

# **The National Water and Wastewater Benchmarking Initiative: A Long Term Partnership Focusing on Continuous Improvement**

**Presenter:**

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**Participant  
Comments:**

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Ville de Montréal**

E A R T H



T E C H



# Presentation Outline

- About Benchmarking
- Methodology
- Results and Outcomes
- Benefits
- Future Directions
- Participant Comments

# What is Benchmarking?

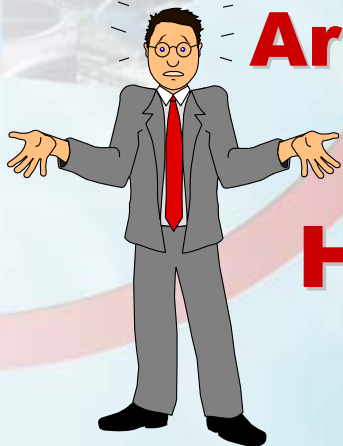


**How well are we doing?**

**How do we compare?**

**Are we providing value for money?**

**How can we improve?**



# What is Benchmarking?

*Benchmarking is the systematic process of searching for best practices , innovative ideas and highly effective operating procedures that lead to superior performance and then adapting those practices, ideas and and procedures to improve the performance of an organization (AWWA 1996)*

# History of the Project

- Pilot process initially sponsored by National Research Council and Earth Tech in 1997
- Wastewater Utility Benchmarking entering its 6th year
- 3<sup>rd</sup> year for Water Utility Benchmarking
- Now benchmarking 38 wastewater and 30 water utilities from Halifax to Victoria
- Project wins ***APWA Management Innovation Award*** in 2003



# Who is Involved?

- 38 Major Canadian water, wastewater and stormwater utilities
- Extends from Victoria to Halifax
- Represents about 65% of Canada's population
- City of Montreal (wastewater) since 1998
- Applicable to cities with a population over 50,000 residents
- Partnership continues to grow

# Project Methodology

Utility Management Model

Goals

Performance Measures

Data Collection

Data Analysis and Evaluation

Closing Workshops

Annual Review

Report & Database  
Action Plans

# Model Based on Common Utility "Goals"



- All utility goals are critical
- Goals often compete with each other
- Must be able to measure attainment of each goal

