Highway Maintenance in Ontario
Area Maintenance Contracts

AASHTO Subcommittee on Maintenance

Contract Management and Operations Branch
Contract Management Office
Maintenance Contracts Section

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Province of Ontario

- Second largest province in Canada:
  - area of 1,076,395 km^2 (~416,000 mi^2)
  - population over 13.2 million
- More than 90 per cent of all Ontarians reside within 10 km of a provincial highway.
- Safest roads in North America
- Maintaining safe roads and keeping traffic moving are key economic and social goals of the Ministry

Ontario

- Highway Network
  - 38,600 lane-km of provincial highway
  - 16,500 centre-line km
  - Over 2,700 bridges/structures.
  - 29 remote airports and 9 ferry services
  - Carry about $3 billion of goods every day
  - Every day, about $600M worth of goods cross the border
  - $59 billion dollar replacement value
  - In 2010-2011, Ontario spent about $285M on highway maintenance and $1.9B on construction and rehabilitation
- Over 432,000 vehicles use Highway 401 near Highway 400 every day, making this highway through Toronto one of the busiest sections of highway in North America

Highway Maintenance Overview

- Highway maintenance is a statutory obligation of the Ministry
  - Public Transportation and Highway Improvement Act Section 33
    - The highway shall be maintained and kept in repair by the Ministry…
    - Liable in case of default by the Ministry to keep the highway in repair

- Maintenance standards and objectives have remained consistent
  - Delivery models and specification approach have changed

- Highway maintenance activities include:
  - Winter maintenance – plowing, sanding, salting, anti-icing, clean up
  - Pavement Maintenance – pothole patching, shoulders, debris removal
  - Pavement Marking – lines, symbols
  - Electrical – illumination, traffic signals
  - Roadside Features – guiderail, drainage, fences, signs, vegetation
  - Incident response
  - Patrolling

Highway Maintenance Delivery

Ontario

Pre-1995

- Large staff for in-house delivery of work
- Approximately half of winter maintenance work outsourced under direct ministry supervision
- 1996 business plan to fully outsource by 1999

1996 to 2009

- A blend of contract types
  - Area Maintenance Contracts (AMC's) – lump sum, contractor provides services including planning and scheduling maintenance activities
  - Managed Outsourcing contracts (MO's), unit price based contracts with ministry directing maintenance activities
- Savings/value for money achieved – approximately 12.5%
- Ministry ensures maintenance quality standards are achieved

Current Service Delivery Approach

- Shift to 100% AMC model

Highway Maintenance - Innovations

- New technologies and innovations introduced since 1996 to meet safety, service improvement and cost-saving objectives:
  - Road Weather Information System (RWIS)
  - Anti-Icing liquids
  - GPS-based vehicle information
  - Tow-Plows
  - Fixed-Automated Spray Technology (FAST)

Current Approach

Ontario

3rd Generation Area Maintenance Contracts (2009-2026)

- Performance Contracts are the next step in AMC evolution
  - Shift from method-based contracts to performance contracts
  - Increase scope of AMCs
    - in-scope capital
    - data collection (culverts and facilities condition)
  - Introduce asset management concepts
  - Increased opportunities for contractor innovation
  - Contractor responsible for determining how to do the work and achieve the required performance outcome or result
- Exercise due diligence through oversight and contract administration
- Road liability held by ministry
- First 3rd generation AMC tendered in 2009
- On-schedule to achieve AMCs province-wide by August 2014

3rd Generation AMCs - Objectives

- Provide 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
  - Promote the development of a performance-based industry
  - Increase average size of contract areas to allow greater efficiencies
    - 1,000 ~ 2,200 equivalent 2-lane-km
  - Provide a high degree of confidence that operations will be completed proactively and products will perform as intended
  - Reduced contract oversight effort by the ministry
  - Improve cost effectiveness
- Develop ministry and industry knowledge and acceptance of performance requirements for the delivery of maintenance operations
- Introduce the concept of International Standard Organization (ISO) certified contractors
- Allows for greater flexibility to identify and implement innovations
- Provide flexibility for new models in 2020 - 2026 timeframe

3rd Generation AMCs - Procurement

- Evaluation streamlined to match performance management approach
- Contractor Prequalification
  - Ensure has the financial resources and adequate technical and managerial skills to satisfactorily perform the work
- Proposal submission
  - Evaluation of organization and service management
  - Evaluate winter maintenance strategy
  - Minimum technical threshold requirement
- Preferred proponent determined by lowest bid price
- Eight of twenty-two contracts awarded to date
  - Value for Money in awards
    - Industry competition – healthy number of bids and competitive range of prices

