Alberta Municipal Benchmarking Initiative

City of Airdrie — Community & Opportunity

Town of Banff

City of Lethbridge

Okotoks — Historic Past, Sustainable Future

Town of Canmore

Cochrane — How the West is Now

The City of Red Deer

Medicine Hat — The Gas City

City of Wetaskiwin

WHAT IS AMBI?

Collaboration to build a framework and allow comparison moving forward

- 9 Alberta municipalities
- Grant from Alberta Municipal Affairs
- Develop an ongoing benchmarking process

WHY BENCHMARKING

A benchmark is an established point of reference against which things can be measured and compared

- Helps to tell the municipal "performance story"
- Sound business practice
- Share knowledge and best practices
- Encourages continuous improvement
- Demonstrates transparency and value for money
- Supports results-based accountability

TWO DIMENSIONS

Efficiency

- a measure of productivity: quantity
- often expressed in cost per unit

Effectiveness

- a measure of value or benefit of service: quality
- often expressed as percentage or rate

WASTEWATER TREATMENT

Wastewater service is:

- Collection of wastewater from all customers
- Treatment to provincial standards
- Release treated water to natural waterways
- Biosolids removed for processing and re-use

WASTEWATER BENCHMARKS

7 benchmarks measured

- 6 efficiency measures
- 1 effectiveness measure

WASTEWATER

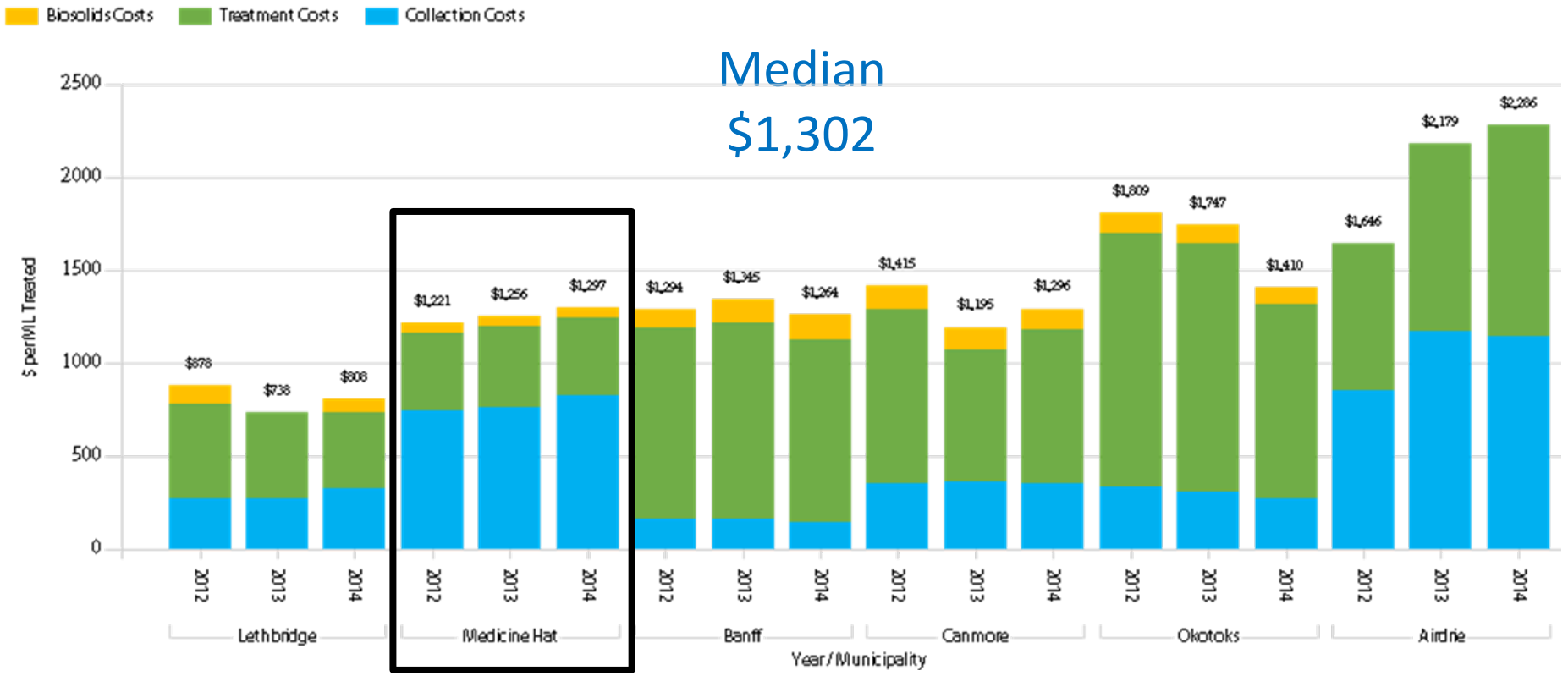
Influencing factors

Municipality	Collection	Treatment	Biosolids Processing	Treatment Plant Rating	Treatment Process	UV Disinfection
Airdrie	Self-Run	Purchased	N/A	N/A	N/A	N/A
Banff	Self-Run	3rd Party Operator (Self-Run 2015+)	In-house	IV	BNR	Yes
