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# Alberta Transportation Gas Tax Fund and Public Transit Fund Outcomes Report

December 2009

**KPMG**

**Government  
of Alberta** ■

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# Executive Summary

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The **Gas Tax Fund** (GTF) and the **Public Transit Fund** (PTF) are outcomes based programs designed to channel funds from the Federal government to the municipalities via the Province of Alberta.

The GTF provides funding in support of the construction, rehabilitation and/or expansion of public infrastructure related to water and wastewater systems and infrastructure, roads and bridges, treatment and management of solid waste, energy systems and public transit. The PTF was designed specifically to improve public transit services to Canadians and contribute to national shared outcomes of reduced smog forming emissions, reduced GHG emissions and reduced energy consumption.

Since May 1, 2005 through to December 31, 2008, the Gas Tax Fund has funded 508 projects for 263 Alberta municipalities and the Public Transit Fund has funded 25 projects for 11 municipalities. The 508 GTF projects address varying needs and diversity of Alberta's communities aligned with the federal and provincial objectives of cleaner air, and cleaner water. The PTF projects are more specific and include:

- a significant investment by Calgary into additional fleet vehicles, as well as extensions of the Light Rail Transit (LRT) into the Northeast and Northwest,
- Edmonton's South LRT expansion resulting in track extensions, new LRT/bus stations, and pedestrian management solutions
- Additions to public transit fleets and improvements to public transit management infrastructure in nine other Alberta municipalities.

The total amount of funding that will ultimately be transferred from the Federal government to Alberta municipalities is \$477 million under the GTF and \$131.4 million under the PTF.

# Executive Summary

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When completed the GTF and PTF will have contributed to the following major achievements:

- » Over 23,600 meters of water system and supply pipes added, repaired or replaced
- » Increased capacity to collect and/or treat 3,180 cubic meters of water per day
- » Increased capacity to collect and/or treat 227,810 cubic meters of wastewater per day
- » Wastewater pipes expanded by 31,360 meters
- » Over 2,000 kilometers of road were improved and/or built
- » 127,850 square meters of floor area added to light rail systems
- » Over 1,140 units added to public transit fleets

**Collectively the approved projects under the GTF and the PTF, when completed, will contribute to cleaner air, cleaner water and reduced greenhouse gas (GHG) emissions. This report provides a further look at the resulting outcomes.**

# Understanding the Outcomes Report

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The GTF and PTF are Federal transfer payment programs, which channel funds to municipalities through the provincial and territorial governments. To support and promote accountability Alberta has prepared an Outcomes Report of program activities.

The Outcomes Report identifies the underlying links between outputs and outcomes (what and why). In addition a set of project-level indicators was developed which could be aggregated for each sub-category of investment.

The indicators relevant to Alberta's projects are presented on the following pages and form the basis of this report. This report has been developed based on data maintained by Alberta Transportation for purposes of administering the GTF and PTF. Additional information was collected from the cities of Edmonton and Calgary.

The number of projects, **Total Project Cost** and **Grant Applied Amount** are based on results to December 31, 2008. The number of projects and grant applied amount reflect all approved projects as of December 31, 2008, the reported outcomes reflect the outcomes that will be achieved once all projects have been completed.

# Measuring results

The following indicators have been used to report on the results by project category/type for all projects that were approved by December 31, 2008.

Category /Project Type	Indicator	Intermediate Outcome	Final Outcome
<b>WATER</b>	<b># of projects, \$ of projects</b>		<b>Cleaner water</b>
<b>Subcategory: Supply and Distribution</b>	<b># of projects, \$ of projects</b>	<b>Improved water quality/safety</b>	<b>Cleaner water</b>
Replacement of pipes	# of meters of water system or supply pipes repaired or replaced	Improved water quality/safety	Cleaner water
Extension of pipes	# of meters of water system or supply pipes new	Improved water quality/safety	Cleaner water
<b>Subcategory: treatment</b>	<b># of projects, \$ of projects</b>	<b>Improved water quality/safety</b>	<b>Cleaner water</b>
Drinking water treatment system construction or expansion	Increase in capacity of treated water (in cubic meters per day)	Improved water quality/safety	Cleaner water
Treatment system upgrade or replacement	Increase in capacity of treated water (in cubic meters per day)	Improved water quality/safety	Cleaner water
<b>WASTEWATER</b>	<b># of projects, \$ of projects</b>	<b>Improved conservation/protection of water</b>	<b>Cleaner water</b>
<b>Subcategory: Treatment</b>	<b># of projects, \$ of projects</b>	<b>Improved conservation/protection of water</b>	<b>Cleaner water</b>
Upgrade or replacement of wastewater system	Increase in capacity to collect/treat wastewater (in cubic meters per day)	Improved conservation/protection of water	Cleaner water
<b>Subcategory: Collection</b>	<b># of projects, \$ of projects</b>	<b>Improved conservation/protection of water</b>	<b>Cleaner water</b>
Upgrade or replacement of collection system or wastewater	# of meters of pipe expansion	Improved conservation/protection of water	Cleaner water

## Measuring results (continued)

Category /Project Type	Indicator	Intermediate Outcome	Final Outcome
<b>ROADS &amp; BRIDGES</b>	<b># of projects, \$ of projects</b>		<b>Cleaner air / reduced GHG emissions</b>
<b>Subcategory: Roads</b>	<b># of projects, \$ of projects</b>	<b>Improved air quality</b>	<b>Cleaner air / reduced GHG emissions</b>
Road surface improvement	# of km improved (renewal)	Improved air quality	Cleaner air / reduced GHG emissions
New road construction	# of km added (expansion & new)	Improved air quality	Cleaner air / reduced GHG emissions
<b>Subcategory: Bridge</b>	<b># of projects, \$ of projects</b>	<b>Improved air quality</b>	<b>Cleaner air / reduced GHG emissions</b>
Bridge construction replacement or structural improvement	# of km of travel distance saved as a result of work done	Improved air quality	Cleaner air / reduced GHG emissions
<b>SOLID WASTE</b>	<b># of projects, \$ of projects</b>		
<b>Sub category: Landfill expansion/creation (ancillary)</b>	<b># of projects, \$ of projects ;increased capacity of site + rationale</b>	<b>Ancillary</b>	<b>Ancillary</b>
<b>Sub category: Waste Diversion</b>	<b># of projects, \$ of projects</b>	<b>Increased water conservation/protection</b>	<b>Cleaner water</b>
<b>ENERGY SYSTEMS</b>	<b># of projects, \$ of projects</b>	<b>Improved energy use</b>	<b>Cleaner air / reduced GHG emissions</b>
<b>Subcategory: Generation</b>	<b># of projects, \$ of projects</b>	<b>Improved energy use</b>	<b>Cleaner air / reduced GHG emissions</b>
<b>PUBLIC TRANSIT</b>	<b># of projects, \$ of projects</b>		
<b>Subcategory: rolling stock</b>	<b># of projects, \$ of projects</b>	<b>Improved air quality</b>	<b>Cleaner air / reduced GHG emissions</b>
New rolling stock	# of units added to fleet (additional capacity)	Improved air quality	Cleaner air / reduced GHG emissions
<b>CAPACITY BUILDING</b>	<b># of projects, \$ of projects</b>		

**The Gas Tax Fund:  
Water, Wastewater, Roads & Bridges, Solid Waste, Energy  
Systems, Capacity**



# The Gas Tax Fund (GTF)

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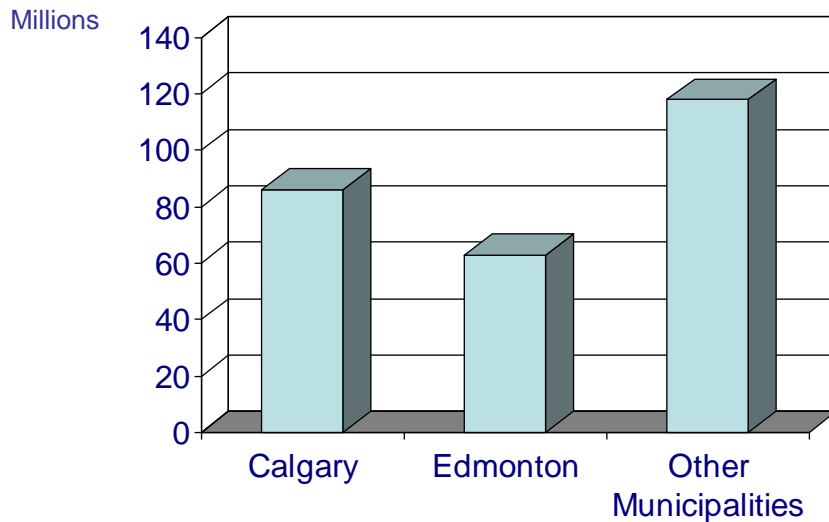
The **Gas Tax Fund** (GTF) aims to support environmentally sustainable municipal infrastructure projects that contribute to cleaner air, cleaner water and reduced greenhouse gas (GHG) emissions. The fund provides predictable and long-term capital infrastructure money – via the provinces and territories – to Canada’s cities and towns. The total investment through this program is \$13 billion over the period from 2005 to 2014.