3rd Generation AMCs - Quality

Contract requires ISO Certification

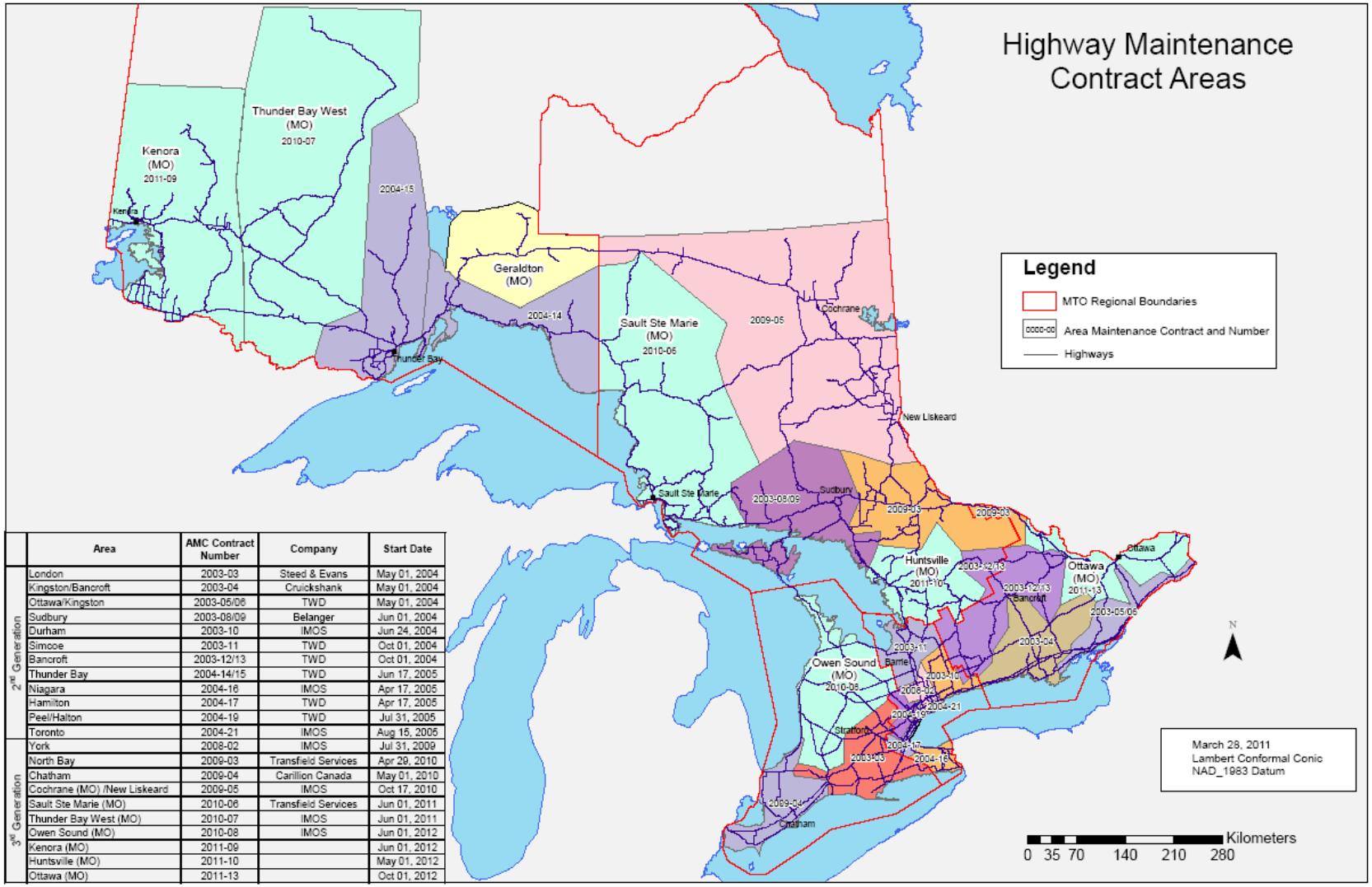
- Quality Management (ISO 9001:2008)
- Environment (14001:2004)
- Registration within 6-months of contract start and maintained throughout

- Contractor develops, documents and registers how they will achieve outcome targets

- Key step to ensure contractors are responsible for managing their performance and delivering contract requirements

- ISO requires annual audits
  - Results of external and internal audits available to ministry

Maintenance Contract Areas To Date



	Area	AMC Contract Number	Company	Start Date
2nd Generation	London	2003-03	Steed & Evans	May 01, 2004
	Kingston/Bancroft	2003-04	Cruickshank	May 01, 2004
	Ottawa/Kingston	2003-05/06	TWD	May 01, 2004
	Sudbury	2003-08/09	Belanger	Jun 01, 2004
	Durham	2003-10	IMOS	Jun 24, 2004
	Simcoe	2003-11	TWD	Oct 01, 2004
	Bancroft	2003-12/13	TWD	Oct 01, 2004
	Thunder Bay	2004-14/15	TWD	Jun 17, 2005
	Niagara	2004-16	IMOS	Apr 17, 2005
	Hamilton	2004-17	TWD	Apr 17, 2005
	Peel/Halton	2004-19	TWD	Jul 31, 2005
	Toronto	2004-21	IMOS	Aug 15, 2005
3rd Generation	York	2008-02	IMOS	Jul 31, 2009
	North Bay	2009-03	Transfield Services	Apr 29, 2010
	Chatham	2009-04	Carillion Canada	May 01, 2010
	Cochrane (MO) /New Liskeard	2009-05	IMOS	Oct 17, 2010
	Sault Ste Marie (MO)	2010-06	Transfield Services	Jun 01, 2011
	Thunder Bay West (MO)	2010-07	IMOS	Jun 01, 2011
	Owen Sound (MO)	2010-08	IMOS	Jun 01, 2012
	Kenora (MO)	2011-09		Jun 01, 2012
	Huntsville (MO)	2011-10		May 01, 2012
	Ottawa (MO)	2011-13		Oct 01, 2012

