

The WinSmart Showcase

Winnipeg for Sustainable Management
Advancing Responsible Transportation

A Detailed Proposal

Submitted by
The City of Winnipeg

In Partnership with
The Province of Manitoba

To the
Urban Transportation Showcase Program
Environmental Affairs
Transport Canada



May 2003



EPC Secretariat • Secrétariat du Comité exécutif

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I am pleased to submit the attached proposal for Transport Canada's consideration with respect to the Urban Transportation Showcase Program. WINSMART represents an innovative and integrated approach to urban transportation issues. It attempts to look at a number of complex problems and develop solutions through a web of interrelated and interconnected initiatives. Such a unique approach can be accomplished in Winnipeg due to its strong relationship with and similar objectives to the Province of Manitoba and key community and business stakeholders. This approach would demonstrate to other municipalities how very complex and crosscutting issues can be addressed to achieve sustainable, long-term integrated greenhouse gas emissions reductions.

This approach combines technological opportunities such as the use of green fuels with initiatives that address the social dilemmas of transportation that have evolved due to land use and infrastructure decisions supporting the automobile. It is Team Manitoba's position that integrating such measures will have a significantly greater impact on emissions reductions than the result of undertaking such initiatives separately.

I am very excited about the Urban Transportation Showcase Program and its anticipated outcomes. WINSMART represents an opportunity to demonstrate successful approaches to achieving these outcomes. I look forward to continuing to work with Transport Canada in the future.

Yours truly,

Andrew Cowan
Environmental Coordinator

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Abbreviations Used In This Proposal	
AVL	Automatic Vehicle Location
GHG	Greenhouse Gas
RRVCCC	Red River Valley Clean Cities Coalition
SOV	Single Occupant Vehicle
TDM	Transport Demand Management
UMTI	University of Manitoba Transport Institute
UTSP	Urban Transportation Showcase Programme
WCR	Winnipeg Capital Region

1 Summary

Two Urban Corridors of Interest

The WinSmart Showcase concentrates on two radial travel corridors in the Winnipeg Capital Region. The 15 km **Pembina corridor** leads southwest from downtown Winnipeg, and is targeted for the first leg of Winnipeg's rapid transit system. The more lightly populated 35 km **Selkirk corridor** serves ex-urban communities to the northeast of the City.

Twenty Integrated Initiatives

The Showcase comprises **twenty integrated initiatives** which will:

- develop and demonstrate **new low-GHG impact technology** by building, testing and demonstrating prototypes of clean vehicles and fuelling systems, for long term and potentially continent-wide application;
- **reduce GHG emissions** from urban transport in the Winnipeg area **in the Kyoto timeframe** by making more efficient use of automobiles, improving the efficiency of urban trucking and making transit, cycling and walking more competitive travel options;
- explore planning and pricing instruments for change through policy research on **land use and demand management** in conjunction with public consultations now starting in the city;
- promote public acceptance and behaviour change through **intensive social marketing** of non-SOV travel options; and
- **measure, analyze and share** the results with other communities across Canada, mounting mid- and end-point national conferences.

Team Manitoba

Team Manitoba will implement the Showcase. This is a partnership of the Province of Manitoba, the City of Winnipeg, the City of Selkirk, Beaver Bus Lines, Kraus Global, the Manitoba Trucking Association, Manitoba Hydro, New Flyer Industries, the Red River Valley Clean Cities Coalition, Resource Conservation Manitoba and the University of Manitoba Transport Institute.

Co-Benefits

As a co-benefit of reducing transport sector GHG emissions from the Winnipeg region, the Showcase accomplishes a host of Team Manitoba's economic, social and environmental objectives—all **supporting sustainable urban development** in the region.

Cost and Contributions

The total cost of the Showcase is budgetted at \$14.4 million. Of this, Team Manitoba commits to providing two-thirds and proposes a Government of Canada UTSP contribution of \$4.8 million for the remaining third.

2 Showcase Overview

Backdrop: the Winnipeg Region

KEY FEATURES

The **Winnipeg Capital Region** is mid-sized and slow-growing, with an extreme climate and with seasonal differences in travel patterns.

The region is highly automobile-dependent but only lightly congested; it also has high social cohesion; and a relatively uncomplicated governance structure.

In Southern Manitoba, at the confluence of the meandering Red and Assiniboine Rivers, sits the **City of Winnipeg**. It is a primary western transportation hub and a busy centre of 620,000.

The **Winnipeg Capital Region** (WCR) comprises the City plus fourteen surrounding rural municipalities. These lie within an 80 km commuting radius of Winnipeg. Home to a further 90,000 people, they bring the WCR total to 710,000—a mid-sized Canadian metropolitan region. Winnipeg and its neighbours face transportation challenges similar to other mid-sized cities in Canada.

Winnipeg's advantage is that it is representative demographically and attitudinally of larger markets, yet offers cost advantages in live market testing of products and strategies. Indeed companies use Winnipeg for survey and field tests because of its representativeness, cost consciousness and low cost in performing consumer trials. Accordingly the region is well positioned to test and showcase innovations replicable elsewhere in the country.

In recent decades, as in many Canadian centres, the region has become **more dependent on the private automobile**. This is the result of many factors, among them decentralizing land use patterns, an aging population, a severe climate, an historical emphasis on road building, comparatively affordable cars and gasoline, and an absolute decline in transit funding. Though the city's population grew by 10% through the 1980s and 1990s, annual public transit ridership fell by a third.

Today, though the city remains spacious and uncongested compared to Toronto, Montreal or Vancouver, the public sees the **spectre of congestion**: in a recent city poll 51% of respondents indicated that they are more concerned about traffic congestion than they were two years ago.

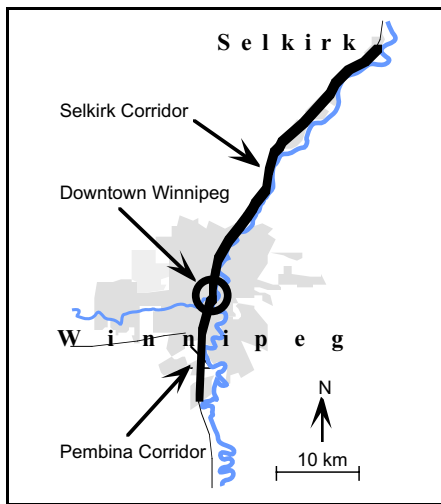
Because of the unsustainability of these trends—including higher GHG emissions—current public policy at both city and provincial levels is to halt and reverse them.

This is a challenging, long term task which depends upon gaining a better grasp of a **complex web of underlying factors**—only some of which governments can really influence—and often applying techniques whose effectiveness is not fully tested.

The design of the WinSmart showcase rests on the ideal of moving towards a more sustainable transportation system—tempered by the current

state of knowledge, by what is practical and affordable, by what initiatives are already underway, and by what is acceptable to the public.

Location of the Showcase



The showcase concentrates on **two travel corridors** radiating from downtown Winnipeg, cutting a diagonal slice through the WCR.

- The **Pembina** corridor runs from downtown Winnipeg 15 km SSW along highway 75, to the edge of the City. Along it lie the neighbourhoods of Osborne Village, Fort Rouge, Fort Garry, Fort Richmond, and the campus of the University of Manitoba. It features industrial zones, residential development, strip commercial development and lower density sections. The corridor is relatively mature and slow growing, with 100,000 people living in its catchment area. Beyond the City boundary, the highway continues southward as the primary U.S. trade route. Accordingly, it is a significant truck route.

Presently served by Winnipeg transit bus services, the Pembina corridor is earmarked for the first leg of **Winnipeg's proposed rapid transit system**¹ to run on an exclusive right of way. The Showcase capitalizes on this major development in the City's transit system.

- The **Selkirk** corridor, at over 35 km, is more than twice as long as the Pembina corridor. It runs NE from downtown Winnipeg to the City of Selkirk (population 10,000) and is served by Highway 9, or Main Street. Between Selkirk and Winnipeg lie the rural municipalities of St. Andrews and West St. Paul. Residents of these faster-growing ex-urban communities depend on daily travel by car and a private sector intercity bus line² to travel into Winnipeg for work, shopping and recreation.

Objectives of WinSmart Showcase

The WinSmart showcase has multiple objectives. They derive directly from the showcase partner agencies—the federal, provincial and local governments as its major financial supporters—and also from the private sector and non-government organizations who will contribute resources.

Some of the showcase partners' motivations are similar, while others are quite different. This is an important strength of the Showcase as it provides cross-pollination. Furthermore, overall, the partners' various objectives are mutually supportive and compatible. They are:

- to demonstrate and evaluate initiatives that can reduce greenhouse gas emissions, to be innovative in doing so, and to assess other benefits;

Federal UTSP objectives

¹ Rapid Transit has received initial funding from Winnipeg's capital budget for 2003 and is currently under consideration for funding by the Canada/Manitoba Infrastructure Programme. See Annex B for maps and other details.

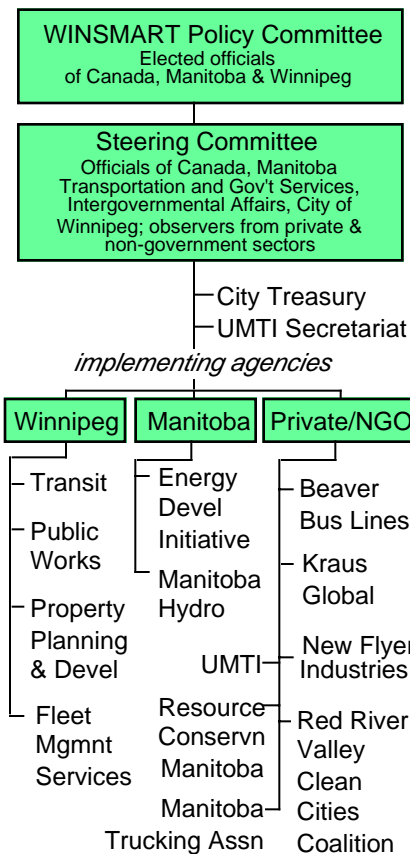
² Beaver Bus Lines operates approximately 14 return trips daily along the corridor.

Manitoba's objectives

Winnipeg's objectives

- to help establish an information network on GHG reduction in urban transport that can foster replication in other Canadian communities over the coming decade;
- to promote clean renewable energy options that permanently reduce GHG and local polluting emissions in Manitoba;
- to test, produce locally and market continent-wide vehicle-related technology for environmental protection and economic development;
- to enhance the transportation system as part of downtown revitalization and strengthen transportation links across the WCR;
- to support the vision of the City of Winnipeg for planned development, transportation and infrastructure as elaborated in City Council's Plan Winnipeg 2020 Vision adopted in the year 2000; and
- to reinforce the City's commitment to climate change initiatives and to the Partners for Climate Protection Program of the Federation of Canadian Municipalities.

Administrative Structure



To achieve these objectives, WinSmart proposes an administrative structure as follows.

A **Policy Committee** of up to four elected officials from the City and Province, with invited Federal officials, will oversee the Showcase and provide policy direction.

Reporting to it, a lean interagency **Steering Committee** with decision making authority will be the key decision making body in the Showcase:

- up to eight key **local government** departments and the **Province** (notably the provincial Departments of Transportation and Government Services, and Intergovernmental Affairs) will be represented by **senior staff officials** on the Committee;
- the **Government of Canada** will be invited to nominate a Committee member;
- **agencies** charged with implementing Showcase initiatives will report to the Steering Committee. They are: the Province's Energy Development Initiative and Manitoba Hydro; City of Winnipeg Fleet Management Services; the City's Property Planning and Development Dept; the City's Public Works Dept; Winnipeg Transit; and the University of Manitoba Transport Institute; and
- up to six **private sector** and **non-government** organizations, as Showcase implementation partners, will have non-voting observer status on the Committee.

The Steering Committee will receive **Secretariat** services provided by the University of Manitoba Transport Institute. The secretariat will convene meetings, track progress of initiatives, and provide summary reports to the Steering Committee.