Canada and Alberta signed the “New Deal for Cities and Communities” agreement - as the GTF was originally called - on May 14, 2005. The agreement called for a transfer of \$477 million in gas tax funds over a five year term to benefit Alberta communities of all sizes. It was hailed as an historic change in the relationship between the Federal and Provincial governments, transforming their approach to working together. The agreement demonstrates its respect for jurisdiction by channeling the funds from the Federal government to the municipalities via the province of Alberta.

Funding was originally calculated on a per capita basis using projected population figures for 2006 and was adjusted in 2008 for the Alberta official population figures for 2007. The formula bases 99% of the funding on population, with the remaining funds distributed to ensure very small municipalities receive a base amount. Alberta does not appropriate any of the funds to cover administration costs, ensuring that 100% of the funds flow to the municipalities.

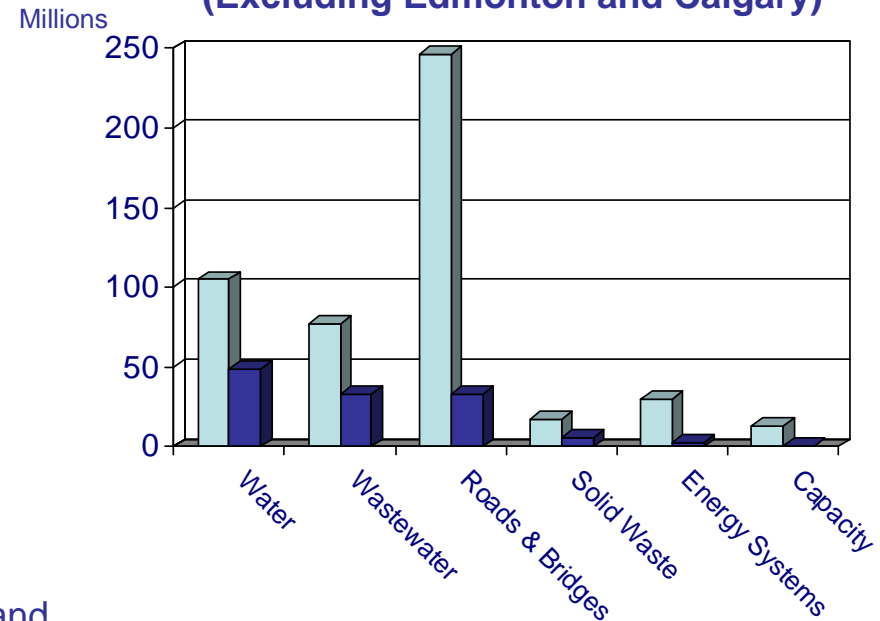
# Overall Distribution of the GTF

Grant Applied Amounts by Municipality up to December 2008



- Calgary's projects fall under the Public Transit and Solid Waste categories; whereas Edmonton's projects fall exclusively under the Public Transit category.
- 44% of the Grant Applied Amount was distributed to 261 Albertan municipalities.

GTF Project Count & Spending by Category (Excluding Edmonton and Calgary)



■ Number of Projects ■ Grant Applied Amount

- Each of the above categories is reported on in the following slides. Where applicable, separate results are reported for Edmonton and Calgary, with the remaining 261 municipalities reported in aggregate.

# Key Results and Outcomes - The Gas Tax Fund

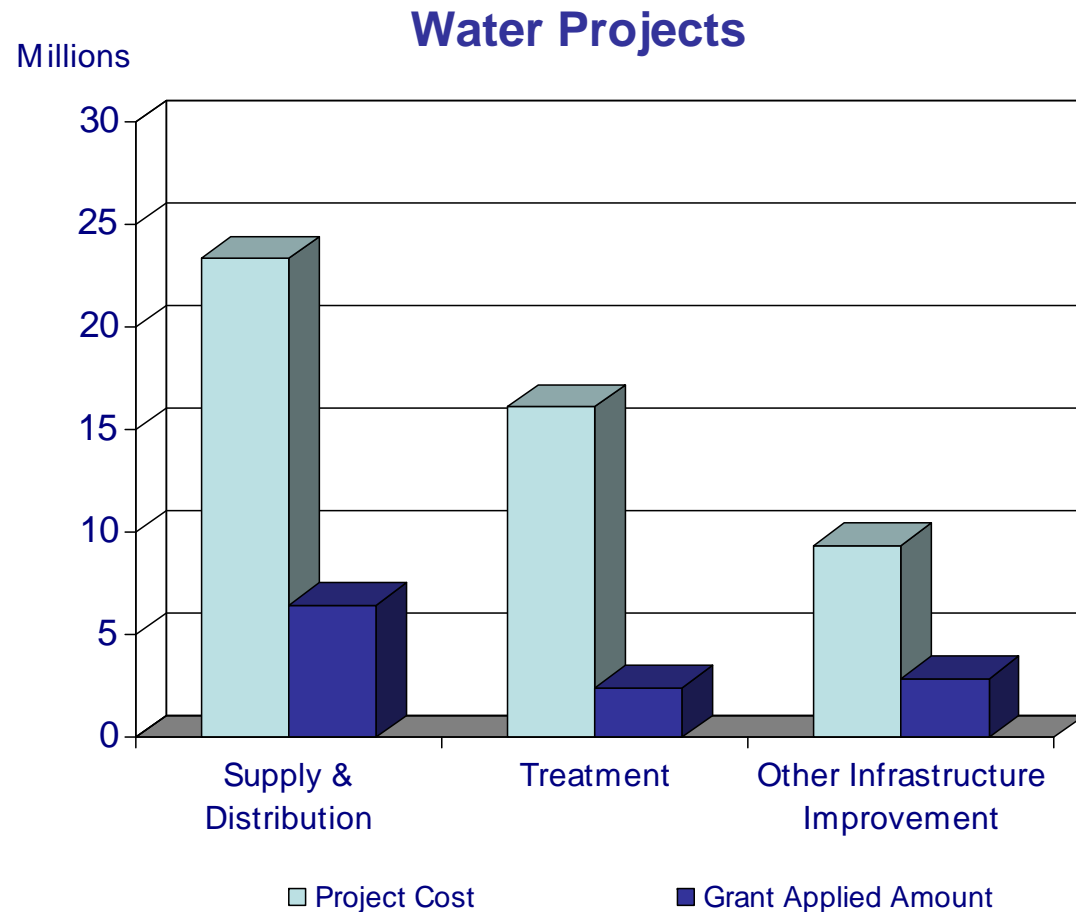
Category /Project Type	Indicator	Result	Final Outcome
<b>WATER</b>			
Subcategory: Supply and Distribution Pipe replacement and extension	# of meters of water system or supply pipes added, repaired or replaced	23,260	Cleaner water
Subcategory: treatment Treatment system addition, upgrade, replacement	Increase in capacity of treated water (in cubic meters per day)	3,180	Cleaner water
<b>WASTEWATER</b>			
Subcategory: Treatment Upgrade or replacement of wastewater system	Increase in capacity to collect/treat wastewater (in cubic meters per day)	227,810	Cleaner water
Subcategory: Collection Upgrade or replacement of collection system or wastewater	# of meters of pipe expansion	31,370	Cleaner water
<b>ROADS &amp; BRIDGES</b>			
Subcategory: Roads Road surface improved and added	# of km improved/added	2,012	Cleaner air / reduced GHG emissions
Subcategory: Bridge Bridge construction replacement or structural improvement	# of km of added/replaced	4.0	Cleaner air / reduced GHG emissions
<b>SOLID WASTE</b>			
Sub category: Landfill expansion/creation (ancillary)	# of projects	11	Ancillary
Sub category: Waste Diversion	# of projects	6	Cleaner water
<b>ENERGY SYSTEMS</b>	# of projects	30	Cleaner air / reduced GHG emissions
<b>CAPACITY BUILDING</b>	# of projects	13	

**Note:** Outcomes related to Public Transit are reported under the Public Transit Fund section.

# Funding outcomes – GTF: Water

55% of applied funding for water relates to water supply and distribution projects.

Water projects address the supply, distribution and treatment of water within Alberta municipalities.

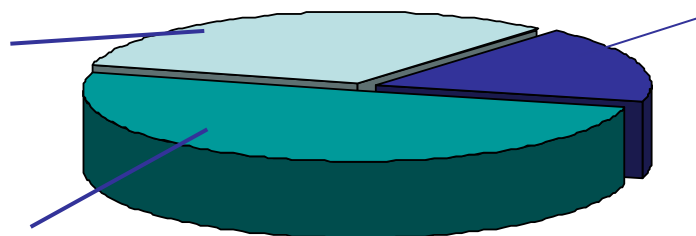


## Funding outcomes – GTF: Water

105 water projects have been completed or are under way which contribute to the shared national objective of cleaner water.