Canmore	3rd Party Operator	3rd Party Operator	Purchased	III	BAF	Yes
Lethbridge	Self-Run	Self-Run	Purchased	IV	BNR	Yes
Medicine Hat	Self-Run	Self-Run	Purchased	IV	CNR	Yes
Okotoks	3rd Party	3rd Party	Purchased	IV	BNR	Yes

2.2 TOTAL WASTEWATER COSTS 1 ($/ML)

2.2 Total Wastewater System Costs 1 ($/ML treated) – Efficiency

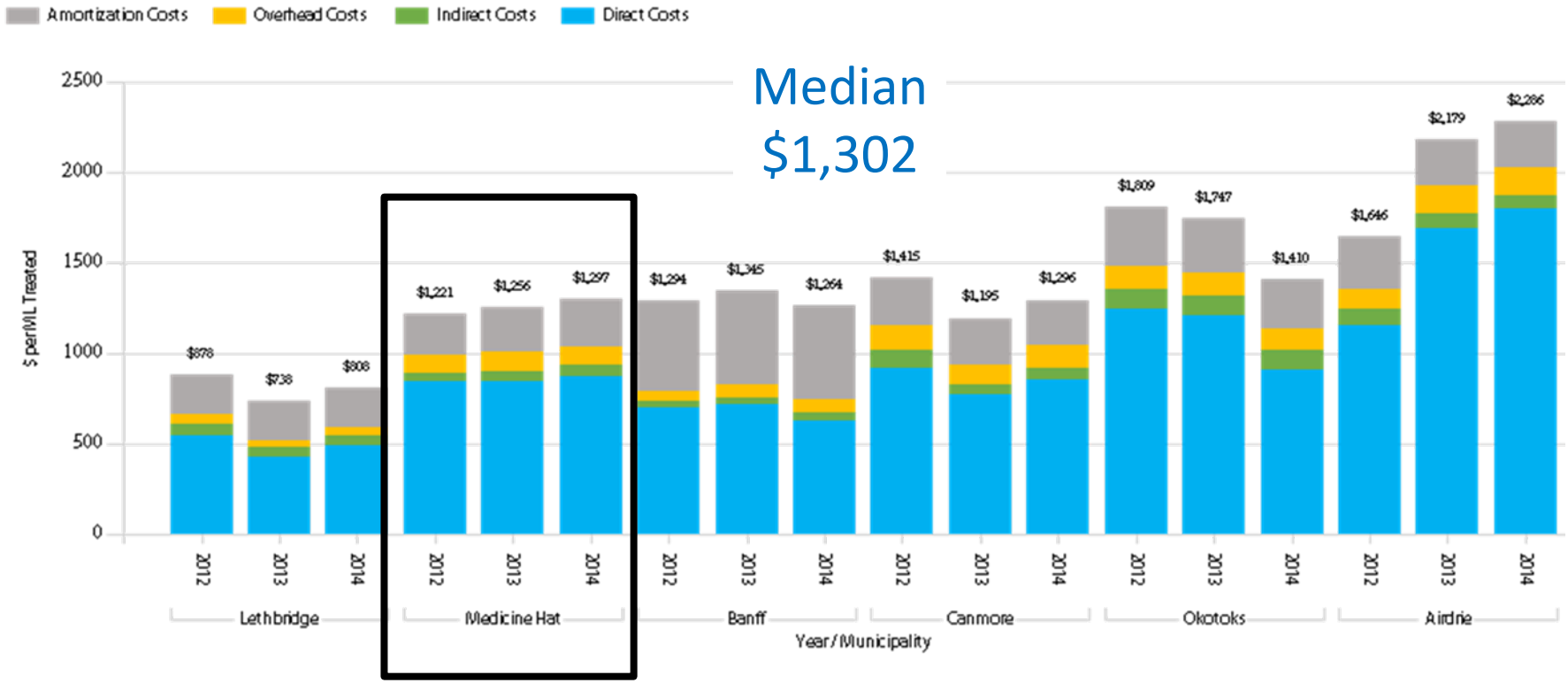
This chart shows the total cost of collecting wastewater from residences and commercial/industrial customers, treatment of the wastewater to provincial standards, and processing biosolids separated from the wastewater stream for re-use. For comparability, the total cost is normalized to cost per million litres (mega-litre, ML) collected and shown for each of the three processes. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



