Strategies Towards an EMS in a Large City

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Presentation Outline

1. Context for EMS in Toronto
2. Toronto's Current EMS Status
3. Municipal EMS Benchmarking Study
4. EMS Strategy for Toronto
6. The Future?

Focus during conference presentation will be on slides with underlined titles.

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Part 1: Context for EMS in City of Toronto Government: *A Complex, Democratic Corporation*

The Scale is Large

- **6th largest government in Canada by expenditure**
- **Combined annual capital and operating budget of $8.1 billion**
- **Employs 33,411 staff in more than 4,000 types of jobs**

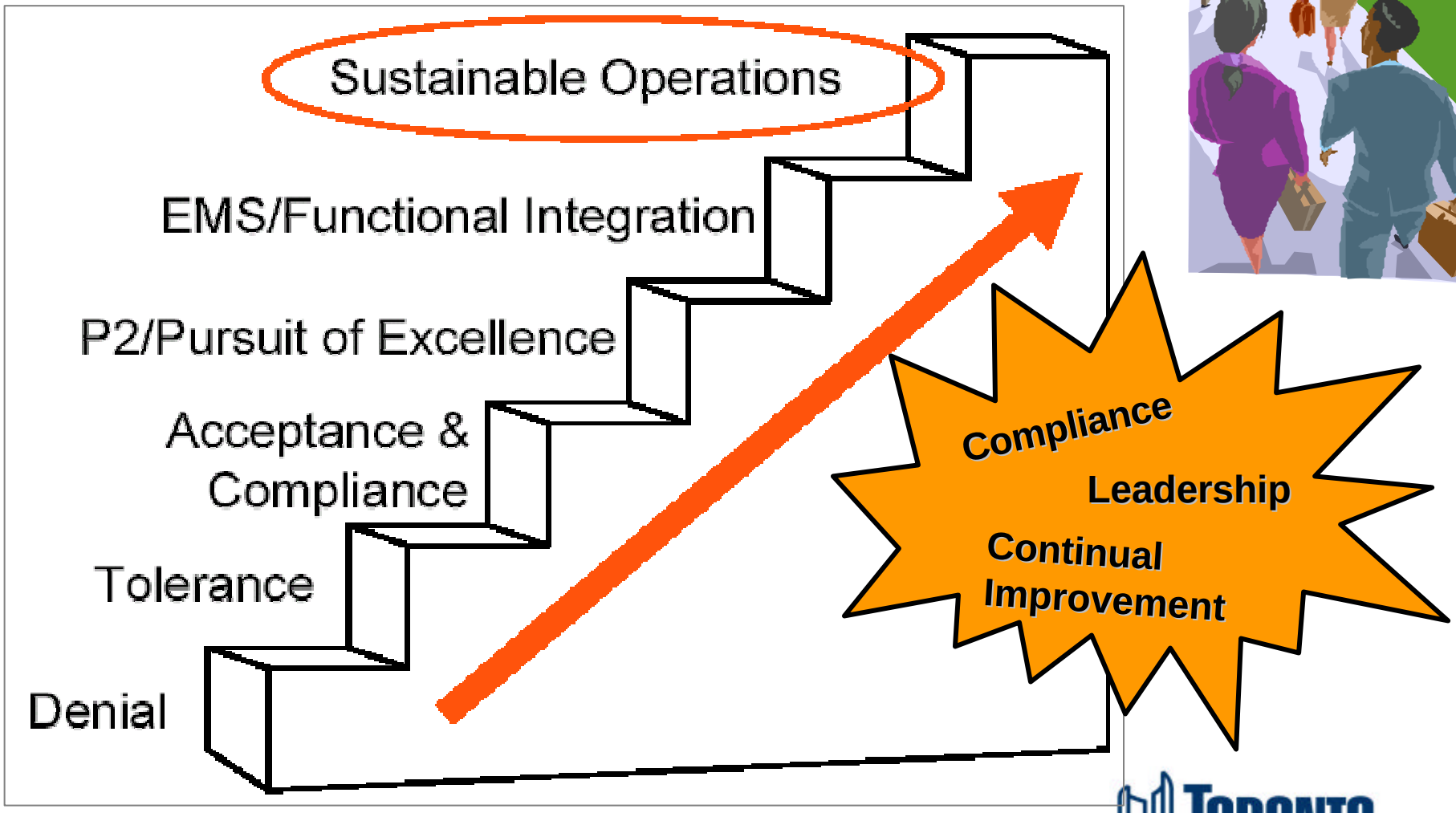
Main Environmentally Relevant Services

- Water Supply
- Wastewater
- Solid Waste
- Fleet Services
- Transportation
- Facilities & Real Estate
- Fire Dept.
- Urban Forestry
- Parks / Golf Courses
- City Planning
- Public Health
- Transit
- Toronto Hydro
- Toronto Region Conservation Authority

Part 2: Toronto's Current EMS Status

- Formal but unregistered EMS in place at:
  - Toronto Transit Commission
  - Toronto Hydro
  - Toronto and Region Conservation Authority
- Rest of City operations:
  - *many good practices in place, but no overall formalized framework or management system*