# Performance Measurement on Each and Every "Goal"

**GOALS**

**PERFORMANCE  
MEASUREMENT**

**PERFORMANCE  
MEASURES**

*For example:*

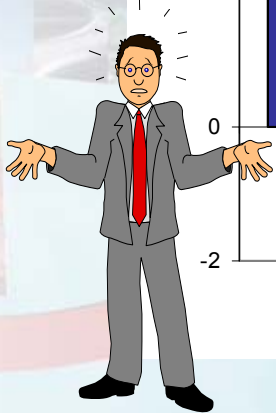
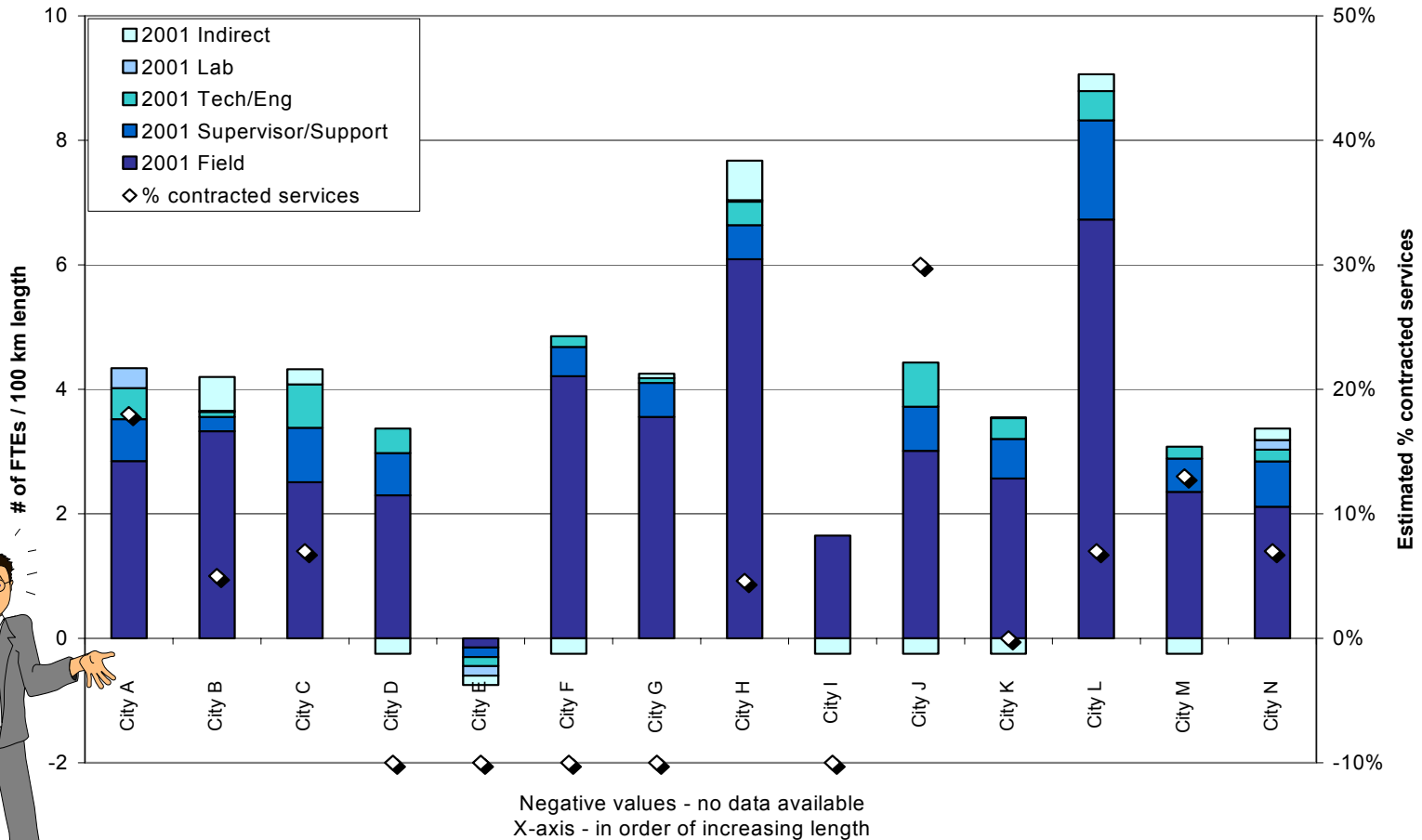
- *Total Operating Cost / 100km Main Length*
- *Capital Reinvestment / Replacement Value*
- *About 40 individual measures in all*

# Data Collection: Absolutely Critical!

- Standardized for all utilities
- Done during 2-day site visits to each utility (not by questionnaire).
- Extensive Quality Assurance process.
- Database has extensive information to construct and support performance measures.

