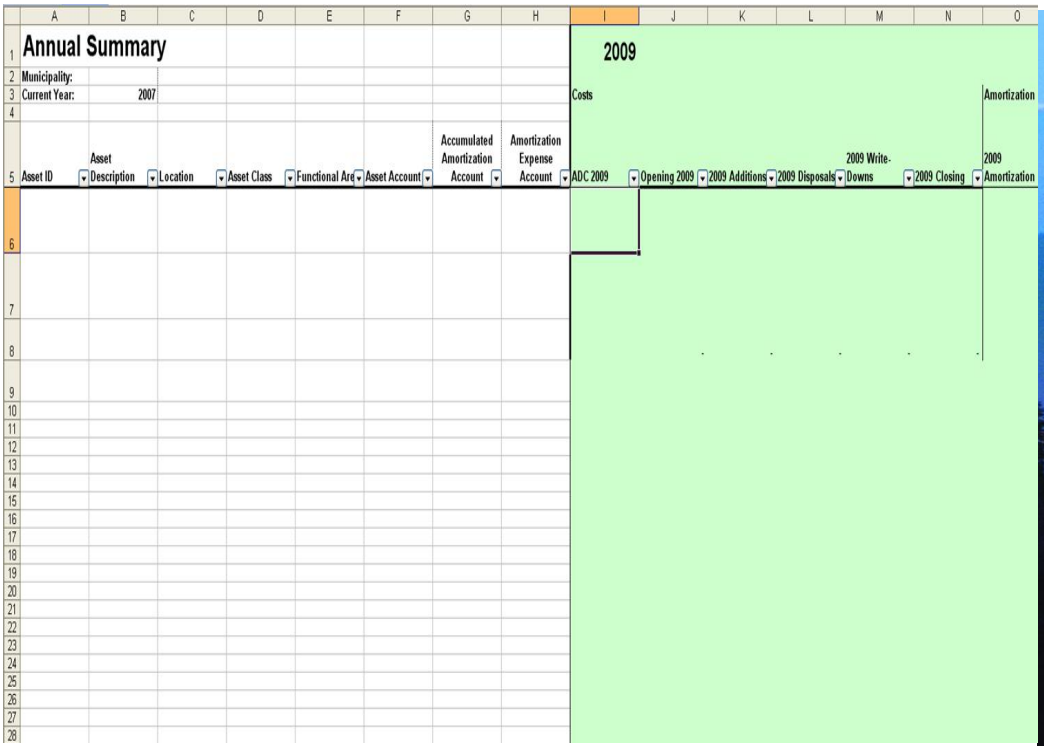
Report

Saskatchewan Ministry of Municipal Affairs

PS 3150
Tangible Capital Asset Approach and Methodology

September 2010



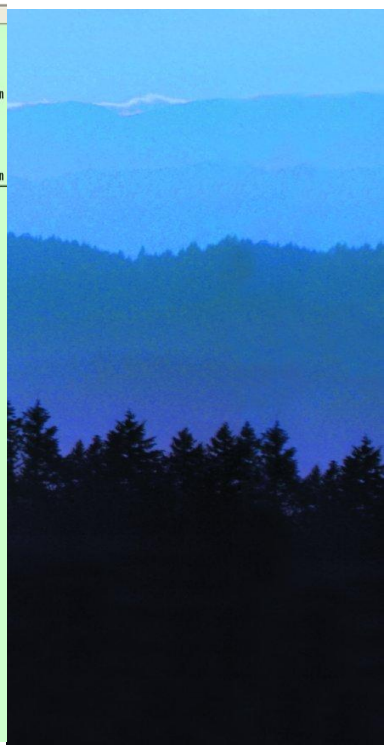


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Table of Contents

REPORT

1 Introduction

This report documents the approach taken to the inventory and valuation of existing tangible capital assets (TCA) and the creation of a PS 3150 compliant register for your community. These project results were delivered under the auspices of the Saskatchewan Ministry of Government Services Ministry of Municipal Affairs, PS 3150 Compliance and WSA, Northern SK, MAIS Implementation Pilot, Northern SK MAIS Development project commenced in July of 2009.

The approach indicated in this document is consistent with the current and amended editions of the TCA Reference Manual, TCA Register and TCA Policy Statement produced for the Saskatchewan Provincial Government and the Saskatchewan Urban Municipalities Association by Associated Engineering (Sask.) Ltd. and TCA Consulting Ltd.

It will be necessary for the Administrator to incorporate these 2008 tangible capital assets values, 2009 amortization amounts and record any 2009 changes to tangible capital assets in the Asset Register spreadsheet and their financial system prior to producing the Financial Statements as of December 31, 2009.

2 Asset Inventory Data Collection

The approach toward the creation of the inventory record for the subject community is generally outlined in the following sections. In all cases, all historical information was exhausted prior to any field data collection efforts. All inventories were field verified and augmented as necessary via the field visits and in conjunction with local municipal staff and/or operators.

2.1 Asset Category, Class and Template Development

Prior to the research and inventory phases of this project, the project team created a suitable template for the Asset Inventory for the community. These templates ensured both consistency in reporting and ensured that the inventory produced was complete in all respects. Standard nomenclature for measurement units, material types and description of assets were created. Programming logic was applied to the Asset Inventory form to ensure that only standard definitions were entered and that the resulting output was uniform in the reporting of the class, type and quantity of asset.

The templates created were refined to allow for the capture and attachment of information source, information retrieval method, photographic and scanned media.

In concert with this effort, consistent and repeatable Asset Category and Class definitions were created, in a manner consistent with applicable standards, to ensure consistency in reporting in the aggregation of results for the purposes of the creation of individual TCA registers. Segmentation of

asset systems was also standardized within the supplied templates. Segmentation of Assets is discussed in the latter stages of this report on an asset specific basis.

Templates, segmentation and category definitions were verified by Calvin Hawke of TCA Consulting and David Watt of AE for PSAB and MAIS purposes respectively prior to Asset Inventory Creation phase of the project.

Abbreviations for communities and asset classes have been summarized in appendices B and C respectively.

2.2 Inventory Data Collection – Existing Records

The Inventory Data Collection Research phase of the project involved the retrieval and analysis of information from several sources for the subject community prior to the field data collection and verification effort. These included but were not limited to the following:

- All available construction as built information, tender results, construction records for community infrastructure from SaskWater, ATAP, AE in house and community records.
- Available NMTA equipment listings, audited financial statements and any community specific information in regards to infrastructure.
- All historical construction tender information from all information providers.
- All available Provincial (ITO, Municipal Affairs) digital and non digital information relevant to the project including but not limited to: land inventory, land valuation, infrastructure inventory and current assessed and past construction values.
- Historical and present day engineering literature.

The resulting data set was segregated into community specific profiles and examined in relation to its currency and applicability to the stated goals of the project. The resulting data set provided the basis for the creation of the preliminary Asset Inventory and Gap Analysis described in the following section.

2.3 Preliminary Asset Inventory and Gap Analysis

The information resulting from the previous research phase was arranged into community specific profiles and the data entry phase of the project began. The creation of the preliminary inventory involved the creation of a tabular record, complete with all required attributes for PS 3150 and MAIS purposes, of TCA within the prescribed Excel templates and the creation of a map of all TCA within a Geographic Information System (GIS).

The creation of a GIS for all community infrastructure provided the following:

- A visual and tangible record and location for every TCA in the corresponding inventory;

- Prevented double counting of assets and ensured that every TCA had a unique identification number and discreet location;.
- The reference information necessary for follow up field data collection and augmentation efforts; and
- A suitable electronic reference map of all TCA's for MAIS and individual community uses.

