AIRPORT AREA WEST STRUCTURE PLAN

1.0 LAND USE PLAN

1.1 Development Objectives

The development objectives of the Airport Area West Structure Plan (AAWSP) are:

1. To take advantage of economic development opportunities by accommodating industrial and commercial development on lands west of the Winnipeg International Airport (WIA) that is compatible with airport operations and complimentary to airport-related industries.

2. To provide a plan that is able to respond to market demands and serve as an implementation guide to accommodate future development.

3. To develop a plan that is consistent with the general intent and purpose of *Plan Winnipeg: 2020 Vision*.

4. To provide a framework to develop a high quality and comprehensively planned industrial area by defining:
   - i) the internal and external road network;
   - ii) stormwater management, waste-water sewer and water supply systems; and
   - iii) general land use patterns.

5. To protect sensitive areas and natural features of the area to the greatest extent possible.

6. To allow for the implementation of the plan in an orderly and staged manner.

1.2 Policy and Planning Framework

Existing Development Plan policies affecting the AAWSP and surrounding area include *Plan Winnipeg: 2020 Vision*, the *Winnipeg International Airport Development Plan*, the *South Interlake Development Plan Bylaw No. 2/83*, as amended, and the *Rural*

Municipality (RM) of Headingley Development Plan Bylaw No. 30/93, as amended. Figure 1 provides additional information regarding Development Plan designations for the AAWSP and surrounding area.

1.3 Development Principles

Development of the various land uses within the AAWSP will respect the following principles:

1.3.1 Industrial

1. Industrial development shall be located in such a manner to take advantage of natural and manmade features such as stormwater management facilities, walkways, treed areas, and open space areas.
2. Higher intensity industrial land uses shall be oriented away from residential and other sensitive areas and, where appropriate, incorporate buffer measures.
3. Land shall be preserved and protected primarily for industrial uses.
4. Land use conflicts between industrial and non-industrial land uses shall be minimized.

1.3.2 Commercial

1. Commercial sites shall be located along collector and arterial roadways to ensure high visibility and to provide easy access. Commercial developments will be allowed if it can be demonstrated that the commercial uses will serve the interests of the overall industrial area and its businesses, industries and employees.

1.3.3 Transportation

1. A logical, safe and efficient hierarchy of roadway systems within the plan area shall be provided to address local and regional needs. A good level of transit service shall also be provided to serve both industrial and commercial developments.
2. The public and private multi-modal transportation investments that have been made in the WIA area shall be maintained, protected and enhanced.
3. Traffic conflicts between industrial and non-industrial users shall be minimized.

1.3.4 Parks and Recreational Space

1. Sites for open space and parks for active and passive recreation shall be acquired through the dedication of municipal reserves, granting of Ecological Gifts or Conservation Easements, outright purchase, or the implementation of on-site development caveats (e.g. building envelope restrictions that retain treed areas).
2. Parks and open space areas shall be located so as to provide easy access for area employees and residents of adjacent residential areas.

1.3.5 Environmental

1. Environmentally sensitive areas shall be preserved and integrated, to the greatest extent possible, through the use of municipal reserves, stormwater management facilities, corridor development and public utility lots.
2. Sustainable and environmentally sensitive industrial developments and practices shall be promoted.
3. Alternative transportation options for area employees shall be encouraged, including public transit, carpooling, cycling and walking to reduce parking needs, vehicle emissions and traffic congestion.
4. Water quality, base flows and the natural flow pattern in any receiving watercourse shall be maintained to the fullest extent possible to avoid flood damage and protect aquatic vegetation and wildlife habitats.

1.4 Overall Industrial Land Use Plan

The development concept for the AAWSP, as shown on Figure 2, has been prepared in response to the above noted development objectives and principles as well as current and anticipated industrial market trends affecting the Winnipeg region. This plan preserves the AAWSP area primarily for industrial uses that either directly relate to or are compatible with airport operations. Specifically, lands east of Sturgeon Road are designated to accommodate *Airport Related* industrial developments, while lands west of Sturgeon Road are designated to facilitate *Airport Compatible* industrial developments. The general purpose of *Airport Related* industrial developments is to accommodate aviation-related uses that require or benefit from a combination of groundside and airside access for the movement of equipment, parts, supplies and products. The general purpose of *Airport Compatible* industrial developments is to accommodate uses that can benefit from proximity to the airport and the road/rail transportation network, or are appropriate for the airport area having regard for the overall land use context of an international, 24-hour airport in a metropolitan setting.

