

# Edmonton City Council's Infrastructure Strategy



**BUILDING THE CAPITAL CITY FROM THE INFRASTRUCTURE UP**

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Our City's infrastructure and processes must respond to the needs of a growing population and economy. We need to support and enhance the infrastructure assets that make Edmonton more than a place to work: these assets make our City a place for current and future generations to build their lives.

• **Mayor Stephen Mandel.**  
January 16, 2005.

The single biggest challenge facing municipalities today is finding funding for much-needed upgrades to aging or outdated infrastructure, and for growth-related new infrastructure.

• **Honourable Rob Renner, Minister of Municipal Affairs**  
Speech to the Alberta Association of Municipal Districts and Counties Spring Convention, April 6, 2005.

Infrastructure is a crucial investment in our economic productivity and quality of life. It is the sinew of our national economy – a web of concrete, steel, and fibre optics that binds our country together, and brings our country to the world. To harness our economic potential, Canada must address its national infrastructure deficit.

• **Prime Minister Stephen Harper.**  
January 11, 2006.

# Facing the infrastructure challenge



A city's relative health can be measured by the ability of its infrastructure to meet citizens' needs. In fact, the proper management of infrastructure helps to create the type of city in which we want to live, work and play.

Few of us think about the crucial role municipal infrastructure assets play in our day-to-day lives. We assume potholes will be filled and traffic signals work; we take for granted that wastewater is properly treated before it is released into the river; we trust that the parks and pools where our children play are safe and well maintained. Like any responsible homeowner, the City has a plan to manage its infrastructure assets in order to manage growth, encourage economic development, and protect public safety.

Economic success today, and even more so in the future, will require many things, and among them are sustainable, well-financed, and world-class big cities that attract and retain the best and the brightest. Future success means building big cities that can meet high expectations and lofty aspirations, as well as effectively and efficiently delivering a high quality package of municipal services and good quality infrastructure at an affordable price.

· **Rationale for Renewal.**

Canada West Foundation, September 2005.

**Figure 1: Edmonton's infrastructure assets by class, with replacement value\***

	ASSET CLASS	DESCRIPTION	REPLACEMENT VALUE	% OF TOTAL
	<b>Drainage</b>	Sanitary, storm and combined sewers (includes manholes and catchments), and wastewater treatment.	\$8.41 billion	42%
	<b>Road right-of-way</b>	Roads (arterial, collectors, local; curbs and gutters), sidewalks, bridges, gates, streetscapes.	\$6.37 billion	31%
	<b>Parkland</b>	Horticulture, trails, hard surfaces, playgrounds, sportsfields, parks and associated infrastructure (climbing gyms, etc.).	\$1.48 billion	7%
	<b>Transit facilities and equipment</b>	LRT system facilities and equipment, transit centres, bus equipment and systems, trolley system.	\$1.02 billion	5%
	<b>Buildings</b>	Civic offices, public works yards, emergency response and police buildings, and libraries.	\$674 million	3%
	<b>Fleet</b>	Transit buses, city vehicles and automotive shop equipment.	\$611 million	3%
	<b>Traffic control and lighting</b>	Traffic signals, signs, street lighting and parking meters.	\$540 million	3%
	<b>Recreation facilities</b>	Arenas, leisure centres, swimming pools, Fort Edmonton, Valley Zoo, etc.	\$534 million	3%
	<b>Affordable housing</b>	Non-profit housing, community housing, and seniors lodges.	\$220 million	1%
	<b>Waste management facilities</b>	Administrative facilities, transfer stations, processing facilities, landfill operations.	\$185 million	1%
	<b>Technology equipment</b>	Servers, networks, all communication equipment.	\$107 million	0.5%
	<b>Others</b>	Emergency response and police equipment, library contents.	\$91 million	0.5%
		<b>Total replacement value</b>	<b>\$20.2 billion</b>	<b>100%</b>

\* All figures have been rounded.

Edmonton's infrastructure assets, which have a replacement value of \$20 billion, include roads, sewer lines, transit, emergency response vehicles, swimming pools, parks, information technology and more. All these assets make vital contributions to our quality of life.

## Emerging Issues

The job of building and maintaining these infrastructure assets is becoming increasingly difficult. Many of Edmonton's infrastructure assets were built either in the 1950s or '70s. As a result, the average age of Edmonton's infrastructure is over 30 years and the average life expectancy of infrastructure assets is 50 years. Having passed the halfway point, the City is approaching a critical period to ensure that its infrastructure assets continue to meet the needs of Edmontonians in the future.