# Example Analysis: Performance Measurement

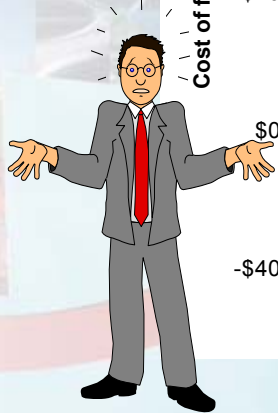
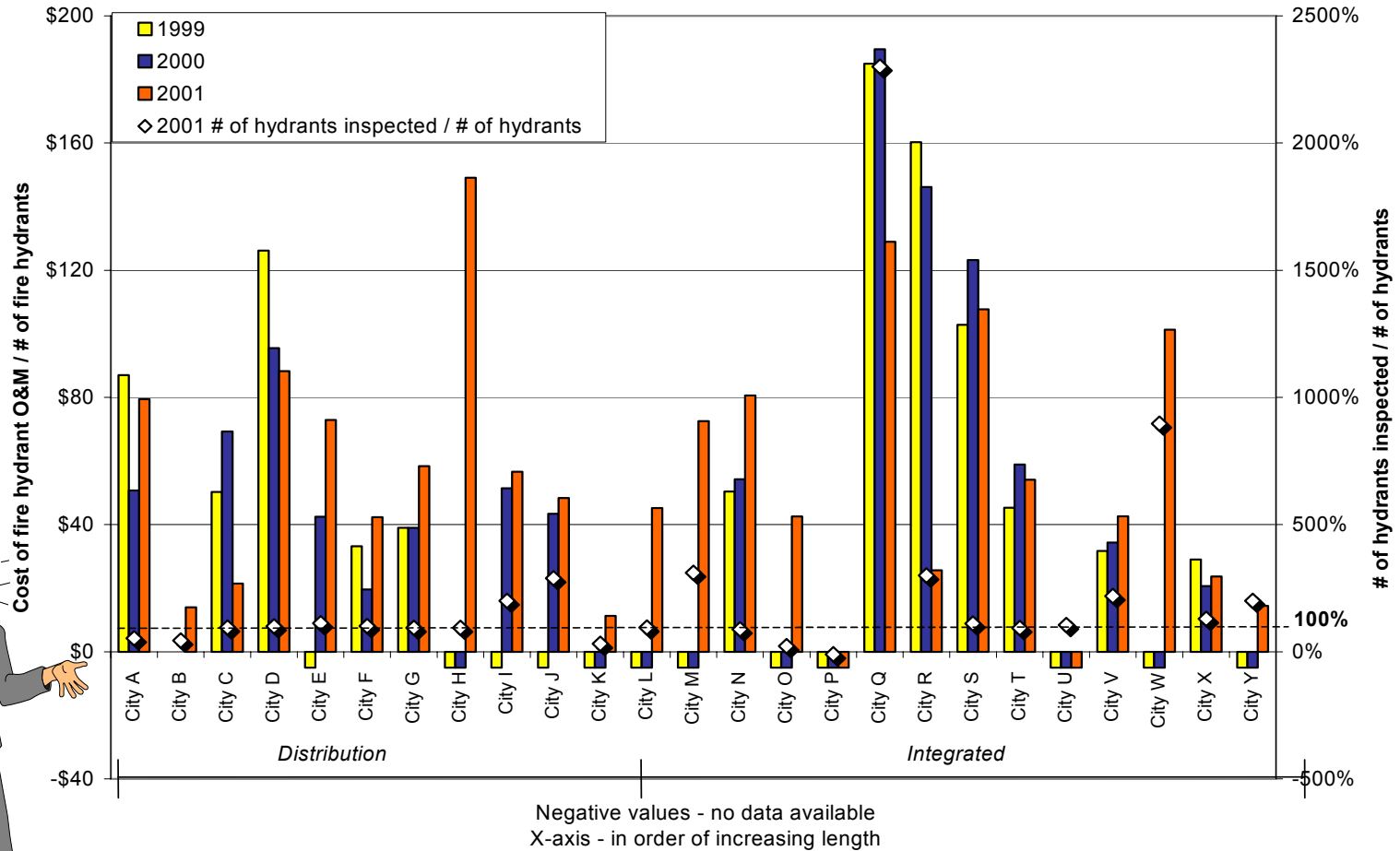
Breakdown of Total FTEs / 100 km Length 2001  
Integrated Distribution Systems