The range of principal and ancillary uses and support services will include industrial, commercial and recreational developments. Finally, future development proposals for the AAWSP area will be consistent with *Plan Winnipeg: 2020 Vision* and this Secondary Plan.

2.0 MUNICIPAL SERVICES

2.1 Wastewater Sewer Servicing

Currently there are no regional wastewater services within the AAWSP area. The only developments within the plan area that are connected to the City wastewater system are the existing Air Canada maintenance hangar and related facilities on the north side of Saskatchewan Avenue, east of Sturgeon Road. However, there is little capacity available to extend this system.

The AAWSP area will ultimately be serviced by an extension to the City of Winnipeg Northwest Interceptor Sewer, which currently terminates at the intersection of Inkster Boulevard and King Edward Street. Extensions to this system to the south and west will be required sequentially as development occurs. Consistent with criteria developed in 1996 with the City of Winnipeg's Water and Waste Department, this area is assumed to produce flows of 16,865 litres per hectare per day (lphapd) [1,500 Imperial gallons per acre per day (Igpapd)] based on *dry* industrial usage. An allowance of 23,610 lphapd (2,100 Igpapd) has been assumed for extraneous flow.

Two alternative interceptor sewer system routings have been examined as part of the AAWSP. The first involves extending the interceptor sewer easterly across the middle of the airport to Brookside Boulevard and then north to Inkster Boulevard. The route would remain in the City of Winnipeg in order to avoid intra-jurisdictional issues. This would have to cross the existing Runway 18-36, Taxiway T and proposed Runway 13L-31R, as well as underground electrical installations. Maintenance of the force main would have to be carefully coordinated to minimize possible critical interference with airport operations.

The second interceptor route alternative would extend north on Sturgeon Road and east on Inkster Boulevard through the RM of Rosser to Brookside Boulevard. The City would have to enter into an Agreement with Manitoba Transportation and Government Services to allow the Interceptor sewer to be constructed within the highway rights-of-way. Jurisdictional matters relating to the installation of a City of Winnipeg Service in a highway right-of-way through the R.M. of Rosser would have to be addressed in the context of the overall Capital Region Strategy.

The AAWSP assumes an initial servicing target of 202 hectares (500 acres) of development that is primarily focused on 162 hectares (400 acres) of land adjacent to the intersection of Sturgeon Road and the Airport Way, approximately 1.6 km. (1.0 mile) north of Saskatchewan Avenue. A secondary focus will be the 40 hectares (100 acres) of airside industrial lands north of Saskatchewan Avenue and east of the Canadian Pacific Railway (CPR) Glenboro Subdivision. The servicing concept assumes that when 202 hectares (500 acres) of land have been developed, major services will be upgraded to provide needed additional capacities. As shown on Figure 3, the servicing of this area would be by means of gravity sewers draining to a centrally located pump station from which a forcemain would convey the sewage to the City interceptor at King Edward Street and Inkster Boulevard. Forcemains and lift stations are considered appropriate for

this area for two reasons. First, relatively shallow till and bedrock in this area make deeper gravity sewers significantly more expensive. As well, lift stations and forcemains would allow some reduction in the costs that would be incurred in order to accommodate initial development.

2.2 Water Servicing

Currently, regional water services do not exist within the AAWSP area. Water feedermains exist south of the AAWSP area along Sturgeon Road approximately 1,000 m. (3,280 ft.) south of Saskatchewan Avenue, and on Moray Street at Silver Avenue. Extensions to these feedermains will be required as the area develops. As shown on Figure 4, for the 202 hectares (500 acres) of metered development, the City's feedermains will be extended northerly along Sturgeon Road to the first major intersection north of the CPR Glenboro Subdivision, approximately 800 m. (2,625 ft.) south of the proposed Airport Way. From this point a grid system of 300 mm. (12 inch) mains will loop around the 162 hectares (400 acres) of land adjacent to the intersection of Sturgeon Road and the proposed Airport Way. As well, a 300 mm. (12 inch) main will be extended north of Saskatchewan Avenue along the extension of Moray Street to connect to the 300 mm. (12 inch) distribution grid.

Design criteria to be utilized for the water services in the area shall include the following:

1. For industrial development, required fire flows are to be 22,700 litres per minute (lpm) [5,000 Imperial gallons per minute (Igpm)] for all areas that are provided with piped water supply.