3rd Generation AMCs – Overview

- Outcome targets set to achieve ministry quality standards
  - Promote highway safety
  - Maintain and preserve the infrastructure
  - Measurable requirements
  - Support ministry business practices
  - Implemented for all service areas, e.g.
    - Winter maintenance
    - Pavement maintenance
    - Roadside features

- Based on:
  - Ministry Maintenance Quality Standards and Best Practices
  - Ontario Provincial Standards

3rd Generation AMCs - Specs

Example – Potholes

- Method-based specification:
  - Contract lists all potential deficiencies and provides a table detailing the repair time line based on class of highway and severity of the deficiency
  - Potholes – 200mm x 200mm or greater and a depth > 50mm - repair in 3 to 7 days (depending on highway class)

- Performance contract specification (asphalt and concrete pavement)
  - No potholes greater than 75mm deep
  - No more than 3 potholes in an area of $20m^2$
  - No more than 10 potholes per lane km
  - Size defined as $0.04m^2$ (200mm x 200mm)

  - Consequences of Non-conformance
    - $5,000 for each pothole deeper than 75mm and greater than $0.04m^2$
    - $5,000 for each occurrence of more than three potholes greater than $0.04m^2$ within an area of $20m^2$
    - $1,000 for each occurrence of 10 or more potholes per lane-km.
    - Subsequent consequences for on-going non-repair

3rd Generation AMCs - Specs

Example – Cable Guiderail

- Method-based specification (subset or requirements):
  - Lists deficiencies and provides repair time line based on location of guiderail (shoulder, median) and type of the deficiency
  - Cables – sagged in excess of 50mm, tightened within 21 days. Frayed within 7 days
  - Posts – more than 3 consecutive broken posts (median), replace within 7 days

- Performance contract specification (subset)
  - No frayed/broken cables, no cable height exceeding standard by more than 5cm, no exposed anchors or missing hardware
  - No more than 4 consecutive broken posts
  - Temporary repairs and repairs within 30 days of end of Winter Transition period

  - Consequences of Non-conformance (subset)
    - $5,000 for each occurrence of frayed and/or missing cables or height exceeding design standard by more than 5cm
    - $1,000 per occurrence of more than 4 consecutive damaged posts
    - $1,000 per occurrence of temporary repairs not completed within 24 hours
    - Subsequent consequences for non-repair continuing

3rd Generation AMCs – In-scope Capital

Ontario

- Annual commitment for low-complexity capital work
- Contractor plans, ministry modifies/approves, contractor delivers
- Work Items
  - Asphalt patching/paving
  - Shouldering
  - Single and Double Surface Treatment
  - Centerline Culvert Installation
  - Guide Rail
  - Brushing
  - Spraying
  - Ditch Clean Out
  - Capital Improvements - Facilities
- $1.5M ~ $3M per contract

3rd Generation AMCs – Data Collection

- Contractor collects and provides select data collection, e.g.
  - Non-structural culvert inventory and condition
  - Facilities condition
- Data assists contractor with developing plans for in-scope capital work
  - Provides data for ministry processes also

3rd Generation AMCs - Oversight

- Ministry staff are responsible to ensure the contractor meets their contractual obligations
  - Focus on results, not methods

- Contract administration is used to:
  - Provide a progressive set of actions or consequences to encourage the contractor to deliver the desired performance
  - Escalation of performance concerns when necessary
    - Verbal notice
    - Written notice
      - Non-conformance
      - Instruction Notice
      - Liquidated Damages
    - Warning of Infraction
    - Infraction Report
    - Qualification Committee
    - Default

  - Demonstrate due diligence

3rd Generation AMCs – Oversight

- Ministry staff assess conformance to contract requirements using audit and sampling principles
  - Hands-on training to ministry staff in advance of contract start
  - Oversight Manual applied Province-wide
  - Utilize various tools/sources of information: Documentation review, GPS-based monitoring systems, field inspections
- Ongoing communication with contractor important
- Consistency of exercise of judgement and discretion by ministry

3rd Generation AMCs - Metrics

- Overall, contractors meet the performance requirements

- New reporting for third generation contract being implemented to measure:
  - Number of assessments performed
  - Number of outcome targets measured
    - Number of conformances
    - Number of non-conformances
  - How non-conformances addressed
    - e.g. verbal, written or financial

Summary

- Philosophy/Concepts in summary
  - The Work is the same, more efficient, timely and flexible
  - Service provider is accountable
  - How the Work is measured changes

- Strong and competitive contracting industry
  - Ontario Road Builders' Association (ORBA) represents maintenance contractors
- Audit and sampling-based oversight

- Maintained maintenance standards for traveling public

- Safest roads in North America

The End

- Thank you
- Questions?