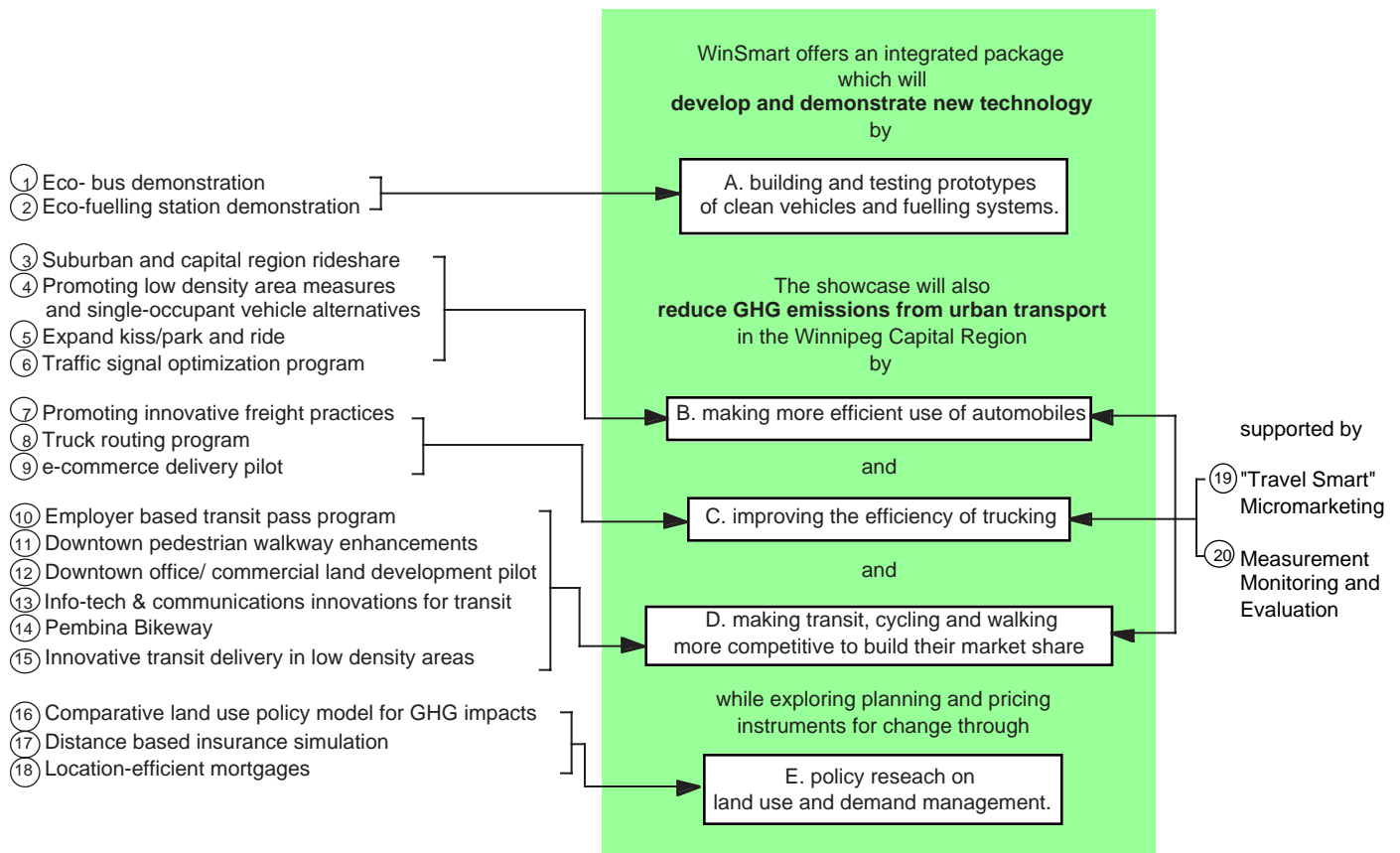
Financial Management

Control of funds will have the following features:

- A UTSP contribution agreement will be concluded between the **City of Winnipeg** and **Transport Canada**³. The City will act as Showcase Treasurer and will receive the Federal Government contribution. The UMTI Showcase Secretariat, in conjunction with the City's finance department, will prepare the required periodic reports to the Government of Canada.
- **Steering Committee approval** will be needed for the advance of Showcase funds to the six implementing agencies, according to their achievement of milestones for each initiative.
- To preserve flexibility in the allocation of funds among the Showcase initiatives as cost experience and budgetary needs unfold during the Showcase, the **Policy Committee** of elected officials will have authority to transfer funds among Showcase initiatives.

Overview of Showcase Initiatives

The diagram below illustrates the integrated framework of the WinSmart showcase. The showcase approaches its partners' multiple objectives with five strategies, labelled (A) through (E). Twenty initiatives, numbered 1 through 20, support these five strategies.



³ Alternatively, as may be agreeable to the parties, a three-way contribution agreement could be made between the City, Province and Transport Canada.

The five strategies are (A) building and testing prototypes of clean vehicles and fuelling systems, (B) making more efficient use of automobiles, (C) improving the efficiency of trucking, (D) making alternative modes more competitive and (E) developing policy through research on land use and demand management.

(A) building and testing prototypes of clean vehicles and fuelling systems

Two initiatives (numbered 1 and 2 in the diagram), in association with local manufacturers, will develop **hydrogen powered internal-combustion-engine buses** and **alternative fuel filling stations** for wider application in the long term and potentially continent-wide.

(B) making more efficient use of automobiles

Initiatives 3 through 6 will **boost car occupancy and smooth traffic flows**. A new region-wide service will match up drivers with people who would like to arrange a ride either casually or in more formal carpools. Promotional incentives will foster non-SOV travel from lower density suburbs of Winnipeg, e.g. through priority parking for carpools. The Pembina and Selkirk corridors will see more park-and-ride facilities. An intelligent transportation system will be applied to traffic signal timing in the Pembina corridor to reduce stop-go travel and waits at stop lights, which push up fuel consumption and GHG emissions.

(C) improving the efficiency of trucking

Initiatives 7, 8 and 9, in collaboration with shippers and truckers, will work to improve coordination and logistics region-wide **to cut part-empty running, optimize truck routing and introduce more advanced operations planning tools** (e.g. to coordinate deliveries from internet shopping).

(D) making alternative modes more competitive

Initiatives 10 through 15 will make **transit, cycling and walking options more attractive**. The employer-based transit pass system, making regular transit use more affordable for workers, will be expanded. Walking downtown will become simpler with a way-finding system to link transit and climate-controlled walkways. On the Pembina corridor, communications and data devices will be installed to (a) enable tighter bus logistics and (b) generate and display real-time information for passengers on board and at stations, to be integrated with rapid transit. Region-wide, wireless web-based access to transit information will become available. In the Selkirk corridor, initiative 15 will mount an experiment for a jitney-type transit service in an ex-urban community to feed passengers to the existing private sector Beaver Bus long-haul commuter service.

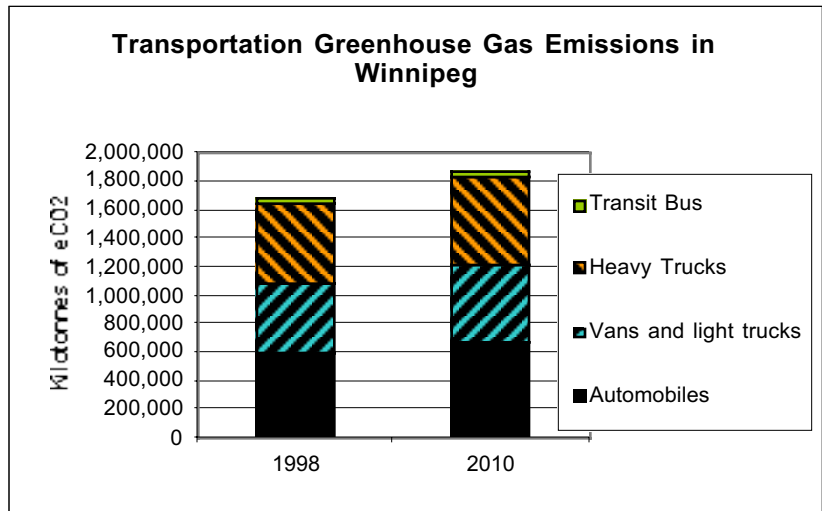
Initiatives 19 and 20 will support mainly strategies B, C and D. They will promote changes in travel behaviour through social marketing at an individual or "micro" level, and track system response to all initiatives through monitoring and measurement.

(E) developing policy through research

Initiative 16 will create a **land-use** model to assist transit- and pedestrian-friendly re-development of the Fort Rouge former rail yards, which are close to the city centre. Initiative 17 will pursue the idea of making **car insurance premiums** vary more directly with distance, allowing people to save money by cutting down on excessive driving; and initiative 18 will examine **easier financing terms for an inner-city home** if the residents can live car-free.

Key GHG Emissions Reducing Elements

Transportation is responsible for 30% of Winnipeg-area GHG emissions. Today, car, truck and bus tailpipes emit some 1.7 million tonnes annually of carbon dioxide equivalent, and this is growing at nearly 1% per year. Of transport emissions, about 2/3 is from cars, vans and light trucks for personal transport. Most of the rest is from trucks moving goods. Transit is responsible for about 2% of transportation-related emissions.



Magnitude of Winnipeg Area GHG Reduction Per Year Due to WinSmart Measures*		
Horizon	Tonnes of Carbon Dioxide Equivalent	
	Low	High
3 years	10,000	50,000
10 years	20,000	150,000

*assumes Pembina Rapid Transit

In the **medium** term, initiatives which influence the use of the larger emitter modes, i.e. cars, vans and trucks—through strategies (B) and (C) in the WinSmart framework, plus the Travel Smart social marketing initiative number 19—are the key GHG-emissions reducing elements of WinSmart. These medium-term items tend not to be capital-intensive. Together they represent about 13% of the showcase budget.

In the **long** term, shifts in urban layout, in fixed facilities and in vehicle types are required to effect structural changes in the urban metabolism. WinSmart's capital-intensive investments in the development of vehicles, fuel delivery, information technology for transit, and basic infrastructure for muscle-powered travel account for the majority of the rest of the WinSmart budget.

An elaboration of just how WinSmart's 20 initiatives affect GHG output appears in section 3.

By making certain assumptions and educated guesses, GHG emissions avoided through WinSmart initiatives can be roughly bracketed.

Assuming rapid transit will be developed in the Pembina corridor, in a decade's time the WinSmart initiatives could effect an "other things being constant" reduction in annual GHG emission of 20,000 to 150,000 tonnes.

Winnipeg-area transport emissions without WinSmart are projected to be 150,000 tonnes per year higher than today. This means that if WinSmart were fully successful, it could go some way towards arresting the growth in

Innovative Features in GHG Emissions Reduction

GHG emissions, but might not go as far as actually reducing them in absolute terms.

WinSmart is truly innovative in that it provides an integrated package. Its twenty initiatives act as an interconnected web to produce a **multiplied collective impact on GHG emissions** significantly greater than the simple sum impact of single applications.

This holistic and integrated approach to the showcase has many co-benefits to municipalities, including the promotion of integrated programming within and among the participating agencies.

Institutional Innovation

The WinSmart partners demonstrate **institutional innovation** in mounting the WinSmart Showcase. This lies in the high degree of collaboration of the public sector with the multiple private, non-profit sector groups and the University to deliver the WinSmart initiatives. These groups are substantial contributors of resources and expertise.

Innovation in Individual Initiatives

Within the package of twenty initiatives, two are innovations in a North American context; five are new to Canada, and eight to Winnipeg.

North American innovations

The two **technology** demonstrations are **unique in North America**—and therefore potentially replicable continent-wide. They are the Eco-bus demonstration (initiative 1) and the Eco-fuelling station (2).

Innovations for Canada

Five initiatives are **novel to Canada** and potentially replicable in other urban areas in the country: Promoting innovative freight practices (7); E-commerce delivery pilot (9); Comparative land use policy model for GHG impacts (16); Distance based insurance simulation (17); and "Travel Smart" Micromarketing (19).

Innovations for Winnipeg

New to Winnipeg and replicable more widely throughout the city are the following WinSmart initiatives: Suburban and capital region rideshare (3); Promoting low density area initiatives and SOV alternatives (4); Truck routing program (8); Downtown office/commercial land development pilot (12); Info-tech & communications innovations for transit (13); the Pembina bikeway (14); Innovative transit delivery in low density areas (15); and Location-efficient mortgages (18).

Development of innovative policy is also part of WinSmart

WinSmart will lay the groundwork for policy innovation in Manitoba and in the City. Policy changes on issues such as **user- and polluter-pay**—e.g. changing how much, when and where users pay for vehicles, fuel, and transport infrastructure—are recognized to have high potential for changing travel behaviour and therefore GHG emissions.

Co-Benefits of the Package

WinSmart's Co-Benefits to GHG Reduction

- economic development, efficiency and business growth
- resource conservation
- compact urban form
- wider travel choices
- congestion reduction
- less dependence on SOV travel
- greater use of transit and more sustainable modes
- better environmental quality
- health benefits, fewer lung problems
- elevated public understanding of issues, options and behaviours

As mentioned above, WinSmart has an amalgam of objectives; as well as supporting Canada's Kyoto commitment to cut GHG emissions, WinSmart partners are collaborating in order to reach their own respective goals. Indeed, the proposal package could not be justified nor supported without this co-benefit to each partner.

The particular "other-than-GHG-reduction" benefits sought by the partners are declared in their own policy papers and business plans. One such key document is the city's *Plan Winnipeg: Vision 2020*, with policies on compact urban development, integrated land use and transportation planning, downtown revitalization, climate change and public transit.

One important benefit is **increased understanding and awareness** by the public of transport-related GHG emissions and solutions, a key to changing travel behaviour.

Environmental and health benefits from reduced air pollution and traffic congestion are anticipated. WinSmart initiatives that promote walking and cycling will also yield health benefits.

More **efficient use of road space** will produce savings in infrastructure costs. Positive impacts on **downtown revitalization**, with more housing close to downtown, are expected.

Further benefits are expected by opening up **opportunities for local vehicle manufacture and environmental industries** in the area.

In the box, left, is a sample list of selected WinSmart impacts and co-benefits desirable from the partners' viewpoint. Inspection of the WinSmart initiatives reveals that every one in the package contributes to one or more of these in some way.

Showcase Support of Local Land Use and Planning Framework

WinSmart supports the region's land use plans in several ways:

- both radial transit corridors, Pembina and Selkirk (which WinSmart targets for more attractive transit service) **provide access to downtown**. This is consistent with the city's declared **Downtown First** priority for development, and its policy to "encourage accessibility to and within downtown", as well as the provincial goal of downtown revitalization.
- the Provincial and WCR goal of **limiting long-haul auto-based commuting** into Winnipeg from outlying communities is likewise supported by these transit corridor improvements and by the proposed intercity bus feeder network in the Selkirk area.
- the WinSmart package supports the planned rapid transit system, furthering the City's goal of **promoting compact urban form**. The Fort Rouge yards, close to downtown and intended for redevelopment, sit along the Pembina leg of the planned rapid transit. The city's goal to "direct new development with high intensity uses to locations that are supported by transit operations" is also supported by WinSmart in this vicinity.