The data set produced, both GIS- and Excel-based, was further verified in relation to required or core values to support both MAIS and PSAB initiatives and a Gap Analysis was undertaken that clearly outlined missing information including but not limited to:

- Lengths, quantities, materials
- In service dates
- Historical costs

The resulting Gap Analysis formed the basis for the field data collection, refinement and verification exercise. Mapping and inventory listings for each community were created and peer-reviewed in the interest of consistency. Field staff were supplied with the said inventory listings, mapping and gap analyses prior to their deployment in each community.

2.4 Field Data Collection

In order to both verify the existence of the preliminary asset inventory and to provide the information necessary to fill the gaps within each inventory ATAP, Vemax and AE field staff were deployed over a period of twelve weeks to each of the communities.

To ensure accuracy of the inventory, field staff conducted all field activities in the presence of local municipal staff and/or operations staff. In addition, any and all local information at municipal offices were sourced and reviewed for inventory and/or valuation information. Inventories were reviewed by local municipal staff to ensure that they were comprehensive and represented the community's existing TCA complement. Municipal staff were also interviewed to determine any and all planned improvements, disposals or work in progress. Field staff documented all field inspection and interview information and committed all relevant data to both the asset listing and maps provided.

The resulting data set constituted the basis for the inventory in each community. Valuation of the inventory is discussed in the following section.

3 Asset Valuation Approach

PS 3150 requires that tangible capital assets (TCA) are recorded at cost, where cost can be measured as Historic Cost. While historic cost is the preferred approach, this information is not generally available for existing infrastructure assets given the apparent lack of invoice or acquisition cost information for aged infrastructure.

Deflated replacement value has been used for purposes of valuation of TCA for this project where historical cost was not apparent or available.

In keeping with PS 3150 guidelines, all infrastructure assets were valued including contributed assets and assets acquired using grants or donations. PS 3150 requires that a TCA with a limited useful life be amortized over that life in a “rational and systematic manner appropriate to its nature and use by the government” (PS 3150.22). Straight line depreciation was employed for amortization of TCAs for this community and the other communities involved in this project.

Replacement cost was estimated in the context of 2008 modern equivalent replacement costs for all assets except with the exception of road assets. Valuation for road assets is described in the latter stages of this report. All asset valuations were peer-reviewed by appropriately licensed Professional Engineering staff.

The following is a list of steps that where taken to determine the asset valuations for the community infrastructure and all of the information sources employed for the determination of the TCA value:

- Available community insurance values for infrastructure were reviewed.
- The Ministry of Municipal Affairs supplied asset listings and valuations for community infrastructure for 10 of the 36 communities, which were reviewed.
- A comprehensive review of recent contract tenders for linear assets and facilities for northern and southern Saskatchewan was conducted. In the event that recent contract unit prices for Northern Saskatchewan were unavailable, contract prices for southern Saskatchewan where employed and inflated to factor in the increased material and deployment costs associated with Northern infrastructure projects. An additional mobilization factor of 1.3 was also applied to costs for those communities where access was limited.
- Project staff compiled an overall lookup or domain table of values appropriate for all northern Saskatchewan municipalities to ensure a consistent approach for each community in regards to both linear and facility infrastructure.

In all cases actual valuations were used and where necessary, the above information was employed. Asset valuations were applied to the inventory on an element by element and dynamic basis within the project excel sheets and then transferred to the SQL Server TCA project database for application of the required determination of accumulated amortization and determination of historical cost. Results have been published in the Provincial Standard Saskatchewan TCA Register via an extract from the project database. These calculations were produced in a manner consistent with Provincial standards. Further information in regards to valuation procedures and resource material is indicated in section 7 of this report.

The following section outlines the approach taken to the determination of asset categorization and segmentation.

4 Asset Categorization, Segmentation and Identification

Assets to be valued are defined by their function. Tangible Capital Assets (TCAs) considered essential for the health and safety of a community, or to the operation of a facility, are to be valued individually. TCA's that are measured by quantity such as road surfaces (m^2) or underground piping (linear meters) are valued by component. The TCA threshold for the purposes of this project is considered to be $5,000.00.

Values assigned for each TCA represent the total replacement cost for the asset. This includes supply of materials, shipping costs, labour, taxes, and engineering and project management fees (where applicable). A year of valuation is supplied for those assets without a 2009 valuation in order that appropriate accounting adjustments can be made for historical costs.

Tangible Capital Assets are grouped into asset categories. TCA groupings and the associated asset categories, along with their defining characteristics, are discussed below.

For the purposes of this project, every asset has been assigned a unique ID for tracking purposes.

In the interest of consistency each TCA ID is indicative of the location of the asset (ie. BN is Buffalo Narrows, CB is Cole Bay, etc). The second component of the ID is the system that the asset has been documented under (ie. SAN is sanitary, RD is road, RDB is road base, etc). Facilities, fleet, facility equipment all have FAC, FACE, or BLD as their IDs. The trailing numbers implicit to each ID is the unique identifier. A full description of all codes and abbreviations is located in **Appendices "B" and "C"** at the end of this report.

4.1 Facilities

Facilities are defined as "essential" or "non-essential" according to their function. In the case of infrastructure related facilities, assets below the prescribed threshold that were deemed relevant for the purposes of MAIS or Asset Management activities were included as line items in the inventory and as pooled assets within the PSAB TCA Register.

Essential facilities are to be valued as a collection of "critical components". TCAs essential to the operation of the facility under a $5,000 threshold are still considered to be critical components and will be valued accordingly. For example, a water treatment facility is divided into a series of critical components under asset categories descriptions describing building components, pipe and process equipment, process instrumentation, and process electrical systems.

4.1.1 Buildings

Every municipal building to be valued is to be divided into three asset categories including four building components (BS – Building Structure, BA – Building Architectural, BEM – Building Electrical and Building Mechanical). Buildings are generally valued or insured as a lump sum, but roofing and electrical or mechanical systems are replaced periodically during

the lifespan of the facility. To determine what percentage these systems represent of the lump sum cost, a standard percentage breakdown was developed. RS Means, a building cost estimating standard across North America, was used to determine percentage breakdowns for each type of building (e.g. fire hall, 2 storey, masonry or cinderblock construction).

These percentage divisions were QA/QC'd by M. Akister, P.Eng, from Associated Engineering. In any case where the componentization leads to individual components being below the capital threshold, they were aggregated and indicated as a single asset within the TCA register.

Building Type	Replacement Cost (Insurance Value)	Percentage Breakdowns			
		Structure	Roofing	Electrical	Mechanical
Municipal Office - 1 Storey, Wood Frame w Brick Veneer		50	10	20	20
Municipal Office - 1 Storey, Wood Frame w Wood Siding		45	10	25	20
Municipal Office - 2 Storey, Wood Frame w Brick Veneer		50	10	25	15
Municipal Shop - Steel Frame, Insulated Panel Siding		35	20	20	25
Firehall - 1 Storey, Concrete Block Construction		50	10	25	15
Arena - Steel Frame		30	20	15	35
Arena - Wood Truss		30	20	15	35
Community Hall - 1 Storey, Wood Frame w Brick Veneer		55	10	15	20
Water Treatment Plant - Wood Truss w Concrete Block Back Up		45	15	30	10
Sewage Pumping Station - Wood Truss w Concrete Block Back Up		45	15	30	10

4

All piping and process equipment (PPE) within a facility were defined by criticality given their future use for the development of a balanced asset management plan. TCAs that are essential to the operation of the facility are valued individually, while the remaining components are grouped together. Critical components may include, but are not limited to, pumps, filtration units, and process water heaters. Other components that are grouped and valued together may include, but are not limited to, process piping and automated valves.