2.3 TOTAL WASTEWATER COSTS 2 ($/ML)

2.3 Total Wastewater System Costs 2 ($/ML) – Efficiency

This chart shows total cost collecting wastewater, treatment and processing of separated biosolids per ML collected by cost type; direct costs are those for day-to-day operation of the service, indirect costs are for management of the service, overhead cost is a calculated allocation of total overhead to this service, amortization is the depreciation cost of all assets used to deliver the service. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



2.3 TOTAL WASTEWATER COSTS ($/ML)

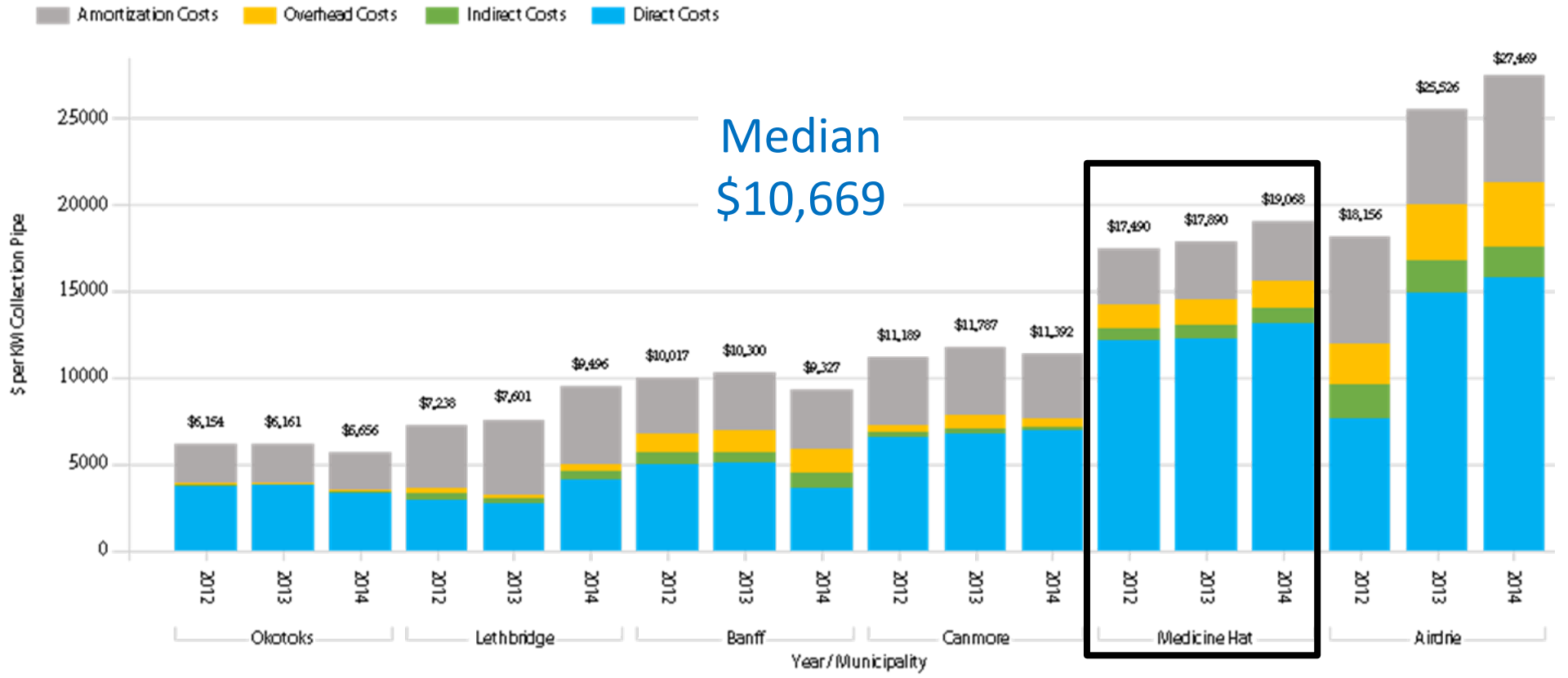
Medicine Hat's Story

- Average Total Costs below median of $1302/ML.
- Highly variable accounting structure between municipalities—**opportunity for collaboration**
- Cost differences may be caused by discretionary split of staff and other costs between Water and Wastewater
- Scale – for municipal operated WWTPs, more volume means lower cost/ML

2.4 WASTEWATER COLLECTION

2,4 Collection Costs ($/KM collection pipe) – Efficiency

This chart also shows the total cost of collecting wastewater per KM (kilometre) of collection pipe maintained by the municipality. The cost is shown by cost type; direct, indirect, overhead and amortization. Wastewater is collected though a network of underground sanitary pipes, using natural gravity feed and lift (pumping) stations to move the wastewater to a treatment plant. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