42 projects resulting in 23,617 meters of water system or supply pipes added, repaired or replaced

40 Other Infrastructure Improvement projects



23 projects resulting in increased capacity to treat 3,180 m<sup>3</sup> of water

■ Supply & Distribution   ■ Treatment   ■ Other Infrastructure Improvements

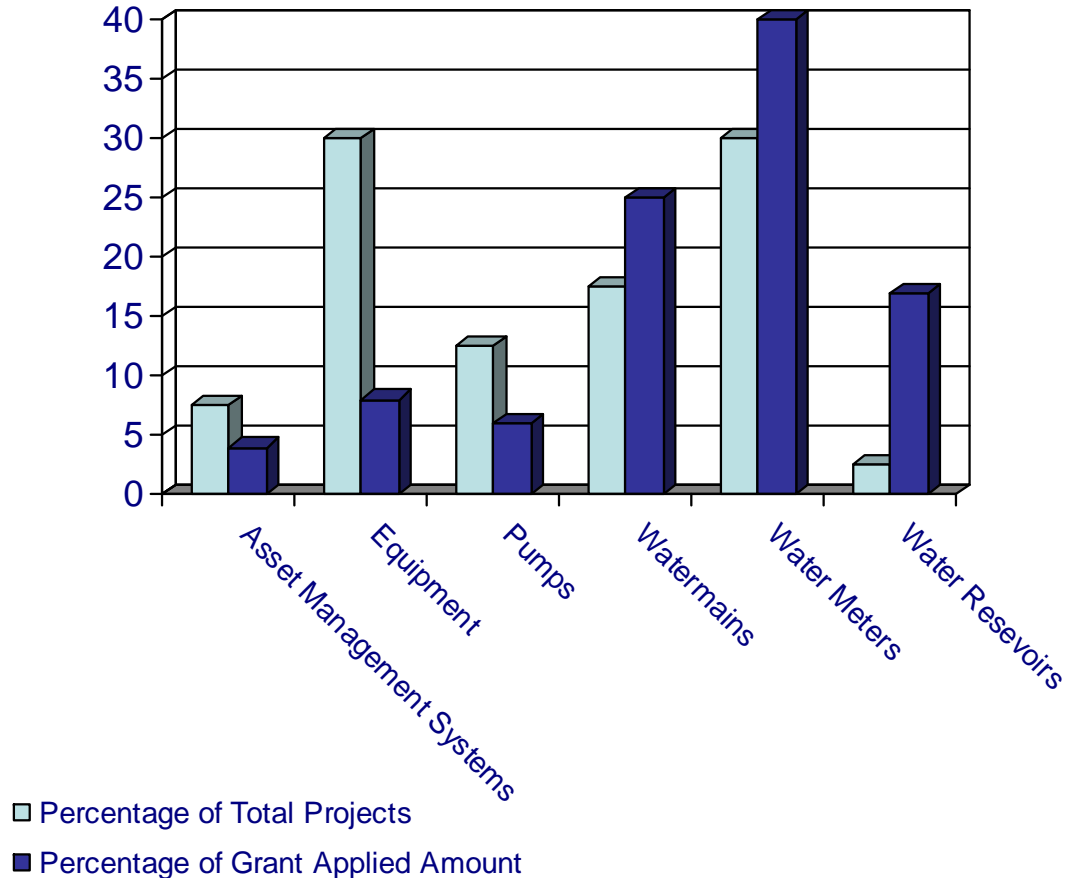
### *What this means . . .*

- Improvements to the supply and distribution and the increased capacity to treat water all contribute to increasing municipalities overall water system capacity. Water system capacity refers to a water system's ability to consistently provide safe drinking water for its customers, thus contributing to the intended outcome of cleaner water.
- The 40 infrastructure projects range from improvements in asset management and energy systems to improvements in pumps, valves and meters. When completed these projects will result in improvements in water conservation and protection, water quality and energy usage.

# Funding outcomes – GTF: Water

40% of the applied funding for other water infrastructure projects are categorized as water meters. Water meters encourage water conservation, environmental sustainability, and can be used for full cost reporting.

**Other Infrastructure Improvement Projects**  
**Percentage of Total Projects versus Percentage of Applied Funding**



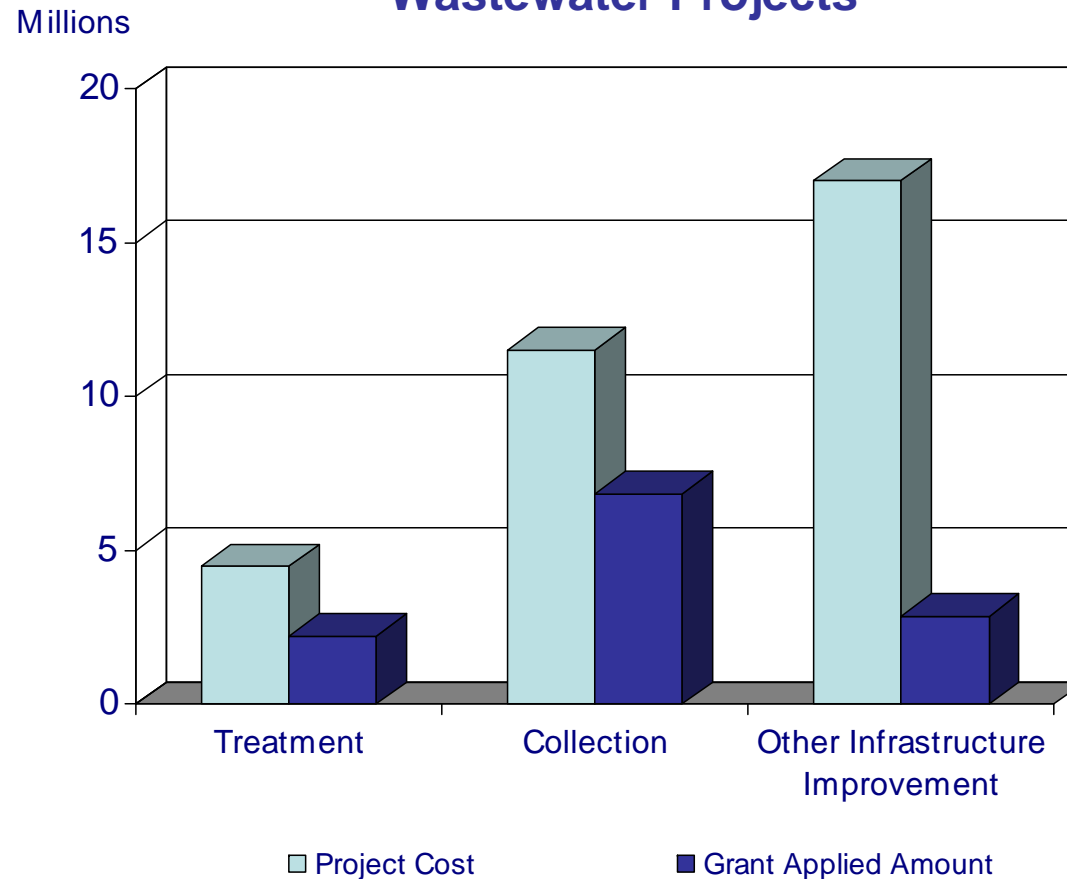
# Funding outcomes – GTF: Wastewater

58% of the applied wastewater funding relates to 25 collection projects, of which the largest two projects relate to the:

- The construction of a storm water management system to control runoffs from a new highway development
- Upgrade of sewer systems and installation of a storm drain

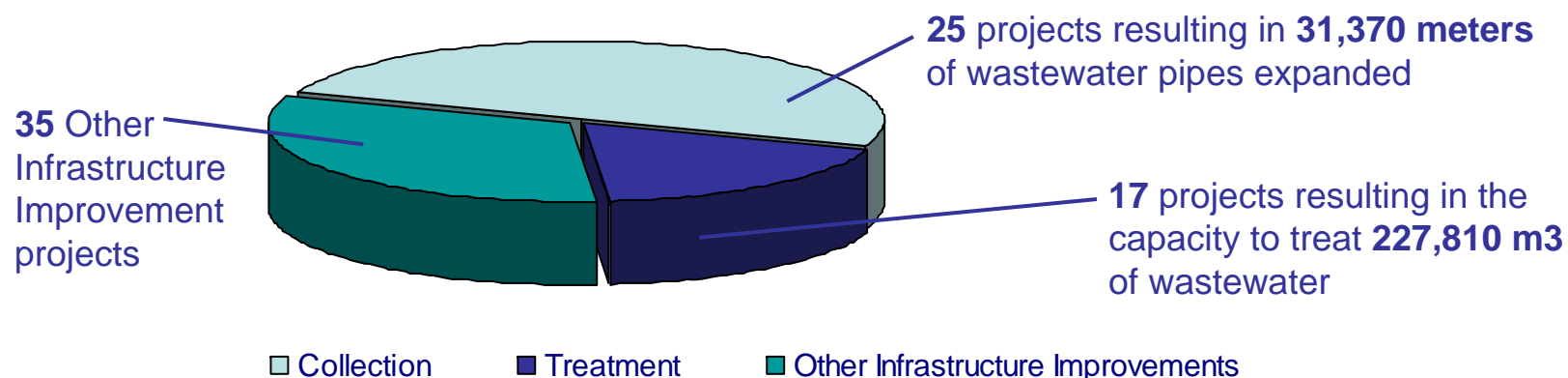
Wastewater projects address the collection and treatment of wastewater within Alberta municipalities.