4.1.3 Process Instrumentation

All process instrumentation (PI) within a facility is defined by criticality. Generally the system, and not the individual pieces of equipment, is considered to be the TCA. Critical components may include, but are not limited to, programmable logic controllers and motor control centers.

4.1.4 Process Electrical

All process electrical equipment (PE) within a facility is defined by criticality. TCAs that are considered to be critical components may include, but are not limited to, generator sets and backup power supply engines.

4.1.5 Fencing

All fencing (FC) is considered to be a critical component of the facility from a safety standpoint. Fencing is divided by type for valuation (e.g. 1.2m chain link with metal posts) and a value assigned which is based on linear quantity.

4.2 Fleet

Fleet (FL) vehicles are defined as municipal property that can be driven or pulled. Each vehicle is to be considered as a single TCA. Any upgrades or modifications to a fleet asset is valued as a part of the asset as a whole. Fleet vehicles will be valued as a replacement cost unless a historic cost is available.

4.3 Public Works Equipment

Public works equipment (PWE) includes pieces of large equipment that are not driven or pulled. TCAs in this asset category are valued individually, and may include items such as portable boiler units and arena ice painting equipment.

4.4 Linear Assets

The following sections clearly indicate the segmentation employed for the purposes of linear assets which differs, due to the nature of the systems, to that employed for facilities.

4.4.1 Roadways

Roadways are defined as two distinct components (road surface and road bed). The road surface component includes all road furniture and is differentiated by surface type (e.g. asphalt, gravel) and by function (e.g. local, collector, arterial). The road bed component is differentiated by sub-grade and base material type (e.g.200 mm Sub grade and 350 mm Sub-base).

Roadway values were compiled by VEMAX Management Ltd. from contract work conducted for SARM and SUMA in southern Saskatchewan. Tender information was collected from numerous RM's and municipalities and summarized. AE Saskatoon compared the costs to recent highway construction cost for comparative purposes, and adjusted as necessary for Northern Saskatchewan communities.

4.4.2 Underground

Underground installations such as water and sewer piping are considered a single asset for network assets including all appurtenances i.e. pipes, valves, laterals, etc. These assets are segmented at natural breaks (e.g. man holes, valves, pipe intersections) and differentiated by pipe diameter and material. Underground installations are also differentiated by function (e.g. force mains from gravity sewer mains).

Underground installation values are based on the unit prices for the supply and placement of materials as a result of reviewing existing tender documents, where they exist. Valuations are employed on a segment per diameter per unit length basis.

4.5 Land

Items under Land are real properties in the form of a plot, lot or area. Properties owned by the community are being accounted for. Land valuations include all expenditures related to each property, i.e. grading, fill material, drainage improvements, etc.

4.6 Land Improvements

Land improvements are any betterment to land that has a finite life. These items are constructed and are removable. Examples of these items include, but are not limited to, fencing, bike paths, outdoor swimming pools, ball diamonds, soccer fields, outdoor arenas and the like. These items will be amortized separately from 'Land' over its useful life. These items, for this project, have been included under the asset registry for individual non-public works facilities. Land improvements that have similar items in the same general location have been put into a single Asset Register line item.

4.7 Other Asset Categories

The remaining TCA entries for each community for the purposes of this project are expressed as follows:

- FE – Fire Equipment (e.g. turn-out gear)
- FR – Furniture (e.g. set of stacking tables and chairs)
- HV – Heating and Ventilation, for TCAs not included in the BEM asset category. (e.g. propane heater)
- IRE – Indoor Recreation Equipment (e.g. arena scoreboard)
- ORE – Outdoor Recreation Equipment (e.g. playground equipment)
- OE – Office Equipment (e.g. photocopier)
- LT – Lighting, for TCAs not included in the BEM asset category (e.g. outdoor arena lights)
- SW – Site Works (e.g. landscaping)
- Other – TCAs that do not fit into other asset category descriptions (e.g. eyewash station)
- PP – Paved Parking.

The resulting TCA register clearly identifies the category, quantity and financial values for each asset based on the segmentation level stated by category of asset.

5 Basis of Valuation Resource Materials

Values for each TCA were determined, in the absence of documented historical or actual cost from any one of five sources. These sources are generally described below:

5.1 Information Provided by Municipality/NMTA

In some cases, TCA value was provided by the municipality and/or Municipal Affairs via invoice/tender pricing and audited financial statement respectively. In these cases, the values provided were considered to be accurate for the purposes of the valuation exercise.

5.2 Insurance Values

Insurance values may be used to determine the lump sum cost for a building, provided the insured value is for replacement costs and is for an adequate amount. Insurance values are considered accurate based on industry assessment practices. Insurance values were applied against the RS Means percentage breakdowns to determine how much of the total cost was assigned to each asset category (BA, BS, and BEM).

Insurance values may not be valid for building asset valuations, as some municipalities may insure their buildings as “contents included” or for actual cash value (ACV). In these cases, a building equivalent value was established based on a similarly sized or aged building of the same type with adequate insurance information. These building equivalent values, where they exist, are documented for each community.

5.3 Tender Documents

Tender documents and bid cost analysis information from past projects in the northern communities were used to determine historic costs. For example, these documents were used to determine unit pricing for TCAs such as lagoons and fencing based on capacity and quantity respectively. Tender document pricing is inclusive of all applicable labour and materials for the specific asset.

5.4 Capital Grants Program Funding Information

The Capital Grants Program (CGP) funding covers ninety percent (90%) of a qualified municipal expenditure. Records for the CGP extend back to the early 1990’s, but CGP funding is only approved for a few expenditures per community each year. Any TCA value information found in the CGP records was treated as a historic cost and was inflated by a factor of 1.1 to account for the ten percent (10%) of the asset cost not covered by the program

5.5 Supplier Information

For TCAs where no other costing documentation was available, it was necessary to contact various suppliers for budget pricing. In these cases, extra costs were added to the dollar value to account

for taxes, shipping, and installation (if applicable). These extra amounts were determined on an item by item basis, and documented in a "Source of Valuation" file.

A combination of valuation techniques was employed depending upon the type of asset and the availability of historical valuation information. Actual costs encountered took precedence over all other sources and all valuation sources have been documented on an item specific basis.

A comprehensive list of valuation assumptions is contained in the following sections.

6 Valuation Assumptions

The following assumptions were made in the definition of historical and amortization for the purposes of this project.

In general the following assumptions apply for all TCA:

- All information provided by the communities/NMTA is assumed to be accurate and complete.
- No removal costs are included in the unit costs.
- All indexing of values was done using the NRBCPI and CPI index from the asset registry and is noted for each class.
- Where applicable and when values were unknown, a 15 % engineering and 5% project management fee was included in cost.

Assumptions pertaining to specific asset categories are indicated in the following sections:

6.1 Roadways (RD)

- Cost per sq. m. were determined and were broken down into 40% for surface material and 60% for Sub-base/base material (RDB).
- NRBCPI was employed for this category.
- Additions are assumed to be acquired assets.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any roadways that are not operating are not included in the Asset Register.

6.2 Water Distribution (WAT)

- Prices for installation taken from Fehr Trenching tender bid for 2009 Town of Swan River and Creighton
- Depth of pipe avg. 3 - 4m = $400.00 per lineal meter for trenching
- Pipe costs were obtained from Wolseley Engineered Pipe Group and Mueller Flow Controls on Nov. 20, 2009, on a per metre basis.

