



Highway Maintenance Contracting in Ontario

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Presentation Overview

- Maintenance in Ontario
- Maintenance Outsourcing Progression
 - 1st Generation AMC's (1996 - 2000)
 - 2nd Generation AMC's (2001 - 2004)
 - 3rd Generation AMC's (2009 forward)
 - Performance Based
 - In-Scope Capital
 - Data Collection
- Lessons Learned
- Keys to Success
- Questions



Map of Canada

www.trailcanada.com



About Ontario

- Ontario's population = 13,069,000 (2009)
 - 39% of Canada's population.
- Transportation contributes to the economic prosperity and quality of life for people in Ontario.
- Annually, \$1.2 Trillion worth of goods are transported in Ontario
 - \$222 Billion of which pass over international bridge crossings linked to provincial highways.
- 8.7 Million registered vehicles in Ontario (2009)
 - 6.5 Million passenger vehicles; 1.3 Million commercial vehicles.
- More than 90 % of all Ontarians reside within 10 km of a provincial highway.

Source:

Ontario Ministry of Transportation Pocket Guide to Transportation 2010.

Ontario Ministry of Transportation, Quick Facts

About Ontario

- Provincial Highway Network
 - 38,600 lane-km of provincial highway
 - 16,500 centre-line km
 - Over 2,800 bridges/structures.
 - 29 remote airports
 - 9 ferry services
 - \$59 Billion replacement value
- In 2010-2011, Ontario spent:
 - \$285 Million on highway maintenance
 - \$1.9 Billion on construction and rehabilitation
- Over 430,000 vehicles use Highway 401 (near Highway 400) every day
 - one of the busiest sections of highway in North America



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Maintenance In Ontario

Routine Maintenance

- Pothole repair
- Shoulder grading
- Repair guide rail and fences
- Sweeping and debris removal
- Traffic signal and illumination-scheduled maintenance and repair
- Tunnel Maintenance
- Bridge cleaning, scheduled maintenance (lift bridges) and minor repair
- Sign replacement
- Grass cutting and weed control
- Line Painting
- Winter Maintenance
 - Plowing, liquids, sanding and salting
- Emergency
 - Response to collisions, spills

NOT INCLUDED

Resurfacing

Rebuilding

Maintenance In Ontario

Maintenance Quality Standards

- Promote Highway Safety
- Support the way we do business
- Legally defensible
- System Preservation
- Measurable requirements

Maintenance Outsourcing Progression

Background – Pre 1996

- Traditional Outsourcing: Approx. 50%
- 1996 Business Plan: fully outsourced by 1999
- Initiated Fall 1996
- Delayed by Major Labour Relations Issues
- Completed in 2000

1996 to 2009

- A Blend of Contract Types
 - Area Maintenance Contracts (AMC's)
 - Managed Outsourcing Contracts (MO's) – phasing out by 2012
- Savings/Value for Money
- Continual Refinement of Delivery Method for the Long Term
- Ensure Maintenance Quality Standards are achieved

Area Maintenance Contracts (AMC)

- ✓ All summer and winter services within an area
 - ✓ Initially 450 – 1200 2 - lane km
- ✓ Managed by Contractor
- ✓ Contractor supplies all material, labour and equipment
- ✓ Vast Majority of work included in the Annual Lump Sum Price
 - ✓ Contractor has first bid opportunity for additional work
- ✓ Initially 3+2 Years, 2nd Generation 7-9 Years, Now 9-13 Years
- ✓ RFP process
- ✓ Risk sharing (salt)
- ✓ Contract details requirements
- ✓ Penalties for failure to perform
- ✓ MTO monitors contractors adherence to contract

AMC Procurement

- All competitive public tenders
- Pre-qualification of Bidders through Ministry Qualification System
- RFP
- 3 envelope process
 - Mandatory documents
 - Technical Proposal
 - Financial Proposal
- Awarded to lowest evaluated bid which meets the technical proposal minimum threshold

1st Generation AMC's (1996 - 2000)

New Roles, New Opportunities

- Contract Management vs. Supervision
- Quality Assurance vs. Quality Control
- Documentation by Contractors
- Importance of Good Relationships and Communication with Industry
- Appropriate Role in Research & Development
 - Impetus for new Technology
- Retention of Knowledgeable Staff, Knowledge Transfer to Industry