## Wastewater Projects



## Funding outcomes – GTF: Wastewater

77 wastewater projects have been completed or are under way which all contribute to the shared national objective of cleaner water.



### What this means . . .

- The increase in capacity to treat/collect wastewater results in improved conservation and protection of water, ultimately contributing to cleaner water. To illustrate the potential impact that this will have, using the average annual flow rate for 2008 for the Alberta Capital Region of 73,845 m<sup>3</sup> per day<sup>1</sup> as a proxy, the increased capacity to treat/collect 227,810 m<sup>3</sup> of wastewater per day would result in an approximate increase in service provision for an additional 77,000 people.
- The expansion in pipelines contributes to a municipality's ability to collect wastewater, and in particular to manage critical situations of increased need such as large storms and other natural disasters leading to improved water quality and safety.

<sup>1</sup>Alberta Capital Region Wastewater Commission, <http://www.acrwc.ab.ca/>

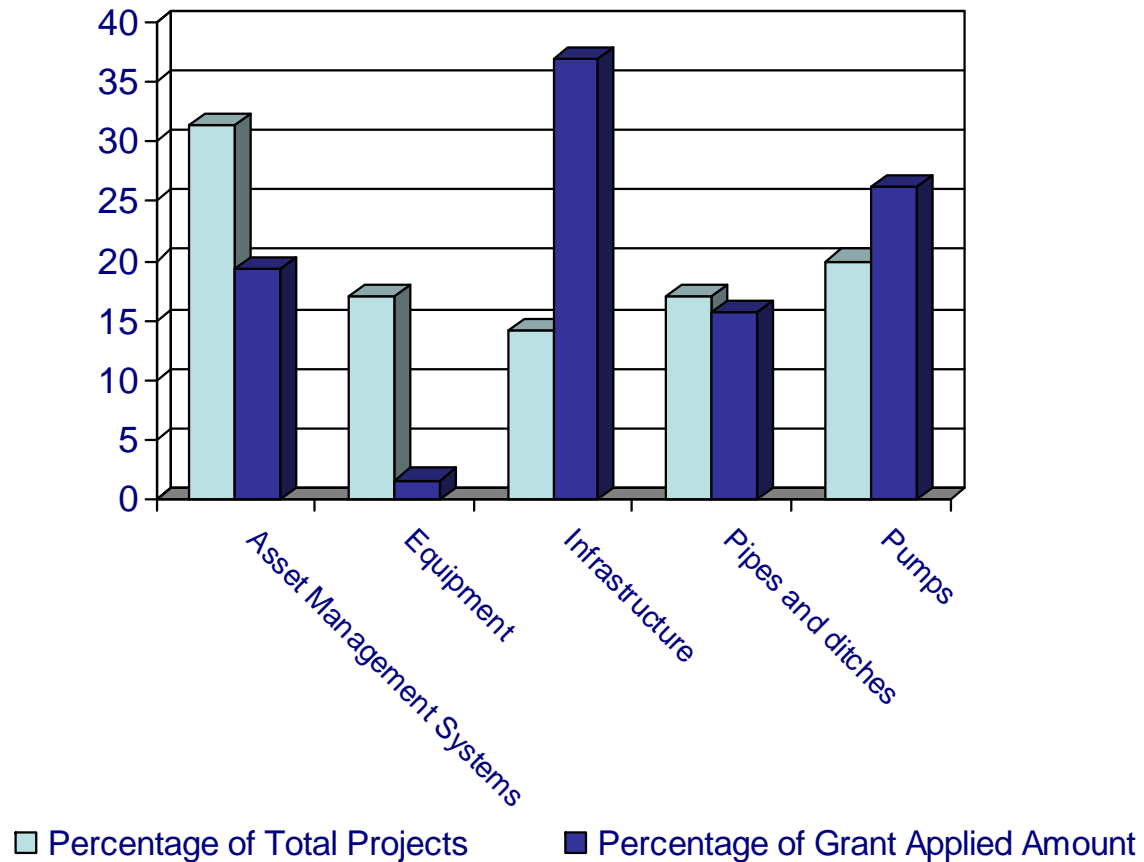


# Funding outcomes – GTF: Wastewater

37% of the grant applied amount of other wastewater infrastructure improvements are categorized as 'Infrastructure.' These projects range from outfall structures to rehabilitation projects.

### Other Infrastructure Improvement Projects

Percentage of Total Projects versus Percentage of Applied Funding



# Funding outcomes – GTF: Roads & Bridges

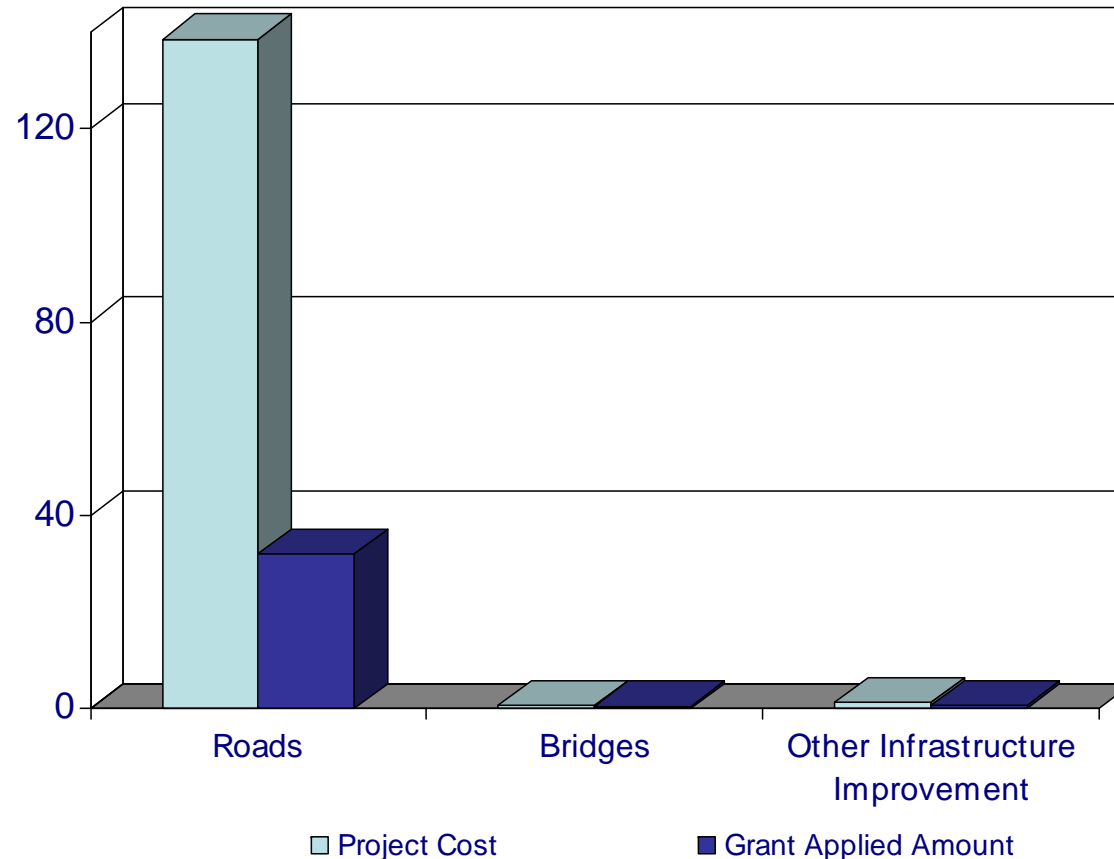
97% of applied funding relates to roads.

Of this 97%, 16% or \$5.3 million is directed towards new road construction resulting in approximately 142 kilometers of roadway being added or expanded.

Many municipalities are also making improvements to existing roadways, resulting in over 1,870 kilometers of existing roadways being rehabilitated.

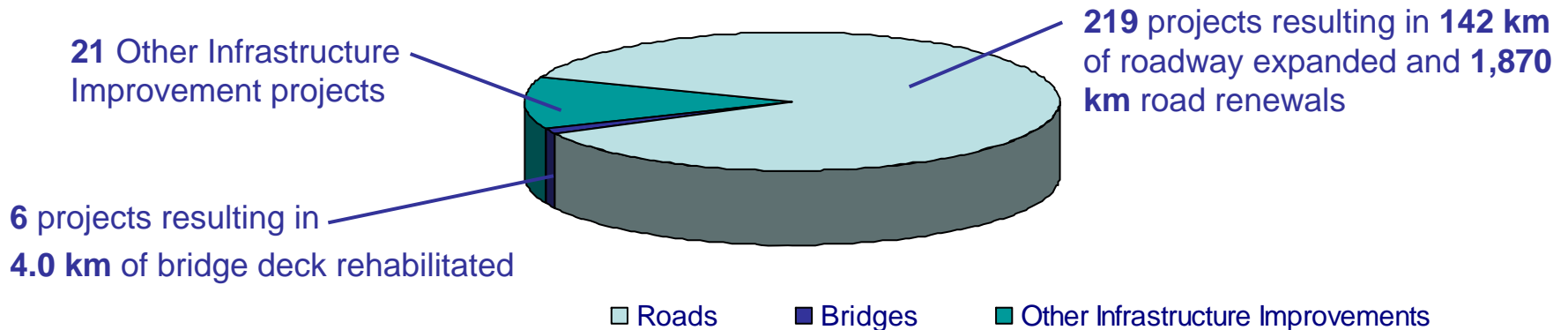
Roads and bridges projects address road surface improvement, new road construction, and bridge additions and rehabilitation.