- Cost/m includes trenching & backfill, hydrant, valves and fittings. The costs do not include the removal and disposal of any existing pipes.
- For northern Saskatchewan, we assume the use of HDPE DR17 pipe for replacement.
- Fire Hydrant = $3,200.00 Supply and installed = $7,000.00
- Valve installation and service reconnection costs are included in trenching $/m
- Cost per lineal meter assumes a hydrant and valve every 120 m as per Sask. Environment EPB201 A Guide for Water Works Design
- NRBCPI referenced
- Additions are assumed to be acquired.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any waterlines that are not operating are not included in the Asset Register.

6.3 Sanitary Sewer (SAN)

- Prices for installation and material taken from Fehr Trenching tender bid for 2009 Town of Swan River and Creighton
- Depth of pipe avg. 3 - 4 m = $400.00 per lineal meter for trenching
- Pipe costs were averaged from prices obtained from Wolseley Engineered Pipe Group and Mueller Flow Controls on Nov. 20, 2009, on a per metre basis.
- Cost/m includes trenching & backfill, pipe and manholes installations. Costs do not include the removal and disposal of any existing pipes. Costs also do not take into account special procedures, which may be required for the safe removal and disposal of Asbestos Cement pipe.
- Assumes the use of SDR 35 PVC pipe for replacement.
- The supply of Type 1 Standard Precast Manhole 1050 Diameter = $1750 / vm
- The supply of Precast Base and MH Cover and Frame = $1,800.00 ea.
- Cost per lineal meter assumes a manhole every 90 m as per Sask. Environment EPB203 A Guide for Sewage Works Design
- NRBCPI referenced
- Additions are assumed to be acquired.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any sewer lines that are not operating are not included in the Asset Register.

6.4 Storm Sewers (STM)

- Prices for installation and material taken from Fehr Trenching tender bid for 2009 Town of Swan River and Creighton
- Depth of pipe avg. 2 - 3 m = $275.00 per lineal meter for trenching and MH/CB installation.
- Pipe costs were averaged from prices obtained from Wolseley Engineered Pipe Group and Mueller Flow Controls on Nov. 20, 2009, on a per metre basis.

- The above costs do not include the removal and disposal of any existing pipes. Costs also do not take into account special procedures, which may be required for the safe removal and disposal of Asbestos Cement pipe.
- Assumes use of PVC Ultra-Rib pipe for placement.
- Supply Type 1 Standard Precast Manhole 1050 Diameter = $1750 / vm
- Supply Precast Base and MH Cover and Frame = $1,800.00 ea.
- Supply F80 Standard Precast CB, Cover and frame 1050 Diameter = $1,200.00 ea.
- Cost per lineal meter assumes a manhole and 2 catch basin every 90 m as per Sask. Environment EPB203 A Guide for Sewage Works Design.
- NRBCPI referenced.
- Additions are assumed to be acquired.
- Assets were catalogued on an as is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any sewer lines that are not operating are not included in the Asset Register.

6.5 Facilities (FAC)

- Used NRBCPI
- Additions are assumed to be acquired.
- Any facility owned by the community has been documented.
- Each facility and any related components are contained within its own Asset Register.
- Critical components (ie. Building components) that are below the capital threshold have been pooled and are described within the Asset Registers as a pool.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any facilities that are not operating are not documented in the Asset Register.

6.6 Facility Equipment (FACE)

- CPI referenced
- Additions are assumed to be acquired.
- All facility equipment and public works equipment has been linked to a facility (except for items considered to be fleet).
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any equipment that is not operating is not documented in the Asset Register.

6.7 Land (LD)

- Any land that is not recoverable is considered to be worth $1 (ie. cemeteries, landfills, land under lagoons).
- Land underneath municipal roadways is considered to be valued at $1.
- Additions are assumed to be acquired.

- Land that has a facility on it that is run by the community was assumed to be owned by the community.
- Land values were acquired by parcel fabric received from Information Services Corporation (ISC), which is a provincial Crown corporation responsible for land registrations in Saskatchewan. Were no values were noted, the land was considered to be worth $1.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.

6.8 Land Improvements

- NRBCPI referenced
- Land improvements have been documented as non-public works facilities (ie. parks, outdoor arenas, etc).
- Additions are assumed to be acquired.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any improvements that are not operating are not included in the Asset Register.

6.9 Fleet/Vehicle

- CPI referenced
- Additions are assumed to be acquired.
- Any type of vehicle that can be driven has been designated as Fleet/Vehicle
- Valuation Costs are based on current day replacement costs.
- Assets were catalogued on an as-is basis and it will be the responsibility of the local administrators to address predeceasing assets.
- Any fleet/vehicle that is not operating is not included in the Asset Register.

Please note that the referencing index used in each case is sensitive to the corresponding asset class. A description of the determination of specific financial values and the capital threshold used for the purposes of this project is contained in the following section.

7 Capital Threshold and Financial Values

The following sections outline both the capital threshold and a number of assumptions made in the determination of financial values.

7.1 Capital Threshold

The capital threshold for the purposes of this project is $5,000.00 in all cases. Items under the capital threshold have been pooled or aggregated to an amount above the threshold with some exceptions. In some cases segmentation of linear assets, more specifically underground and transportation assets: road, water, wastewater and storm water assets created entries within the TCA register that are under the capital threshold. These cases are exclusively due to short lengths

of pipe of roadway whose value is under the capital threshold. In some cases facility assets lower than the capital threshold are included in order to follow rules with respect to component divisions and or the criticality of the asset.

The inclusion of these assets is necessary to provide the necessary granularity in the asset listing and to be consistent with the component definitions.

7.2 Residual Value

The estimated residual value of an asset must be subtracted from its historical cost before estimating amortization costs. Our experience has shown that municipalities usually fully utilize their assets to the point where the remaining value is negligible. Therefore, the project team has employed zero as the residual value for all tangible capital assets.

7.3 Useful Life

Useful life in the context of the delivery of the PSAB financial statement should not be confused with service life from an engineering perspective. Useful life for PSAB is normally the shortest of the assets life. The service life can be quite different as there are a number of factors that affect the service life: present condition, use of the asset, maintenance program and technology changes.

Detailed breakdowns for TCA classes along with Useful Life Values for Northern Saskatchewan are provided in **Appendix A**. More categories are provided than is required for this report; however, this additional information will provide participating communities with an opportunity to synchronize tangible asset accounting and asset management efforts in the future. Items indicated designated “non applicable” were items not relevant to the scope of this project. Useful lives for sophisticated building or process equipment, given their diversity and the potential impacts or consequence of failure, were evaluated by qualified engineering staff.

The defining list of useful life values for Saskatchewan assets was determined after being reviewed by the respective senior engineering discipline leads within Associated Engineering (Sask) Ltd. These useful life values were compared to useful life recommendations from British Columbia (BC) and Manitoba (Man) as well as the United States Government Accounting Standard Boards (GASB) 34 recommendations for context.

Useful Life for Fleet/Vehicles, Fire Equipment, and “Other Assets Categories” noted in Section 6.7 were obtained from the Saskatchewan Municipal TCA Reference Manual, Nov. 2008, located at www.sasktca.ca.

7.4 Amortization and Net Book Value

Annual Amortization, Accumulated Amortization, Disposal Amortization and Net Book Value (NBV) calculations have been performed using the Asset Register located at http://sasktca.ca/resources. The asset register is capable of making all relevant calculations needed for PS 3150 Tangible

Capital Asset Reporting. The Asset Register was produced in coordination between Associated Engineering and TCA Consulting for the Tangible Capital Asset reporting project, on behalf of SUMA, SARM, SANC and the Ministry of Municipal Affairs. Additional information about the amortization methods, exceptions and inclusions, the TCA Register and Reporting Project can be obtained from www.sasktca.ca.

The following section outlines the attribution and method employed for the creation of both the PS 3150 compliant TCA Register and MAIS Asset Inventory and GIS and the associated documentation.