2. Minimum distribution pipe diameter within the industrial development shall be 300 mm. (12 inches) to provide the required fire flows.

3. Minimum design pressure during maximum hour consumption shall be 207 kPa [30 lbs. per square inch (psi)].

4. All development within the AAWSP area should be encouraged to use water efficiently by employing such measures as providing sprinklered buildings to reduce required fire flows, using low flow fixtures and adopting low water use landscaping treatments.

5. Water demands have been based on a *dry* type of industrial development for which average water demand has been assumed to be 21,080 lphapd (1,875 Igpapd). Peak day flow is assumed to be 1.7 times average day flow or 35,840 lphapd (3,200 Igpapd). Actual demands must be monitored as the area develops to better evaluate the capacity of the regional water supply and update the requirements for improvements to the system.

2.3 Land Drainage

Truro Creek and Sturgeon Creek currently provide drainage of the AAWSP area. The development of the AAWSP area for industrial uses will significantly increase runoff. As such, there is limited downstream outfall capacity of these creek systems. In order to address these existing drainage conditions in light of future development considerations, as shown on Figure 5, land drainage in the AAWSP area will be provided by means of local land drainage sewer piping, which will be routed to a series of linear, dry-bottom storm water detention basins. The basins would be designed to accommodate a 25-year return frequency rainstorm, which is the current City of Winnipeg standard. Peak flow discharges to these creeks during the design event will be no greater than predevelopment conditions.

The normally dry basins are viewed to be preferable to the wet basins normally used due to the proximity of the area to the WIA. Wet retention basins are undesirable in this area due to their attraction for birds, which would negatively impact WIA operations. As also shown on Figure 5, the typical cross section of the dry ponds will incorporate a low flow channel along the bottom to allow normal upstream runoff to occur at all times. The basins will be built as development proceeds.

2.4 Shallow Utilities

Natural gas, power, and telephone utilities will be extended north from the existing development by the respective utility companies. This work will be done concurrently with the construction of the first stage of the AAWSP development.

2.5 Smart Technology

Smart technology in the context of an industrial subdivision deals with the use of the latest communications technology to allow industrial activities to lower cost, increase convenience, improve service and enhance production, quality and safety. The shallow utilities should include systems such as fibre optics that provide the infrastructure to support smart technology for the AAWSP.

2.6 Servicing Capacity and Accommodating Future Development

As highlighted earlier on Figure 1, the land use component of the AAWSP pertains to lands designated as *Industrial* in *Plan Winnipeg: 2020 Vision*. It should be noted that lands to the west of this *Industrial* land use policy area up to the Perimeter Highway [Provincial Trunk

Highway (PTH) No. 101] are designated as *Rural* in *Plan Winnipeg: 2020 Vision.* There has been considerable discussion as part of the AAWSP concerning whether the future development of these lands should cater to industrial and/or residential uses, which would involve an

amendment to *Plan Winnipeg: 2020 Vision*. In determining the most appropriate development scenarios for these lands, the need for additional residential development in the northwest sector of the City of Winnipeg must be weighed in light of how such developments could impact the future viability of the WIA operations as well as the potential expansion of those uses associated with the AAWSP. Notwithstanding this proviso, the servicing provisions outlined in this AAWSP could accommodate either industrial and/or residential development on these lands.

3.0 TRANSPORTATION

3.1 Road Network

The primary elements of the road network in the AAWSP area are Sturgeon Road and the Airport Way. While the alignment of these facilities has been adjusted slightly for the AAWSP from what was proposed in the *Airport Area Plan* in 1996, their function has remained unchanged. Both are envisioned as critical components of the City's transportation system, which can move goods and people to and from these industrial lands, as well as carry traffic in transit through the area in an efficient manner.

With the above discussion in mind, Sturgeon Road has reverted back to its existing alignment because the abandonment of a proposed extension to Runway 13-31 at the WIA no longer requires it to be aligned further to the west. In addition, the Airport Way in the *Airport Area Plan* was referred to as *New Saskatchewan Avenue* and extended from Sturgeon Road to an intersection on the PTH No. 101, approximately 300 m. (984 ft.) north of the existing Saskatchewan Avenue alignment. The intent of this concept was that it would extend further west in the future to provide a high speed trucking connection to the TransCanada Highway west of the north hamlet in the RM of Headingley.