Plans adapted in order to accommodate the UTSP

The Province and City of Winnipeg have advanced the planned timing of certain initiatives and expenditures to accommodate WinSmart. Initiatives will be undertaken that were not previously possible because of lack of funding. In this sense, the prospect of matching federal funds becoming available through the UTSP has prompted a shift in priorities, increased content and added focus to plans.

However, other than changes of the above sort, it will not be necessary for land use, management plans or corridor plans to be altered to accommodate the WinSmart the showcase. Indeed, these plans are entirely consistent with the initiatives and mutually reinforce them.

Public Outreach in Showcase

The Showcase can produce a sense of positive change and excitement in Winnipeg around sustainable transportation, and this can generate changes in behaviour and in the transportation choices people make that will go beyond expectations of the Showcase.

Public outreach is a **two way and continuous** exercise. Designers and implementers need to hear the public's wants and needs in order to design and implement the initiative effectively. Then they must communicate what is being offered so that the initiative is fully utilized by the public.

Public outreach is within individual initiatives

Accordingly, WinSmart's outreach components are found mainly within its individual initiatives. How this is done is explained in the more detailed descriptions of Section 3. One initiative **exclusively intended for two-way public communication** is the Travel Smart initiative (19) which employs one-on-one techniques such as "dialogue marketing" to find out what the public wants and to promote use of low-GHG impact options.

Examples of initiatives with built-in outreach components are: Promoting Low Density Area Measures and SOV alternatives (4) Promoting Innovative Freight Practices (7); Comparative land use policy plan for GHG impacts (16).

The WinSmart Travel Survey (see section 4 on Measurement) will include questions designed to assess the overall, synergistic impact of the Showcase in affecting trip-making and travel behaviour in Winnipeg.

Potential Transferable Outcomes for Other Municipalities

In coming years, lessons will certainly be learned pertaining to individual initiatives and to the WinSmart package as a whole. These are potentially transferable to other municipalities. By nature these future lessons cannot be known beforehand, but they could be classed as:

Types of lessons which might be learned

- most generally, pointing to successes and failures in the WinSmart experience, and apparent reasons for them;
- the quantified impact in tonnes of GHG emissions saved by individual initiatives, as gleaned from the measurement system described in Section 4, with commentary on cost-effectiveness;
- responding to the management challenge in a multi-agency effort such as WinSmart, and how co-ordinating mechanisms—including the way in which the private sector is involved—might be improved in light of the Showcase experience;

- revealing problems of measurement of the system's performance, including GHG emissions, and how they were addressed;
- how the low-GHG impact eco-bus and eco-fuel technologies perform, especially in Winnipeg's extreme weather—and how their use might be expanded;
- deducing the underlying reasons for observed changes in travel patterns and behaviour, e.g. giving insights into how initiatives result in long-term shifts in mode use and reduction in GHG emissions;
- where change is not observed as expected or hoped, identifying the key barriers to desired change, and how such barriers might be surmounted.

The WinSmart experience will be combined with other case studies and published information on the particular initiative type. Lessons learned will be distilled, emerging best practices identified. Individual reports will provide a detailed description of the initiative and its impacts, the generic issues of interest to other municipalities, as well as its potential for replication. A generic template will be used for the reports. Illustrative titles appear in the box, left.

Communication of lessons learned

Illustrative Titles for the
WinSmart Showcase Bookshelf

- Alternative Fuels for Buses in Northern Cities
- Eco-Station – Centralized Alternative Fuel Distribution Centre
- Internet-Facilitated Ridesharing
- Impact of Park-and-Ride on Transit Mode Share
- eCommerce – Does it Save Transportation Energy?
- The WinSmart Employee Transit Pass Program
- Pedestrian Walkways in Northern Cities – The Winnipeg Experience
- Promoting Bicycle Commuting in Winnipeg

Various **communications techniques and channels** will be used to capture the WinSmart experience and to share it with other municipalities, professionals and key decision makers.

Organizations whose members and contact network will be interested in WinSmart's output will be approached to help distribute it. In addition to the UTSP network, these channels include: the Federation of Canadian Municipalities, the Institute of Sustainable Development, the Transportation Association of Canada, the Centre for Sustainable Transportation, the academic community and other professional associations and non-government organizations operating in related fields.

WinSmart reports will offer a rich source of material for Team Manitoba presentations at transportation and environmental conferences across Canada run by other organizations (e.g. the Canadian Transportation Research Forum, the Transportation Association of Canada).

WinSmart will also create its own channels of communication:

- e-publishing through a **WinSmart web site**, maintained by the UMTI Secretariat, will make written material widely accessible;
- an e-mailed **WinSmart newsletter** will be circulated to interested organizations and individuals. An initial mailing list will be assembled from the contact files of the City, Province, UMTI, and the UTSP programme; and
- The WinSmart Secretariat, provided by the University of Manitoba Transport Institute, will mount **mid-point and final national conferences** to illuminate and share the results of all showcase cities participating in UTSP.

3 Detailed Descriptions of Initiatives

WinSmart is not only a package of initiatives to reduce transportation greenhouse gas emissions. It will also showcase related synergistic activities Winnipeg and Manitoba that will unfold over the duration of the UTSP.

This section begins by detailing each of the twenty WinSmart measures in the same order and numbering system used in Section 2. It gives the background to each measure, a measure description, the name of the WinSmart partner responsible for implementation, and the budget broken down by year.

A. Building and testing prototypes: Eco-Bus and Eco-Fuel

Initiative 1: Eco-bus demonstrations

Period	Activity	Budget
2004	Optimization & detailed design/ construct H2 refuelling station	\$1,000,000
2005	Complete station and convert first bus, commission /trouble shoot bus/station	\$2,000,000
2006	Convert 2 additional busses full operation	\$1,000,000
Total Budget for this Initiative		\$4,000,000

Background

Lead Agency
Provinces
Energy Development Initiative

Buses can be made to run on alternative fuels such as natural gas, ethanol, other bio-fuels, hydrogen and diesel/electric hybrid engines. The appeal of alternative fuel buses lies in the prospect of:

- lower, or zero, GHG emissions;
- lower, or zero, local pollutants such as particulate matter, carbon monoxide, sulphur oxides, and nitrogen oxides;
- indoor and underground operation (useful in severe climates); and
- demonstration value to other road users operating on higher-polluting petroleum based fuels.

Alternate fuel buses today have higher construction and operating costs than conventional diesel buses. Reducing these cost differences will require both increased scale of production and technical refinements. As global energy market sees the end of cheap oil approaching, alternative transportation fuel vehicles will become more competitive.

A few transit systems in North America have operated a nominal number of alternative fuel buses. None has operated a fleet big enough to test the technologies rigorously in a severe climate like that of Winnipeg.

Initiative Definition

In this proposal Winnipeg Transit would supply up to three Invero buses currently on order from New Flyer Industries for conversion to **hydrogen internal combustion hybrids**. Potential partners in the conversion and in developing the hydrogen refueling system include the Canadian Transportation Fuel Cell Alliance, Manitoba Hydro, ISE Research, New Flyer, Ford, Hydrogenics, Kraus Global and Manitoba's newly created Vehicle Technology Centre.

The Showcase will fund the incremental costs of the conversions, which would be undertaken at the New Flyer plant in Winnipeg.

Long term objective

The **long-term desire** is to operate hydrogen **fuel cell** buses, given their very high efficiency. However, they are currently prohibitively expensive and not readily available. Hybrid buses running on hydrogen internal combustion engines offer cost-efficient, immediate means to achieve tangible reductions in urban transportation GHG emissions.

A co-benefit of the Eco-bus initiative will be to expand the local manufacturing capacity and product range of Winnipeg bus builders and the extended supply and service industry, including potential export to such jurisdictions as California where there is an immediate need to improve air quality.

Associated hydrogen fuelling station

This initiative will also promote the development of a **hydrogen fuel infrastructure** that will continue to be useable to service fuel cell buses as they become available in Winnipeg.

An appropriately sized **compressed-hydrogen production and refuelling** system would be built, involving Kraus Global. Hydrogen at this station would be produced via water electrolysis. Given the dominance of renewable electricity in Manitoba, there would be near-zero GHGs from the production and utilization of this transportation fuel. The station is intended to become the first economically viable hydrogen refuelling system on the continent.

Manitoba Energy Development Initiative provided the capital cost budget for the station in consultation with relevant suppliers. It reasonably reflects the budget order of magnitude for a complete fuel production and dispensing system to support three hydrogen-fuelled internal combustion buses, including design, fabrication, on-site facilities, installation and commissioning. The budget includes the necessary engineering to refine the project details. Smaller stations could be considered: however, there would be little cost reduction. There are several options to consider regarding the location, ownership and operation of the hydrogen refuelling station. These decisions will be made through the WinSmart Showcase.

Initiative 2: Eco-fuelling station

Period	Activity	Budget
2004	Coordinate initiation of feasibility studies on the fuels, promote the site to fleet managers, procure fuel sources and equipment, construct site, manage other initial site set up activities	\$591,167
2005	Manage site activities, promote the site to fleet managers, assess the use of the alternative fuels	\$236,667
2006	Conduct analysis and compile reports on the feasibility of the site, share results of assessment studies with key stakeholders, decide whether to carry on the site	\$166,667
Total Budget for this Initiative		\$994,500

Background

Efficient, safe, all-weather alternative fuelling systems have not yet been critically tested, and **lack of alternative fuel stations** has been an obstacle to buying and using alternative fuel vehicles.

Fleet operators tend to be early adopters of alternate fuels, but there is also a market to supply individual auto owners who prefer cleaner burning alternative fuels.

Potential fleet users include municipal, provincial and federal government fleets as well as private sector fleets. Examples of these are service and maintenance vehicles in the City of Winnipeg's Parks and Recreation, Water and Waste; Winnipeg Transit maintenance vehicles; Manitoba Hydro/Centra Gas service vehicles; garbage trucks; freight trucks; couriers and delivery vehicles; and taxis.

Initiative Definition

Lead Agency
City of Winnipeg Fleet Management Services

This Eco-Fuelling initiative will showcase fuel storage and vehicle refuelling pumps and dispensers using alternative transportation fuels.

This initiative would **design and build a multi-fuel capable refuelling station in Winnipeg**. Its will be primarily targetted to serve government and private sector fleets with predictable routes and centralized fuelling. However, the site will also be open to individual vehicle users from the general public. It could offer E85, biodiesel, CNG and hydrogen. The budget for the hydrogen component of the Eco-fuelling station is incorporated in the budget for the eco-bus demonstration.

Various facility management options will be evaluated to decide the location and coordination of site activities such as installation of infrastructure, fuel procurement, scheduling fuel deliveries, managing the card reader system and maintaining equipment.

Red River Valley Clean Cities Coalition (RRVCCC) Winnipeg Chapter will **promote alternative fuel sources and the site** through stakeholder meetings, publications, quarterly newsletters and the RRVCCC web site. Red River Community College is interested in exploring the opportunities to conduct drivability tests on E85 fuel.

Specific fleet users will be identified and solicited to ensure optimal use of the station and fuels. A card reader system will track fuel usage. Each user will have a credit card and be billed monthly to use the eco-fueling station.

Additional complementary opportunities will be considered during the time frame of the WinSmart project. This may include additional hybrid electric, hydrogen internal combustion, or fuel cell fleet vehicles as may be appropriate and commercially available.

Studies will be undertaken on how these fuels from the station perform in Manitoba's climate. Study topics include, but are not limited to, measuring GHG remission reductions, vehicle performance, fuel consumption, fuel and maintenance cost and vehicle range.

B. Making better use of automobiles

Initiative 3: Suburban and capital region rideshare

Lead Agency
City of Winnipeg Public Works Dept.

Period	Activity	Budget
2004	Development of recommended program	\$100,000
2005	Program implementation	\$25,000
2006	Program evaluation	\$25,000
	Total Budget for this Initiative	\$150,000

The average occupancy rate for commuting in the Winnipeg Capital region is typically in the range of 1.2 to 1.4 persons per vehicle.

Long haul commuting by auto is growing in the Winnipeg Capital Region due to a significant increase in the number of homes in ex-urban areas. Approximately 26,000 commuters from the Capital Region currently travel to/from Winnipeg each weekday, an increase of 100% since 1981.

This initiative will develop and establish an **internet-based service for people to arrange travel matches amongst themselves**. The system will be accessed through personal computers, activity centre kiosks (see initiative 13.6), and mobile devices (initiative 13.4). The service will be aimed primarily **at suburban residents in Winnipeg and the 14 surrounding municipalities** of the WCR. Incentives to use park and ride and Winnipeg Transit will also be included (see initiative 5).

Initiative 4: Promoting low density area measures and SOV alternatives

Lead Agency
City of Winnipeg Public Works Dept.

Period	Activity	Budget
2004	Development of recommended initiatives	\$100,000
2005	Initiative implementation	\$100,000
2006	Evaluation	\$100,000
	Total Budget for this Initiative	\$300,000

An integrated set of measures will be offered to residents of existing low-density communities to encourage alternatives to the use of the automobile for single occupant trips. These improvements will be targeted to **areas within the city boundaries** in which no or very limited transit service is currently operated, and to communities within the WCR from which a significant proportion of residents commute to Winnipeg. This initiative will be supported by a co-ordinated set of promotional and informational programs in the originating communities and at workplaces in Winnipeg (see initiative 19).