8 Inventory Documentation

This section is an outline of the steps that were followed to create the Asset Registry spreadsheet, this report and the assumptions made in the inventory creation.

8.1 Linear Assets

The creation of the linear Asset Inventory involved the following standard work plan for all communities.

8.1.1 Roadways

Data collection was initiated by retrieving the National Road Network and compiling all roads within each of the community's boundaries. AE staff, during the field inspection process, filled out inspection forms for every road, from intersection to intersection. This data included the following:

- National Road Class
- Provincial Road Class
- Full Legal Road Name
- From
- To
- Length (m) (for surface and base)
- Material (for surface and base)
- Width (m) (for surface and base)
- Date of Construction(for surface and base)
- Lanes
- Curb
- Sidewalk
- Curb Type
- Ownership
- Maintenance Responsibility
- Information Source

- Useful Life (for surface and base)
- Year of Valuation
- Surface Condition

The information gathered was then compiled and attached to the road network GIS. Any roads that were not owned/maintained by the community were removed from the inventory. Any gaps were documented and a gap analysis was completed to address and fill these gaps. Costs for the roads were determined on a cost per sq. metre basis. Any assumptions made during the data collection and data valuation process were documented throughout the project and attached to the inventory record.

8.1.2 Water, Sanitary and Storm Piping

All relevant drawings from SaskWater, the community, Associated Engineering, and other consultants were compiled for each community. These drawings were then analyzed for relevance and accuracy. The appropriate drawings were then digitized by Associated Engineering GIS staff. Any information found on the drawings was attached to the lines, including material, diameter, and year installed. After the digitizing process, any gaps were filled by contacting the community or by Associated Engineering staff who have worked within these communities in the past. Costs for these assets were determined on a cost per metre basis. Any assumptions made during the data collection and data valuation process were documented throughout the project and attached to the inventory record.

8.2 Facility, Facility Equipment, Land Improvements and Fleet

Associated Engineering deployed teams of inspectors to every community to collect the following information on all community owned facilities, facility equipment and fleet:

- Asset Description
- Asset Class
- Material
- Building
- Location
- Operating Status
- Condition
- Repair Priority
- Consequence of Failure
- Health & Safety and Code Violations
- Asset Valuation
- Year of Valuation
- Repair Cost
- Install Date
- Useful Life

- Make
- Model
- Manufacturer
- Serial Number

Any items that were found to be above the designated threshold have been included in the Asset Registries. Assets that did not have actual costs available in the field were valued based on numerous sources that are highlighted in Section 7. Any assumptions made during the data collection and data valuation process were documented throughout the project and attached to the inventory record.

8.3 Land

Based on land use maps, information submitted by ISC/SAMA properties owned by the community were determined. Any items that were owned by the municipality were then tied to the property values provided by the Saskatchewan Assessment Management Agency. These values are based on the 2006 valuations

In all cases, inventories were reviewed by Municipal Staff where possible.

9 Conclusion

The project team has constructed this document in accordance with the published Saskatchewan Standards for PS 3150 reporting requirements for use in conjunction with the submitted TCA register for each community.

Please contact Ken Turnbull, C.Tech., via the following in the event that clarification of the enclosed or additional information is required.

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Appendix A - Useful Life Matrix, November 2, 2009

Appendix A - Useful Life Matrix, November 2, 2009

Asset Class	Northern Sask. SMMA Project (Years)
Land	
Land	Not amortized
Land Improvements	
Athletic Field	15
Outdoor Courts (e.g. basketball, tennis)	20
Golf Course-All Related Infrastructure	45
Lighting-Outdoor (not street lights)	10
Parks (Paved trails and related structures are amortized separately)	n/a
Running Track	15
Landscaping	25
Sprinkler System-Outdoor	25
Fountains	15
Buildings	
Permanent Buildings-Brick, Stone or Cement (all buildings made of brick, stone or cement)	50
Permanent Buildings-Log, Frame and Other (wood or metal frame)	30
Buildings-No Foundation (e.g. some greenhouses)	20
Temporary/Portable Structures	10
Operational Lease (Annual cost is shown as a current year expense)	n/a
Capital Lease	n/a
Leasehold Improvements	n/a
Building components	
Building Fixtures - aggregate approach (HVAC, carpets, elevators, plumbing, lighting, wiring …)	20
Excavation	50
Foundation	50
Frame	50
Floor Structure	50

Asset Class	Northern Sask. SMMA Project (Years)
Floor Covering	15
Carpeting	5
Computer Flooring	10
Exterior Walls	50
Roof Cover	20
Interior Construction	10
Interior Renovation	10
Ceiling Finish	10
Plumbing	20
HVAC	20
Electrical	20
Fire System	20
Elevators	20
Other structures	
Arena and Stadiums	50
Bleachers-Wooden, Aluminum and Other (excluding stadium bleachers)	15
Fences, Gates	15
Parking Structures-Concrete (parkades, not open parking lots)	50
Retaining Walls	20
Boat Ramp - Wood	10
Boat Ramp - Concrete, Asphalt	15
Boat Ramp - Metal	n/a
Piers, Seawalls, Bulkheads	25
Swimming Pools-Outdoor	25
Dams-Earthen	40
Dams-Concrete	n/a
Manmade Lakes/Waterways/Canals	60
Other Specialty Structures (use engineering advice on the useful life)	n/a
Roads (includes gutters and railway crossings)	
Dirt	20
Gravel	20
Asphalt Rural Local	15
Asphalt Rural Collector	15
Asphalt Rural Arterial	15

Asset Class	Northern Sask. SMMA Project (Years)
Asphalt Urban Local	15
Asphalt Urban Collector	15
Asphalt Urban Arterial	15
Concrete Rural Local	n/a
Concrete Rural Collector	n/a
Concrete Rural Arterial	n/a
Concrete Urban Local	n/a
Concrete Urban Collector	n/a
Concrete Urban Arterial	n/a
Road components	
Road Surface - Asphalt	15
Road Surface - Concrete	n/a
Road Grade (formation works, drainage works, culverts < 2 metres, initial application of gravel on gravel roads)	40
Other built surface areas	
Airport Runways	20
Open Parking Lot - Asphalt	15
Open Parking Lot - Brick or Stone	30
Open Parking Lot - Concrete	n/a
Open Parking Lot - Gravel	15
Alleys-Asphalt	20
Alleys-Brick or Stone	n/a
Alleys-Concrete	n/a
Alley-Dirt	10
Alleys-Gravel	15
Sidewalks - Asphalt	25
Sidewalks - Concrete	25
Sidewalks - Brick or Stone	20
Path or trail - Composite rubber	10
Path or trail - Dirt	10
Path or trail - Gravel	15
Path or trail - Asphalt	20
Path or trail - Brick or Stone	20

Asset Class	Northern Sask. SMMA Project (Years)
Path or trail - Chip Trail	10
Path or Trail - Concrete	25
Road Furniture	
Traffic Signs	15
Traffic Lights	20
Traffic Lights - Mast Arm	20
Traffic Lights - Hung Wire	15
Street Lights	20
Street Lights - Concrete	n/a
Street Lights - Metal	20
Street Lights - Wood	15
Noise Reduction Berm (Plastic, Metal, not Earthen)	n/a
Parking Meters	n/a
Bridges, Tunnels	
Tunnel	n/a
Bridge	n/a
Bridges > 2 meters – Treated Timber / Wood	60
Bridges > 2 meters - Precast Concrete	60
Bridges > 2 meters - Concrete Pre Stressed	60
Bridges > 2 meters - Steel w/o Trusses	60
Bridges > 2 meters - Steel with Trusses	60
Pedestrian Bridge - Steel	n/a
Pedestrian Bridge - Concrete	n/a
Pedestrian Bridge - Wood	n/a
Culverts > 2 meters: - Plastic	30
Culverts > 2 meters: - Steel/ Corrugated Steel	60
Culverts > 2 meters: - Precast Concrete	40
Culverts > 2 meters: - Concrete Pre Stress	45
Culverts > 2 meters: - Cast Iron	n/a
Culverts > 2 meters – Treated Timber / Wood	30
Water Supply Infrastructure	
Above Ground and In-Ground Reservoirs-Concrete	45

