The WALTS study was conducted in response to the Province's Class Environmental Assessment Process For Municipal Road. It is intended to satisfy Phases 1 and 2 of this Process dealing with the need and justification for transportation system improvements, and an analysis of alternative solutions to solve these system problems and deficiencies.

1.2 Local Transportation Issues

Public consultation activities were conducted as part of the WALTS study, and the parallel Windsor Official Plan Review (*Vision In Action).* Although no one overriding issue resulted from this public input, WALTS heard a number of important issues that either have remained chronically unsolved in the study area, or have recently emerged. These range from concerns about deficient downtown access corridors, rail crossing congestion and traffic growth in suburban areas, through to potential changes to specific routes such as Riverside Drive East, and impact of added border crossing capacity on Huron Church Road. The economic impacts and affordability of future transportation system improvements is also a common issue.

1.3 Existing Transportation Systems

The first aspect of the existing WALTS transportation systems studied by WALTS involves existing travel characteristics. Using an extensive household travel survey of the WALTS area, plus a cordon survey of traffic into and leaving the area, an up-to-date picture of existing travel patterns emerged. It shows, for example, that 86% of all area households have at least one car, and that peak hours for traffic are between 8:30 – 9:30 in the morning, and 3:30 – 4:30 in the afternoon. Of greatest importance is the pattern of travel mode, which highly favours the automobile. The car dominates with 80% of all study area trips, followed by walking at 10%, transit at 3%, cycling at 2% and other modes at 5% (school bus, taxi). The conclusion here is that the Windsor area is very auto-dominated, typical of most small to medium-sized North American cities.

Roadways - More specifically, WALTS research shows that roadway traffic has been growing in the study area by up to 9% per year between 1990 and 1996. In response to this, the City developed a 5-year roadway improvement plan in 1997 with a total net cost of $151.5 million.

Transit - Another component of the existing transportation network include Transit Windsor, which has had to adjust service over the past seven years in response to earlier ridership declines and fiscal constraints. More recently, ridership has been on the increase, but overall transit use dropped by almost 40% over the ten year period from 1987 to 1997. Transit Windsor has responded with reduced Revenue Kilometres of service, reduced Revenue Vehicle-Hours and increased fares. The WALTS study concludes that when compared with other comparable transit operations, the current Transit Windsor operation has a high R/C ratio and resulting good financial performance and its cost per capita is low, but its level of service (Revenue Vehicle-Hours/capita) is also low, riders per capita are low and fares are higher than average.

[1] As of January 1, 1999, the five County municipalities were reorganized into the Towns of LaSalle, Tecumseh and Lakeshore.

Cycling and Walking – Cycling and walking in the study area is presently accommodated mainly by the City of Windsor trail and recreationway systems. Further extension of these routes into and from the neighbouring municipalities is planned as part of future open space systems. Existing bicycle routes are provided on existing trails, as well as on-road cycling routes and wide shared curb lanes.

Railways, Marine and Airport – Research conducted by the WALTS study concludes that of the three rail mainlines in the area (CN/VIA, St. Lawrence & Hudson, CASO/CN), one or more may be discontinued in the future through rail rationalization. Local service is provided by the ETR short-line operation. Rail movements to the US are now limited only to CP and affiliate operations through the rail tunnel, which is dimensionally restricted and experiencing declining use. Other findings are that auto assembly and distribution patterns from the Windsor/Detroit area will largely affect the need for area rail service, VIA service and station location may change, federal funding for rail grade separation is unlikely and High Speed Passenger Rail service to Windsor should not be expected for at least another ten years.

The study confirms the importance of Airport access to its three main market areas; the Windsor urban area, the Detroit area and surrounding rural area. Roadway access to these three markets is of utmost importance to the Airport. Similarly, roadway access to existing port and other marine operations along the Windsor waterfront is also essential for their operations.

Cross Border Transportation – Recent research on cross-border traffic between eastern Canada and USA clearly shows the importance of the Windsor/Detroit crossings in international trade and transportation. The Tunnel and Ambassador Bridge accommodate the highest number of entries of all eastern crossing points. The Bridge also has the highest commercial crossings (trucks) in North America, and dominates this type of crossing between Windsor and Detroit, but forecasts show the twinned Blue Water Bridge at Sarnia/Port Huron equaling the Ambassador Bridge by 2015. The Tunnel accommodates mainly commuter auto traffic.