For the AAWSP, the Airport Way is aligned further north in order to utilize available lands for right-of-way requirements, allow optimum intersection spacing on Sturgeon Road, and provide increased distance from Saskatchewan Avenue to accommodate additional options for intersection/interchange spacing on PTH No. 101. The location of the Airport Way-PTH No. 101 intersection is subject to study and approval by Manitoba Transportation & Government Services. The significant distance between the westerly limit of the AAWSP area and PTH No. 101 provides opportunity to be flexible with respect to the location of this intersection. It is important to recognize, however, that the proposed alignment of the Airport Way in the AAWSP provides for an efficient, central corridor from the industrial catchment area to the Provincial highway system.

East of Sturgeon Road, the Airport Way continues as an arterial route passing through WIA lands to connect to Moray Street, south of Saskatchewan Avenue. The balance of the street network is comprised of a grid layout of streets, which provides area access and defines the boundaries of the industrial land use sectors with approximately 40 hectares (100 acres) of net

developable land. The road network, including a cross-section of the Airport Way, is shown on Figure 6.

3.2 Traffic Analysis

While the AAWSP gross area is approximately 1,214 hectares (3,000 acres) within the City of Winnipeg, it is assumed that a similar area in the RM of Rosser to the north will develop in a similar manner, as was assumed in the *Airport Area Plan*.
The traffic analysis shows that, when full development has occurred, Sturgeon Road will require a 6-lane divided roadway, and the Airport Way will require a 4-lane divided roadway. The analysis also indicates that to provide the desired level of service, an interchange will ultimately be needed at the intersection of Sturgeon Road and the Airport Way. As well, to meet the long-term objectives of Manitoba Transportation & Government Services regarding PTH No. 101, an interchange will be required at its intersection with the Airport Way.

3.3 Roadway Classification

The roadway concept for the AAWSP is intended to be compatible with a street classification system being developed by the City of Winnipeg, Public Works Department, which is based on the Transportation Association of Canada (TAC) criteria. Sturgeon Road and Airport Way are planned to meet the requirements of the highest 'arterial' functional classification with provision to allow for upgrading in the future should traffic conditions warrant. As such, their purpose is to serve to move goods directly with minimum interruption from the area to regional, national and international markets. Direct access to private developments is prohibited, though at-grade public street intersections are permitted at a minimum spacing of 800 m (2625 ft.)."

Access to the AAWSP lands is provided by the industrial collector streets generally located on an 800 m. (2,625 ft.) grid pattern. These streets carry traffic between the industrial sectors and connect to industrial local streets. The purpose of the industrial local streets is to move traffic within the industrial sectors and provide access to individual sites. Depending on the size of the industrial sites, it is feasible that a single industrial site in the order of 40 hectares (100 acres) would be bounded by the industrial collector street system and, as such, would have no requirement for the industrial local street system.

3.4 Staging of Roadway Improvements

While it is appropriate to initially provide the right-of-ways for the transportation system, the development of these roadway improvements should occur on a phased basis, as determined by market demand. As referenced earlier, the AAWSP assumes an initial 202 hectares (500 acres) of development that is primarily focused on 162 hectares (400 acres) of land adjacent to the intersection of Sturgeon Road and the Airport Way, approximately 1.6 km. (1.0 mile) north of Saskatchewan Avenue. A secondary focus will be the 40 hectares (100 acres) of airside

industrial lands north of Saskatchewan Avenue and east of the CPR Glenboro Subdivision. Based on the traffic analysis for the first phase, the construction of 2 lanes of the Airport Way from PTH No. 101 to Sturgeon Road with an extension east and south to connect to Moray Street south of Saskatchewan Avenue will be required. Sturgeon Road can remain as a 2-lane paved roadway with minor upgrading until development is well advanced. The industrial collector street system would be extended from the arterials in such a manner so as to provide for connections to the industrial local streets (including frontage roads), and to meet development demand as well as secondary access requirements. The locations and extent of the street system development off the arterial routes will vary depending on industrial sector demand. Once the 202 hectares (500 acres) are developed, improvements to the arterial, industrial collector and industrial local system will continue as required to maintain the desired level of service.