Asset Class	Northern Sask. SMMA Project (Years)
Reservoirs - Other (includes lined earth, wood stave and steel reservoirs)	45
Water Towers and Tanks (steel)	50
Wells (including well casing)	40
Wells-Screen for Wells	25
Water Treatment Infrastructure	
Treatment Plant - Aggregated Approach	25
Chlorinating Systems	25
UV Disinfection Systems	25
Ozonation Disinfection	20
Aerator (including tank, compressor hose, etc. but not the blower)	15
Blower (component of an aerator)	10
Clarifier	20
Filters-Sand	25
Filters-Membrane (ceramic and polyurethane)	15
Flocculator	20
SCADA Software	5
Screens-Bar and Rotary	15
Screens-Stainless Steel	15
Thickener	20
Water Distribution Infrastructure	
Water Distribution - Aggregated Approach	50
Fire Hydrants-Steel and Ductile Iron	50
Fittings for Pipes-Ceramic, Concrete, Plastic and Steel	40
Generator	20
Meters	20
Pipes-Brick	na
Pipes-Cast Iron (British Standard)	50
Pipes-Cast Iron (other classes)	50
Pipes-Concrete (reinforced and non-reinforced concrete and asbestos cement)	50
Pipes-Copper	50
Pipes-Ductile Iron	40
Pipes-Galvanized Steel	50

Asset Class	Northern Sask. SMMA Project (Years)
Pipes-PVC	60
Pipes-Steel	50
Pipes-Vitrified Clay	40
Pipes - HDPE	60
Pumps (wells, booster, other)	20
Valves	40
Sewage Collection System	
Collection System - Aggregated Approach	50
Fittings for Pipes-Ceramic, Concrete, Plastic and Steel	40
Manholes	40
Meters-Including Flow Meters	10
Pipes-Brick	n/a
Pipes-Cast Iron (British Standard)	30
Pipes-Cast Iron (other classes)	30
Pipes-Concrete (reinforced and non-reinforced concrete and asbestos cement)	40
Pipes-Copper	n/a
Pipes-Ductile Iron	25
Pipes-Galvanized Steel	40
Pipes-PVC	50
Pipes-Steel	40
Pipes-Vitrified Clay	40
Pipes-HDPE (forcemain)	60
Pumps	15
Septic Systems - On Site	20
Valves-Water Control (ceramic, concrete, plastic, steel and others)	25
Valves-Chamber	40
Wet Well	50
Sewage Treatment Infrastructure	
Filtration Treatment System - Aggregated Approach	25
Aerators	20
Blowers	10
Concentrators	20

Asset Class	Northern Sask. SMMA Project (Years)
Digesters	20
Heat Exchangers	15
Lagoons	50
Screens (bar and rotary and stainless steel)	10
Effluent Discharge Infrastructure	
Discharge System - Aggregated Approach	25
Pumps (including booster pumps)	15
Tanks-Wastewater Storage (includes CSO tanks)	30
Drainage Infrastructure	
Culverts-Concrete	40
Culverts- Steel / Corrugated Steel	30
Culverts-Treated Timber	30
Culverts- Plastic	30
Storm Drain-Cast Iron	25
Storm Drain-Concrete	30
Storm Drain-Ditch and/or Trench	60
Storm Drain-Metal Corrugated	30
Storm Drain-Plastic	25
Vehicles	
Light Duty	10
Medium Duty	10
Heavy Duty	20
Transit Buses	20
Fire Trucks	25
Communication	
Radio	10
Telephone System	10
Tools Shop & Garage Equipment	15
Scales	15
Bins	15
Meters	
Electrical	20
Cumulative	20

Asset Class	Northern Sask. SMMA Project (Years)
Interval	20
Gas	20
Water	40
Parking Meters & Splitters	20
Office Furniture & Equipment	
Furniture	20
Office Equipment	10
Audiovisual	10
Photocopiers	5
Computer Systems	
Hardware	5
Software	10
Miscellaneous	
Food Services	10
Fire Equipment	12
Police Special Equipment	10
Aircraft	Variable
Boats	25
Fitness & Wellness	10
Control Systems	5
Communication Links	20
SCADA System	10
Fuelling Stations	15
Laboratory	10

Appendix B - Municipality Abbreviations

Appendix B - Municipality Abbreviations

AR	=	Air Ronge
BC	=	Bear Creek
BL	=	Brabant Lake
BN	=	Buffalo Narrows
BP	=	Black Point
BV	=	Beauval
CB	=	Cole Bay
CH	=	Cumberland House
CP	=	Camsell Portage
CR	=	Creighton
DB	=	Denare Beach
DL	=	Dore Lake
DSL	=	Descharme Lake
FF	=	Flin Flon
GL	=	Garson Lake
GLR	=	Green Lake
IC	=	Île-à-la-Crosse
JB	=	Jans Bay
LL	=	La Loche
LR	=	La Ronge
MS	=	MIssinipe
MV	=	Michel Village
PH	=	Pinehouse
PK	=	Patuanak
PN	=	Pelican Narrows
SB	=	Sandy Bay
SE	=	Southend
SGH	=	St. George's Hill
SL	=	Sled Lake
SM	=	Stanley Mission
SR	=	Stony Rapids
TB	=	Timber Bay
TL	=	Turnor Lake
UC	=	Uranium City
WK	=	Weyakwin
WL	=	Wollaston Lake

Appendix C - Asset Abbreviations

Appendix C - Asset Abbreviations

BA	=	Building Architectural
BEM	=	Building Electrical & Mechanical
BS	=	Building Structural
FAC	=	Facility
FACE	=	Facility Equipment
FC	=	Fencing
FL	=	Fleet/Vehicles
FR	=	Furniture
HV	=	HVAC
IRE	=	Indoor Recreational Equipment
LD	=	Land
LT	=	Lighting
OE	=	Office Equipment
ORE	=	Outdoor Recreational Equipment
PE	=	Process Electrical
PI	=	Process Instrumentation
PP	=	Paved Parking
PPE	=	Process Piping & Equipment
PWE	=	Public Works Equipment
RD	=	Road
RDB	=	Road Base
SAN	=	Sanitary
STM	=	Storm
SW	=	Site Works
WAT	=	Water

Appendix D – Project Team

Appendix D – Project Team

The following sections clearly outline the project team and individual roles of the four business entities engaged in the delivery of the key components of this project, their individual corporate histories and their individual competencies as they relate to the tasks required for project execution and completion.

Project Companies

Associated Engineering

Project Role: Project Lead, Water System Assessments, Asset Inventory and Valuation, Asset Management, GIS, MAIS Application Development, Quality Assurance

Associated Engineering (AE) was founded in 1948 and established in Saskatchewan in 1954.

AE has provided transportation, infrastructure, utility, water, and environmental planning and engineering services, including water, wastewater treatment and construction management, to public and private sector clients for over 60 years. An employee-owned Canadian company with over 700 employees, AE is one of Canada's most stable and comprehensive consulting engineering firms. The company offers a full-service team including multi-disciplined engineers and technologists in the process, structural, civil, mechanical, electrical, and instrumentation and controls engineering disciplines.