*What's the deal with FTE's and contracted labour?*

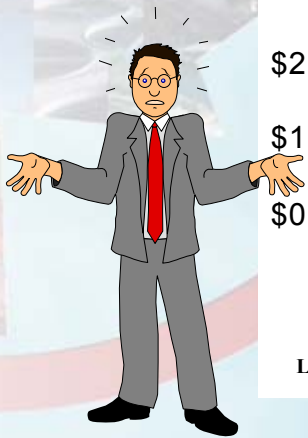
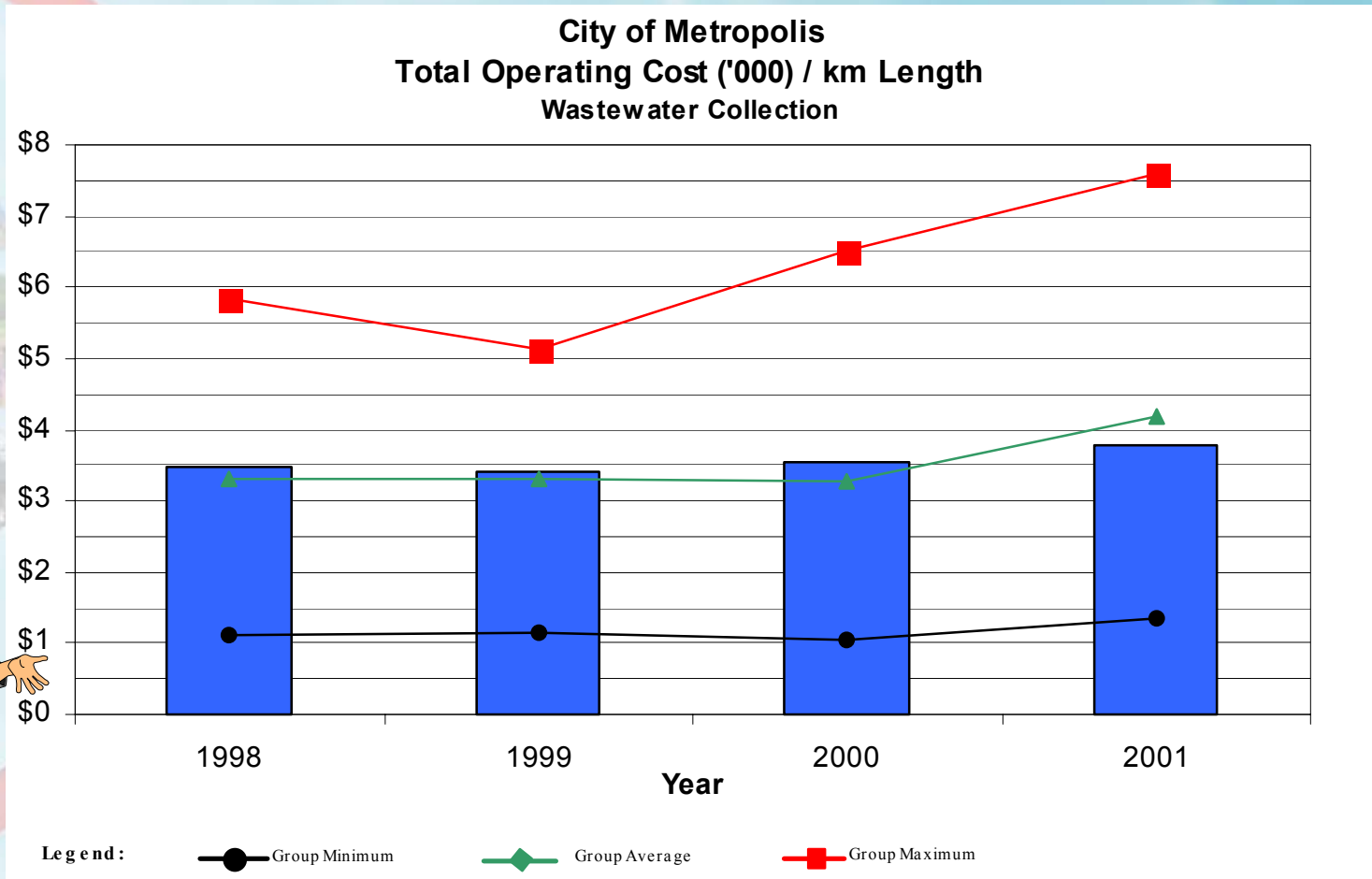
# Example Analysis: Performance Measurement

Cost of Fire Hydrant O&M / # of Fire Hydrants  
Water Distribution & Integrated Systems