## Roads & Bridges Projects



# Funding outcomes – GTF: Roads & Bridges

246 projects have been completed or are under way which all contribute to the shared national objective of cleaner air and reduced GHG emissions.



## What this means . . .

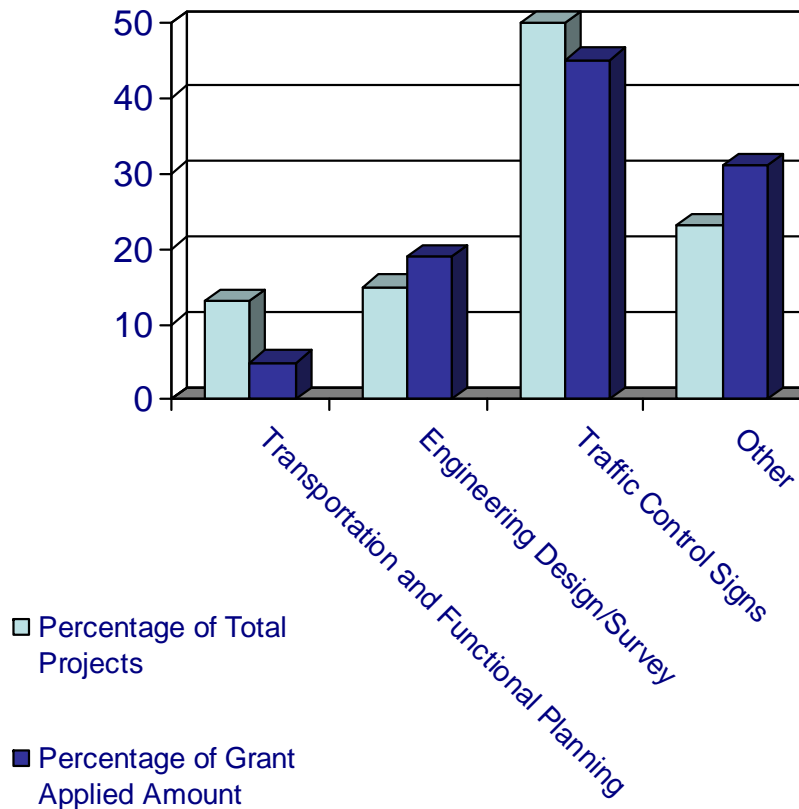
- The continued roadway renewal and expansion will contribute direct to reduced GHG emissions. The actual reduction will depend on the degree to which road smoothness was improved and/or drive distance shortened.
- As an example of the potential reduction in GHG's that can be achieved, a study completed by the Association of Municipalities of Ontario (AMO), reported that a one kilometer resurfacing project that takes a rough road with a ride comfort of 1 to a smooth road with a ride comfort of 9, for an average daily traffic volume of 5,000 vehicles, would reduce carbon dioxide emissions by 33,053 kg/year.
- Infrastructure improvements relates to a wide range of projects many of which directly impact traffic flow reducing driving time and related GHG's.

# Funding outcomes – GTF: Roads & Bridges

45% of the applied funding relates to the addition of traffic control signal heads. Adding signal lights to an intersection with a daily traffic volume of 5,000 vehicles can reduce carbon dioxide emissions produced by over-idling cars by 161,382 kg/year (AMO Study).

In addition, most Alberta signal heads and street lights funded by the GTF now operate with more energy efficient LED bulbs resulting in energy savings.

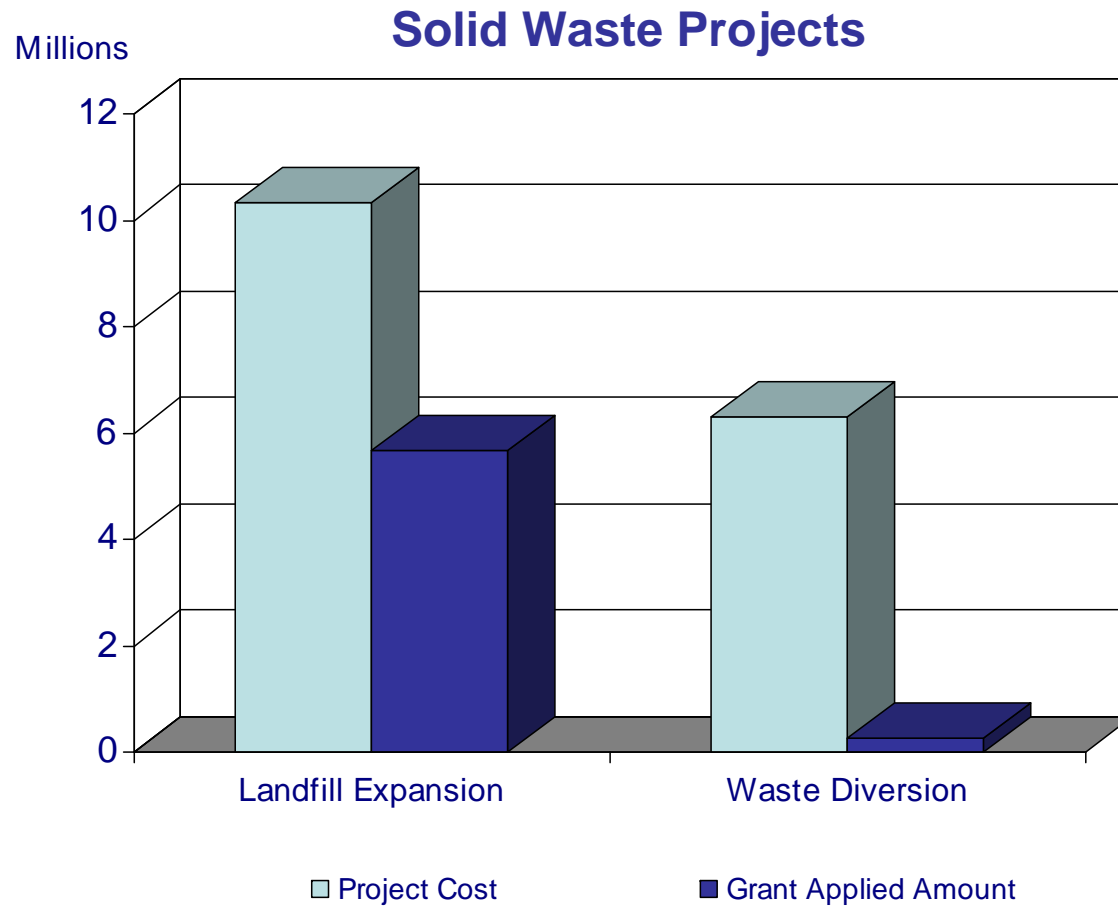
**Other Infrastructure Improvement Projects**  
**Percentage of Total Projects versus Percentage of Applied Funding**



# Funding outcomes – GTF: Solid Waste

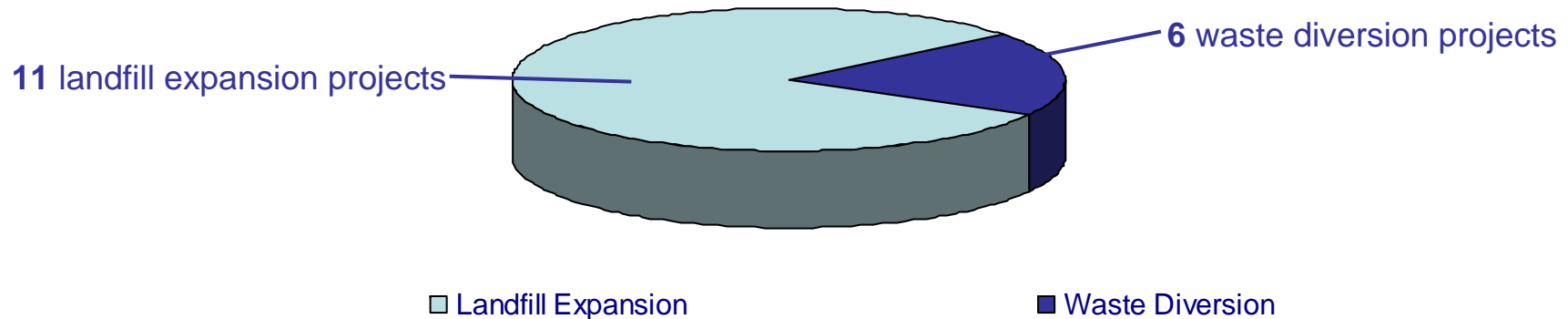
Landfill expansion spending represents 68% of applied solid waste funding.