3.5 Road Construction

The proposed arterial cross-section features divided rural section roadways with a depressed median. As stated earlier, the area drainage concept utilizes linear dry bottom detention ponds, which would be situated along each side of the arterial rights-of-way. This configuration would physically restrict access to planned street intersections. Furthermore, the proposed pavement structure has been designed to meet loading criteria, in addition to being cost effective. Structural options in both concrete and asphalt should be evaluated, as well as both rural and urban sections for the industrial collector and industrial local streets. The type of industrial development will have a bearing on this evaluation.

3.6 Rail Service

The CPR's Glenboro Subdivision tracks are located along a major portion of the AAWSP's eastern and southern boundaries. The Glenboro Subdivision is a grain-dependent line serving southwest Manitoba. While the existing trackage consists of 45 kg. (100 lb.) rail, which is lighter than would be designed for new industrial service, it offers rail access to adjacent lands and, with spur trackage, could extend service if warranted to other lands in the AAWSP area. The line would require crossing signals at the eastern extension of the Airport Way, and at Sturgeon Road, where a widened road right of way would allow for future grade separation. Establishing crossing signals and/or grade separations for existing rail lines is considered part of roadway development.

The *Airport Area Plan* included a major intermodal rail terminal reserve along the CPR Carberry Subdivision (main line), north of the AAWSP in the RM of Rosser. This is still considered a future option. The AAWSP has made provisions for an optional, modest air cargo related intermodal terminal on Winnipeg Airports Authority lands on the east side of the Glenboro Subdivision just north of Saskatchewan Avenue. Such a facility could provide a desirable air-truck-rail cargo movement interface at an early stage of AAWSP development.

3.7 Transit Service

Industrial areas are places of employment that tend to support transit usage. A significant number of employees are likely to be transit users with no or limited access to automobiles. Industrial employees that use public transit to travel to work start their trips from elsewhere in the City of Winnipeg. Therefore, it is important that the transit routes serving the AAWSP area have effective connections with the rest of the transit system. For the AAWSP the transit service would access/egress the area using the arterial roads but the bus routes and stops would occur on the industrial collectors and local roads within each subdivision sector. The level of transit service will depend on the modal split of the employees using transit versus automobiles

The combination of the shortest pedestrian distance and bus route length will produce the most optimum transit system. With a uniform pattern of 800 m. (2,625 ft.) intersection spacing on the major arterial routes and the industrial collector streets, the AAWSP primary street layout produces a grid system that allows for clear connectivity planning of transit routes. Grouping of building entrances in the subdivision design can help determine safe, convenient locations for bus routes and stops. The design of walkways in each of the subdivision sectors should be such that short, safe, direct routes are provided between bus stops and places of employment. The buildings with high employment density should be located as close to the transit routes as possible.

3.8 Bicycle Routes and Walkways

Modern industrial areas seek to attract companies who wish to locate in an attractive environment and offer employees recreational opportunities. Bicycle paths and walkways offer facilities for safe and convenient travel between nearby residential areas and work. They also provide exercise opportunities for the employees. Moreover, the dry bottom detention ponds paralleling both sides of the arterials and some industrial collector streets create a linear recreational trail extending throughout the AAWSP, which could eventually connect to the Sturgeon Creek corridor and other recreation areas near PTH No. 101. This recreational trail is well suited for the development of attractive, landscaped bicycle paths and walkways, which in turn will only further enhance the overall area.

4.1 Development Sequencing and Servicing Capacity

As previously outlined, a target of servicing approximately 202 developable hectares (500 acres) of industrial land has been adopted as a reasonable approach to developing the area. The focus of development is at the intersection of Sturgeon Road and the Airport Way, with a secondary focus being the airside lands southeast of this intersection. By not designating specific lands to be serviced, this will allow flexibility to meet diverse market demands for various industrial land use types.

4.2 Servicing Hierarchy

To allow development to begin in the focus areas, regional services will be required. This includes the following:

1. Regional road system requirements include utilizing the existing paved 2-lane roadway on Sturgeon Road and the construction of 2 lanes of the Airport Way between Sturgeon Road and PTH No. 101.

2. Regional wastewater sewer system requirements include an interceptor sewer system, which may have gravity or forcemain reaches, extending from Inkster Boulevard and King Edward Street to the focus area.

3. Regional watermain system requirements include a section of feedermain extending north on Sturgeon Road to the focus area.

4. Regional land drainage system requirements include the extension of a dry bottom linear detention pond system from the north side of Taxiway 'G' in the WIA to and along the regional street routes of the focus area.