AE's services range from assessments and planning studies, municipal and utility infrastructure and data management to detailed design, procurement, construction management, contract administration, training, operational assistance, and overall project management. The company serves a full range of public and private sector clients, in Canada and internationally. AE has office locations in Saskatchewan for the purposes of this project at the following locations:

- Saskatoon
- Regina
- Prince Albert

Of particular relevance to this assignment is the fact that AE is the only Canadian employee-owned company with a purpose built Asset Management and Applied GIS business unit that offers these services as stand alone service and in conjunction with core discipline consulting engineering assignments.

AE brings dedication, commitment, and innovation to our clients to exceed their expectations for service, quality, and value. We strive to build and maintain strong relationships with our clients, staff, and communities, based on integrity and respect. We understand that Associated Engineering can only succeed if our staff are successful, and we are committed to promoting and supporting their development.

AE is committed to maintaining a high level of accuracy, functionality, total quality and constructability for each assignment. To produce this, we have developed and utilize Quality Assurance/Quality Control guidelines that result in successful projects for the least cost to our clients.

Associated Engineering is recognized for providing clients with cost-efficient, innovative, value-added solutions. The company prides itself on achieving solutions that are aesthetically pleasing and environmentally sustainable. Recognized as an industry leader, Associated Engineering has received local, national, and international awards for engineering services and business management. We value the relationships we built with our clients and believe that an environment built upon mutual trust and respect sets the stage for a better working partnership that facilitates successful project delivery. Please visit our web site at www.ae.ca for additional information.

VEMAX Management

Project Role: Asset Management, Asset Valuation, Quality Assurance, Stakeholder Workshops

VEMAX Management primarily operates in Canada, Australia and the U.S.A. The company was initially founded in 1975 as Clayton, Sparks and Associates Ltd. (CSAL), a privately owned Canadian based engineering and management company. CSAL served the transportation sector of government. In 1994, the company was restructured as VEMAX Management Inc to reflect the modern needs of our clients. This restructuring included specialization in the application of modern asset management principles and practices to the preservation of public sector infrastructure.

VEMAX commenced operation in Australia in December, 1995, by entering into a strategic alliance with Ackehurst, Gardner, Thomas and Associates, an Australian company that had been successfully operating in the asset management consulting business since 1990. In July, 1996, Ackehurst, Gardner, Thomas and Associates was incorporated into VEMAX Management P/L to enable VEMAX to better serve the client base throughout Australia.

In 2000, VEMAX launched an initiative to develop strategic alliances with other selected companies in the asset management and preservation sector in Australia and the U.S.A. The objective of these alliances is to enable VEMAX to leverage its unique core competencies in the application of the principles and practices of asset management to public sector infrastructure through the resources and expertise of affiliated companies. The first of these alliances was launched in Australia with the Civil Construction Corporation acquiring the interests of VEMAX throughout Australia in the form of VEMAX Management Australia.

As a part of this initiative in 2000 the VEMAX Group was formed. The Group consists of:

- VEMAX Management Inc.
- VEMAX Management Australia
- VEMAX Management International

All three firms are fully integrated in their knowledge and skills but are established to serve specific aspects of the VEMAX client base. VEMAX currently operates two Canadian office locations in Saskatoon and Edmonton in addition to their offices in Sydney and Melbourne in Australia. VEMAX currently has a staff complement of ten employees in their base of operations in Canada.

ATAP Infrastructure Management

Project Role: Water System Assessments, PSAB data collection, MAIS field data collection

ATAP Infrastructure Management Ltd. has been in operation since 1999 with offices in Saskatchewan and Alberta. ATAP provides comprehensive and cost-effective operations and maintenance management and training services to enable communities to provide a high level of service to the consumer. Providing water/wastewater treatment plant operators with sufficient skills, knowledge and experience to accomplish their duties through improved operating and maintenance practices increases the safety of communities and protects their assets.

ATAP's certified operators and trainers are supported by one of the largest and most respected groups of water and wastewater systems specialists in Western Canada through AE. Under the Associated Engineering Group of companies, ATAP has access to knowledge and experience resources of operators, designers, multi-discipline engineering specialists, environment specialists, project managers and infrastructure trouble-shooters.

ATAP takes pride in its "culture" – from its operators to its managers. A common trademark is that ATAP staff are not afraid to roll up their sleeves and get their hands dirty. This is something that clearly distinguishes ATAP from others in the industry.

ATAP has provided technical O&M support to operators in many Saskatchewan and Alberta communities for the past number of years and, in doing so, has a thorough understanding of their systems, conditions and futures needs.

TCA Consulting

Project Role: Asset Valuation and Amortization, Auditor Review, PSAB Training, Review of PSAB, Reporting and Recommendations, Financial QA/QC

TCA Consulting Limited (TCA) is an Ontario-based consulting firm specializing in guiding Canadian municipalities and associated organizations through the changes necessary to implement PS 3150 Tangible Capital Assets. TCA offers both independent accounting services and, in conjunction with associates, integrated municipal engineering and accounting services. We assist municipalities in the facilitation of the new financial reporting requirements of the Public Sector Accounting Board (PSAB) in the context of broader asset management implementation planning.

GeoAssets

Project Role: MAIS WEB Pilot WEB Geographic Information System

GeoAssets Ltd., a subsidiary of AE Group Ltd, was formed in 2007 to address the need in the Canadian marketplace for a public domain software based application for the purposes of asset inventory maintenance, strategic asset replacement and financial planning within a WEB and GIS enabled environment. GeoAssets has designed and implemented custom software solutions for a variety of municipal, federal and commercial clients across Canada.

The project team successfully completed the required TCA inventory, valuation and TCA register for this community and 35 others in mid November of last year. All results are consistent with the current approach to projects of this type contained in the current and amended editions of the: TCA Reference Manual, TCA Register and TCA Policy Statement produced for the Saskatchewan Provincial Government and the Saskatchewan Urban Municipalities Association in 2009 by Associated Engineering Saskatchewan Ltd. and TCA Consulting Ltd.

Key Project Staff

The following project staff contributed to the project results. Their individual affiliations, competencies and level of experience as they relate to this project are clearly indicated. In all cases, project results were reviewed and verified by appropriately licensed Professional Engineering Staff within the respective companies prior to being committed to the final set of deliverables.

Bert Munro, P.Eng., FCSCE, FEC
Vice President and General Manager of Associated Engineering (Sask.) Ltd.
Project Role: Project Sponsor and Director

Bert Munro has more than 30 years experience in municipal infrastructure, water resources and geotechnical engineering, and project management. He has been responsible for the planning, analysis, design, construction and project management of numerous projects throughout Western Canada.

Recently Bert has been involved with Infrastructure Planning, Bylaw and Policy Development, Asset Management and System Condition Assessments, in addition to training initiatives in the area of Municipal Operations & Design. Responsible for the company's operational performance

Bert has also been professionally responsible for a number of WSA's including the City of Saskatoon, City of Regina (and Buffalo Pound Water Treatment Plant), City of Lloydminster along with numerous smaller communities including many in the NAD. Bert brings a wealth of Saskatchewan and particularly northern experience to this project.

Ken Turnbull, C. Tech., Senior Group Manager
Project Role: Project Manager

Ken has over 27 years of experience in municipal operations in the Province of Saskatchewan. He is the Manager of ATAP Infrastructure Management Ltd., and is spearheading the delivery of Asset Management Programs to municipalities and regional associations in Saskatchewan for Associated Engineering (Sask.) Ltd.