Solid waste projects address landfill creation or expansion and waste diversion (including recycling, composting, and gasification).



# Funding outcomes – GTF: Solid Waste

17 projects have been completed or are under way which all contribute to the shared national objective of cleaner water.



## ***What this means . . .***

- In addition to increasing the capacity of a landfill, expansion projects may also increase access and offer improved scale house facilities resulting in a decrease in wait times for vehicles, meaning a reduction in GHG emissions from vehicles accessing the landfill.
- Landfill expansion projects have also been identified to have ancillary outcomes which support the shared national objective of cleaner water.
- Waste diversion is the process of reducing, reusing, and recycling waste material rather than sending it to a landfill. These types of projects also aim to reduce the amount of hazardous waste in landfills through recycling programs for items such as electronics and tires. Waste diversion projects contribute to water conservation and protection leading to cleaner water.

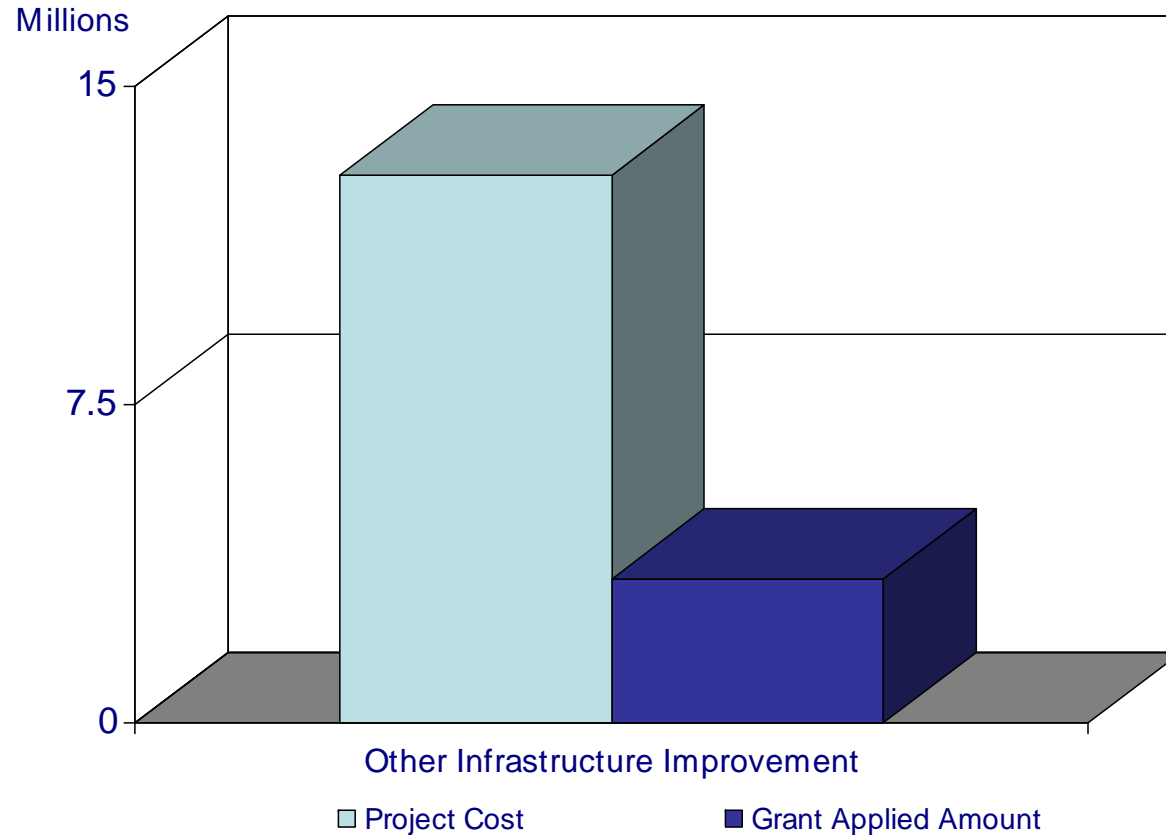
# Funding outcomes – GTF: Energy Systems

All of the applied funding relates to an energy conservation retrofit. This retrofit is an energy system upgrade to a community centre.

In total there are 30 approved energy system projects ranging from upgrades to existing heating systems either through higher efficiency heating methods or solar energy to building upgrades including roofing, lighting, and windows.

Energy systems projects address the conservation, generation and capacity building of a municipality's energy structure.

## Energy Systems Projects



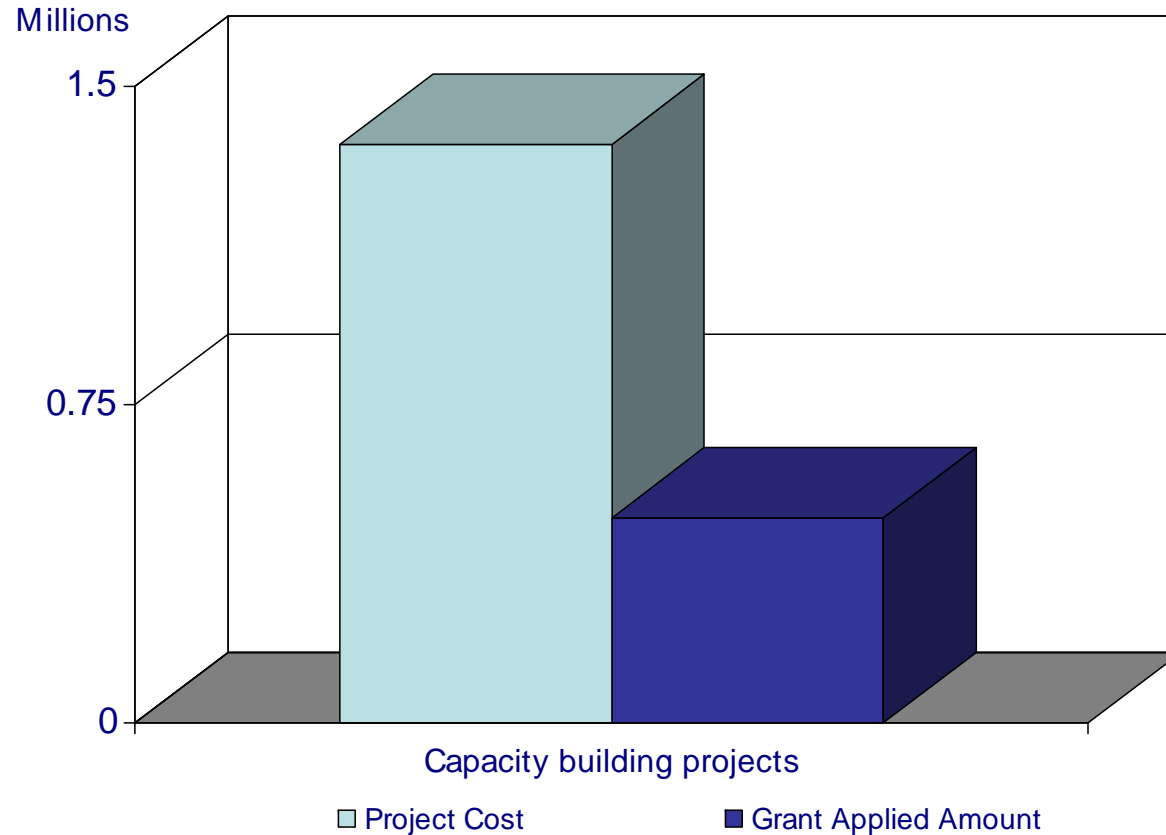
# Funding outcomes – GTF: Capacity Building

There are 13 capacity building projects, of which 46% support the development of Integrated Community Sustainability Plans (ICSP) in 6 municipalities.

A ICSP is a single plan with a long-term perspective that is critical to achieving sustainable development.

Capacity building projects relate to planning initiatives under taken by municipalities to infrastructure planning is executed on a go-forward basis.

### Capacity Building Projects





# Transit Projects

## Funded by the Gas Tax Fund and Public Transit Fund

# The Funding of Transit Projects

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Transit Projects are funded jointly by the **Gas Tax Fund** (as discussed on page 9) and the **Public Transit Fund** (PTF).

The PTF is a transfer payment program designed to provide funding to improve public transit services to Canadians and contribute to national shared outcomes of reduced smog forming emissions, reduced GHG emissions and reduced energy.