1st Generation AMC's (1996 - 2000)

Implications

- Reduction of Staff:
 - From 1800 to less than 400 in 4 Years
- Re-Training of retained MTO Staff
 - Required for contract monitors (170)
- Fewer Facilities
 - e.g. Patrol Yards and Vehicle Repair Garages
- Financial Savings

1st Generation AMC's (1996 - 2000)

Results:

- Mix of Contract Types Worked well
- Variety of Industry Participation, Competition
- Industry Capability Created/Increased
- Considerable Potential for Savings
- Job Opportunities for Staff
- Staged Implementation allowed Contract updates
- Regular consultation with industry was key

1st Generation AMC (1996 - 2000)

Initial Ministry Concerns:

- Highway Safety
- Savings
- Long Term Sustainability
- Competitive Environment
- Access to Work for Industry
- Quality Assurance

Contractors' Concerns:

- Limits to Work
- Access to Work
- Level Playing Field
- Risk Allocation

2nd Generation AMC's (2001 - 2004)

AMC Contract Changes

- Scope of Work Increase
 - Pavement Marking
 - Electrical
- Duration
 - All durations revised from 3-5 years to 7-9 years
- Advancements in Winter Maintenance Technology
 - Liquid Anti-icing
 - Pre-wet salt application rates

2nd Generation AMC's (2001 - 2004)

Results:

Excellent Value for Money

4-7 Bidders per Contract

Fewer Contractors (9 to 6), still mix of medium and large contractors

Industry Partnering and Communication Continued

Maintenance Contracting – New Direction

2009 to 2014

- Entire Province to use AMC's
- New AMCs to be Performance Based
- Maintenance Quality Standards must still be achieved
- Continue to achieve Savings/Value for Money
- Incrementally grow the Scope of Work through the re-tendering of 2nd generation contracts

3rd Generation AMC's: **Performance Based (2009 - 2014)**

Objectives

- Provides a one window approach for the delivery of maintenance over a 9-13 year term, which will improve service to the public by:
 - Achieving value for money by managing public assets and investments
 - Holding the Service Provider ultimately accountable for service quality
 - Introducing the concept of International Standard Organization (ISO) certified contractors.
- Develop ministry and industry knowledge and acceptance of performance based requirements for the delivery of maintenance services
- Allow for greater flexibility to identify and implement innovations

3rd Generation AMC's: **Performance Based (2009 - 2014)**

Benefits

Appropriate performance measures will:

- Assign accountability and responsibility for quality and performance of the services and products to the Contractor
- Provide a high degree of confidence that operations will be completed proactively and products will perform as intended
- Reduced contract oversight effort by the Owner

3rd Generation AMC's: **Performance Based (2009 - 2014)**

Scope

- Summer and winter maintenance
 - Performance Based
- In-Scope Capital construction (low complexity)
 - Milling, Paving, Surface Treatment, Shoulder Gravelling, Attenuation Device Modernization, Culvert Replacement....
- Data Collection
 - Traffic Data
 - Asset Condition
 - Culverts
 - Pavements on Secondary Highways

3rd Generation AMC's: **Performance Based (2009 - 2014)**

Outcome Target Indicators

- The Owner, at its discretion, may collect Outcome Target Indicators:
 - may consist of up to 100% of the contract area
 - exact location at the Owner's discretion.
 - more thorough data collection may be carried out if there is evidence of non-conformance.
 - may include a review of the Contractor's records, plans and actions taken.
- The Outcome Target Indicators will be:
 - shared with the Contractor
 - the only indicators used to apply consequences for non-conformance.

3rd Generation AMC's: **Performance Based (2009 - 2014)**

Conformance to the Outcome Targets

- Upon completing the collection of the Outcome Target Indicators, the Owner will:
 - have the complete discretion in the choice of Outcome Target Indicators to use in determining Conformance.
 - make an assessment of Conformance or Non-Conformance to the Outcome Targets.
 - include consideration for events that are beyond the care and control of the Contractor.
 - examine all relevant factors involved with the situation including the Contractor's rationale as to why the situation occurred.
- If appropriate, a Notice of Non-Conformance will be issued to the Contractor for features that do not conform to the Outcome Targets.