*Does it pay to inspect fire hydrants frequently?*

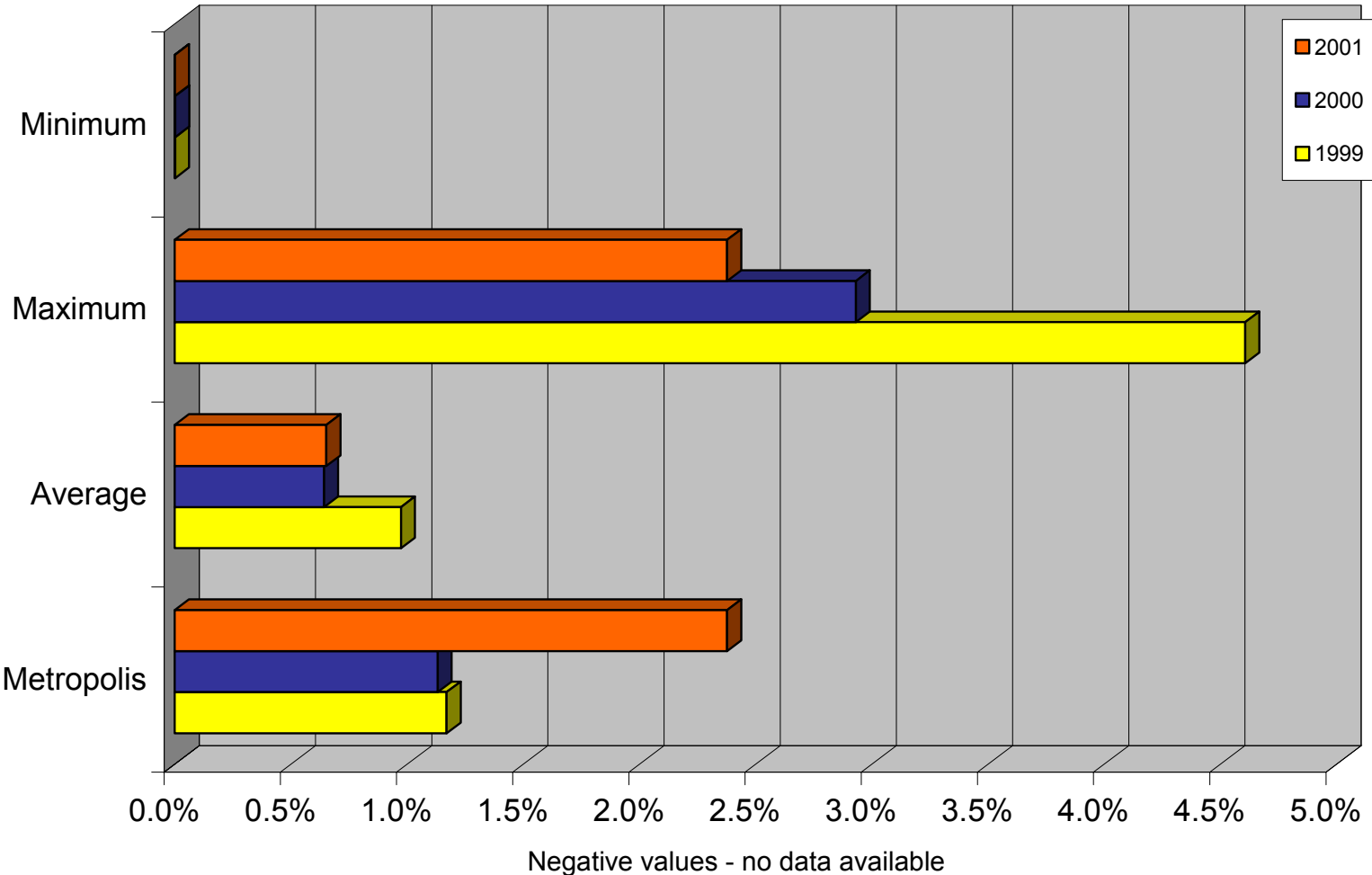
# Analysis: Annual Performance Trends



*Gosh, are things getting better?*

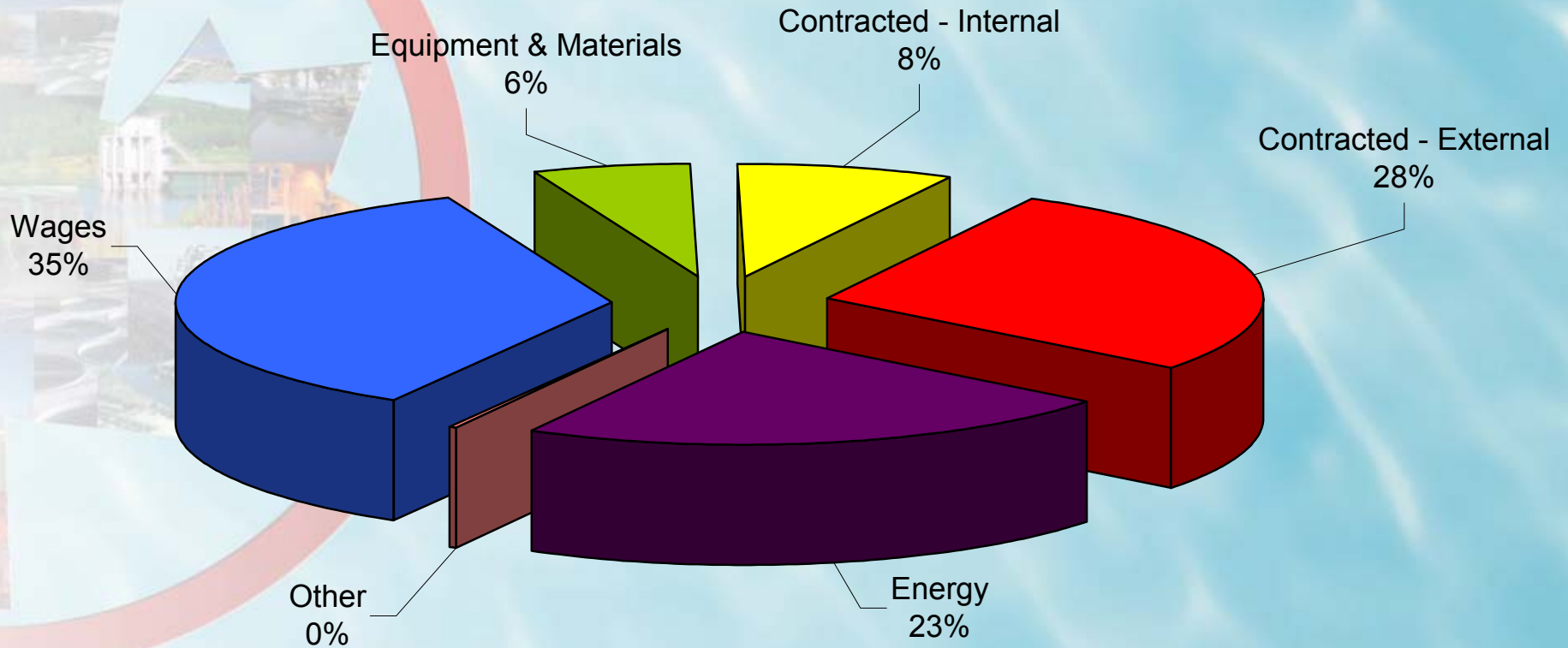
# Analysis: Individual Performance Analysis

**Capital Reinvestment / Replacement Value  
Integrated Water Distribution Systems**



# Analysis: Individual Performance Analysis

City of Metropolis - O&M Cost Breakdown



# Sample Findings

- Very low level of infrastructure re-investment
- Good record of environmental compliance
- Older collection systems have higher costs for operations and maintenance.
- Utilities who manage attendance see a reduction in sick days.
- Proactive maintenance pays!
- Very few utilities have a good understanding of water loss data and statistics