Canadians know what they want for their communities. But where we hope to see clean, green, productive and well-run municipalities and towns, we see a growing gap between what is and what could be. We see the signs of decline, the wear and tear that signals trouble.

· **Quality of Life in Canadian Municipalities: Highlights Report 2004.**  
Federation of Canadian Municipalities, April 2004.

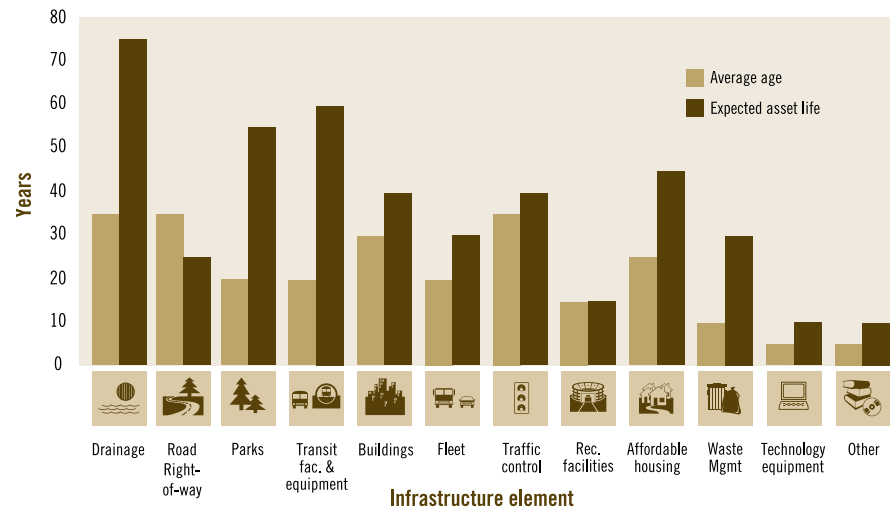
In addition, each year thousands of new residents flock to the Edmonton region to take advantage of employment opportunities created by our thriving economy. Personal disposable income is on the rise and low interest rates have resulted in an extremely healthy housing market – similar to the building boom of the 1970s.

Edmonton has grown by more than 46,000 persons since 2001, which is like adding to its population an entire city the size of Medicine Hat. This population growth has a significant impact on infrastructure requirements. In the same way that a growing family may find that it has become too large for a two-bedroom home, the City must build new infrastructure to support its population growth.

Edmonton's situation is also unique because there are 21 municipalities in the immediate region accounting for almost 300,000 additional people. Most people benefit from living in close proximity to the provincial capital, which provides big-city services and opportunities that would be otherwise inaccessible.

Tens of thousands of residents from neighbouring municipalities travel to Edmonton every day and support Edmonton-based businesses that, in turn, pay local property taxes. However, this economic

**Figure 2: Average age and expected life of infrastructure assets, by class**



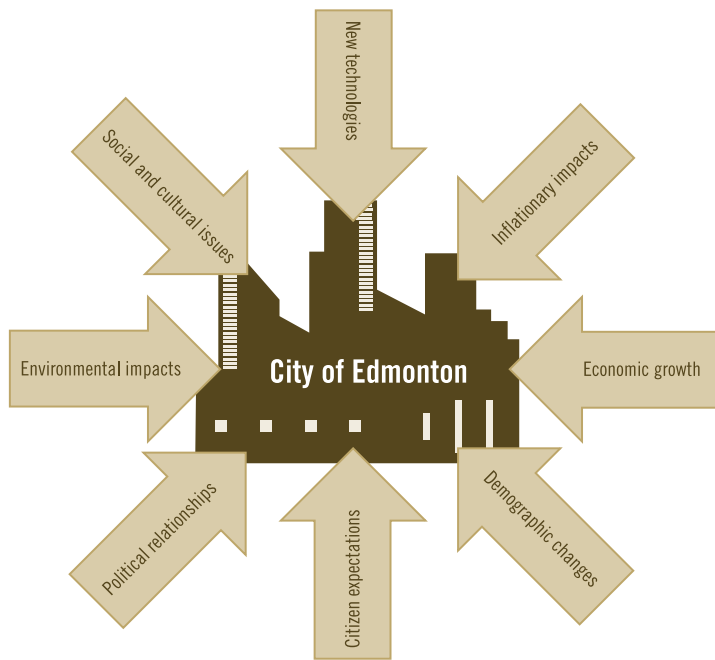
activity alone does not necessarily provide a contribution equal to the revenue required to preserve and maintain the City's infrastructure used by these residents.