Comparison: Pre 2009 AMC' s and 3rd Generation Performance Based AMC' s

Asphalt Surfaces

1st/2nd Generation AMC

- Contract provides a table detailing the repair time based on class of highway, size of pothole and severity
- Potholes – 200mm x 200mm or greater and a depth > 50mm - repair in 3-7 days (depending on highway class, time varies)

Performance Based AMC

- No potholes greater than 75mm deep and .04 m²
- No more than 3 potholes in an area of 20m³
- No more than 10 potholes per lane km







Comparison: Pre 2009 AMC's and 3rd Generation Performance Based AMC's

Winter

1st/2nd Generation AMC

- Ensure deicing materials are applied at the proper rate, speed and location
- Apply salt ½ hour in advance of plowing operations
- Salt shall be applied in a windrow of < 1.0 m
- Ensure plowing operations are continuous to achieve service level

Performance Based AMC

- Minimum salt application rate
- Not referenced
- Not referenced
- Continuous plowing to maintain service level

3rd Generation AMC's: Performance Based - Features/Targets

Feature

- Winter Equipment Utilization
- Sand/Salt application rates
- Calibration Rates

Outcome Target

- Providing continuous winter operations using all Winter Vehicles available until prescribed level of service has been achieved on any Route
- Application of salt and/or sand at or over the prescribed minimum application rates specified in the performance requirement, 100% of the Time
- 100% of spreader units within 10% of calibration settings

3rd Generation AMC's: Performance Based - Features/Targets

Feature

- Continuous Plowing
- Plowing Priority
- Echelon Plowing
- Snow accumulation

Outcome Target

- Continuous plowing to maintain the established level of service 100% of the time
- Plowing of through lanes of the Highway given first priority 100% of the time during Winter Events
- Echelon plowing performed 100% of the time when through lanes are plowed to the right on multi-lane Highways
- Snow accumulation adjacent to median barrier walls removed prior to the End of the Winter Event.

3rd Generation AMC's: Consequences for Non Conformance

Feature	<u>Initial</u> Consequence	<u>Subsequent</u> Consequence
Winter Equipment Utilization	\$1,000.00 per plow, spreader and/or combination unit not fully utilized to achieve level of service as quickly as possible per occurrence	\$500.00 per hour thereof that the plow, spreader or combination unit should have been utilized including Winter Event cleanup
Sand/Salt application rates	\$1,000.00 per spreader for rates outside the allowable minimum application rate per occurrence	none
Calibration Rates	\$1,000.00 per spreader per calibration test outside of 10% measured rate per occurrence	\$500.00 per day or portion thereof after the 24 hour period after notification until calibration has been corrected

3rd Generation AMC's: Consequences for Non Conformance

Feature	<u>Initial</u> Consequence	<u>Subsequent</u> Consequence
Continuous Plowing	\$1,000.00 per plow truck utilized continuously and impacting level of service per occurrence	\$500.00 per hour or portion thereof that the plow should have been utilized including Winter Event cleanup
Plowing Priority	\$1,000.00 per plow truck not used to plow through lanes first, per occurrence	None
Echelon Plowing	\$5,000.00 per occurrence for echelon plowing not performed	None
Snow accumulation	\$1,000.00 per occurrence	\$500.00 for each 4-hour segment or portion thereof beyond 4 hours after the end of the Winter Event until accumulation is removed.

3rd Generation AMC's – In Scope Capital

- Construction of low complexity capital work (minor rehabilitation program)
- Includes some operational and safety improvements
- Items and Item Quantities vary by contract area
- Ministry sets the targeted Annual Quantities
- Ministry sets the Item Price

3rd Generation AMC's – In Scope Capital

- Contractor to provide a Proposed Capital Improvement Strategy on an annual basis
- Prioritized strategy for each In-Scope Capital Item
 - Location
 - Quantity
 - Estimated cost
- Contractor and ministry meet to discuss the priorities and finalize the work plan for the following season

3rd Generation AMC's – In Scope Capital

Variety of Items

- Selective resurfacing
 - Hot Mix, Single and Double Surface Treatment
- C/L culvert replacement < 900 mm dia. and < 2.0 m fill
- Entrance culvert replacement
- Guide rail replacement
 - Steel beam, Cable
- Shouldering
- Brushing and Spraying
- Ditching
- Rout and Seal
- Facilities – capital repairs
- Structural – minor capital repairs