2.0 PLANNING FRAMEWORK

2.1 Future Transportation Direction

A Transportation Task Force, formed as part of the Windsor Official Plan Review, provided a comprehensive, community-wide response to transportation needs and directions. Their conclusions were translated into WALTS as the basis for what the community wants from its transportation system, namely:

• A Sustainable system enhancing physical mobility and ensuring economic, social and environmental needs are met	• Community Transportation that is accessible, affordable and available to all residents.
• Access to community businesses.	• Better Transportation Demand Management where all modes play a more balanced role.
• Inter-Relationships between all modes to form a more integrated transportation system.	• Efficiency and Affordability by optimizing use of existing systems.
• International Transportation that is effective, timely and convenient.	• Implementation and monitoring of the WALTS transportation plan.

WALTS relies on existing Official Plans and available growth studies to establish the amount and pattern of population and employment growth expected in the study area by the year 2016. It is this growth that will largely influence the amount and direction of future transportation needs. The research concludes that the area will grow by about 50,000 people by 2016, with most of this growth (69%) located in the Essex County municipalities, and the City taking about 31%. Conversely, of the forecasted 33,000 new jobs within the WALTS area, about 35% are expected in the County, with 65% in the City.

In addition to actual growth, the form of this growth will also largely dictate future transportation needs. WALTS considers a number of urban form options, ranging from continued low density residential expansion adding to auto-oriented roadway traffic, through to urban intensification supported by alternative

transportation modes. These options were considered by Windsor's Official Plan Review, leading to a selected development strategy to accommodate new growth through practical and efficient land use management strategies promoting a more compact form of development. This patterns is intended, in part, to reduce development costs and maximize the live-work relationship. Based on this direction, WALTS concludes that transportation systems must serve two distinct, but inter-related types of mobility needs for people and goods movement: **Local Mobility** serving needs at the neighbourhood levels through more balanced use of modes, and with a strong pedestrian orientation and closer links between transit and land use, and; **Regional Mobility** to link these neighbourhoods together, and to regional economic centres, the City Centre and domestic and international locations outside of the WALTS area.

2.2 Existing Transportation System Performance

Assessment of the existing WALTS transportation system performance starts with the roadway system, since up to 93% of all area travel takes place on public roads. The study compared the functional planning capacity of major roadways against current traffic volumes, and concluded that serious Level-Of-Service deficiencies (at LOS F) are already being experienced on portions of major roads such as Wyandotte Street West, Tecumseh Road, Ouellette Avenue, Dougall Avenue, Goyeau Avenue, Howard Avenue, Walker Road, Grand Marais Road, Central Road, Dominion Boulevard and Provincial Road. Deficiencies were also noted on County Road 11 at the City boundary.

Further operational deficiencies have also been identified in the City's STRIPS study based on observations and annual road needs analysis. These problems focus on a number of major arterial intersections on Tecumseh Road East, Provincial Road, Division Road, North Talbot Road, County Road 17, Banwell Road, Lesperance Road and Manning Road.

WALTS also concludes that while Transit Windsor generally provides a reasonably effective transit service, its performance is negatively affected by service standards that are not always applied, terminal facilities requiring upgrading, service corridor duplications and circuitous routes, and the need for time transfers on the transit system. Limitations to cycling and walking concentrated mainly on a lack of suitable trail, sidewalk and bikeway routes to encourage more use of these modes.

Potential roles for air, rail and marine service in WALTS focus on their inter-regional, provincial and national transportation functions. However, they each require inter-modal connections primarily with the study area's roadway system. The study also concludes that opportunities for local rail service (i.e. rapid transit, Light Rail Transit), resulting from future rail abandonment and rationalization will be limited by the low land use densities along potential routes. In terms of marine service, ferry and shuttle services hold some tourism and recreational potential along the Windsor waterfront.