# Utility Performance Improvement

**GOALS**

**PERFORMANCE  
MEASUREMENT**

**PERFORMANCE  
MEASURES**

**PERFORMANCE  
IMPROVEMENT**

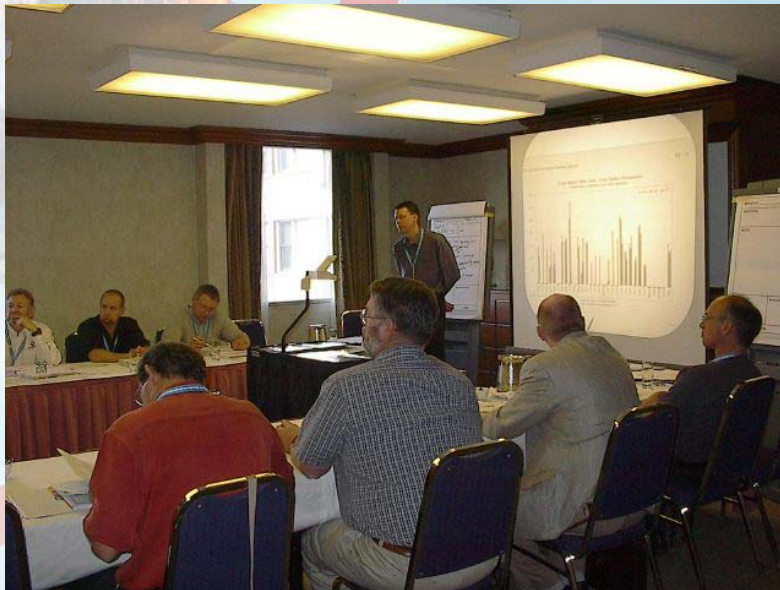
- *The most attractive opportunities to improve performance*

# Continuous Improvement Approach

- Start with others in the sample (benchmark amongst ourselves)
- Begin setting performance targets
- Begin identifying “Best Practices”
- Use Process Benchmarking and other tools to implement improvement initiatives
- Use “trend line” to assess individual utility improvement and provide feedback

# Annual Workshop

- Multi-day workshop focused entirely on the benchmarking results: Intense and fun!
- Involves delegates from all participating cities
- “Critical to the success of the project”



# Focus on: Utility Performance Improvement

## UTILITY ACTION PLAN

## INFRASTRUCTURE REINVESTMENT

### CURRENT PERFORMANCE

- Unsustainable infrastructure
- Inconsistent planning
- Insufficient rates
- Fragmented data
- Short term planning
- Service levels not defined

### CONSTRAINTS

- No condition information
- No capacity information
- No method for asset valuation
- No equipment asset management
- What is the life expectancy of equipment and infrastructure?
- No decision support tools
- Staff time
- Budget
- Council understanding of issues
- Down time
- Lack of trained staff
- Long term solution
- Protective ownership of data
- "Out of sight, out of mind"
- Corporate culture
- Time
- Conflicting priorities

### ACTIONS

- Perform asset inventory
- Perform asset valuation
- Perform condition assessment
- Perform capacity assessment
- Determine service life expectancy of assets
- Determine the deferred maintenance
- Set service levels
- Decide on projects to address gaps
- Monitor and evaluate

### RESOURCES REQUIRED

- Infrastructure reinvestment champion
- Budget
- Staff
- Software
- Consultant

### SCHEDULE

- To be determined by utility

### TARGET PERFORMANCE

- Sustainable infrastructure
- Effective and linked GIS and CMMS
- Inventory, capacity and condition assessments every 3-5 years
- Common method for asset valuation
- Ability to accurately predict service life
- Effective decision support tools
- A defensible strategic plan for capital investment and reinvestment
- Defined and attainable service levels

### POTENTIAL BENEFITS

- Sustainable infrastructure
- Buy-in from political decisionmakers
- Buy-in from public
- Increased reliability
- Higher service levels
- Rates adequately supports reinvestment requirements
- Lower O&M cost

# Objective? Organized Continuous Improvement



# Objective? Form Strategic Linkages (Let's work together as a team)

- Ontario Municipal Benchmarking Initiative
- National Research Council
- National Guide to Sustainable Municipal Infrastructure
- UK Office of Water Services
- CPWA/APWA

National Guide  
to Sustainable  
Municipal  
Infrastructure



Guide national pour  
des infrastructures  
municipales  
durables

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O F W A T  
OFFICE OF WATER SERVICES