When these regional services are in place, servicing will be extended on demand with the next highest level of service hierarchy to the various industrial development sectors. These services, which provide shared benefit between adjoining sectors, include industrial collector streets, wastewater sub-trunk sewers, water distribution mains and land drainage sub-trunk sewers. Connecting to these shared benefit facilities will be internal subdivision services comprised of industrial local streets (including frontage roads), local wastewater sewers, watermains, and land drainage sewers.

4.3 Development Cost Sharing

The proposed cost sharing methodology for the AAWSP generally follows the current City of Winnipeg Development Parameters. It is proposed as follows:

1. Interceptor sewer systems and water feedermains are normally assigned as City of Winnipeg at-large costs. Because these facilities will not be constructed unless driven by an economic opportunity that benefits the City of Winnipeg, Province of Manitoba and Canada, the cost should be shared between these three levels of government. It is possible that a developer with a cost recovery agreement could install such facilities.

2. Arterial roadways are normally cost shared on a 50/50 basis between the City and Developer. Because Sturgeon Road will not be upgraded and Airport Way will not be constructed unless driven by an economic opportunity that benefits the City of Winnipeg,

Province of Manitoba and Canada, the cost should be shared between the three levels of government and the developer with a shared cost recovery agreement.

3. Regional land drainage dry bottom detention pond system, including land dedication, is a Developer responsibility with the total cost of the system charged to the total benefiting area at a uniform Trunk Service Rate (TSR) charge on a per acre basis. It should be noted that developer installation and land costs for components of this system are deducted from the developer's share of the TSR charge.

4. Industrial collector streets, and the wastewater sub-trunk sewers, water distribution mains and land drainage sub-trunk sewers located in the industrial collector rights-of-way, have been uniformly distributed throughout the AAWSP as these are benefiting the entire AAWSP area. The total costs of these facilities, less equivalent local service frontage benefit, should be charged at a uniform acreage rate to Developers, in a similar manner to the TSR charge. Furthermore, as is the case with the TSR, Developer installation costs for these facilities would be deductible from the developer's total acreage charges.

5. The installation and costs of the internal services of each subdivision within the various industrial sectors will be the responsibility of the Developers. These include the industrial local streets, local wastewater sewers, watermains and land drainage sewers. Cost sharing can occur for internal services if benefit is shared through oversizing with adjacent developments within the sector as they occur.

6. The development of the AAWSP area will require land dedication for road rights-of-way, linear dry bottom detention ponds, and open space dedication including possible environmental reserves. The following principles for cost sharing of land dedication are proposed below:

    i) Land required for Airport Way and Sturgeon Road would be considered as a cost of the development of these roads. The estimated right-of-way requirement for these facilities is 68 hectares (168 acres) within the AAWSP area and 48 hectares (119 acres) west of the AAWSP boundary to PTH No. 101.
    ii) Land required for the linear detention ponds is included as a cost of the TSR. The estimated land requirement for the linear detention ponds in the AAWSP is 32 hectares (80 acres).
    iii) Land dedication for industrial collector roads and open space within the AAWSP would be equitably shared over the eligible lands in the AAWSP. The estimated land requirement for these facilities is 70 hectares (172 acres) for the industrial collector roads and 38 hectares (94 acres) for open space adjacent to the ponds.

iv) Land dedication for local roads within the net development sectors, which would vary in density depending on lot sizes, would be equitably shared across the sector.

v) The proposed method of equitable cost sharing would be to determine the total required dedication and each owner's share in proportion to the area holdings weighted by the 1998 assessment value on a per acreage basis. Actual site-specific land dedication under or over an owner's share would be rationalized by purchase/sale at 1998 assessment rates or by 1998 assessment value weighted land exchange. It is roughly estimated that the net deduction of expressway and industrial collector rights-of-way, detention pond areas and open space areas will be approximately 65 percent of the gross area of the AAWSP. This translates into approximately 546 hectares (1,348 acres) of developable land.

A preliminary breakdown of land to be sold or dedicated for public use, which is subject to detailed engineering and legal survey, is as follows:

Gross AAWSP Area	841 hectares (2,078 acres)
Minus Developed and Airside Lands	(57 hectares (141 acres))
Minus Expressway Right-Of-Way	(68 hectares (168 acres))
Minus Stormwater Detention Basins	(32 hectares (80 acres))
Net Total	**684 hectares (1,689 acres)**
Minus 10 Percent Open Space Dedication	(68 hectares (169 acres))
Minus Industrial Collector Right-Of-Way Dedication	(70 hectares (172 acres))
Net Development Area	**546 hectares (1,348 acres)**

Utilization of the 68 hectares (169 acres) of open space dedication will be determined by the Comprehensive Study Environmental Assessment (CSEA), which will determine the priority for protection assigned to Truro Creek, Important Natural Tree Stands and lands adjacent to the linear detention ponds.