2.3 Travel Demand Forecasting

With existing transportation conditions well established in the WALTS study, forecasting these conditions into the future is the next component in the planning process. A computerized traffic model was built with SYSTEM II traffic forecasting software. This model forecasts traffic volumes based on the existing major roadway system, changing local demographics, evolving land use patterns and local travel characteristics. The model also uses 1997 travel data derived through the WALTS household travel survey and cordon survey, as well as traffic counts on the City and area roadway system.

3.0 FUTURE NEEDS & ALTERNATIVE SOLUTIONS

3.1 Future Transportation System Needs

The traffic forecasting model correctly duplicates existing area traffic conditions. For example, auto trips are well distributed across the Windsor area as would be expected. Walking trips are shown to occur mainly over short distances or are self contained within specific traffic zones (neighbourhoods). Similar patterns of cycling are noted, especially in the University area. The pattern of transit use is oriented to large employment areas including the downtown.

When these future traffic volumes are compared with the existing capacities on the WALTS roadway system, assuming no further improvements are made (the "Do-Nothing" network), a number of future problems become evident. The most serious problems are found on many arterial roadway sections that

would be operating fair to poorly at LOS D, E and F by the year 2016. Once again, this is caused mainly by expected study area growth patterns, related traffic growth forecasts and the continuation of existing trip-making characteristics (i.e. low auto occupancy, high auto use, concentrated traffic peaking). Some of the most serious future LOS F capacity deficiencies are forecast to occur on sections of Dougall/Ouellette Avenues, County Road 22, Walker Road, Tecumseh Road East, Riverside Drive, Howard Avenue, Malden Road and Matchette Road.

These and other roadway deficiencies will also cause transit limitations in the future, resulting from congestion delays and difficulty in meeting headways on the affected transit routes. Pressure for service extensions to the southwest and east are also expected as theses suburban areas continue to grow. In terms of future cycling and walking, major highway routes and rail lines will continue to present obstacles. Growing traffic volumes and associated congestion on major roadways will also limit their usability by non-motorized transportation. Cross-border traffic growth will be limited not only by the infrastructure and operations of the crossings themselves, namely the Tunnel and Bridge, but also by the capacity of "connecting links" to Highway 401, Highway 3 and the E.C Row Expressway.

3.2 Potential Transportation Network Solutions

In addressing future transportation system problems in the WALTS area, two distinct options are available. The first involves Demand-Side solutions that focus on changing the demand for travel mainly by changing travel behaviors (called Transportation Demand Management or TDM). The other involves Supply-Side solutions geared towards improving the supply, or functional capacity of the transportation system.

A number of Demand-Side TDM options and initiatives were evaluated for possible application in the WALTS area. These involve Market-Based strategies, Behaviour-Based strategies and Land Use-Based strategies. Once individual measures were evaluated, WALTS concluded that Market-Based strategies suitable for potential application involve new highway tolling and increasing the cost of long-term (all-day) parking. Behaviour-Based possibilities include shifting peak travel hours, telecommuting, transit-priority systems and ride-sharing. Finally, Land Use-Based opportunities focus on strategic increases in residential densities, and improved home-work travel distances (although both initiatives are recognized as having long term potential only).

Supply-Side solutions involve structural roadway improvements including widenings, new road construction, intersection improvements and traffic calming. WALTS combines a number of potential Demand and Supply-Side options into five future transportation network alternatives summarized as follows.

3.3 Alternative Transportation Networks

Network Alternative 1 – Do Nothing: The transportation master planning process requires that a do-nothing scenario be considered, which assumes that no physical or operational improvements are made to the system over the next 20 years. Some may view this as a way of forcing public change in how the system is used, for example in favour of increased transit use resulting from auto congestion on roads. The WALTS analysis clearly shows that the existing roadway system is not capable of accommodating safe and appropriate levels of service over the next 20 years if major improvements are not made. Examples of major roadway deficiency problems were previously noted in Section 3.1. More importantly, a number of severe environmental impact would result from this alternative, with significant forecasted increases in emissions, fuel use, accidents, travel delays and travel distances.

Network Alternative 2 – Planned Improvements: In this alternative, Supply-Side structural improvements are limited to projects already planned by the City in their 5-year capital program. This includes Walker Road widening between Division Street and Highway 3, Tecumseh Road West realignment across the rail yards between Wellington Avenue and York Street, Lauzon Parkway/Road widening and extension between Wyandotte Street to Tecumseh Road East, and Tecumseh Road East widening between Jefferson Boulevard and Banwell Road.