Other factors that have an impact on Edmonton's infrastructure include demographic changes (aging population, changing residential and movement patterns), political relationships (changing relationships with the federal and provincial governments), environmental impacts (such as ratification of the Kyoto Accord and stricter pollution controls), social and cultural issues (low-cost public housing, services to the economically disadvantaged) and

new technologies that influence service delivery to citizens.

Alberta's healthy economy has also led to high levels of private investment in the oilsands and other industrial sectors, as well as plans from the provincial government to improve transportation corridors and build new schools and hospitals. This has fueled substantial inflationary increases in the construction sector; a dollar today does not have the same purchasing power that it did three years ago. Edmonton must carefully manage its investment in infrastructure to ensure it gets value for every dollar.

**Figure 3:** Factors with an impact on infrastructure and service delivery



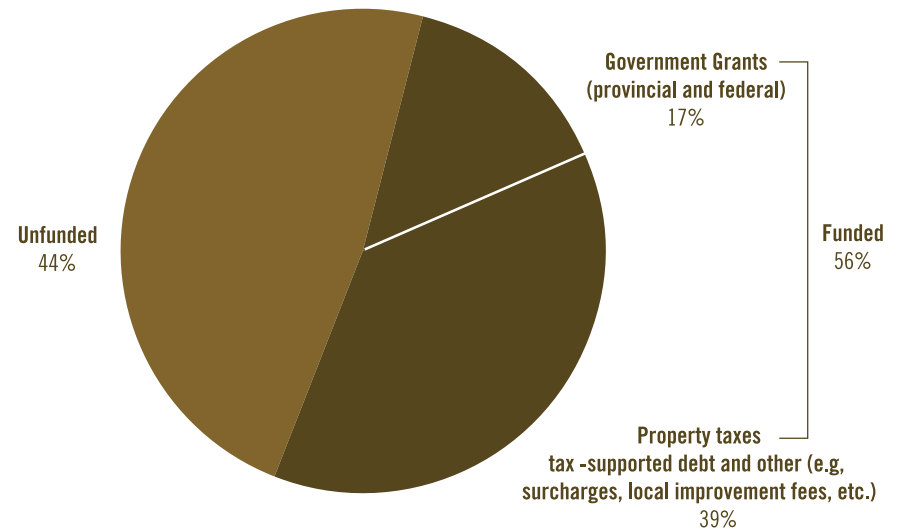
All these issues make infrastructure management an increasingly difficult task. Responding effectively requires a strategic approach, one that bridges the space between policy, as determined by City Council, and service delivery, as performed by the Administration. Edmonton City Council’s Infrastructure Strategy helps to provide that bridge and includes action to support the implementation of new policies and practices that will support long-term municipal sustainability.

### The financial ‘big picture’

In 1998, the City’s Long Range Financial Plan (LRFP) identified an ‘infrastructure gap’– the total capital infrastructure investment required over a ten-year period compared to available revenues – that exceeded the City’s ability to bridge existing revenue sources and management practices.

City Council adopted Edmonton’s first Infrastructure Strategy in 1998 as a strategic response to the widening disparity between necessary infrastructure investment and available funding.

**Figure 4:** 2006-2015 Long Range Financial Plan and the infrastructure gap



NOTE: For more information about federal and provincial contributions to infrastructure spending, see “Help from the other orders of government,” beginning on the following page.

Though there is no single solution that will alleviate Edmonton's infrastructure challenges, persistence is crucial as the City explores suitable revenue sources and more cost-effective approaches to manage the infrastructure gap.

### · Thinking Outside the Gap:

#### **Opportunities to Address Edmonton's Infrastructure Needs.**

Report of the Office of Infrastructure, City of Edmonton, December 2004.

The 2006-2015 LRFP identifies total capital spending of \$8.6 billion. Of that total, nearly 56 percent or \$4.8 billion is 'funded'; that is, the City has identified revenue from taxes, grants and user fees to pay for projects with this value. The corresponding 'unfunded' portion of the LRFP, which is the value of the infrastructure gap, is approximately \$3.8 billion.