2.4 WASTEWATER COLLECTION

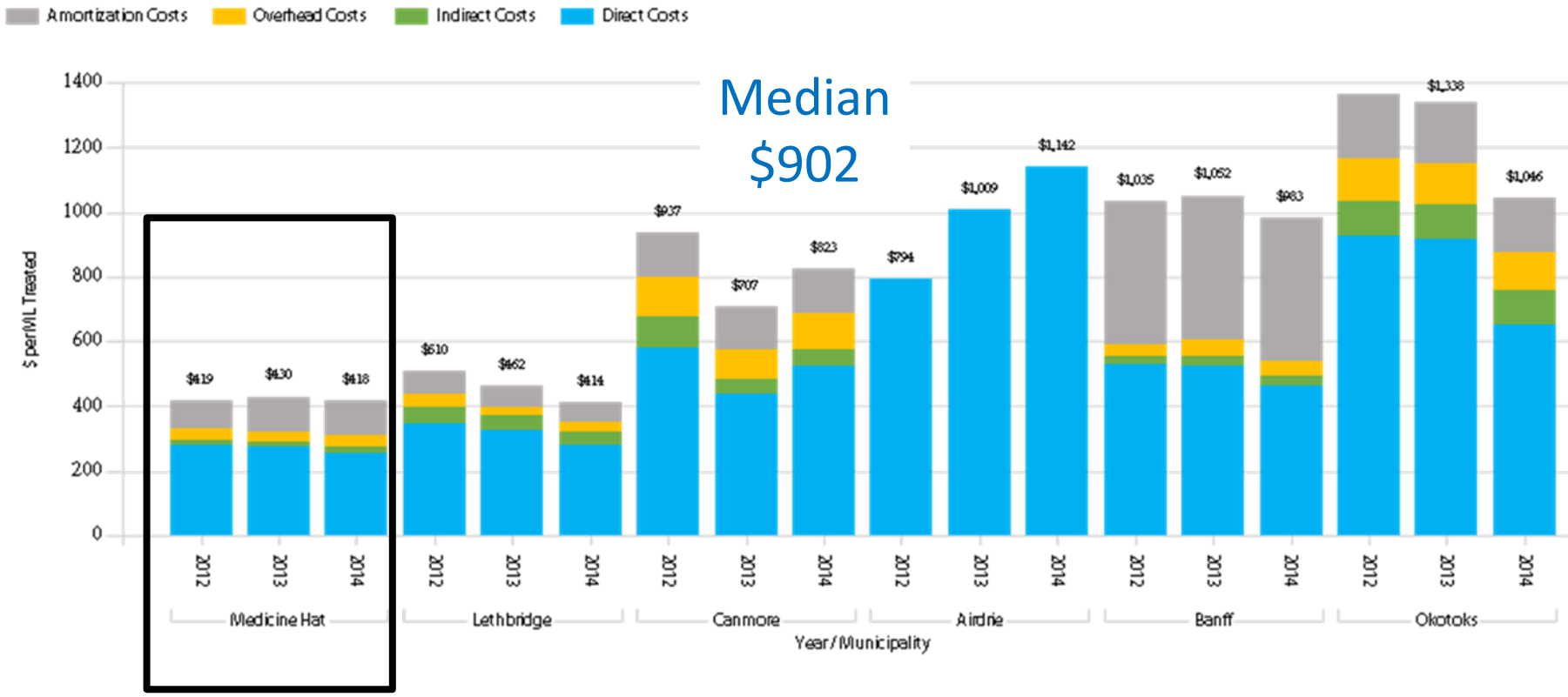
Medicine Hat's Story

- Topography and geographic service area (length of pipes) of municipalities affects collection costs- pumping
- Differences in similar sized communities are in part due to the discretionary split of staffing and other costs between the water and wastewater services.
- Capital re-investment (asset management) and financing impacts total costs

2.5 WASTEWATER TREATMENT

2,5 Treatment Costs ($/ML) – Efficiency

This chart shows the cost of treating wastewater to provincial standards per ML collected by cost type; direct, indirect, overhead and amortization. There are two outputs from treatment; water that is released to a natural waterway and biosolids that are processed into re-useable fertilizer products. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