Priority parking for rideshare vehicles at City-owned parking structures, developer incentives to provide park-and-ride infrastructure, walking and cycling opportunities, community workshops, place-of-work demonstrations, and advertising materials will be included in these community outreach efforts.

Initiative 5: Signal optimization program

Lead Agency
City of
Winnipeg
Public Works
Dept.

Period	Activity	Budget
2004	Install hardware/software Stage 1	\$0
2005	Install hardware/software Stage 2	\$150,000
2006	Install hardware/software Stage 3	\$300,000
	Total Budget for this Initiative	\$450,000

This initiative is an application of an **intelligent transportation system** to optimize urban traffic flows based on constant electronic monitoring. The initiative will use a multi-protocol system which supports a range of communications options. It is an extension of a newly developed initiative in which signal timing and duration is optimized to improve traffic flow and minimize congestion.

Initiative 6: Park/kiss-and-ride facilities in Pembina highway demand shed

Lead Agency
Winnipeg
Transit

Period	Activity	Budget
2004	Identify advantageous locations and negotiate arrangements with property owners	\$100,000
2005	Implement first phase arrangements	\$100,000
2006	Implement second phase arrangements	\$100,000
	Total Budget for this Initiative	\$300,000

In co-operation with private interests such as supermarkets, the City has already established **eight park-and-ride lots** throughout the city. Parking lot owners make available a number of parking spaces adjacent to an express bus stop. They take responsibility for maintenance and snow removal. Winnipeg Transit is responsible for upgrading the adjacent bus stop (shelter, illuminated signage, bus stop platform improvements, route and schedule information, benches, and waste/recycling receptacles) and for installing signs on the parking lot that identify the designated parking spaces.

This initiative will establish new partnerships to expand the number of park-and-ride lots. Additional sites will be established in the southern portion of the Pembina corridor complementary to rapid transit operations.

C. Improving the efficiency of trucking

Initiative 7: Promoting innovative freight practices for urban commercial fleets

Lead Agency
U. of Manitoba
Transport
Institute

Period	Activity	Budget
2004	Identify and research innovative freight practices	\$16,667
2005	Work with freight carriers to encourage adoption of innovative freight practices	\$16,667
2006	Continue above	\$16,667
	Total Budget for this Initiative	\$50,000

WinSmart will research **innovative freight practices**, identify and promote them in workshops with the urban freight industry. For instance, best practices in trip scheduling, and load matching will be advanced. Included will be programs to reduce idling, improve operation and maintenance, and driver training and awareness programs. The initiative, combined with the Truck Routing initiative (8) below, should foster higher operating efficiencies and reduced GHG emissions.

Innovative practices will be explored and communicated through industry-based workshops and then promoted on the WinSmart web page and the national information network.

Initiative 8: Truck routing program

Lead Agency
U. of Manitoba Transport Institute

Period	Activity	Budget
2004	Create a digitalized map of Winnipeg	\$48,000
2005	Hold workshops with urban delivery companies	\$52,000
2006		\$0
	Total Budget for this Initiative	\$100,000

This initiative aims at efficiencies by **optimizing routing of commercial freight** within in the Winnipeg Capital Region. Its purpose is to reduce GHG emissions by minimizing the distances driven by delivery fleets.

UMTI will partner with the University of Manitoba Transportation Information Group to develop a digital map of Winnipeg. The map will include such details as one-way streets and the locations of height and weight restrictions. This map will be widely available to mid-size and small companies that participate in UMTI workshops. These workshops will be designed to introduce and promote the use of pre-existing routing models, including applicable software. The cost savings of using the “least-distance” (and therefore least time and pollution) path will be promoted as an incentive for delivery companies to adopt truck routing practices.

Initiative 9: E-commerce delivery pilot

Lead Agency
U. of Manitoba Transport Institute

Period	Activity	Budget
2004	Research local applications	\$10,000
2005		\$0
2006		\$0
	Total Budget for this Initiative	\$10,000

The initiative will be a pilot to work with commercial retail big box chains to develop **e-commerce delivery opportunities**. The aim is to achieve less customer travel to stores through e-commerce and provide delivery of items by the scheduling and load matching measures.

It will include an outreach to commercial vendors to co-ordinate product delivery ordered through internet e-commerce. The objective is to reduce emissions from consumers on trips to stores and reduce emissions from urban freight by co-ordinating deliveries. Candidate participants include anchor stores located in malls. A pilot in applied logistics training from the University of Manitoba Transport Institute will be tested.

D. Making transit, cycling and walking more competitive

Initiative 10: Employer-based transit pass program (EcoPass)

Lead Agency
Winnipeg Transit

Period	Activity	Budget
2004	Negotiate and Implement EcoPass arrangement for employee groups' involvement	\$100,000
2005	Second year of Program	\$100,000
2006	Third year of program	\$100,000
Total Budget for this Initiative		\$300,000

Winnipeg Transit has initiated a discounted transit pass program with major employers in the city. An employer agrees to provide its employees with monthly passes at a discount of 30% from the face value of the pass; Winnipeg Transit sells the passes to the employer at a 10% discount and the employer covers an additional 20% of the cost of the pass. Most employers view the program as a way to improve employee benefits, as an alternative to employer paid parking subsidies, and to support use of transit.

EcoPass is an employer-based fare discount program for monthly transit passes. It makes transit travel more affordable and encourages occasional users to make more regular use of public transit. **This initiative will expand the program** to provide the monthly passes to other employee groups working in Winnipeg. In this way, the discount will be cost shared by Winnipeg Transit and the employers.

Initiative 11: Downtown pedestrian walkway enhancements

Lead Agency
City of Winnipeg Property Planning and Development

Period	Activity	Budget
2004	Wayfinding System	\$579,000
2005		\$0
2006		\$0
Total Budget for this Initiative		\$579,000

Winnipeg's **walkway system** provides employees, visitors, residents and shoppers access to a year-round climate-controlled pedestrian network. The above and below grade system has grown to over two kilometers in length throughout the downtown. The extensive weather protected walkway system is an ideal winter city amenity—but access at grade and wayfinding within the system need improvement.

An evaluation of the existing system is now underway, assessing accessibility, mobility, signage, way finding, hours of access, building code compliance, universal design, and the linkage to other modes.

Downtown Winnipeg is well served by public transit buses, linking the downtown with all areas of the City. The Downtown also supports a Downtown Spirit bus and a public water taxi system. **Better linkage and connectivity between public transport and the walkways** will make a safer, more comfortable, convenient and accessible walking environment.

Many Winnipeg residents are unfamiliar with downtown and are unwilling to give up the navigational control their car provides. If people can rely on an easy wayfinding system, they will be more comfortable leaving their vehicles at home, or moving around by foot once they are downtown.

This initiative will improve entries/exits between the walkway system and the transit system to improve connectivity and pedestrian appeal. These public gateways will provide legible orientation to a safe and accessible, pedestrian, friendly environment. A clear way-finding system on transit shelters, streets and the walkway system will help make transit and walking more convenient choices for the downtown area.

Initiative 12: Downtown office/commercial land development pilot

Lead Agency
City of Winnipeg
Property Planning and Development

Period	Activity	Budget
2004		\$75,000
2005		\$75,000
2006		\$75,000
	Total Budget for this Initiative	\$225,000

Recent development activity in the downtown creates an opportunity for pilot projects to integrate transit-oriented design and smart growth principles into future downtown developments.

Current candidate real estate developments for participation in this initiative are:

- the new Red River Community College campus development that is applying green building designs. Some 3000 students and staff will use this campus. There is limited local parking available.
- the East and West Exchange areas of the Downtown which consist of numerous heritage-designated buildings. They are being redeveloped, contributing to downtown revitalization.
- a new 15,000-seat downtown entertainment complex adjacent to the Graham Street Transit mall.
- the upcoming development of a downtown Manitoba Hydro office. With location yet to be fixed, there is an opportunity to incorporate characteristics that will promote transit use and offer weather protection.

Initiative 13: Info-tech and communications innovations for transit

Lead Agency
Winnipeg Transit

Easily available, up-to-date, intelligible information about transit services is known as an important inducement to transit use—and lack of it a deterrent.

Winnipeg Transit already offers travellers good paper, web, and telephone transit information. However, new information and communications technology offers improvements. These are the subject of several sub-initiatives under this heading.

Initiative 13.1: Automatic vehicle location systems

Period	Activity	Budget
2004	System design and prototype testing	\$500,000
2005	First phase implementation	\$650,000
2006	Second phase implementation	\$500,000
Total Budget for this Initiative		\$1,650,000

Real time, accurate information for users depends on knowing exactly where transit vehicles are at all times. An Automatic Vehicle Location (AVL) system to track buses in real time is a key source for this data. It also gives transit managers data to tightly manage vehicle logistics.

Such a locator system will be developed and prototyped on buses operating in the rapid transit corridor, providing base data for initiatives 13.2 through 13.5 below.

Initiative 13.2: Real-time electronic bus departure displays at rapid transit stops

Period	Activity	Budget
2004	Initial planning and design work	\$0
2005	First phase implementation	\$240,000
2006	Second phase implementation	\$240,000
Total Budget for this Initiative		\$480,000

People are more willing to wait when they know with certainty when the next bus is coming.

At the major stops on the rapid transit corridor, electronic information displays will provide real time information on bus departures and arrivals. Public service messages including environmental education on climate change will also appear on the displays.

Initiative 13.3: Next stop displays on board transit buses

Period	Activity	Budget
2004		\$0
2005	Initial planning and design work	\$0
2006	Implementation	\$300,000
Total Budget for this Initiative		\$300,000

Some passengers are unsure where and when to alight from a bus. On buses with standing loads or during inclement weather when the bus windows are fogged, all passengers may experience problems. AVL permits the name of the next stop to be displayed and announced as a bus progresses along its route. Such a system will be developed and prototyped on buses operating in the rapid transit corridor.

Initiative 13.4: Wireless web access of sustainable mode transit information

Period	Activity	Budget
2004	Identify technological issues and develop solutions	\$35,000
2005	Begin preliminary design work	\$70,000
2006	Complete development work and introduce live system	\$105,000
Total Budget for this Initiative		\$210,000

Information about transit and other sustainable modes (whether paper, web, or telephone based) is easily accessed in the home and in the workplace. However, passengers often need such information at other locations when traveling between origin and destination.

This initiative will improve access to travel information at locations remote from home or work (wireless web access link). Information on the Winnipeg Transit web site (such as stop specific schedules and a trip planner) and the proposed ridesharing service will be available on personal digital assistant and mobile telephone devices. Service will be available for all transit and ride-sharing services throughout the WCR.

Initiative 13.5: Information kiosks at major activity centres

Period	Activity	Budget
2004	Initial planning and design work	\$0
2005	First phase implementation	\$80,000
2006	Second phase implementation	\$80,000
Total Budget for this Initiative		\$160,000

These kiosks will be placed at a number of major centres in the downtown and in the rapid transit catchment area. They will offer all the information currently available on the Winnipeg Transit web site, such as maps, timetables, stop specific schedules, and a trip planner, plus public service messages, environmental information, and user information about sustainable transportation (ridesharing, park and ride, cycling, walking).

Potential sites include the two major universities, shopping centres, major office buildings, and hospitals. The intent is to provide detailed and easily accessible information about how to use public transit and other sustainable transportation in Winnipeg.

Initiative 13.6: Signal priority program

Period	Activity	Budget
2004	Identify system requirements and undertake design and development work	\$100,000
2005	First phase implementation	\$200,000
2006	Second phase implementation	\$300,000
Total Budget for this Initiative		\$600,000

Bus actuated traffic signal technology will be installed at congested intersections on Pembina Highway to improve the speed and reliability of transit service. The objective is to assess the impact of the technology on transit service quality and on mode choice.

In the on-street part of the rapid transit corridor (see Annex B), pre-emptive traffic signal technology will be installed to lengthen green phases or truncate red phases at signalized intersections. This will improve the speed and reliability of transit service in the rapid transit corridor.

Initiative 14: Pembina bikeway

Period	Activity	Budget
2004	Design	\$100,000
2005	Phase One Construction	\$400,000
2006	Phase Two Construction	\$500,000
Total Budget for this Initiative		\$1,000,000

Lead Agency
City of Winnipeg Public Works Dept.

The Pembina corridor is today an unattractive environment for cycling and in-line skating. To improve opportunities for cycling between the SW part of the city and downtown, a new cycling/skateboarding/walking path will be built. This facility will link with the path that has been built adjacent to the proposed bus way portion of the rapid transit corridor between The Forks Market area and Osborne Street near the Fort Rouge Transit Base.

This initiative would initially extend the path south within the bus way right-of-way to Jubilee Avenue. Upon implementation of stage two of rapid transit, the path will extend south within the CN Letellier subdivision to Bison Drive, and then to the University of Manitoba campus via Bison Drive/Chancellor Matheson. This would provide a continuous cycle path in the Pembina Highway corridor between downtown and the University of Manitoba.

Secure lockers would be installed at major rapid transit stops and at the University of Manitoba, hospitals, and shopping centres. The goal is to provide an integrated, safe and secure bike and ride transportation option.

Initiative 15: Innovative transit delivery in low-density areas

Lead Agency
Province of Manitoba/
Beaver Bus Lines

Period	Activity	Budget
2004	Service Design and Planning	\$100,000
2005	Completion of Design and Service start-up	\$225,000
2006	Continued Service Operation	\$225,000
Total Budget for this Initiative		\$550,000

For the past several years, Winnipeg Transit has tested a new concept of service delivery in low-density areas during periods of low demand. Regular fixed route service has been replaced by a flexible dial-a-ride service (DART) that uses a smaller vehicle and operates on demand when and where required. The major benefits to users are more direct travel, reduced walking distances, and a more secure ride. Adaptations of this concept, including service operation by private interests, will be implemented to provide connecting links from suburban communities to the regular transit network.