Of the \$3.8 billion unfunded infrastructure gap, nearly \$1.7 billion (44 percent) is required to rehabilitate existing infrastructure, \$2.1 billion (55 percent) is required to fund growth projects, and the remaining \$30 million (one percent) for other projects.

This persistent capital funding shortfall means that the City has been deferring maintenance on existing infrastructure assets and delaying the construction of new assets, even though

delays are costly, because it simply does not have enough revenue to meet identified needs.

Municipal infrastructure experts recommend that municipalities commit between two and four percent of their total infrastructure asset value each year to rehabilitation. For Edmonton, with assets valued at slightly more than \$20 billion, this benchmark would translate to an annual reinvestment of between \$400 and \$800 million to rehabilitate existing infrastructure. Over the next 10 years, however, the City has the capacity to spend only about \$260 million annually for rehabilitation and replacement – slightly more than one per cent of the asset replacement value and significantly below the recommended two to four percent. The longer that required rehabilitation is deferred, the more expensive it becomes to bring assets back to an acceptable condition.



Current reinvestment rates cannot preserve the City's \$20 billion investment in existing infrastructure in its current condition, nor can current budgets keep pace with Edmonton's requirements and projected growth.

#### **Help from the other orders of government**

Municipal revenues, which are overly reliant on property taxes, cannot preserve existing infrastructure or sustain growth projections. Chronic underfunding creates a backlog of deferred capital projects and impairs the

City's ability to maintain current service levels. These combine to reduce our ability to support growth and economic development.

Over the next decade, Edmonton will receive roughly \$1.5 billion in combined commitments from the federal and provincial governments. The federal government agreed in 2004 to refund the GST to municipalities and to share a percentage of the federal gasoline tax. In 2005, the provincial government committed \$3 billion in new infrastructure funding to Alberta municipalities shared on a per capita basis, which means that Edmonton's eventual share will depend on census data.



Municipalities continue to face financial pressure to repair or replace existing infrastructure. Some municipal property tax assessment bases are declining while other municipalities face rapid growth pressures. Municipalities continue to indicate that current funding levels and revenue sources may not be adequate to meet service or infrastructure demands.

**· Alberta Municipal Affairs Business Plan 2004-2007.**

This new funding enables City Council to pursue projects that would otherwise have been indefinitely deferred, such as the 23rd Avenue/Gateway Boulevard interchange, the southern extension of the LRT to Century Park, bus rapid transit, neighbourhood infrastructure, flood prevention and new emergency facilities.

The importance of this new funding cannot be overstated; at the same time, it cannot be denied that Edmonton still has a significant shortfall. Edmonton continues to face a delicate balancing act – it must maintain

and replace existing infrastructure while dealing with increased demands to support growth, and that means marrying new fiscal goals with improved infrastructure asset management.

**Edmonton’s strategic approach**

Comprised of six principal strategies and nine supportive strategies, the City’s first Infrastructure Strategy was intended to ensure that:

- municipal infrastructure is in a good state of repair;
- rehabilitation and development programs were adequately funded; and
- the difference between capital requirements and available funding – the infrastructure gap – is addressed.

A key component of Edmonton’s Infrastructure Strategy was the creation in 2000 of the Office of Infrastructure. Over the past five years, the Office has:

- created and maintained a comprehensive inventory of the City’s of infrastructure assets;
- coordinated regular updates of the City’s inventory and investment needs to City Council every two years;

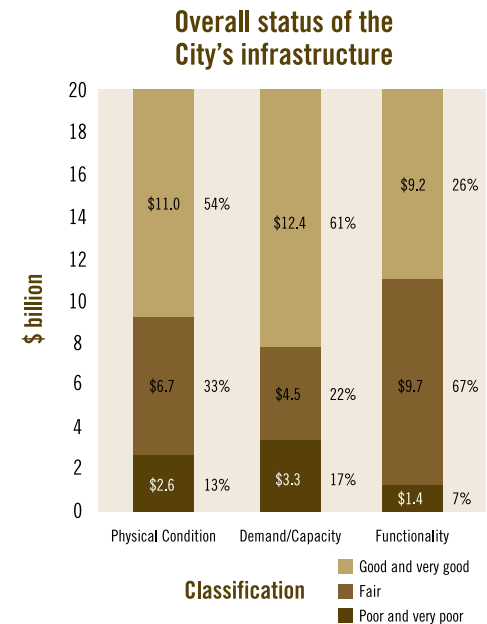
- developed and implemented strategies to address the infrastructure gap;
- coordinated the infrastructure funds received from federal and provincial programs.