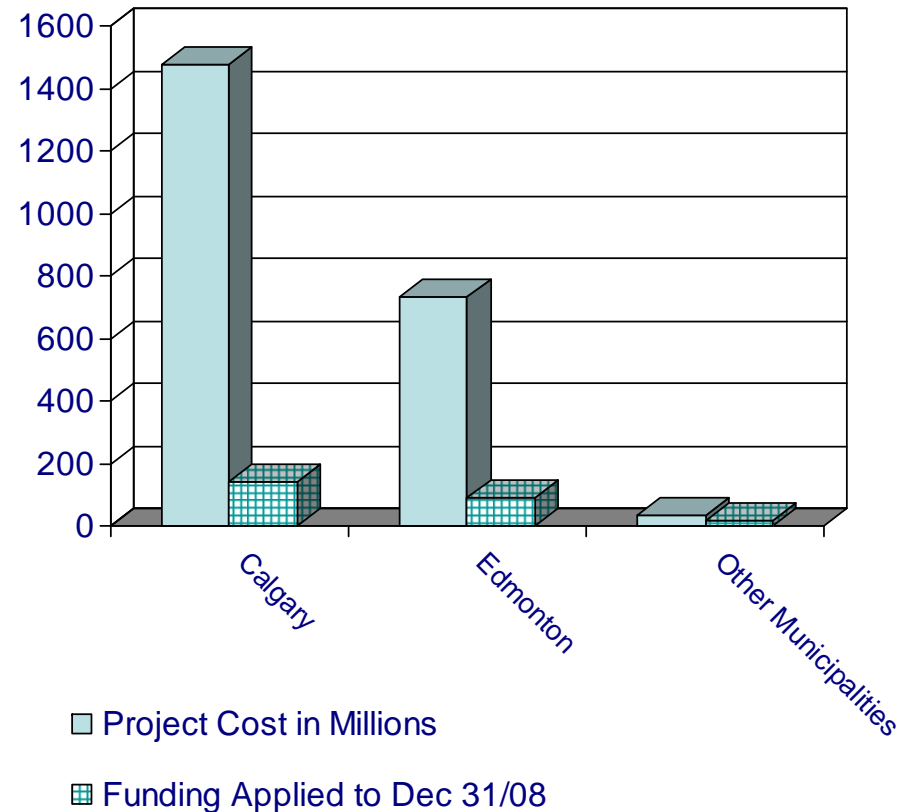
Canada and Alberta signed the “New Deal for Public Transit” agreement - as the PTF was originally called - on June 9, 2006. It called for a transfer of \$131.4 million in public transit funds over its 3 year term to benefit eleven eligible Alberta communities with existing transit systems.

# Overall Distribution of Transit Projects

The funding of Transit projects primarily include:

- a significant investment by Calgary into additional fleet vehicles, as well as extensions of the Light Rail Transit (LRT) into the Northeast and Northwest,
- Edmonton's South LRT expansion resulting in track extensions, new LRT/bus stations, and pedestrian management solutions
- Additions to public transit fleets and improvements to public transit management infrastructure in nine other Alberta municipalities.

Transit Project Spending by Municipality



# Key Project Outcomes – Transit

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Transit projects, as funded by the GTF and PTF, contribute to the following major achievements:

- Light Rail Transit Line Extensions in both Edmonton and Calgary
- Advanced Passenger Communication Systems
- Transit infrastructure (buildings and stations) rehabilitation
- Bus Refurbishment
- Light Rail Vehicle Refurbishment
- New Buses/Community Shuttles
- Traffic signal replacements

**Collectively the approved transit projects under the GTF and the PTF, when completed, will contribute to cleaner air, and reduced greenhouse gas (GHG) emissions.**

# Transit in Calgary

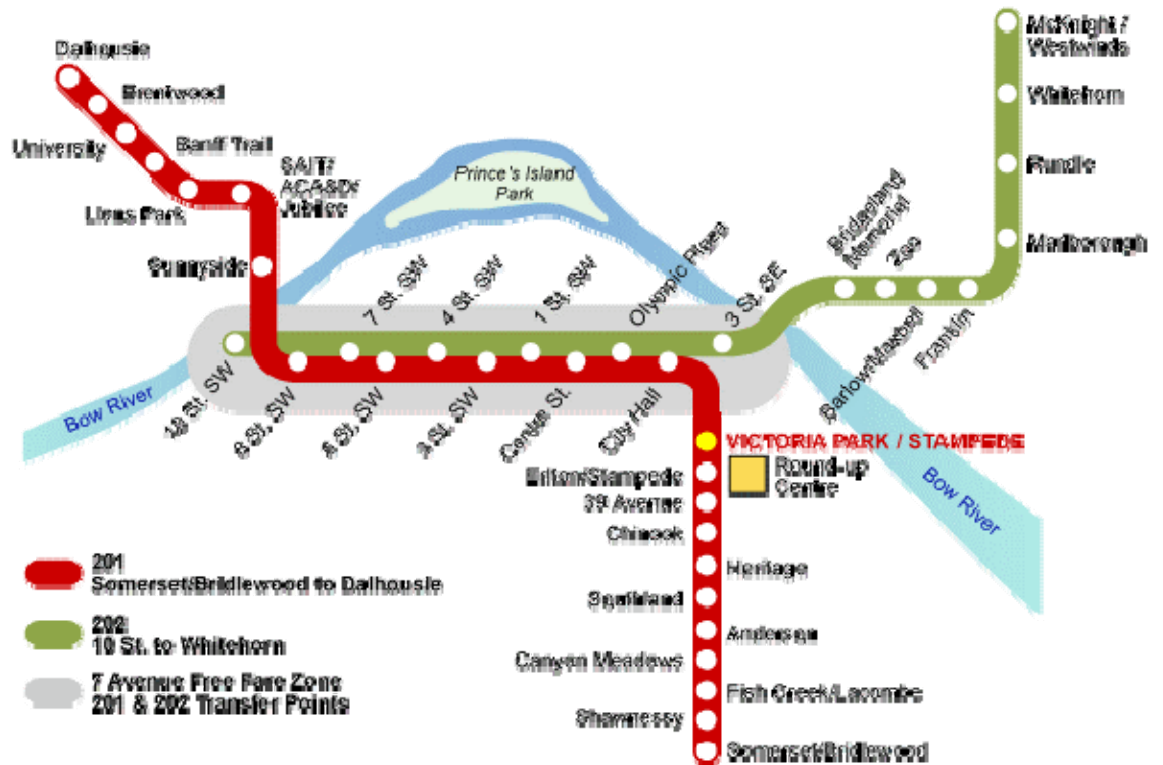
Since 2005, Calgary has had the opportunity to vastly expand their public transit systems throughout the city. Key projects which will significantly enhance the City of Calgary’s public transit system include:

**Northeast extension to McKnight-Westwinds** – 4 km track extension, one new station built incorporating a six bay feeder loop, approximately 900 park and ride stalls and bicycle storage facilities.

**Northwest extension to Crowfoot** – 4km track extension, one new station built incorporating a twelve bay feeder loop, approximately 1,100 park and ride stalls and bicycle storage facilities.

**Southeast Bus Rapid Transit** – links southeast Calgary communities to downtown following an alignment to the planned southeast LRT.

**LRT 7<sup>th</sup> Avenue Corridor Enhancement** – replace existing downtown LRT platforms, improve pedestrian traffic environment, increase capacity by expanding platforms to accommodate four car train lengths.

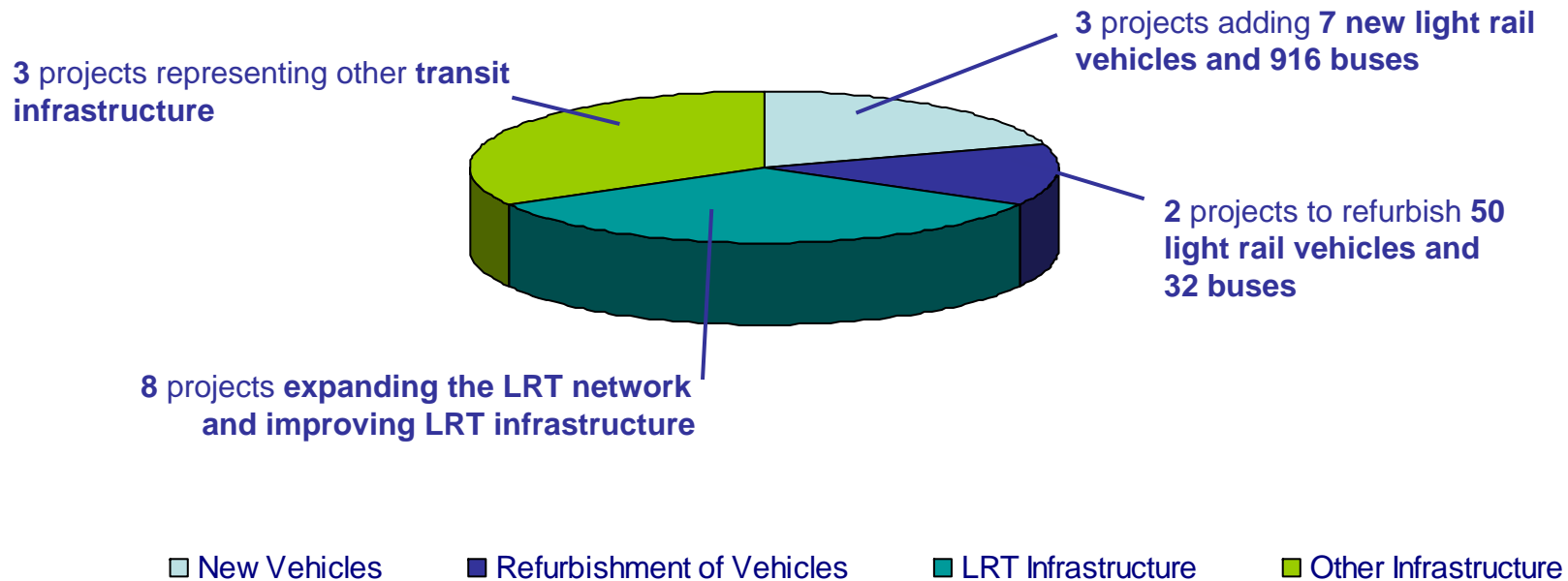


<http://www.calgarytransit.com/>



# GTF and PTF Transit Outcomes – Calgary

Sixteen projects have been completed or are under way which all contribute to the shared national objectives of cleaner air and reduced GHG emissions.