Content of the Initiative

This initiative will design and put into operation on the ground higher-occupancy vehicles (e.g. buses, taxis or vans) with four goals (see box, left).

**Goals of Initiative 15:
Innovative Transit Delivery in Low Density Areas**

- meet the needs of inhabitants of Selkirk
- feed the long-haul bus service between Selkirk and Winnipeg and improve its viability
- achieve cost efficiencies from a full-cost accounting perspective, and in particular
- reduce GHG emissions from the transport sector

Beaver Bus currently operates a frequent morning and evening commuter schedule between Selkirk and Winnipeg, but has no feeder service. As a result, commuters who reside away from the Selkirk bus stops and are headed downtown commonly drive their cars the 35 kilometers twice per day. A new jitney service can collect these passengers from their homes in the morning, and provide a convenient return at night.

The jitney service will also operate within Selkirk on a combination of scheduled and on-demand service (non-peak hours). Selkirk would provide bus stops and support any regulatory changes with Manitoba Motor Transport Board needed to make the jitney service legal.

In addition to assisting mobility within Selkirk and reducing GHG emissions produced by current SOV commuters, the Showcase will test a number of concepts in jitney provision that may be replicable in other locations, including the City of Winnipeg.

City Councillors are interested in jitneys to solve service problems in suburbs that are ill suited to 40-seat buses now operating at a significant loss in these thin markets. Plans are to test the use of cellular telephones to link jitneys and passengers. Also, Selkirk could provide a site for a small

pilot project to evaluate new technology, such as GPS and computer coordination to drive efficiencies and service.

Budgetted funds have been calculated as adequate to subsidize the operation of a pilot service; however they could be deployed in several ways, including the purchase of taxi licences, or as compensation to taxi operators whose licences may decline in market value if the experiment is successful.

E. Policy Research

Initiative 16: Comparative land-use policy plan for greenhouse gas impacts

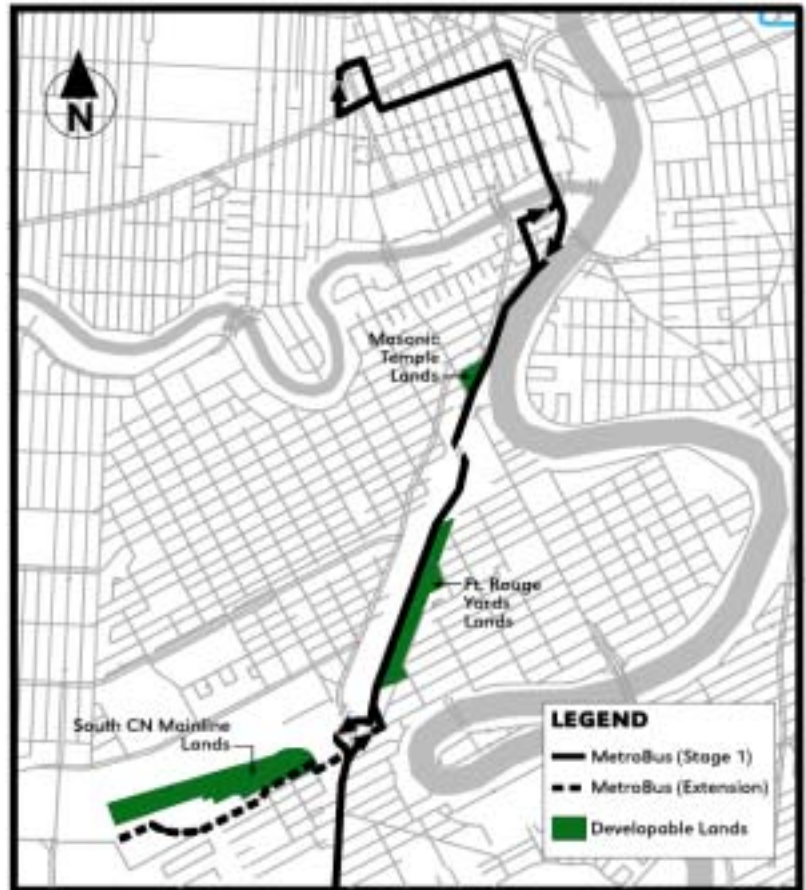
Lead Agency
City of
Winnipeg
Property
Planning and
Development
Dept.

Period	Activity	Budget
2004	Partnership, Consultations & Guidelines	\$60,000
2005	Area Redevelopment Plan	\$100,000
2006	Implementation and Measurement	\$210,000
Total Budget for this Initiative		\$370,000

Implementing land use policies for densification is great challenge in Winnipeg’s slow-growth environment. Densification opportunities can nevertheless arise as indicated in the box, left.

Densification Opportunities in Winnipeg's Slow-Growth Environment

- committing to high intensity development on sites **adjacent to major traffic and transit corridors;**
- promoting the densification of the suburbs through **infill development of regional nodes;**
- densification **along the planned rapid transit corridors** in order to support ridership in both directions including the planned development of nodes of higher intensity land uses around future transit stops; and
- **locating rapid transit routes** both to serve existing land uses and also to shape future land use.



The Fort Rouge Yards (see map), owned by CN Rail, lie east of Pembina Highway between Brandon Avenue and Rosedale Avenue, along the west side of Argue Street. Their location and current status present a special opportunity to develop a transit-oriented mixed-use urban neighbourhood.

Due to the relocation of the CN Intermodal terminal, many of the Fort Rouge spur lines are unnecessary. CN is selling some of the land. Developers are interested in the approximately 79 acres, of which 35 to 40 acres may be available for redevelopment. The land will require decontamination but will be suited to mixed-use transit-oriented urban development as an extension of the Lord Roberts neighbourhood.

This WinSmart initiative will:

- mount an extensive consultation process with the public and stakeholders including current and future residents, transit riders and developers;
- research possible partnerships between all levels of government as well as the private sector as necessary to develop and implement a new urban development model;
- collaborate with the purchaser of the land in an Area Redevelopment Plan to promote development that advances sustainable land development principles; and
- undertake a comparative land use study to evaluate the impacts of the re-development of the land on GHG production compared to developing the site based on a traditional model.

Re-development will require re-designation of the Yards from Industrial Policy Area to Neighbourhood Policy Area as well as initiatives to ensure that an alternative land-use model is implemented. The alternative model will encourage use of transit as well as active transportation modes through integration with pedestrian and bike infrastructure.

Initiative 17: Distance-based insurance simulation

Lead Agency
U. of Manitoba Transport Institute

Period	Activity	Budget
2004	Research possibility of implementing differential urban passenger vehicle insurance rates	\$10,000
2005		\$0
2006		\$0
Total Budget for this Initiative		\$10,000

Making auto insurance payments more variable with vehicle usage (instead of a lump sum fixed with respect to amount driven) could accomplish two things:

- help to cut down excessive driving, since people would find that they could save a considerable amount of money by driving less; and
- be more equitable, since those who drive more generally create more crash risk.

This pilot initiative will assess the feasibility of differential urban passenger vehicle insurance rates. This could involve monitoring vehicle odometers to find high and low vehicle use within city/provincial fleets. The results will help characterize a potential vehicle insurance premium schedule aimed at reducing rates for low-mileage users. This will complement initiatives of the Transport Canada Data Strategy Working Group.

Initiative 18: Location efficient mortgages

Lead Agency
U. of Manitoba Transport Institute/ Winnipeg Inner City Research

Period	Activity	Budget
2004	Examine the feasibility of LEM in inner-city Winnipeg	\$25,000
2005		\$0
2006		\$0
	Total Budget for this Initiative	\$25,000

By living near shops, services, employment and, most importantly, public transit, homeowners can drastically reduce their driving, and can perhaps live without a car entirely. Without the added automobile expenses, a consumer should be able to apply these savings to his mortgage. Where suburban real estate is considered more affordable, the Location Efficient Mortgage (LEM) is used as an incentive to encourage consumers to look toward more central locations.

The LEM promotes as ideal an urban lifestyle in which the use of a car is considered optional, and rewards residents in such a situation appropriately. The policy implications of this shift, should it find other adherents, could be far-reaching, affecting such areas as tax and employee benefits and zoning regulations.

This feasibility study, prepared by the Institute of Urban Studies, will be important in several respects. Among several other goals, it will:

- investigate the potential of the LEM to contribute to wider environmental sustainability goals in Winnipeg;
- determine to what extent LEMs can promote Winnipeg's central residential areas as an ecologically sustainable alternative to suburban living.

Initiative 19: Travel Smart micromarketing

Lead Agency
U. of Manitoba Transport Institute with Resource Conservation Manitoba

Period	Activity	Budget
2004	Compile "travel diaries" and launch dialogue marketing campaign	\$400,000
2005	Continue trial offers and personalized promotional packages	\$300,000
2006	Wrap-up social marketing and complete final "travel diaries" to measure behaviour change	\$200,000
	Total Budget for this Initiative	\$900,000

A solid body of applied research proves that well designed awareness campaigns, plus accessible service information, can boost the use of sustainable modes.

Social marketing increases public understanding of the relationships between lifestyles, transportation, and the environment, and promotes awareness of sustainable modes for urban travel. The marketing effort prompts voluntary behaviour change.

This initiative is a series of social marketing initiatives in partnership with local environmental groups, other levels of government, and private sector interests.

The first step in the Travel Smart program is the "travel diary" survey. Travel diaries are compiled by contacting households by telephone on randomly chosen days. This defines the current travel behaviour of every

Travel diary

person in the residence. Cumulatively, travel diaries detail the seven-day travel patterns of the entire test area.

Dialogue marketing

Next, “dialogue marketing” techniques are employed. They identify households and define them as regular users of alternative transportation, residents interested in using sustainable transportation, or those not interested in alternative modes. Interested residents are contacted so that their transportation needs can be discussed. A personalized package of promotional materials, including a free trial transit pass for example, is subsequently distributed to that household.

The outreach program will continue at a decreasing level over the three years of the showcase. Travel diary surveys will be conducted with the interested residents at the end of the period to measure long-term behavioural changes.

Although conventional outreach methods have been used in Winnipeg, undertaking a marketing campaign of these dimensions is significantly different from prior outreach efforts. When interested parties receive personally relevant information, the effectiveness of the outreach and education components is maximized.

Initiative 20: Measurement, evaluation and monitoring impacts and co-benefits

Lead Agency
U. of Manitoba
Transport
Institute/Torrie-
Smith

Period	Activity	Budget
2004	Baseline GHG reading, recruit, develop survey	\$250,000
2005	Report writing of completed projects, dissemination of information	\$50,000
2006	Administer survey	\$200,000
	Total Budget for this Initiative	\$500,000

Measurement, evaluation and monitoring apply to all initiatives and are therefore in their own category. In themselves, they provide an opportunity for innovation. As for other initiatives, these innovations will be shared with other municipalities through the national information network.

A full description of Initiative 20 appears in Section 4 following.

As noted in the individual descriptions, many WinSmart initiatives refer to, and depend upon, others.

How they fit into a five-part strategy is illustrated in the diagram in Section 2, at the start of "Overview of Showcase Initiatives".

WinSmart relates to several **existing initiatives** in the Winnipeg region. It does so in two ways:

- by simply **expanding upon existing city initiatives** which have already demonstrated success. Four WinSmart initiatives do this: expansion of park and ride (initiative 5), further traffic signal optimization (initiative 6), more support for employer based transit passes (initiative 10), and extra downtown walkway enhancements (initiative 11). The rest of the WinSmart initiatives relate in the second way, which is

How WinSmart Initiatives Represent an Integrated Strategy

Relation to Existing Initiatives

WinSmart expands on some existing measures

WinSmart reinforces existing initiatives outside the WinSmart package

- **by interacting with, and multiplying the effects of, initiatives which are parallel** to but not included in the list of WinSmart initiatives.

WinSmart fits with two primary established city planning and policy commitments. These are:

- Plan Winnipeg 2020 Vision, which is the city's long term growth management strategy and
- the City's participation in the FCM's Partners for Climate Protection Program.

In addition, **other specific local infrastructure and policy planning** initiatives are underway which are **closely aligned with WinSmart**. They are the City's:

- **rapid transit** project and
- work towards a **Comprehensive Environmental Strategy**.

WinSmart's relationship to these two is explained below.

Relation to Rapid Transit Project

WinSmart assumes that a **rapid transit line** described in Annex B will, in the next few years, start operating in the Pembina corridor. Several legs of rapid transit are planned eventually to radiate from downtown. The Pembina corridor will see the first leg, to be built in stages. The City's 2003 capital budget includes \$5 million to begin work.

Several WinSmart initiatives will be undertaken in the Pembina corridor and will support this first leg. The **transit information and communications technologies** of initiative 13 (i.e. transit AVL, real time bus information at stops and onboard, info kiosks and signal priority for buses) will be applied specifically in this corridor. The **Pembina bikeway** (initiative 14) will be integrated here, e.g. with bike storage at transit stops, boosting the "bike and ride" travel choice. The **park/kiss and ride facilities** (initiative 5) will also be sited along the rapid transit corridor and feed passengers to it. Rapid transit will run through the **Fort Rouge Yards**, which are the focus of the urban planning and redevelopment initiative detailed in WinSmart initiative 16.