To make sure that limited capital resources are wisely invested, Edmonton has developed or is in the process of developing a variety of innovative infrastructure asset management tools that include:

- a ranking system to evaluate the state and condition of existing infrastructure assets of all classes;
- a risk assessment methodology to quantify the risk of asset failure and relate this risk to investment levels, and
- a life cycle cost methodology to support better decision-making and long-term planning.

Over the past five years the City has seen greater integration of its infrastructure management, budget, and planning processes. This integration better enables the City to prioritize infrastructure investment to match citizen demands and program needs. The Office of Infrastructure helps City departments define the costs associated with asset maintenance,

**Figure 5: Status of Edmonton’s infrastructure assets**



rehabilitation and construction. As a result, the City will be able to more accurately predict its budget requirements in both the short- and long-term.

The potential costs of failing to address the [infrastructure] issue include higher operating costs for government and business, negative impacts on the environment, threats to public health and safety as well as other social costs, lost economic potential and productivity, and most important, the prospect of even higher capital costs in the future. Clearly, the issue is one that needs to be addressed. Given the potential magnitude of the problem and the costs of failing to act, this is no time to be timid.

**· No Time to Be Timid: Addressing Infrastructure Deficits in the Western Big Six.**

Canada West Foundation, February 2004.

Edmonton has adopted other measures to help deal with its infrastructure challenges. The Sanitary Servicing Strategy Fund, a partnership forged between the City and developers in 1998, collects fees from developers through charges applied to new neighbourhoods and developments. The fund finances the construction of major sanitary sewers and makes it possible for development in new communities to proceed.

Arterial Roadway Assessments is another tool used by the City to pay for road infrastructure associated with a growing city. These assessments require that developers pay for the first half of an arterial roadway located within a predetermined area.

It should also be recognized, however, that even though the initial capital investment is paid elsewhere; there are life cycle operation, maintenance, rehabilitation and replacement costs that need to be addressed when the City assumes ownership of these assets.

In 2002 City Council amended the Debt Management Fiscal Policy to permit borrowing of up to \$50 million every year over five years to fund large-scale, high-priority infrastructure projects.

The City also converted land drainage to a utility in 2003, enabling the drainage network to become a self-supporting, user-pay system independent of property taxes.



Edmonton's strategic approach to infrastructure asset management has led to its international recognition as one of North America's most progressive jurisdictions by such authorities as the Institute of Public Works Engineering Australia; the Federal Highway Administration; the American Association of State Highway and Transportation Officials; Canadian Public Works Association; Canadian Society of Civil Engineers; Transport, Infrastructure and Communities Canada; and the Federation of Canadian Municipalities.

The City of Edmonton has also been approached by many municipalities across Canada, the United States and Australia who wish to learn more about its innovative approach to infrastructure asset management.

The Office of Infrastructure has greatly enhanced the City's awareness and understanding of the infrastructure challenge it faces. With the adoption of the new Infrastructure Strategy, City Council has shifted Edmonton's focus from 'defining the problem' to 'developing solutions.'

# Developing solutions

The Office of Infrastructure has worked with City Council, senior managers, administrative staff and external stakeholders over the past two years to revise the Infrastructure Strategy. Three fundamental sustainability objectives have emerged out of these consultations.

1. Balance the allocation of available resources between rehabilitation and growth.
2. Increase operations and maintenance, rehabilitation and replacement funding to correspond to new assets added to the inventory.
3. Address the backlog of deferred rehabilitation projects.

Each of these objectives depends on the availability of adequate and sustainable funding.

Edmonton City Council's Infrastructure Strategy provides the direction to address these objectives and to support long-term infrastructure investment and reinvestment strategies that will maintain the City's assets into the future.



In addition, the Strategy also commits the City to develop new tools that further enhance the infrastructure management system across the corporation. The Strategy supports continued collaboration among technical planners – those who propose, design and build infrastructure assets – and financial decision-makers.

Given that sound infrastructure is essential to support any community's goals for growth, economic development, and public safety, our ability to build and properly maintain our infrastructure is essential to ensure Edmonton remains an attractive and cost-effective place to live and do business.