Organizational "Evolution"



Source: US EPA PEER Center, 2003

Current EMS Activities

- Implementing 4 elements of EMS at one Fleet Garage
- ISO 14001 Gap Analysis at City Hall and for Road Operations in one district
- Water / wastewater mandated by regulation to implement key parts of ISO 14001, 9000 and HACCP in 2007

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Environmental Plan

- Toronto's Environmental Plan (2000) recommends an EMS for the City

- City Auditor (2003) recommends study of costs and benefits of EMS and experiences of other municipalities

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Part 3: 2004
Municipal
EMS Benchmarking Study

ISO 14001 is spreading

- Approx. 125 to 175 cities have or are pursuing an ISO 14001 style EMS in Canada & US

- Approx. 60 cities in the US active with the National Biosolids Partnership

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Study Methodology

- 30 cities known to be active with EMS contacted by e-mail survey
- 20 responses
- Phone calls to staff or consultants working for all cities known to be active with EMS in Canada
- Discussions with US EPA PEER Center

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20 Participating Cities:

- **Calgary**
- **Durham Region**
- **Halifax**
- **Hamilton**
- **Kamloops**
- **Ottawa**
- **Quebec City**
- **Toronto**
- **Waterloo Region**
- **Winnipeg**
- **York Region**
- **Berkley, CA**
- **Charleston, SC**
- **Eugene, OR**
- **Houston, TX**
- **Jefferson, AL**
- **King County, WA**
- **San Diego, CA**
- **Scottsdale, AZ**
- **Seattle, WA**

Study Q and As

1) Does your city have ISO 14001 in place:

In Canada, 8 cities have 14001, 9 in progress

2) Areas of city operations covered by EMS?

Main areas water, wastewater, solid waste

3) How long working on EMS?

3.6 years

4) Main reasons for implementing EMS?

Due diligence / legal compliance

Improved performance / operations

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Study Q & As (cont'd)

5) Ball park estimates on the cost of EMS?

$220,000 for mid size business unit

6) Use specialized software to maintain the EMS?

50% use special software

7) Cost savings due to EMS?

Highly variable

8) Insurance or lending rate decrease due to EMS?

Two US examples.

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Study Findings

- An EMS can be implemented across an entire city or in individual business units / operations.
  - Calgary AB, Scottsdale AZ entire city registered
- Municipalities most often commit first to 14001 in Water/Wastewater and Solid Waste operations.
- There is often a corporate EMS role.
- 20 US & CDN municipalities surveyed:
  - 13 active with EMS for Wastewater
  - 9 active with EMS for Water Supply
  - 8 active with EMS for both Water Supply & Wastewater.
  - 9 active with EMS for Solid Waste

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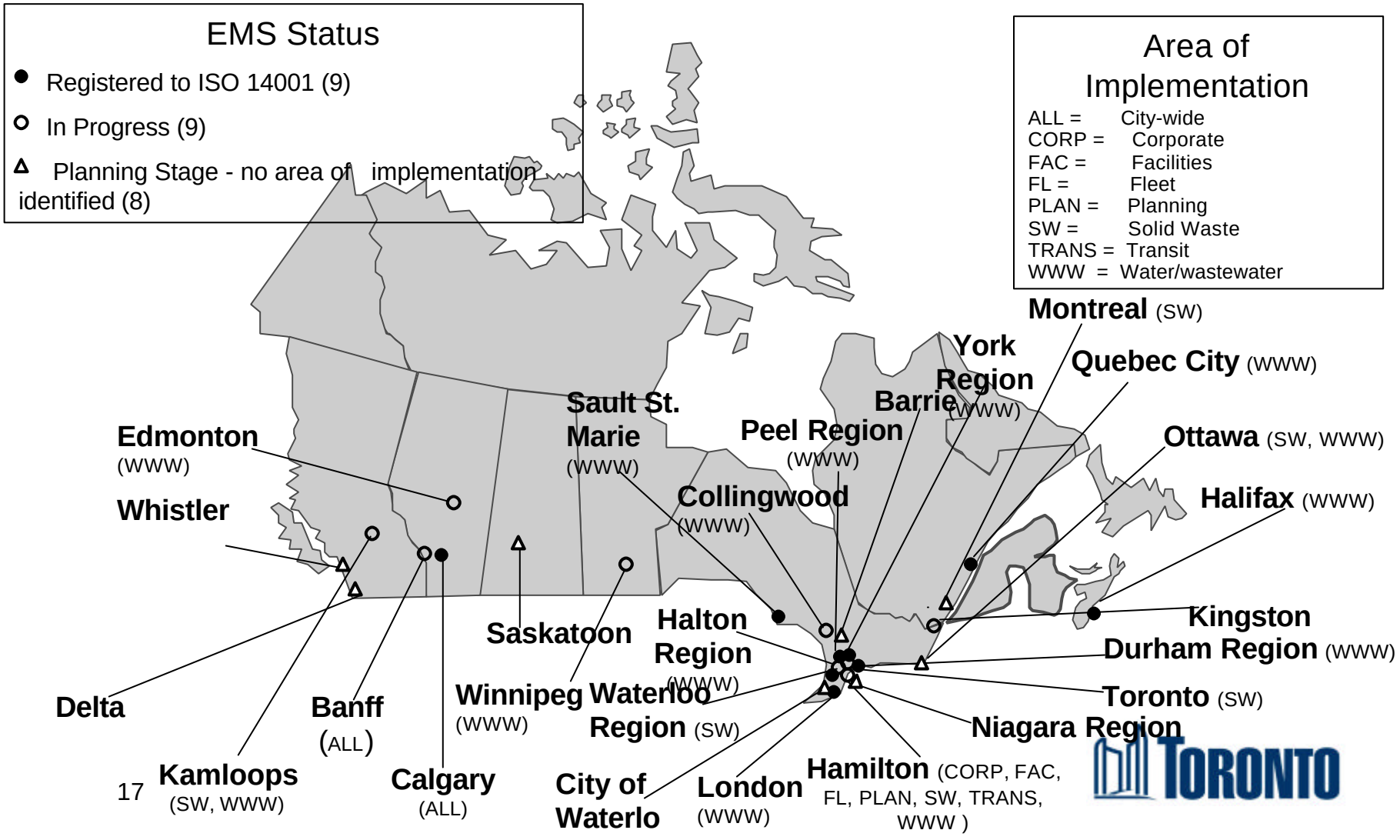
Canadian Municipalities Active with EMS