Relation to Winnipeg's Comprehensive Environmental Strategy

In 2002-3 Winnipeg's Civic Environmental Committee drafted a long-term **strategic plan for environmental and sustainable development**. The City will mount an extensive public consultation on it, moving towards eventual City Council approval.

City to develop transportation demand management strategy

The City's discussion document for this plan⁴ sets out for public debate several policy initiatives on **sustainable transportation**. The City commits to working with citizen community groups, NGOs, the business community and other levels of government toward the development of a

⁴ "A Discussion Document Toward a Comprehensive Environmental Strategy for the City of Winnipeg" at http://www.winnipegcec.org/environmental_strategy/index.html

comprehensive **transportation demand management** (TDM) strategy for Winnipeg.

The TDM-related initiatives to be explored in this strategy include pricing, financial and other initiatives. If implemented they could have dramatic effects on travel behaviour. They would nicely complement and multiply the effects of the technology, infrastructure and social marketing features of WinSmart. They include:

- shifting mileage and parking subsidies away from the use of personal vehicles;
- ensuring "Smart Growth" developments are sufficiently oriented to public transport;
- requesting the federal government to make employee transit subsidies a tax-exempt benefit;
- providing ridership incentives to communities that show support for TDM programmes;
- working with other government to shift fuel tax revenue away from urban auto infrastructure toward public transit infrastructure;
- working with the Province to develop a commuter trip reduction programme; and
- leading by example by implementing
 - an employee parking policy that supports car-pooling and discourages single occupancy vehicles; and
 - telecommuting and flex time to reduce travel demands

Nature and Magnitude of WinSmart Impacts on GHGs and other aspects

Complex influence, short time frame

What are the **nature and magnitude of the expected impact** of the 20 WinSmart **initiatives** on GHG emissions, other air pollutants, traffic congestion and delay, public and private costs, and other aspects of the quality of life?

WinSmart initiatives will influence in many ways the dynamic and complex web of factors that underlie the region's transportation system. The initiatives will take time to bite. Their individual impacts, especially on a three year time frame, will be small relative to the city-wide baseline of GHG emissions and other parameters of the urban transport system.

In Section 2, it was noted that WinSmart initiatives, if successful and combined with Pembina rapid transit, are by themselves unlikely to do more than arrest the underlying growth in transport GHG emissions from Winnipeg-area transport in the coming decade.

Problem of attribution

The answer to the question posed is also complex. The initiatives are designed to interact among themselves and with initiatives outside WinSmart. That means that the magnitude of their individual impact is not readily attributable to individual initiatives, nor really meaningfully, unless other things are held constant—which in practice they are not. So, the magnitude of the WinSmart initiatives will depend on many uncertainties, including:

Discussion of uncertainties and complexities in assessing impact of package

- whether, when and how complementary initiatives outside the WinSmart package—such as those above-mentioned TDM measures about to be discussed with the public under the City's environmental strategy—unfold in Winnipeg;
- whether the innovative and pilot initiatives in WinSmart (e.g. transit service to low density areas; trucking e-commerce delivery pilot) are successful—and whether they are replicated across the region. By definition, their effectiveness is untested and unknown;
- what changes unfold, and how fast, in the wider economy (notably in the price of fuel—gasoline, diesel and competing non-fossil fuels) which could have a strong effect on travel choices.

Discussion of WinSmart's impact on GHG Emissions

How does WinSmart affect GHG emissions in particular?

Annual GHG emissions from transporting a given number of people and tons of freight can be viewed as a mathematical result of **five physical factors** totalled for all the cars, buses and trucks in the city (see box, left). Most transportation decisions affect more than one of these five.

One way of tackling GHG emissions is to **improve vehicle and fuel technology**, the first two factors. From a government viewpoint, the approach is, first, to increase the supply of low-emission engines and fuels, by regulation, financial assistance or other suasion of vehicle and fuel manufacturers. Secondly, government can foster demand from the travelling public and transport firms to acquire and use them, instead of using higher-emission vehicles and fuels. In Canada this is mainly within the purview of the Federal Government.

However, there is a need and an opportunity to **develop new low-emission technology** for future application. As the end of cheap oil approaches and vehicle fleets turn over, low-emission vehicles and fuels, though now relatively costly to acquire and use, will become more economically competitive.

With local capacity and expertise in bus manufacture and eco-fuel production and distribution, Team Manitoba sees opportunities to demonstrate, test and market new technology for **clean bus engines and distribution of clean fuels** (WinSmart initiatives 1 and 2). WinSmart influences the first two of the above five GHG factors (fuel efficiency of vehicles and emissions per unit of fuel). It has potential to help cut GHG emissions in the long term and continent-wide: tonnes of GHGs saved will rest on the geographic breadth and rate of uptake of the technology.

However, to cut the growth in Winnipeg region transport-sector GHG tonnage within the Kyoto timeframe, Provincial- and city-level efforts must focus on **changing travel behaviour**—to influence the last three GHG factors. How much passenger and freight travel is undertaken, where, by what mode and at what vehicle utilization factor cannot be controlled, but it can be influenced. The Provincial and municipal governments supply infrastructure and subsidize state enterprises. In addition, these governments regulate entry and exit of firms, control competition and set price levels for public transport.

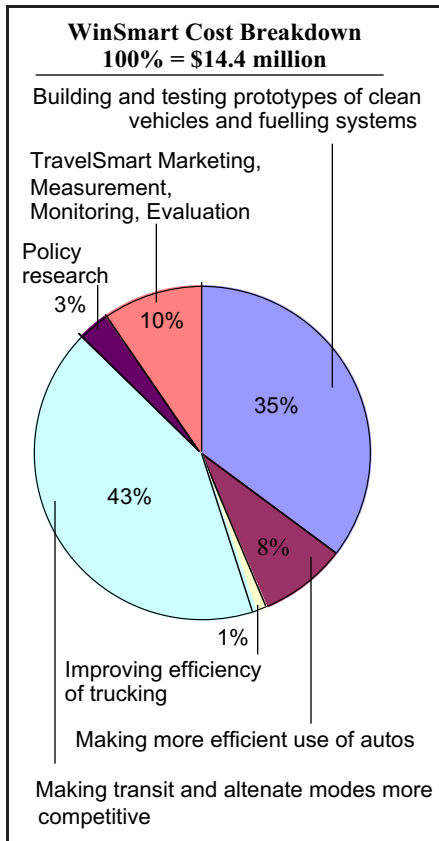
GHG Emissions Equal...

—

- (a) **fuel efficiency of vehicle**
(litres per km for car/bus/truck)
multiplied by
- (b) **emissions per unit of fuel**
(GHG grams per litre burned)
multiplied by
- (c) **the number of trips taken** per
year in the city (numbers of
people, tons of freight)
multiplied by
- (d) **length of trips** (km)
divided by
- (e) **loading of the vehicle** (number
of people or tons of freight in it)

WinSmart will reduce WCR urban transport GHG emissions in the coming decade in three main ways:

- in the medium term, by **making more efficient use of automobiles**, by aiming to reduce the single-occupant auto's share of the travel market [initiatives 3 through 6];
- by fostering **greater efficiency of truck movement** for urban freight operations [initiatives 7 through 9], and
- by making transit, human-powered and other non-SOV, GHG-efficient travel options **more readily available and much more competitive** in terms of travellers' comfort, convenience, safety, security, reliability, speed and cost—in an effort to increase their share of the travel market [initiatives 10 through 15].



The WinSmart package will have beneficial impacts on other aspects of Winnipeg life (other air pollutants, traffic congestion and delay, public and private costs, and other quality of life factors), though magnitudes are difficult to estimate.

- the impact on **other, local air pollution** will generally parallel that on GHGs, although there are significant variations in common air contaminants between vehicles with equivalent fuel efficiencies but different emission standards (e.g. Tier 1, Tier 2, ULEV, SULEV, etc). The WinSmart quantification framework (see Section 4) will employ emission factors for vehicle/fuel combinations that track GHG and air pollutant emissions separately.
- **traffic congestion** will be reduced by measures to increase vehicle occupancy (rideshare and making non-SOV modes more attractive), and by traffic signal optimization. However, to the extent that Rapid transit reserves existing lanes on Pembina highway (yet to be determined), there will be less road space for general traffic.
- **responsibility for bearing costs** will shift away from private (automobile expenses) and towards public (transit and alternative modes), though depending on user charge, fuel taxation, parking charge policies and other demand management policies there may be little change.
- as to **quality of life**, living in a cleaner and more sustainable city and having more travel options will be a positive change.

How Public Outreach will be undertaken

The importance of public outreach as a two-way exchange of information and understanding is recognized throughout the WinSmart Showcase.

Many WinSmart initiatives have built-in promotion and public outreach as part of both their design and marketing, detailed under each initiative in Section 3⁵. Close contact with the public for promotional, marketing and survey purposes is at the heart of two initiatives: "Travel Smart" micro-marketing (19) and Measurement, Monitoring and Evaluation (20). These

⁵ See initiatives 2,3,4,7,9, 15 and 19 in particular

initiatives, which comprise 10% of the WinSmart budget, are also described in detail in section 3.

Capacity to Participate in National Information Network

Each WinSmart initiative undertaken will be accompanied by reports detailing the costs of the initiative and an evaluation of its success, as well as suggested areas of improvement. WinSmart will contribute to a national information network mainly through the channel of the University of Manitoba Transport Institute (UMTI). UMTI will produce the necessary reports and publish them on a website dedicated to WinSmart and maintained by UMTI. Other cities interested in replicating any or all of the WinSmart measures will have easy access to the reports in a universal format on the Internet. Paper copies will be available upon request. This topic is discussed elsewhere, at the end of Section 2 and also elaborated in section 4 following under the heading *Information Bank, Reports, and Information Sharing*.

Consultation with Environmental Assessment Advisor

The following WinSmart initiatives involve infrastructure construction: Eco-fuelling station (2) Expanded park and ride facilities (5) and Pembina bikeway (14).

Their environmental impact should be investigated further at the appropriate time to meet requirements of the Canadian Environmental Assessment Act.

Team Manitoba confirms that **Transport Canada's Environmental Assessment Advisor** has **been consulted** as required by the UTSP Detailed Proposal Guidelines. Annex C of the Guidelines has been completed and submitted to her as it pertains to these initiatives.

4 Impact assessment and reporting

Quantification and benchmarking have been hallmarks of the City of Winnipeg's approach to greenhouse gas emission reduction. The City has conducted greenhouse gas inventories for 1994, 1998 and a projection for the year 2010.

This section describes the overall approach to impact assessment. More detail on the quantitative framework is found in Annex C.

Measuring Impacts Relative to a Baseline

City-wide baseline: first method

Individual initiatives and the whole WinSmart Showcase will be assessed against a **Winnipeg city-wide baseline** of total transportation energy use and emissions. The challenge is that these cannot be quantified directly, at least not with the types of information that are currently available. Two methods will be used for the estimate.

Total sales of transportation fuels can be used as an estimate of total transportation energy use in a city—if the city is highly self-contained and if both retail and wholesale data are available. Data on **retail** fuel sales are commercially available. Though information about **wholesale** fleet refueling facilities is generally difficult to gather, the WinSmart quantification team will estimate total transportation energy use in Winnipeg by combining the two.

Second method

The team will make a second estimate by combining data on the number and types of vehicles in Winnipeg and their default fuel efficiencies with estimates of the total vehicle-kilometres of travel (vkt). These in turn will be estimated by combining representative screenline and traffic count data with roadway length information. Methods and data sources will be thoroughly documented for future replication—and for the development of a reliable time series of transportation energy use and emissions in Winnipeg.

Performance Indicators and Measurement

Measurement Targeted at Specific Indicators

In addition, high level indicators of transportation sustainability in Winnipeg will be tracked city-wide (see box, overleaf).

These indicators change slowly over time and are not very useful for assessing the impact of individual initiatives, or even of the whole Showcase, at least not over the relatively short three-year lifetime of the project.

Therefore, the city-wide baseline and the high-level indicators will be complemented with **initiative-specific "before" and "after" quantification**, and by a longitudinal **WinSmart Travel Survey**.

For the individual initiatives, the five-factor framework⁶ described in Section 3 lends itself to the quantification of progress toward sustainability. These factors will be tracked for eight initiatives targeted for quantification.⁷ For all these initiatives, the details of the quantification and survey instruments can be developed in parallel with the initiatives themselves.

In addition, **initiative participants will be surveyed** to determine the factors that influence initiative adoption, continued initiative adoption, and replicability on a larger scale within Winnipeg as well as in other Canadian cities. The survey questions will depend on the specific initiative (i.e. users of park-and-ride lots vs. participants in employee transit pass programs vs. users of the bikeway, etc.).

In one particular case—that of Initiative 15 (Innovative Transit Delivery in Low Density Areas) which lies outside the City of Winnipeg—initiative impact assessment will be integrated into the market research and user surveys already integral to it.

A survey of prospective users at the outset of this initiative will be used to design it. The primary survey purpose is to determine the preferences and key factors for its prospective users, but questions will also cover current commuting habits (trip numbers, lengths, modes). Then, after the service has been established, user surveys will be conducted to determine the lengths and modes of trips that the alternative transit service is displacing. This information will be used to estimate the GHG and air pollution reductions being achieved.

There are four other WinSmart initiatives (16 through 19) for which data gathering and analysis form an integral part of the initiative itself, as described in Section 2. A Quantification Team at UMTI will work directly with the lead managers for these initiatives to ensure that the resulting reports utilize the conventions and default factors adopted by the WinSmart Showcase, and to provide support in the areas of quantified analysis of initiative impacts.