Network Alternative 3a – Planned Improvements Plus Potential Structural Improvements: Since the planned roadway improvements in Alternative 2 are focused on solving existing problems, Alternative 3a adds a number of other strategic capacity improvements oriented to the forecasted year 2016 problems. Most are potential improvements considered in the past, but never assessed from a total system-wide

perspective. The intent here is to select the best collection of potential capacity improvements to address year 2016 deficiencies. Examples include improvements to portions of the McDougall Avenue city centre route, to Wyandotte Street East, Tecumseh Road East, Walker Road, Howard Avenue, Todd Lane, Matchette Road and Lauzon Road south of the Parkway. WALTS analysis shows that although this alternative does solve a number of expected network deficiencies, it alone is not capable of satisfying all forecasted capacity deficiencies in the WALTS network over the next 20 years.

Alternative 3b – Planned Improvements Plus Selected TDM Initiatives: The objective of this alternative is to determine the level of network improvement that can be achieved using only planned projects from Alternative 2, plus a number of TDM initiatives deemed appropriate for the Windsor area. These involve; 1) doubling the transit mode from 3 to 6% of all trips by 2016; 2) increasing average auto occupancy from 1.4 to 1.5 people/vehicle; 3) increasing walking and cycling modes by 50% to 11% and 16% of all trips respectively, and; 4) reducing home-work trip-making by 10% as a result of more telecommuting and closer home-work distances through land use planning.

Reduced home-work trip-making alone is shown to offer only marginal improvements when compared to Alternatives 2 and 3a. Either increased transit ridership, alternatives mode use or average auto occupancy also shows only minor transportation system improvements over the Alternative 3a conditions. The conclusion here is that TDM indicators such as transit ridership, auto occupancy and use of alternative modes are presently very low in the Windsor area. As a result, what may appear to be significant increases in use, for example doubling transit, still results in relatively low use compared to autos. Application of independent, isolated TDM initiatives in the Windsor area will not be as effective as the extensive roadway improvement approach reflected in Network Alternative 3a. This suggests that a more comprehensive TDM effort will be needed.

Alternative 4 – Balanced TDM/Structural Improvements – This alternative combines the planned and potential structural roadway improvements from Alternative 3a, with the two TDM strategies shown to have the best potential, namely doubling transit ridership and reducing home-work trip-making. WALTS analysis shows this alternative as having the potential to either eliminate many chronic roadway problems, for example along portions of Tecumseh Road and Riverside Drive, or more likely improve and extend LOS on other key routes such as Dougall Avenue and Division Road.

3.4 Evaluation of Alternative Networks

These five alternative networks were further evaluated using an extensive series of 15 criteria responding to the Economic Environment, Socio-Cultural Environment and Natural Environment. The evaluation concludes that Alternative 4 – Balanced TDM/Structural Improvements offers the best overall performance in meeting future transportation network needs. As a result, Alternative 4 is the Recommended WALTS Transportation Network, but comes with two very important conditions:

- Alternative 4 will not solve all forecasted roadway deficiencies. Additional, selected operational and capacity improvements may be required as the Plan, and traffic growth continue to be monitored, and;
- If the two TDM initiatives that form part of Alternative 4 are not achieved over the next 20 years dealing with increased transit ridership and decreased home-work trips, the City and County will be required to consider further structural roadway capacity improvements.

A sensitivity test was also conducted by applying increased cross-border traffic onto Alternative 4. Two cross-border scenarios were considered; 1) 20% increase in local commuter traffic PLUS 100% increase in through commercial traffic (as predicted by MTO), and 2) 20% increase in local commuter traffic PLUS 200% increase in through commercial traffic resulting from international trade corridor (i.e. NAFTA Superhighway) initiatives. The conclusion is that either scenario will have a serious impact on plaza and connecting link levels of service, with increased traffic congestion at severe levels on Huron Church Road from the Bridge to Cabana Road, at major intersections at Totten Street/Prince Road, Tecumseh Road and the E.C. Row Expressway, and in the College Avenue area.