2.5 WASTEWATER TREATMENT

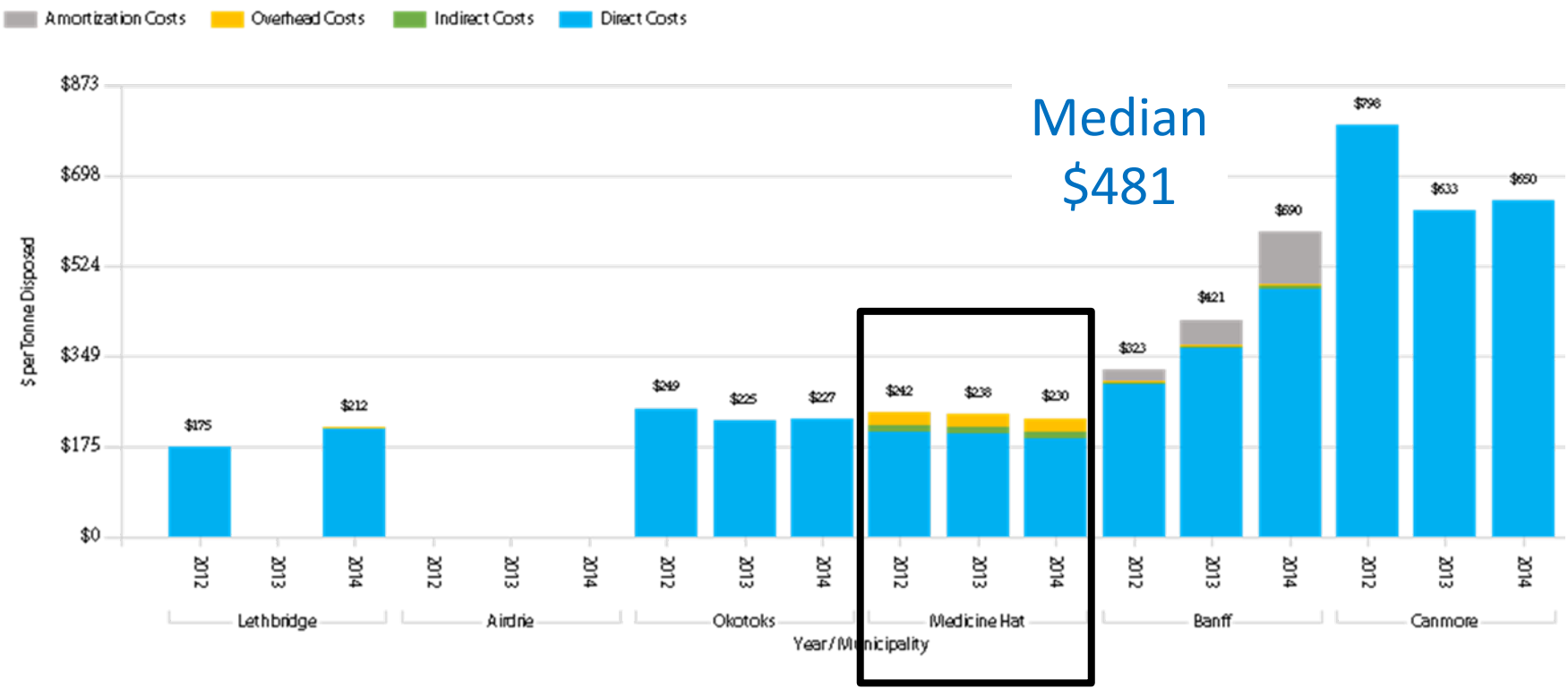
Medicine Hat's Story

- Average Treatment costs below median of $902/ML.
- Plant optimization initiatives ongoing.
- Stable flow and quality going into plant.
- Robust Aging Infrastructure Plan which impacts amortization costs going forward.

2.6 BIOSOLIDS PROCESSING

2.6 Biosolids Processing Cost ($/dry tonnes re-used) – Efficiency

This chart shows the cost of having biosolids removed and transported for processing into re-useable fertilizer products per dry tonne re-used. The cost per dry tonne is shown by cost type; direct, indirect, overhead and amortization. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