The **WinSmart Travel Survey** represents an innovative approach to establishing a baseline of trip-making and transportation energy use, and will be a key element of the WinSmart impact assessment strategy. It will be conducted in two parts, one in the first year of the Showcase and then again in the final year. This will determine the impact of WinSmart initiatives and the Showcase as a whole. A specific objective is to detect the overall impact of the WinSmart Showcase in changing individual and household trip-making and transportation energy use in the direction of greater sustainability. It will also produce a number of sustainability indicators, including VKT per household and per capita, total transportation

High Level Indicators

1. total per capita **vehicle-kilometres of automobile travel** (with total vkt estimated as per inventory exercise by combining representative traffic count data with roadway length information);
2. **portion of trips by non-automobile modes** including walking, cycling and public transit (with information on mode shares taken from screenline counts, Winnipeg Transit data, the WinSmart Travel Survey, and the city's occasional origin-destination travel survey);
3. total per capita **consumption of transportation fuels** (energy inventory results divided by population); and
4. the **contribution of clean and renewable energy** sources to the supply of transportation fuels (with contribution from alternative fuels based on surveys of total sales and consumption from fleet operators and area retail outlets).
5. per capita **vehicle ownership** by vehicle category (from vehicle registration records).

⁶ The five factors are: reduced number of trips, shorter trips, increased transit modal share and/or vehicle occupancy, increased energy efficiency of vehicles, greater reliance on low emission fuels.

⁷ Initiatives 1, 2, 3, 6, 9, 10, 11, 14.

*Special focus at the
Pembina corridor*

emissions per household and per capita, and percent of household/individual travel by transit and other non-automobile modes.

The two-part longitudinal survey will focus on assessing the impact of WinSmart initiatives on transportation in the **Pembina** corridor. Survey participants will include two groups – households from transportation zones in the vicinity of the Pembina Corridor, and students and employees of the University of Manitoba, a major destination of trips utilizing the Pembina Corridor.

The **first part** of the survey, in the first year of the WinSmart Showcase, will occur while the initiatives are under development but before they have been implemented. The **second part** will re-survey the same participants in the last year of the Showcase. Understanding the access and mobility needs of households and the decision-making that goes into satisfying those needs is critical to the design of integrated solutions for sustainable transportation, and the WinSmart Travel Survey will be designed to support that objective.

The first survey will establish a **baseline of trip-making activities**, sufficient to estimate transportation energy use and emissions profiles of neighbourhoods in the Pembina Corridor and of student/employee commuters to the University. The household sample size will be sufficient to be a statistically significant representation of the neighbourhoods, and to allow for sample attrition between the first and second surveys (which will be separated in time by about 24-30 months). The university-based sample will include both students and employees; in the case of the student component, two different samples may be necessary for the first and second surveys, given the mobility of the student population.

The surveys will cover all WinSmart initiatives. They will include standard origin-destination and trip diary questions, and an important outcome will be recommendations for permanent changes and enhancements to the information that is regularly collected as part of Winnipeg's ongoing transportation planning processes.

Impact Assessment of Synergies

The Quantification Team at UMTI will have some involvement with all the initiatives undertaken as part of the WinSmart Showcase and will therefore be in a position to identify and assess synergies between the initiatives. The work will use conventions and a software tool that will ensure **consistency between initiatives** and that will also help to identify and assess the **impact of synergies** between initiatives.

In most cases, **inter-initiative synergies** will act to increase the overall impact: e.g., if transit buses switch to cleaner fuels at the same time that other initiatives are promoting a modal shift to transit from SOV's, then the overall impact of the modal split will be amplified. The quantification approach will avoid double counting in such circumstances while capturing the effects of the synergy.

Unwanted synergies may increase energy use even though initiatives intend to achieve the opposite. A rideshare program that results in a car that use to be parked downtown all day now being used by other drivers in

the family for running errands in the suburbs is one well known example. The tendency of traffic to increase in response to successful traffic smoothing initiatives is another. WinSmart will seek data on these secondary factors from survey participants, assess and report them.

Information Bank, Reports, and Information Sharing

On mobilization of the WinSmart Showcase, quantification and analysis will be centralized at UMTI. The Institute will act as the repository for the data and reports, which will be made readily available by UMTI and will be downloadable from a project web site maintained at UMTI as part of its Secretariat role. This centralization will facilitate and support:

- data maintenance;
- data uniformity: WinSmart will use uniform emission factors and quantification protocols; a generic template will be used for initiative impact assessment reports
- sharing and easy access to data by all parties;
- the teaching and learning dimension of WinSmart: UMTI is the source of many young professionals making careers in urban transportation planning.

The Quantification Team at UMTI will be led by Dr. Barry Prentice, with Ralph Torrie of Torrie Smith Associates advising. One person will be employed for the duration of the project (at least part time, depending on the split of the work load between UMTI and Torrie Smith), supplemented by other specialists and analysts drawn from the UMTI pool of experts and associates.

UMTI Quantification Team – Schedule of Activities						
Activity Area	Months 1-6	Months 7-12	Months 13-18	Months 19-24	Months 25-30	Months 31-36
City-wide benchmarks	Finalize quantification protocols and default emission factors. UMTI training in application of emission tracking methods and software.	Data gathering and analysis of City-wide indicators.				Final analysis and report preparation.
Targeted Quantification		Finalize survey instruments for measure-specific quantification.	Ongoing gathering of survey responses and data for measure quantification.			
Winsmart Travel Survey	Survey development and planning	Baseline survey				Impact Survey, Analysis and Report
Selkirk Alternative Transit Project	Initial baseline and market survey development.	Baseline and market survey and analysis.	Ongoing user surveys and data gathering.			Final analysis and report preparation
Travel Smart	Support development of travel diary survey	Provide ongoing support for quantification and analytical components of Travel Smart program.				Support the quantification of impacts in the analysis and reporting for these measures.
Information-Based Measures	Support development of quantification and analysis elements of information-based proposals.					

5 Financial Plan

Year by Year Financial Plan

The following page shows a list of all WinSmart initiatives with breakdowns by cost and by partner.

The total cost for twenty WinSmart initiatives is \$14,393,500 including a \$60,000 per year management cost for the UMTI Secretariat.

Under partner breakdowns, Team Manitoba (being the Provincial, Municipal and private/NGO sector in kind contributions) cover 2/3 of the project cost or more. The federal contribution is calculated as the remaining 1/3, or \$4,789,500.

Sources of Proposed Funding

The Province and the City confirm that no services and works needed to implement the WinSmart Showcase were planned and budgeted for in annual budgets made earlier than July 1, 2002. This is understood to be a requirement for their costs to be eligible under a UTSP contribution agreement.

Private/NGO sector contributions are to be made to four WinSmart initiatives (numbers 2, 6, 15 and 18). They are in the form of staff time, support services, and use of accommodation and other facilities. Their estimated value is \$325,000 or 2.3% of the total showcase cost.

Provincial funding sources

The province has committed to supporting WinSmart. Future sources for the provincial share of up to \$4,639,500 may include unallocated funds from sources such as:

- **Urban Capital Projects Allocation (UCPA)**, which supports implementation of priority municipal capital projects in Winnipeg;
- **Urban Development Initiatives (UDI)**, an annual allocation of funding targeted towards strategic projects that support economic and community economic development in Winnipeg.

As well, Manitoba contributes to capital projects in Winnipeg through the Infrastructure programs and supports the **Federation of Canadian Municipalities Municipal Green Fund**, which may be an appropriate source for some WinSmart initiatives.

- Provincial funding to WinSmart initiatives will be from application to the **Manitoba Climate Change Action Fund**.
- In addition to this, allocation of some funds in the **contract between the province and the University of Manitoba Transport Institute** will be used to support some of the urban freight initiatives being proposed.

Measure Number	Measure	Total Cost	Breakdown by Year			Breakdown by Partner			
			2004	2005	2006	Federal	Team Manitoba		
							Provincial	Municipal	Private/ NGO Sector
1	Eco-Bus Demo	\$4,000,000	\$1,000,000	\$2,000,000	\$1,000,000	\$1,333,333	\$1,333,333	\$1,333,333	\$0
2	Eco-Fuelling Station	\$994,500	\$591,167	\$236,667	\$166,667	\$331,500	\$306,500	\$306,500	\$50,000
3	Suburban and Capital Region Rideshare	\$150,000	\$100,000	\$25,000	\$25,000	\$50,000	\$50,000	\$50,000	\$0
4	Promoting Low Density Area Measures and SOV Alternatives	\$300,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$0
5	Signal Optimization Program	\$300,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$0
6	Expand Kiss/Park and Ride	\$450,000	\$0	\$150,000	\$300,000	\$150,000	\$75,000	\$75,000	\$150,000
7	Promoting Innovative Freight Practices	\$50,000	\$16,667	\$16,667	\$16,667	\$16,667	\$16,667	\$16,667	\$0
8	Truck Routing Program	\$100,000	\$48,000	\$52,000	\$0	\$33,333	\$33,333	\$33,333	\$0
9	e-commerce/Delivery pilot	\$10,000	\$10,000	\$0	\$0	\$3,333	\$3,333	\$3,333	\$0
10	Employer Based Transit Pass Program	\$300,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$0
11	Downtown pedestrian walkway enhancements	\$579,000	\$579,000	\$0	\$0	\$193,000	\$193,000	\$193,000	\$0
12	Downtown Office/ Commercial Land Development Pilot	\$225,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$0
13.1	Transit AVL Automatic Vehicle Location System	\$1,650,000	\$500,000	\$650,000	\$500,000	\$550,000	\$550,000	\$550,000	\$0
13.2	Real time bus departure displays	\$480,000	\$0	\$240,000	\$240,000	\$160,000	\$160,000	\$160,000	\$0
13.3	Next Stop Displays on Board Transit Buses	\$300,000	\$0	\$0	\$300,000	\$100,000	\$100,000	\$100,000	\$0
13.4	Wireless Web Access of Sust. Mode Transit Info	\$210,000	\$35,000	\$70,000	\$105,000	\$70,000	\$70,000	\$70,000	\$0
13.5	Info Kiosks at Major Activity Centres	\$160,000	\$0	\$80,000	\$80,000	\$53,333	\$53,333	\$53,333	\$0
13.6	Signal Priority Programme	\$600,000	\$100,000	\$200,000	\$300,000	\$200,000	\$200,000	\$200,000	\$0
14	Pembina Bikeway	\$1,000,000	\$100,000	\$400,000	\$500,000	\$333,333	\$333,333	\$333,333	\$0
15	Innovative Transit Delivery in Low Density Areas	\$550,000	\$100,000	\$225,000	\$225,000	\$183,333	\$133,333	\$133,333	\$100,000
16	Comparative Land Use Policy Model for GHG Impacts	\$370,000	\$60,000	\$100,000	\$210,000	\$123,333	\$123,333	\$123,333	\$0
17	Distance Based Insurance Simulation	\$10,000	\$10,000	\$0	\$0	\$3,333	\$3,333	\$3,333	\$0
18	Location -Efficient Mortgage	\$25,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$25,000
19	Travel Smart Project	\$900,000	\$400,000	\$300,000	\$200,000	\$300,000	\$300,000	\$300,000	\$0
20	Measurement, evaluation and monitoring	\$500,000	\$250,000	\$50,000	\$200,000	\$166,667	\$166,667	\$166,667	\$0
	Showcase Secretariat Services	\$180,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$0
	Totals	\$14,393,500	\$4,359,833	\$5,230,333	\$4,803,333	\$4,789,500	\$4,639,500	\$4,639,500	\$325,000

Municipal Contributions

Municipal funding of \$4,369,500 will come from City departmental budgets, primarily Winnipeg Transit and Public Works. These will be supplemented by additional funds to be approved by City Council.

The City of Winnipeg's commitment to these additional appropriations is stated in both a letter from the Mayor and the Chair of Public Works in Annex A, and in a motion of Executive Policy Committee of Council described below.

Due to the municipal budget approval process and the UTSP eligibility criteria, specific funds will need to be formally approved by City Council upon acceptance into the showcase and will flow from a negotiated contribution agreement with Transport Canada as required.

This approach is required due to the fact that WinSmart initiatives will require new or currently unallocated funds to be appropriated from operating and capital budgets since they are not and can not be in the City's budgets at this time.

Proof of Support

Provincial Commitment

Annex A contains a letter from the **Hon. Gary Doer**, Premier of the Province of Manitoba, addressed to Mayor Glen Murray of the City of Winnipeg. Dated May 1, 2003, it says, in part "this letter confirms the strong support and partnership with the City of Winnipeg on our WinSmart proposal to Transport Canada's UTSP."

Municipal Commitment

Annex A also contains a letter from **Mayor Glen Murray** and **Councillor John Angus** of the City of Winnipeg which states that, at its next scheduled meeting on May 21, 2003, the Executive Policy Committee of Winnipeg's City Council will be passing a motion reflecting their commitment to the UTSP. That motion will read:

WHEREAS the City of Winnipeg is committed to addressing issues of Climate Change through its official plan and participation in the Federation of Canadian Municipalities Partners for Climate Protection Program.

AND WHEREAS the City of Winnipeg is committed to an integrated long term approach to sustainable transportation.

AND WHEREAS the City of Winnipeg in partnership with the Province of Manitoba are submitting an innovative proposal to demonstrate greenhouse gas emissions reductions in transportation titled "WinSmart" to Transport Canada's Urban Transportation Showcase Program.