4.0 TRANSPORTATION MASTER PLAN

4.1 System Improvement Recommendations

The WALTS study concludes with a Master Plan of recommendations for each component of the Windsor area transportation network:

Planning Strategy – The overall planning strategy recommended by WALTS involves four coordinated initiatives; 1) Control Land Use, 2) Apply Selective TDM measures, 3) Adjust Level-Of-Service and 4) Improve and Increase Transportation Capacity.

Transportation Demand Management (TDM) – In addition to the transit ridership increase and home-work trip reduction recommended through Alternative 4, WALTS recommends supporting other TDM strategies such as subdivision and urban design guidelines that support use of alternative modes, increased long-term parking costs and employer initiatives for flex hours and ride-sharing.

Pedestrian Mobility – Important recommendations are made to improve pedestrian mobility through design guidelines for sidewalks, pedestrian crossings, school zones and those with special needs.

Bikeway & Recreationway Development – The Master Plan recommends continued development of on-road bikeways and off-road trails to facilitate increased and safe cycling. This also involves the recommended updating of the Windsor Bicycle Use Development Study (BUDS) prepared in 1990.

The Transit System – The future strategic direction for transit must be on ridership growth to meet the targeted 6% mode share of peak hour trips by year 2016 (similar to late 1980's ridership). This will require increased operational funding, together with supportive municipal policies and aggressive marketing and promotion efforts. WALTS concludes that since overall City population growth forecasts by themselves do not support this increased level of transit use, ridership increases must also come from a carefully expanded market base beyond Transit Windsor's current Urban Transit Service Area. Other short and intermediate term recommendations are offered for both direct and indirect transit-supportive measures.

The Roadway System – The Master Plan performance targets have autos decreasing from 85% of all peak hour trips currently, to 76% by the year 2016. However, even in achieving this target, solutions will still be required for growing operational deficiencies in the roadway system. The three recommended principles in roadway system improvement are to; 1) Maximize use of existing roadway infrastructure, 2) Maintain Level-Of-Service with the new performance targets, and 3) Implement a comprehensive package of operational improvements where the success of each specific improvement is dependent on completion of all improvements. The result is a series of four types of roadway improvements shown on Figure 4.1 and summarized as follows:

- Short-Term (5-Year) Capital Improvement Projects already planned by the City, and involving selective roadway widenings from 2 to 3 or 4 lanes, from 4 to 6 lanes, or for a fifth centre turning lane on road sections shown on Figure 4.1;
- Operational and Capacity Improvements pending further study and Class Environmental Assessment to upgrade and widen required road sections, introduce exclusive turn lanes, improve signalization and introduce special capacity enhancement measures such as one-way couplets or reverse lanes.
- Roadway Extensions to provide improved corridor continuity and accessibility, and to divert traffic from parallel congested routes, and;
- New Interchange construction as per City and MTO requirements.

The total capital cost for roadway system improvements shown on Figure 4.1 is estimated at least $131 million to the year 2016. Not included in this is a further, important recommendation to protect strategic roadway corridors to serve expanded cross-border development and associated connecting links to Highway 401. These include corridors in the west and southwest Windsor area directly to the 401, plus alignments to the east potentially connecting the 401 to the E.C Row Expressway. Further route planning and environmental assessment studies are recommended to determine the final connecting link alignment(s) and costs.

Other Network Recommendations – Directions are offered for improved truck route planning and management, including integration of City and County routes. Traffic calming is a major subject of the recommendations, focusing on potential calming techniques, public consultation needs and an example of a recommended traffic calming application to alleviate through traffic problems on Riverside Drive East. Community Transportation initiatives in the Windsor area are supported to eliminate specialized transportation barriers, form service partnerships, increase ridership, and make more effective use of existing Community Transportation resources.

4.2 Master Plan Implementation

Since the WALTS Master Plan is not a static document, it includes final recommendations on monitoring and reviewing the Plan. This includes an annual reporting on the "State of the Transportation System" by all involved City and County agencies, coordination of annual transportation system improvement budgets, a five year update of the Plan including a household travel survey update to assess local travel characteristics, and a comprehensive five year update of WALTS in association with Official Plan updates.

More specific policy recommendations are made for inclusion in Official Plans dealing with transportation goals, objectives, technical descriptions and policies for each transportation mode.