3rd Generation AMC's – In Scope Capital

- Payment by stated Item Price
- Item Price adjusted annually for inflation
- Extra Work
 - work not provided for as part of the In-Scope item but considered essential to properly complete the work.
- Additional Work
 - work not considered to be essential to the scope of work but provides some efficiencies by completing the work in this manner
 - Requires a price quotation
 - Ministry reserves the right to secure another contractor
 - No guarantee of any work over the term

3rd Generation AMC's – In Scope Capital

Annual Capital Improvement Item Breakdown						
Capital Improvement Item Number	Spec-Code	Item Description	Unit	Annual Quantity	Unit Price	Total
1	PERF 2216 SP	Hot Mix Asphalt- Type A, Strip Repairs	m ²	2,600	\$38.50	\$100,100
2	PERF 2207	Shouldering	t	10,000	\$32.00	\$320,000
3	PERF 2214 SP	Single Surface Treatment	m ²	580,000	\$2.00	\$1,160,000
4	PERF 2224 SP	Double Surface Treatment	m ²	110,000	\$4.45	\$489,500
5	0330-0010 SP	In-Place Full depth Reclamation of Bituminous Pavement and Underlying Granular	m ²	110,000	\$5.50	\$605,000
6	PERF 4201	Centerline Culvert Installation	ea	20	\$20,000	\$400,000
7	PERF 4201	Entrance Culvert Installation	ea	20	\$2,600	\$52,000
8	PERF 4209	Brushing	ha	30	\$1,750	\$52,500
9	PERF 4209	Spraying	ha	30	\$800.00	\$24,000
10	0206-0015 SP	Ditch Cleanout	m	10,000	\$20.75	\$207,500
Year 2011/2012 Total Capital Improvement Price =						\$3,410,600

Note: Traffic Control is included in all of the above items.

3rd Generation AMC's – Data Collection

- Traffic Data Collection
 - Supports MTO data collection requirements
 - Inventory, Classification, Turning Movements
- Asset Condition Assessments
 - Supports MTO Asset Management requirements
 - Assists in developing Service Provide capacity in Asset Management
 - Non-structural culverts
 - Pavement Condition on Secondary Highways

3rd Generation AMC's – Contract Pricing/Payment

- Contract Pricing comprised of 2 components:
 - Annual Lump Sum price for Maintenance and Data Collection work
 - Submitted by the contractor
 - In - Scope Capital work
 - Itemized pricing stipulated in the contract
- Contractor Payment
 - Monthly payment based on prorated Annual Lump Sum Price
 - Monthly In - Scope Capital payment based on itemized work completed

Keys to Success

- Early Industry engagement
- Share the Program Vision, potential Scope...
 - Consult with industry key elements (Risk areas)
 - Size
 - Scope
 - Duration
- Executive Support, Lead by a Champion
- RFP and Contract documents developed by Owner
- Partnership with the industry through development of generic RFP, followed by continued dialogue during implementation
- Extensive training of Owner' s Contract Administrators
- Specific Contract Administrator' s Guide
- Ongoing communications and consultation with Partners

Lessons Learned

- Early Industry consultation and ongoing partnership was critical to the success
- Owner contact administration requires significant engagement and care and feeding
 - Cultural shift from managing the work in-house to an auditing role (not easy for most dedicated maintenance supervisors)
- Inform impacted staff as early as possible (life planning)
- Financial Consultant in the early years to ensure all financials are accurate

Lessons Learned

- Early Industry consultation and ongoing partnership was critical to the success
- Owner contract administration requires significant training, guidance and coaching
 - Cultural shift from continuous monitoring of the daily operations to an auditing role
- Inform impacted staff as early as possible (life planning)
- Financial Consultant in the early years to ensure all financial analyses are appropriate and accurate

Maintenance Outsourcing Summary

- MTO has:
 - Successfully shifted from in-house delivery to full outsourcing
 - Created a strong contracting industry
 - Achieved Value for Money
 - Evolved from directing the contractors on what and how to do work, to stating the desired outcome
 - Continue to share experiences with other jurisdictions

Questions?



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