4.4 Development Servicing Costs

Based on the cost sharing parameters discussed, the following is a general summary of the estimated municipal servicing costs (for the year 2002) for a possible 202 hectare (500 acre) development, including a 35 percent allowance for contingencies and engineering, but excluding land costs:

4.4.1 Public Sector Servicing Costs

a) *Arterials:*

		Cost Estimate
1.	Upgrades to existing 2-lane pavement in Sturgeon Road	$610,000
2.	Construction of 2 lanes of pavement in Airport Way from Sturgeon Road to PTH No. 101, including signalized at-grade intersections at each end. Note: The costs of constructing these roadways are typically cost-shared on a 50/50 basis between the City and Developer. However, as these facilities will not be constructed/improved unless driven by economic opportunity that benefits the City of Winnipeg, Province of Manitoba and Canada as a whole, the cost should be shared between the three levels of government and the Developer. It is possible that such facilities could be installed by the Developer with a shared cost recovery agreement.	$3,710,000

b) *Interceptor System:*

		Cost Estimate
3.	Installation of a regional gravity/forcemain interceptor sewer system with initial capacity for 202 hectares (500 acres), from the intersection east of Sturgeon Road on Airport Way to the intersection of Inkster Boulevard and King Edward Street	$4,510,000

c) *Feedermain System:*

		Cost Estimate
4.	Installation of a regional water feedermain from the intersection of Silver Avenue and Moray Street north on Sturgeon Road to the first intersection south of Airport Way	$3,050,000

4.4.2 Developer Shared Servicing Costs

a) *Regional Land Drainage Facilities:*

		Cost Estimate
1.	Construction of the dry bottom linear detention pond system northwest from the WIA Taxiway 'G' to Airport Way and extending along both sides of Airport Way and Sturgeon Road at a sufficient distance to provide storage and sub-trunk access for 202 hectares (500 acres) of initial development	$2,480,000

2. The cost of these Developer installed facilities would be credited against the TSR share of the total regional land drainage system cost for the developable area of 546 hectares (1,348 acres) in the AAWSP of $15,502,000 or $11,500 per acre. For the first 202 net hectares (500 net acres) of development this charge would total 500 acres x $11,500 per acre = $5,750,000

b) *Shared Second Level Hierarchy Services:*

The estimated costs for the second level hierarchy services for the 546 hectares (1,348 acres) of developable area in the AAWSP, less the equivalent frontage benefit, is provided on Table 1 below.

Table 1
Estimated Costs for the Second Level Hierarchy Services

Service	**Estimated Cost**	**Less Frontage Benefit**	**Net Cost**	**Charge/Net Acre**
Industrial Collector	$6,200,000	$2,760,000	$3,440,000	$2,552
Subtrunk Wastewater Sewers	$890,000	$750,000	$140,000	$104
Water Distribution Mains	$2,450,000	$710,000	$1,740,000	$1,291
Subtrunk Land Drainage Sewers	$2,020,000	$590,000	$1,430,000	$1,061
Total	$11,560,000	$4,810,000	$6,750,000	$5,008

Total estimated charges for the first 202 net hectares (500 net acres) are provided on Table 2 below.

Table 2
Total Servicing Charges for 202 Hectares (500 Acres) of Possible Development

Service	**Charge/Acre**	**Total Charge**
Industrial Collector	500 acres x $2,552 =	$1,276,000
Subtrunk Wastewater Sewers	500 acres x $104 =	$52,000
Water Distribution Mains	500 acres x $1,291 =	$645,500
Subtrunk Land Drainage Sewers	500 acres x $1,061 =	$530,500
Total	500 acres x $5,008 =	$2,504,000

4.5 Development Agreements

The City of Winnipeg will enter into Development Agreements with developers within the AAWSP area embodying the cost-sharing outlined in the Secondary Plan for roads, wastewater sewers, water mains, land drainage and open space dedication.