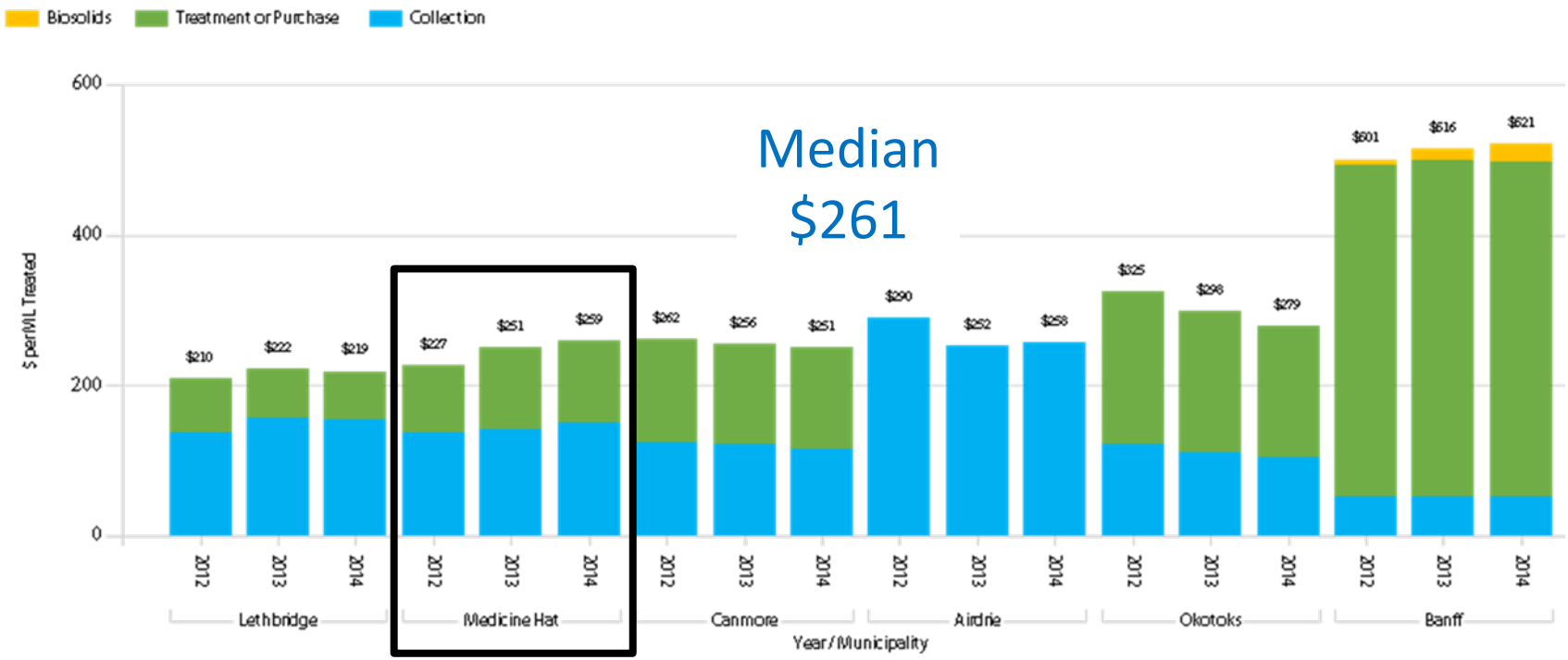
2.6 BIOSOLIDS PROCESSING COSTS

Medicine Hat's Story

- Average costs below the median of $481/dry tonne.
- Highly variable treatment methodology amongst municipalities.
- Robust composting system in place which receives CO2 offset credits.
    - Credits not included in scope of report.

2.7 AMORTIZATION COSTS – ASSETS ($/ML)

2.7 Amortization Cost – Wastewater Assets ($/ML) – Efficiency
This chart shows the amortization (depreciation) cost of the assets used to deliver the service per ML collected and by process. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