**OMBI**

ONTARIO MUNICIPAL CAO'S BENCHMARKING INITIATIVE

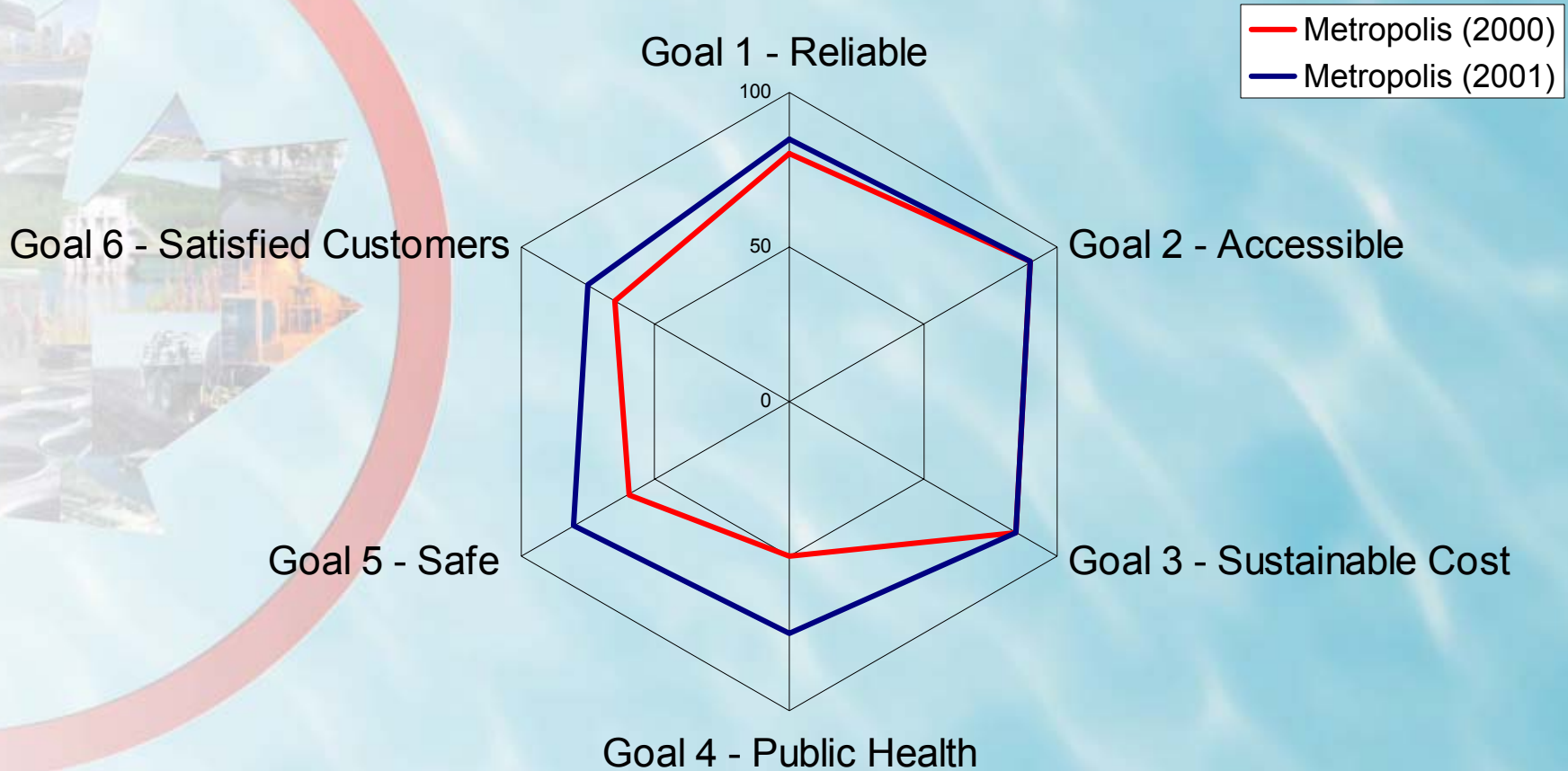
**PARTNERING FOR SERVICE EXCELLENCE**

# Current Project Priorities



- How is my utility performing?
- I need an easy to read summary!
- My CAO wants to look at 5 graphs not 500 pages of graphs?

# How do we show progress in multiple and competing "goals"?



# Project is a Continuing Success!

- Award winning methodology and approach
- Participating utilities are in various stages of implementation
- Strengthening our linkages with other performance improvement initiatives both nationally and globally: “Don’t reinvent the wheel!”
- Extensive networking and open communication between utility managers gets stronger
- Still a “work in progress” with an ambitious work plan
- Partnership continues to grow.

# Participant Comments

- M. Réjean Lévesque, ing.
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