Ken Mollerud, Senior Project Manager, Program Management
Project Role: Project Logistics Specialist

Ken has over 47 years experience in the engineering field. For 28 years as a Department/Crown Corporation employee, Ken worked directly with provincial government departments, northern municipalities, Indian Bands, engineering consultants, and construction contractors in planning, budgeting, pre-design, design and construction of new and upgraded municipal water and sewer infrastructure. This has carried on with his new career in the consulting industry.

Ken has worked extensively in all northern communities of the NAD and is familiar with the existing water and sewer infrastructure in each of these communities and the challenges that each community faces. He has been responsible for the delivery of infrastructure programs throughout the north, including quality and cost control during design, construction and first year operation of new and upgraded water and sewer infrastructure. His ability to manage the logistics around the delivery of the services of a diverse group will be a key to our team's success.

David Watt, O.L.S., O.L.I.P., C.E.T., Group Manager, Asset Management and Applied GIS
Project Role: PSAB Project Lead

David has over 25 years of experience related to municipal asset and infrastructure management in both local municipal government and consultative roles.

He has over 25 years experience in the collection, normalization and analysis of municipal asset data at the network level for the purposes of capital planning and system rehabilitation prioritization. David fields of experience include municipal operations contract management, applied GIS and data management, advanced data asset data collection and analysis techniques, pavement management and general municipal project management.

David provided training and contributed to the SUMA PS 3150 effort conducted in 2008/2009 in conjunction with Calvin Hawke C.A. of TCA Consulting Ltd.

Matt Anderson, B.Eng., Software Designer
Project Role: Software Design/Integration Lead

Matthew is a software designer with knowledge and experience creating software applications with many programming languages for a variety of platforms. Major application development includes both Enterprise and Utility systems in desktop and web-based formats. Matthew uses proven development lifecycles and procedures to ensure developed products are efficient, functional and correct. Matthew has extensive experience in relational database design and implementation specializing in spatial functionality.

Matthew is the author of the current TCA register currently in use by Saskatchewan Municipalities and for the AssetNav software tool sets provided under the auspices of GeoAssets.

Calvin Hawke, CA, President TCA Consulting Ltd.
Project Role: PSAB Section 3150 Financial Lead

Mr. Calvin Hawke, CA (TCA President) is uniquely qualified to provide the guidance and advice for implementing PSAB or full accrual reporting procedures in a municipal environment given his 30 years of experience working in municipal government, knowledge gained while working on the County of Brant's portion of the Ontario Municipal Benchmarking Initiative (OMBI) Tangible Capital Asset Pilot Site Project and subsequently assisting a variety of Canadian municipalities in New Brunswick, Ontario, Saskatchewan, Alberta and the Yukon implementing PS 3150.

During the fall of 2008 he completed seven training workshops in Saskatchewan for municipal staff on the implementation of PS 3150 Tangible Capital Assets as well as PS 3150 presentations at the 2009 SUMA and SARM conventions. He is the primary author of the Tangible Capital Asset Policy and coauthor of the Asset Registry spreadsheet posted on the SASKTCA website.

Paul S. Pinder, P.Eng., Senior Transportation Engineer
Project Role: Senior Transportation Asset Valuation Advisor

Specializing in transportation engineering, Paul has designed, constructed and managed numerous municipal and highway roadway projects. In his 19 years he has been involved in all aspects of highway design including: general location reports, detailed location reports, functional planning studies, detailed designs, geometric designs, environmental studies, signing and pavement marking plans, surfacing designs, culvert designs, truck scale sites design, and interchange ramp design.

In his previous role as a Senior Project Manager with Ministry of Highways and Infrastructure, Paul was responsible for managing and coordinating a construction engineering team including second level supervision, training, scheduling and work assignments. Duties included supervising,

mentoring and reviewing the work of design project managers, construction project managers, consultants and technicians.

Edward Bobick, P. Eng., Senior Transportation Engineer
Project Role: Senior Transportation Asset Valuation Advisor

Specializing in transportation engineering, Ed has designed and managed numerous urban and municipal roads, highways and airport projects. Ed has worked in all aspects of a project from conceptual design, detailed design, preparation of contract documents and contract administration.

Ed possesses strong technical skills in roadway alignments, geometric design and contract management. His past experience includes the coordination, location, design and construction of rural two-lane and four-lane highways, as well as urban streets and highways in numerous urban communities in Saskatchewan.

Marvin Loewen, A.Sc.T., PMP
Project Role: Useful Life Asset Valuation Advisor

Marvin is the branch manager of Associated Engineering's Saskatoon office and has over 15 years experience in the design and construction management of municipal, underground services, roads, drainage, water supply, treatment and distribution, pumping, sewage collection, treatment and disposal systems. His responsibilities have also included preparation of field studies, contract management, project administration and resident supervision. Marvin is a certified Project Management Professional (PMP).

Carma Holmes, P.Eng., Structural Engineer
Project Role: Structural Asset Valuation Advisor

Carma Holmes is a structural engineer located in Associated Engineering's Regina office. Her nine years of experience have primarily focused on structural design projects. Carma has a wide variety of structural engineering experience including design, drafting, and inspection of industrial, municipal, commercial, residential and institutional structures. She has participated in the design of structures in Saskatchewan, Manitoba, Alberta and British Columbia.

Twyla Yobb, B.Sc. (Biol), P.Eng., Water & Environmental Engineer
Project Role: Data Collection & Analysis/Water System Assessment Project Lead

Twyla is in Associated Engineering's Water & Environmental group. She has been involved in the areas of water supply and treatment, wastewater treatment and policy development, hydraulic transient analysis, and general municipal engineering. She has also been responsible for site supervision, data collection and organization, technical writing, and project coordination/ management for a variety of study, design and construction initiatives. Twyla is the Associated Engineering Project Lead for the Saskatchewan Ministry of Municipal Affairs project to meet

Saskatchewan Environment's requirement for the 2010 Waterworks System Assessment reports for 31 Northern communities.

In 2005, Twyla was responsible for data collection and analysis, facilities inspection, and technical writing to meet the requirements for several Waterworks System Assessment reports. She produced reports for the City of Lloydminster and several Northern communities and contributed to reports for the City of Prince Albert, Town of Nipawin, and Town of Esterhazy. She has also been involved in and responsible for several wastewater assessment projects.

Robyn Sherstobitoff, B.Sc., Water & Environmental
Project Role: Data Collection & Analysis

Robyn graduated in 2009 from the College of Engineering at the University of Saskatchewan with a degree in Chemical Engineering. She has undertaken data collection, facilities inspection and asset valuations to meet the PS 3150 Compliance requirements and provide data for an asset management database using MAIS. She is also responsible for data collection and analysis, facilities inspection and technical writing to meet Saskatchewan Environment's requirements for the 2010 Waterworks System Assessment reports for 31 northern communities. As a full time employee of Associated Engineering, Robyn is involved with water and environmental projects, as well as asset management and technical writing.

Nicole Mills, B.Sc., Infrastructure
Project Role: Data Collection & Analysis

Nicole has assisted in the design, drafting, and project co-ordination of various civil infrastructure projects in Saskatchewan including water and sewer systems, water treatment plant assessments, and subdivision development. She played a key role during some of Cameco's 2008 projects, including the Key Lake Dewatering System's 5 Year Planning project. She has undertaken data collection, facilities inspection and asset valuations to meet the PS 3150 Compliance requirements and provide data for an asset management database using MAIS. Nicole is also responsible for data collection and analysis, facilities inspection and technical writing for the 2010 Waterworks System Assessment reports for 31 northern communities.

The above staff complement in conjunction with VEMAX Management Inc. staff contributed to produce the asset inventory, valuation and TCA Register for this community. Project team staff were assigned to their individual areas of experience relative to the Asset Inventory effort.