## ***What this means . . .***

- In 2005, Calgary transit transported 82 million customers, representing 119.5 million transit trips. This ridership using public transit instead of private vehicle represents a decrease in GHG emissions of approximately 183,400 tonnes.

# Transit in Edmonton

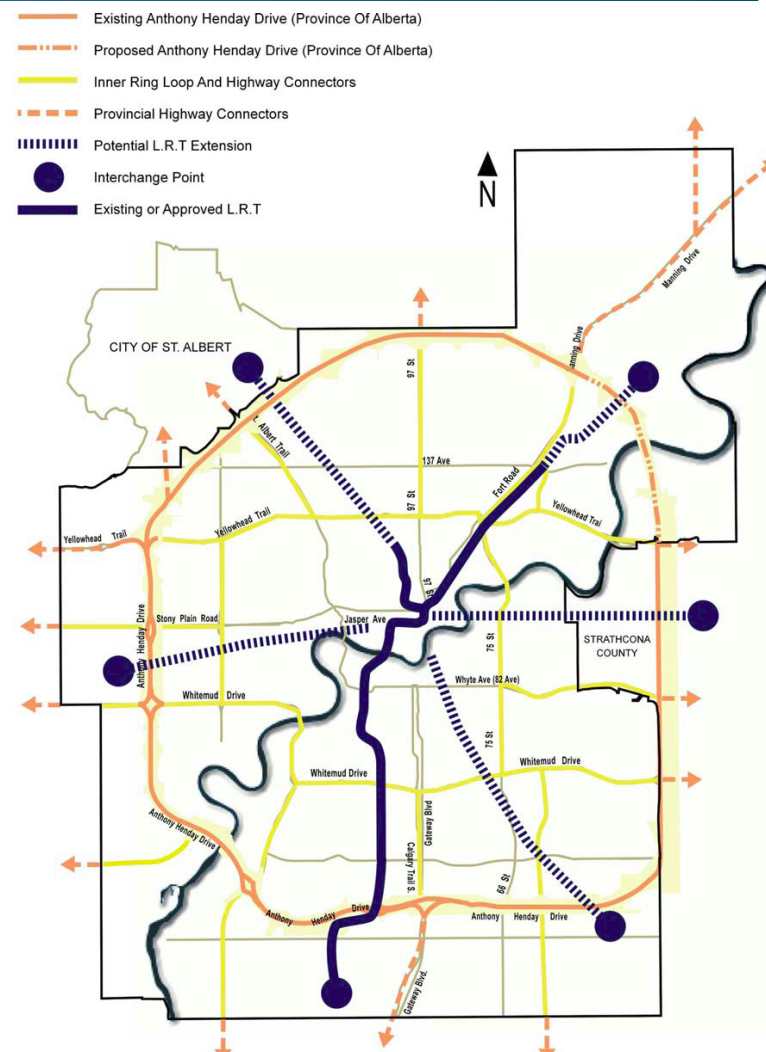
Prior to 2005, Edmonton's LRT System consisted of 12.6 km of track and ten LRT stations. The South LRT project involves an additional 8.2 km of track and four LRT stations.

The following highlights work undertaken in the period from 2005 to 2008:

- Approximately 95% of section 1B Health Sciences Station to South Campus was completed or 77% of the total project Health Sciences to Century Park. Section 1B was open for service in April of 2009 which consisted of:
  - 2.275 kms of track and associated infrastructure
  - One LRT station – located at 76 Avenue and 114 Street
  - One LRT / Bus station – located on the South University of Alberta Campus lands
  - One underground pedway at 76 Avenue and 114 Street
  - One Grade separation at Belgravia Road just east of 114 Street

Edmonton estimates the opening of the South LRT to Century Park will increase LRT daily ridership to over 75,000 passengers. Based on an average trip length of 12.7km, it is estimated this increased ridership will result in the reduction of 218 tonnes of emissions per day.

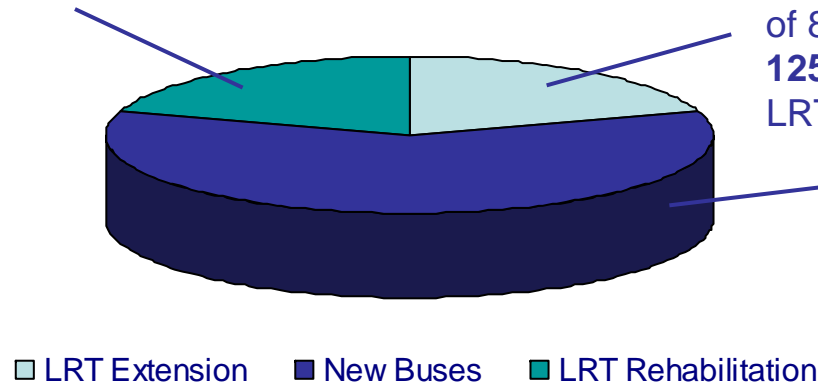
Source: Edmonton's *New Deal for Canadian Cities and Communities Outcome Report*



# GTF and PTF Transit Outcomes – Edmonton

Five projects have been completed or are under way which all contribute to the shared national objectives of cleaner air and reduced GHG emissions.

1 project representing the rehabilitation of **37** existing LRT vehicles



1 project representing the extension of 8km of LRT line and the addition of **125,600m<sup>2</sup>** of floor area to existing LRT infrastructure

3 projects representing the addition of **26** LRT vehicles, **98** new low floor buses, **9** Service Plus buses, and **40** new low floor diesel buses

## What this means . . .

- Edmonton identified the following outcomes for the PTF funding:
  - Increasing public transit as the preferred choice of more Edmontonians
  - Increased affordability of travel within metropolitan Edmonton
  - Increased access to University and Downtown areas
  - Increased transit ridership resulting in a decrease in air pollution from the use of motor vehicles

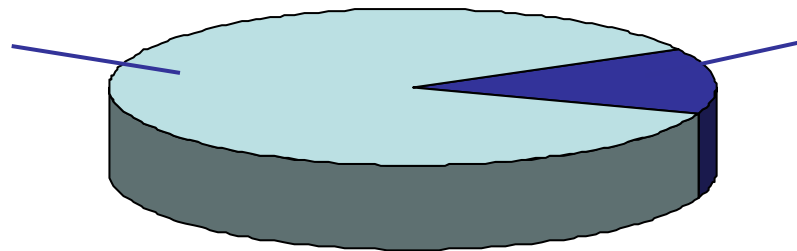


# Transit Outcomes – Other Municipalities

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22 projects have been completed or are under way which all contribute to the shared national objectives of cleaner air and reduced GHG emissions.

19 projects representing the addition of **56** new vehicles across **eight** municipalities



3 Other Infrastructure Improvement projects

■ New Vehicles    ■ Other Infrastructure Improvement

- Other infrastructure improvement projects relate to projects outside the addition of new public transit vehicles. For example, one municipality was able to install a transit signal and communication system.
- These infrastructure improvement projects all support the growth of a municipality's transit system and ensure new fleet vehicles are put to their best possible use.

# References

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- 1) Alberta Capital Region Wastewater Commission, [www.acrwc.ab.ca](http://www.acrwc.ab.ca) – September 16, 2009
- 2) Alberta Transportation MGMA data export – September 14, 2009
- 3) *ORGA's Milestones V8#4 December 2008*, Association of Municipalities of Ontario (AMO)
- 4) City of Calgary Transit, [www.calgarytransit.com](http://www.calgarytransit.com) – September 21, 2009
- 5) *City of Calgary New Deal for Cities and Communities Outcomes Report* – September 29, 2008
- 6) *City of Edmonton New Deal for Canadian Cities and Communities Outcome Report* – August 31, 2009
- 7) Gas Tax & Public Transit Funds Programs – Performance Measurement Framework (May 2009)
- 8) “New Deal for Cities and Communities” Agreement – May 14, 2005
- 9) “New Deal for Public Transit” Agreement – June 9, 2006
- 10) A Profile of Federal Infrastructure Investments in Calgary (Project Summary Report – March 2009)