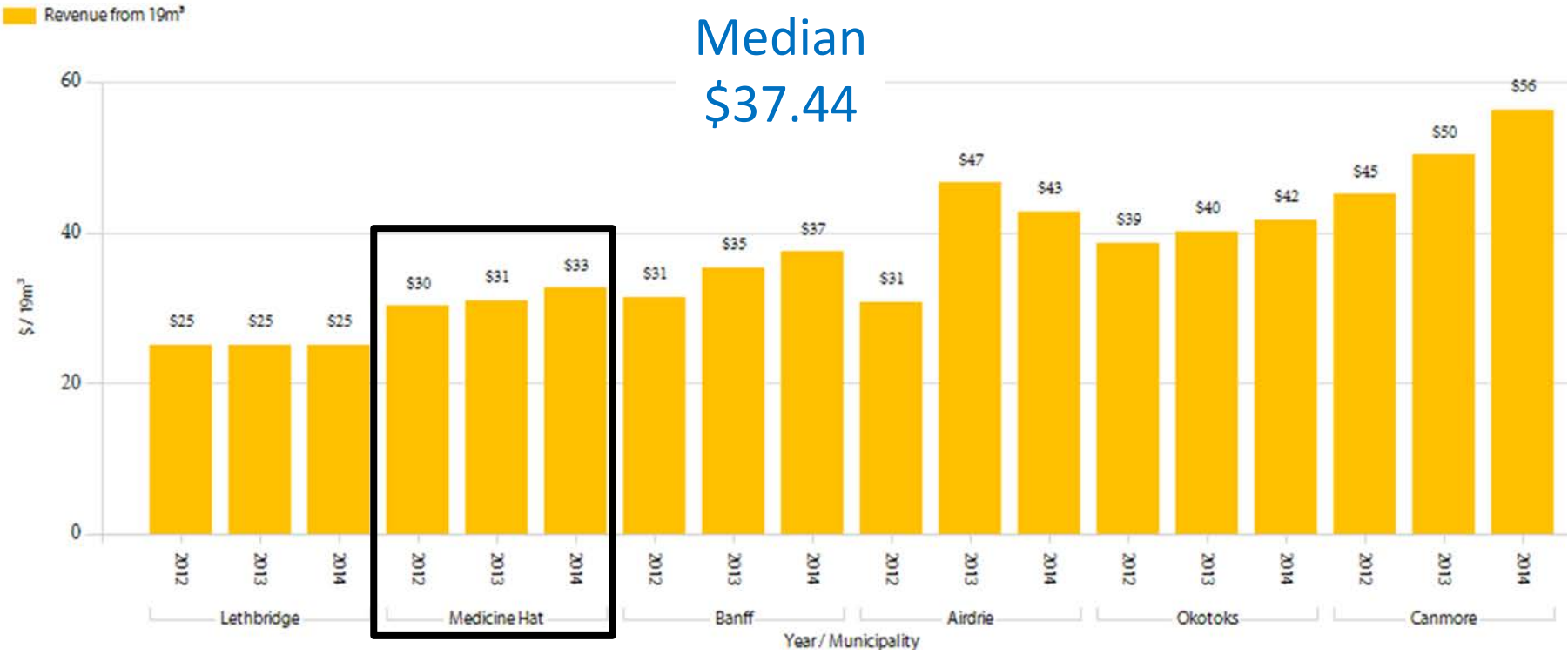
2.7 AMORTIZATION COSTS – ASSETS ($/ML)

Medicine Hat's Story

- Average costs below the median of $261/ML
- Average age of infrastructure is 35+ years
- Robust aging infrastructure replacement program, highly evolved asset inventory, inspection and preventative maintenance programs

2.9 RESIDENTIAL WASTEWATER WATER BILL

2.9 Residential Wastewater Bill ($/19m³ per month)
This chart shows the bill a residence would receive each month for processing of 19 cubic metres of wastewater, the average amount produced by a residence. The bill is based on a base utility rate plus a consumption rate. Municipalities are in order from lowest to highest cost based on the average of 2012, 2013, 2014 results.



2.9 RESIDENTIAL WASTEWATER WATER BILL

Medicine Hat's Story

- Average bill below the median of $37.44/month
- Operates on a Full Cost Recovery rate model to ensure financial sustainability
- Medicine Hat's unique billing structure
    - **Flat fee structure vs variable based on water meter size.**
- Continues to have a total combined utility bill **cost competitive** to other municipalities within Alberta

CONCLUSIONS AND NEXT STEPS

- Medicine Hat provides high quality services while maintaining a **total cost structure below median.**
- Review practices and seek efficiencies where possible - **continuous improvement**
- Highly variable accounting structure between municipalities - **opportunity for collaboration**
- Continues to have total combined utility bill **cost competitive** to other municipalities within Alberta