5.0 ENVIRONMENTAL PROVISIONS

5.1 Environmental Principles

In order to achieve sustainable development, it is essential to designate natural areas and either preserve them outright or define construction techniques prior to breaking ground. Having a construction plan in place allows a healthy environment to be incorporated into the development of the area and also provides functionality within the design. It will also formally reduce management, potential impacts and mitigation measures needed to preserve the local environmental community.

5.2 Impacts and Mitigation Measures

There are three potential impacts associated with the development of the AAWSP area, including accommodating development over Sturgeon Creek, the realignment of Truro Creek and the preservation of local forested areas. Each of these impacts is discussed below.

5.2.1 Development Over Sturgeon Creek

In regards to accommodating development over Sturgeon Creek, habitat must be preserved and potential impacts addressed in the developmental procedures. Department of Fisheries and Ocean's (DFO) *No Net Loss* of habitat will determine the type of structure used to span Sturgeon Creek. The primary concern is with the impact of shading. Open box culverts or clear span bridges are proposed to coincide with the existing PTH No. 101 crossing, which will allow the upgrading of the present three round culvert system to incorporate a more fish friendly design.

5.2.2 The Realignment of Truro Creek

The upper reach of Truro Creek is used for agricultural drainage and the shallow channel is usually only wet during spring runoff and storm periods. These areas, known as swales, are approximately 0.3 m. (1.0 ft.) in depth with a very shallow slope. These swales contain marginal habitat at best and account for approximately 2.0 km. (1.2 miles) of linear length. The proposed realignment of the creek will include defining the areas as riparian zones including detention ponds. These detention ponds and a well-defined creek bed will enhance the habitat by creating a permanent, zero till riparian zone and increase the linear creek length to approximately 15 km.

(9.3 miles), thereby providing better quality fish habitat and maintaining DFO's *No Net Loss* policy.

5.2.3 The Preservation of Local Forested Areas

The major focus concerning the preservation of local forested areas deals with the remaining stands of oak savannah within the AAWSP area. This ecosystem is made up of older oak growth, which is slow to regenerate, as well as other areas of bushland/greenspace, which require a relatively short time frame to regenerate to comparable status. Efforts will be made during the design phase to either preserve treed areas outright (e.g. through land dedication, ecological gifts, etc.), implement on-site development caveats (e.g. building envelope restrictions that retain treed areas) and/or incorporate construction techniques to protect and/or transplant/relocate the treed areas.

5.3 Regulatory Review and Approvals

5.3.1 *Comprehensive Study Environmental Assessment*

As part of the AAWSP, a *Comprehensive Study Environmental Assessment* (CSEA) will have to be undertaken of the bridge to span over Sturgeon Creek and realignment of Truro Creek. This will entail reviewing environmental concerns discussed within the pre-screening and issues related directly to the creeks. The CSEA will also include local input and extensive public consultation, traditional knowledge of the area, and biological surveys for the ecological systems and watercourses. This will
be a *Cooperative Environmental Assessment* (CEA) in accordance with the *Canada-Manitoba Agreement on Environmental Assessment Cooperation*.

A Project Administration Team with federal participation, will prepare guidelines for the CEA, which will be prepared to *Canadian Environmental Assessment Act* (CEAA) and *Manitoba Environment Act* (MEA) standards.

5.3.2 Environmental Licensing and Approval

The second regulatory review and approval component will include the preparation of environmental licensing and approval documentation according to both Provincial and Federal environment legislation (i.e. The MEA and CEAA). The DFO, Fish Habitat Management has concerns about requirements under the federal *Fisheries Act*, such as the deposition of deleterious substances into the river, or harmful alteration, disruption and destruction of fisheries habitat and/or populations, and the need to address *No Net Loss*. Finally, the Canadian Coast Guard of DFO may have an interest due to *The Navigable Waters Protection Act*. It will be important to address their concerns in relation to navigable waters.

6.0 IMPLEMENTATION

6.1 Zoning and Subdivision Control

Following the adoption of this AAWSP, the lands will require rezoning to permit industrial development. The current "M2" Industrial District regulations under Zoning By-Law 6400/94 offer the greatest flexibility in this regard. Beyond this, Zoning Agreements with individual property owners can further regulate site-specific land uses and performance/development standards. In the future, the City may prepare a new zoning district that specifically accommodates airport-related and airport-compatible industrial development. Such a zoning district could be applied to some or all of the lands within the secondary plan area.