Key Study Results

- Most active business units for EMS implementation for municipalities are ***water and wastewater***
- Probably because these are higher risk areas for municipalities
- Walkerton report specifically addresses the need for a systems approach for water supply

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Study Findings: Top Reasons Why Started Work on EMS

- Approx. 50% stated:
  - Due diligence / legal compliance
  - Improved performance / operations
- Other reasons commonly stated:
  - Policy / responsibility
  - Reduce risk / liability

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Study Findings: Top Benefits of an EMS

1. Improved performance / operations
2. Due diligence / legal compliance / reduce risk & liability
3. Cost savings / cost avoidance
4. Increased employee environmental awareness
5. Enhanced public image
6. Reduction of environmental impacts
7. Improved documentation
8. Improved communication
9. Improved emergency response

Examples of EMS Costs

Municipality	Year of Registration	Area Covered	Approximate Cost
Halifax, NS (pop. 300,000)	**2003**	2 water supply plants (25 staff)	$150,000 including staff time
York Region, ON (pop. 800,000)	**2000/2001**	1 EMS for York-Durham Sewage System & 1 EMS for 5 wastewater plants (25 staff for both)	$241,000 including staff time
Waterloo Region, ON (pop. 470,000)	**1998**	Solid waste business unit (100 staff)	$210,000 including staff time
San Diego, CAL (pop. 1,300,000)	**2002**	Solid waste business unit (100 staff)	$280,000 including staff time
Average cost			**$220,000**

Includes consulting & registration fees

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EMS Cost Savings

- Cost savings not guaranteed, but often possible.

Public Entity	City of San Diego Refuse Disposal Division	Tri-Metropolitan Transportation District, Portland, Oregon	York Region Wastewater Operations	Jefferson County, Alabama
Population	1,277,000	N/A	800,000	660,513
# of employees in fenceline	94	580	25	305
Savings	$1,085,000 CDN	$375,000 CDN	$80,000 first year only	Millions of dollars saved
Description	In heavy equipment and diesel rates by shutting off equipment during breaks	Identified as operational savings- $66,000 of this for energy conservation	Due to elimination of treatment chemical use: sodium hypochlorite	Due to potential bond rating improvement

Source: US EPA PEER Center, 2003

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Costs of EMS Implementation per US EPA PEER Center:

- Data from 23 municipalities since 1997: nearly all costs are staff time
  - Average labour = 3,074 hours or

    $ 120 K over 2 years

N.B.: Average size of city and business unit much smaller than Toronto

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Helpful Municipal EMS References

- US EPA PEER Center www.peercenter.net
- National Guide to Sustainable Municipal Infrastructure: *Best Practices on Developing Environmental Management Systems* www.infraguide.ca/bestPractices
- City of Toronto EMS Benchmarking Study www.toronto.ca/eia/pdf/ems/benchmarking_survey_results_report.pdf

Part 4: EMS Strategy for Toronto

EMS Strategy

- Conducted benchmarking study
- Conducted high level risk review interviews with City divisions
- Gained support of senior management based on identified risks
- Conducted due diligence training for 170 Directors / Managers
- Created Environmental Risk Management Committee

EMS Strategy (cont'd)

- Conducting risk assessments in all divisions
- Created Executive Environment Team which will provide future direction
  - ERMC will recommend a limited, risk-based EMS implementation
- Strategic Risk Based implementation at high risk sites first:
  - Work on critical elements first: (e.g. Aspects, Legal & Other, Roles & Responsibilities, Emergency)

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Part 5: The Future?

- EMS concepts will be gradually adopted in larger cities through various business units
- Private sector “alternative service delivery” with an EMS may stimulate activity
- Municipalities could specify 14001 registered suppliers

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