AND WHEREAS the WinSmart proposal if accepted will have substantial positive benefits on Provincial and City policy and program goals with respect to sustainable transportation, an enhanced downtown, improved transit service, greenhouse gas emissions reductions, and economic development opportunities;

THEREFORE BE IT RESOLVED THAT the Executive Policy Committee hereby commits to working with the Province of Manitoba to negotiate and undertake an appropriate funding agreement with Transport Canada in order to develop and implement the proposed measures identified in the "WinSmart" proposal and that the Executive Policy Committee further undertakes to formulate and present recommendations to Council regarding any additional funding commitments which may be identified.

7 Staffing

Experience, Roles, and Commitments of Staff

Mr. Andrew Cowan BSc, MNRM is Environmental Coordinator, City of Winnipeg. He will be the senior staff representative of the **City of Winnipeg** on the WinSmart Steering Committee. 20% of his time through March 2006 will be committed to the Showcase

Mr. John Spacek, BA (Honours) in Economics is Senior Director of Transportation Policy and Service Development, Province of Manitoba. He will be the senior staff representative of the **Province of Manitoba** on the WinSmart Steering Committee. 15% of his time through March 2006 will be committed to the Showcase.

Dr. Barry Prentice, PhD, PAg, MCIT is Director of the University of Manitoba Transport Institute, and Associate Professor in the I.H. Asper School of Business. He will **head the WinSmart Showcase Secretariat**. 40% of his time through March 2006 will be committed to the Showcase.

Mr. Andrew Cowan develops civic environmental policies and coordinates the City's environmental affairs, including **Climate Change** initiatives. He worked for the **Ontario Ministry of Agriculture and Food** to reduce the use of pesticides, and for the **Niagara Peninsula Conservation Authority** researching the impact of agriculture on water quality in Hamilton's drinking water reservoir. He provided planning and policy advice on regional and urban planning and infrastructure issues for **Manitoba's Sustainable Development Coordination Unit**, and Intergovernmental Affairs. He served on a number of professional organizations and national environmental committees (Vice Chair for Sustainable Infrastructure Guide Environmental Protocols Technical Committee).

Mr. John Spacek establishes and directs project teams to support, develop and promote Manitoba's transportation sector, private sector service developments, and general transportation sector initiatives supporting international trade and industrial developments in Manitoba. He has developed and implemented integrated multi-modal transportation policies and service development strategies and programs. He represented Manitoba at the **National Transportation and Climate Change Table**, chaired the Freight sub-table, and was awarded a **National Transportation Week 2000 Award of Excellence** in recognition of his work in climate change and transportation. He is a Director of the Canadian Centre for Sustainable Transportation, and recently seconded to project manage the **Manitoba Climate Change Task Force** secretariat.

Dr. Barry Prentice served on the Transplan 2020 steering committee that published an innovative and integrated strategic transportation plan for the City of Winnipeg. He acted on several Boards of Directors for transportation organizations: **Winnipeg Airports Authority** (1994-2002), **National Transportation Week** (Canadian President, 2001/3), and the **Canadian Transportation Research Forum** (Past President, 1997). He is Associate Editor of the *Journal of Transportation Research Forum*, and *Honourary President* of the **Canadian Institute for Traffic and Transportation** (2001). He served on the **Mid-Continent International Trade Corridor Task Force** (1997), expert committees, and is frequently asked to speak on the topics of trade and transportation.

Dr. Allister Hickson, PhD, CFA is Senior Professional Associate with the Transport Institute and a sessional lecturer in the I.H. Asper School of Business. He will be the **Showcase Manager** for WinSmart. He will be devoting the majority of his time to the project.

Ms. Courtney Kulyk, B.Comm. (Honours) is currently a Project Manager with Socialdata America. She will be responsible for coordinating the Travel Smart component of the WinSmart showcase. She will be spending 100% of her time to March 2006 on the project.

Mr. Martin Crilly, MA (Cantab), MBA, FCILT, with 30 years of experience in transport policy and planning, is a board member of the **Centre for Sustainable Transportation (CST)**. He will advise, as needed, on the management and implementation of WinSmart initiatives, and provide access to the knowledge and expertise in the CST's board and wider membership.

Mr. Ralph Torrie of Torrie Smith and Associates will provide technical advice and guidance on measurement of the impact of the WinSmart Showcase on GHG emissions and other performance indicators of the Winnipeg area urban transport system. He will be engaged on a part-time consulting contract to serve on the Quantification Team.

Dr. Allister Hickson spent over twenty years in the government sector leading cross-divisional staff on diverse project initiatives ranging from revamping integrated financial forecasting models and methods, to delivering technology solutions. Prior to that he worked as a project leader for an **international consulting** company. He is also currently on contract performing research for a major private sector corporation in Winnipeg. He is a member of the **Education and Standards Committee of the Professional Risk Managers' Association**, an expert in property and casualty insurance rating systems and a sessional lecturer in finance in the I.H. Asper School of Business.

Ms. Courtney Kulyk is presently responsible for liaising with agencies, communities and other interested groups promoting environmentally friendly modes of travel. She has acted as a Project Officer for the **Western Australia Department for Planning and Infrastructure** where she developed and organized marketing material for the **Travel Smart** program. She successfully managed the operating budget of \$300,000 (AUD) for the program, which targeted 50,000 residents in Perth, Australia. She has experience assessing past program successes and establishing new strategies for continual improvement. She planned and undertook a marketing and personal contact campaign for an investment advisor to increase the client base. Writing and designing departmental information sheets and brochures made her instrumental in a phase of a new \$26 million program for sustainable transportation.

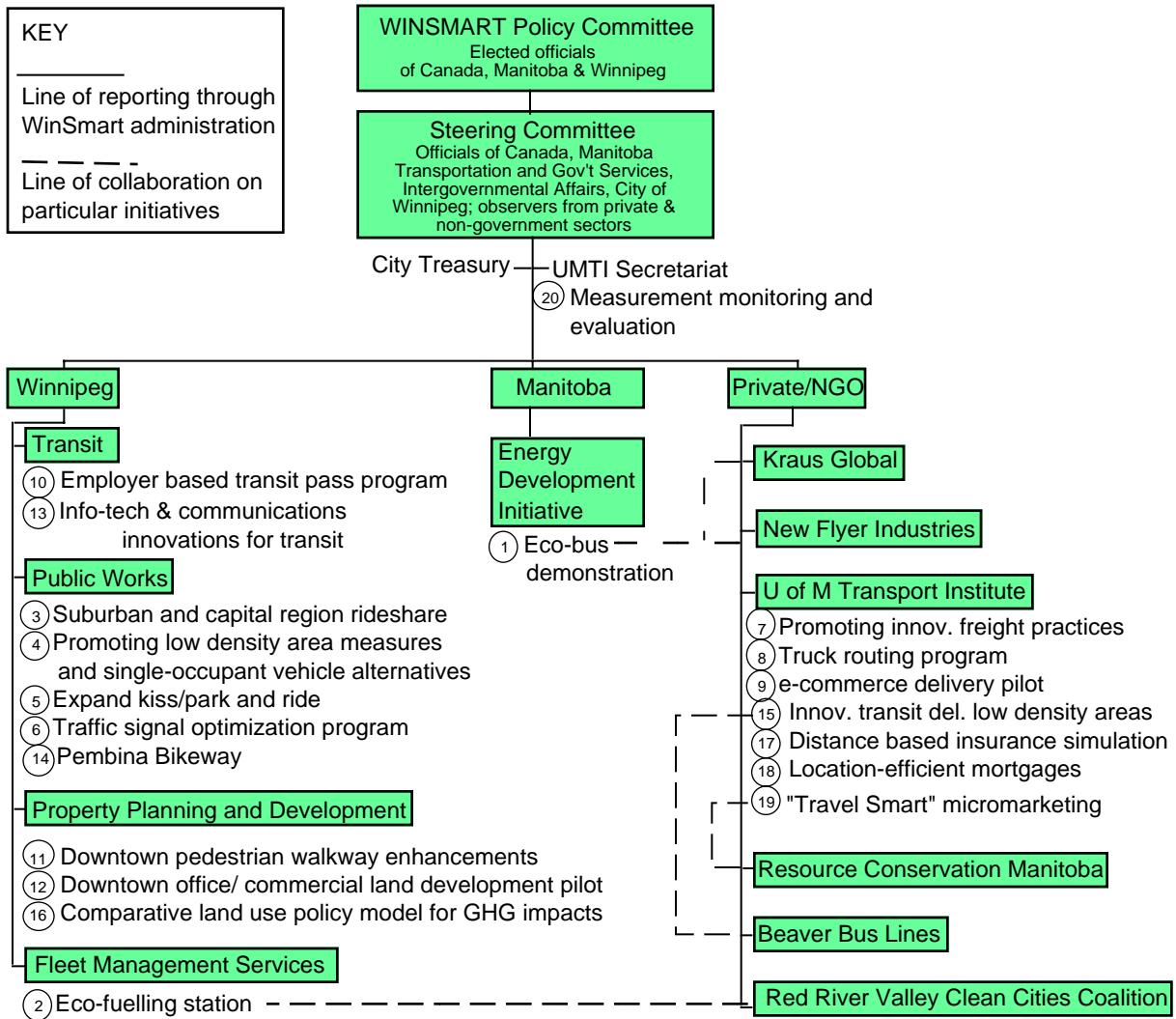
The Centre for Sustainable Transportation is a Canadian non-profit organization of corporate and individual members with a mission to promote sustainable transportation through cooperative partnerships, research and the dissemination of balanced information and the monitoring and supporting of sustainable transportation activities. It has a board of distinguished professionals. Corporate members include **Greyhound Canada, Canadian National** and the **Canadian Urban Transit Association**; labour members include the **Amalgamated Transit Union** and **Canadian Auto Workers**. The flagship publication of the CST is its Monitor, containing informative analysis of current issues in sustainable transport.

In 2002, **Torrie Smith Associates** developed a software tool that integrates greenhouse gases and common air contaminants in a single energy and vkt-based quantification framework. The **Clean Air and Climate Protection Software** was developed with US EPA funding for application by state and local governments in the U.S., but TSA has developed a Canadian calibration. In addition to supporting emission inventories disaggregated by vehicle type (Tier 1, Tier 2, ULEV, SULEV, etc), the software allows the quantification of both greenhouse gas emissions and common air contaminant impacts of transportation related measures, including efficiency improvements, fuel switching, mode change, and trip reduction initiatives.

8 Partner Roles and Responsibilities

Partner roles and responsibilities

Working in collaboration with the City and the Province on the WinSmart showcase are six private sector and NGO partners. Their roles in implementing the showcase are illustrated in the organization chart below.



Beaver Bus Lines will provide expertise on delivery of **transit in low density areas** (Initiative 15) and is a candidate supplier of feeder service in the Selkirk area.

Kraus Global Inc. will provide design expertise and equipment for the **eco-fuelling** demonstration (Initiative 2)

New Flyer Industries will build the shell of an alternative fuel bus for the **eco-bus** demo (Initiative 1)

The Red River Valley Clean Cities Coalition will contribute its knowledge and guidance on the **eco-fueling station** (Initiative 2)

Resource Conservation Manitoba will advise upon, and contribute to the design and delivery of, the Travel Smart Micromarketing program (Initiative 19)

UMTI will house the WinSmart Secretariat; and implement the trucking initiatives (7,8, and 9), the Selkirk jitney (15) and Travel Smart (19) and Measurement (20)

Breakdown of Partner Contributions

Confirmation of Partner Support

Beaver Bus Lines operates as a charter line and also acts as a transit provider that currently serves limited areas of the City of Selkirk and parts of the City of Winnipeg. The company is familiar with the market along the Selkirk corridor, owns transit vehicles, and has maintenance capabilities.

Kraus Global is a world leader in designing and manufacturing complete refueling station packages for alternative fuels, including CNG and compressed hydrogen. It manufactures software-based electronics solutions for the retail and bulk petroleum industries. Kraus has dedicated teams of electronics, electrical and mechanical engineers and specialists; and facilities for automated sheet metal/structural and high-pressure systems manufacturing and electronics assembly.

Winnipeg-based **New Flyer** is the largest transit bus manufacturer in North America. Dedicated to continuous improvement and R&D, the firm is an innovator in the transit bus market and one of the first to produce a full range of alternative fuel buses. Its "clean air" buses are rigorously tested and are proven by real world application.

The **RRVCCC** is an NGO dedicated to cleaner air through adoption of alternative fuel vehicles, reduced consumption of fossil fuels, and driver education. It aims to expand transportation energy choices, strengthen the economy, and help maintain a healthful environment in the Manitoba portion of the Red River Valley region by advancing the economically sound use of secure, clean, transportation energy sources and advanced transportation technologies and systems.

Resource Conservation Manitoba, formerly the Recycling Council of Manitoba, is a non-profit NGO directed by an elected community board. Its mission is to promote ecological sustainability by developing practical alternatives for resource use through conservation and waste reduction. The Recycling Council developed a Green Works package outlining waste reduction options for small businesses and led public awareness programs on recycling. RCM is committed to practical work promoting ecological sustainability, helping to develop policy and programs in areas such as greenhouse gas reduction and transportation alternatives.

The **University of Manitoba Transport Institute (UMTI)** is a center for interdisciplinary research on transportation issues. The Institute is actively involved in research relating to safety and the environment, recently completing a study on hydrogen fuel cells and holding a conference on transportation and climate change. The Institute participates in collaborative research initiatives with both public and private sector partners. The Institute has a wide range of expertise as well as the capabilities to support the WinSmart showcase.

See the table in Section 5: Financial Plan, for the breakdown of federal, provincial, municipal and private/NGO sector contributions by individual WinSmart initiative.

Support letters from the WinSmart partners are in Annex A.

9 Contact Information

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