## Edmonton's leadership and innovation

Edmonton is one of the first cities in Canada to have captured a comprehensive inventory of its infrastructure assets and to have implemented a ranking system to evaluate the state and condition of existing infrastructure assets. Both the Federation of Canadian Municipalities and the Alberta Urban Municipalities Association are encouraging their members to develop an infrastructure asset inventory and rating system.

**Physical condition:** The condition of an asset that enables it to meet intended service levels (e.g. the integrity of a drainage system).

**Demand/capacity:** The capacity of an infrastructure element to meet service requirements (e.g. the ability of a particular road to handle traffic flow).

**Functionality:** The ability of an infrastructure element to meet program delivery requirements (e.g. whether or not a recreation facility meets user expectations).

The ranking system helps City Council and the Administration to compare the condition of disparate infrastructure elements – roads to drainage or parks to information systems – and improves the quality of information used to make more informed decisions and establish priority projects.

# Edmonton City Council's Infrastructure Strategy



Edmonton City Council's Infrastructure Strategy articulates City Council's commitment to develop and maintain the City's infrastructure assets, which support the delivery of programs and services to citizens.

The Strategy was first developed in response to a growing understanding of the City's infrastructure gap.

Advanced management techniques, many of which have been developed in Edmonton and attracted international attention, help City Council make more informed decisions and use scarce resources more effectively to address challenging infrastructure demands.

More effective infrastructure asset management will help the City to provide cost-effective municipal services, promote economic development, ensure citizen health and safety, protect the environment, and support a high quality of life for all Edmontonians.

## Council's Vision

Sustainable infrastructure, maintained through sound financial policies and asset management practices, will contribute to the vibrancy of the City's economy; the vitality of its neighbourhoods; safety of its citizens; protection of the environment; and its capacity to accommodate growth.

## Administration's Mandate

To ensure that programs to renew, upgrade and expand infrastructure assets are sustainable and support the City of Edmonton's plans and priorities.

## Guiding Principles

1. Infrastructure assets should be socially, environmentally, and economically sustainable.
2. Infrastructure assets are critical to economic development and quality of life.
3. Infrastructure programs should support the values and objectives contained in plans and priorities approved by City Council.
4. Infrastructure is a capital investment and must be responsibly managed.
5. Infrastructure assets must be maintained in a condition that enables them to perform their intended functions.
6. Infrastructure asset management will help the City to balance renewal, upgrading and expansion programs.

## Goals

Three primary goals were developed to support the implementation of Edmonton City Council's Infrastructure Strategy.

### Goal 1: Define needs

Evaluate and report the state of infrastructure assets.

Key action items

- 1.1 Maintain an asset inventory, valuation and condition rating system for all municipal infrastructure.
- 1.2 Determine the current and projected use of infrastructure assets and related costs.
- 1.3 Develop a process to evaluate levels of service.
- 1.4 Report infrastructure performance in the meeting of broader social, environmental and economic objectives of the City.
- 1.5 Communicate to the public the scope, value and importance of investment in infrastructure.

### Goal 2: Develop solutions

Implement sustainable infrastructure asset management practices.

Key action items

- 2.1 Develop and apply evaluation tools that enhance corporate policies and support infrastructure investment decisions.
- 2.2 Evaluate approaches to sustainable service delivery.
- 2.3 Develop a long-term financial strategy to support investment in existing and new infrastructure – operations and maintenance; renewal, upgrading and expansion.
- 2.4 Encourage the balanced allocation of limited infrastructure resources.
- 2.5 Research infrastructure management and service delivery best practices.



### Goal 3: Secure funding

Ensure adequate fiscal tools and resources to fund infrastructure assets.

Key action items

- 3.1 Pursue alternative sources of revenue.
- 3.2 Review shared service delivery and cost/revenue-sharing mechanisms within the Capital region.
- 3.3 Encourage effective coordination with other service providers (power and water, cable, school boards, etc.).
- 3.4 Collaborate on key investments by other orders of government, institutional stakeholders (University of Alberta, Grant MacEwan, NAIT, Capital Health Authority, etc.), the development industry and non-governmental organizations.

# Long-Term Tactics and Activities

The tactics/activities and their anticipated outcomes associated with the Goals of the Infrastructure Strategy 2006 are described in the following section and are to be undertaken by the Administration as a whole.

## Goal 1: Define needs: Evaluate and report the state of infrastructure assets

KEY ACTION ITEMS	TACTICS AND ACTIVITIES	OUTCOMES
<b>1.1 Maintain an inventory, valuation and condition rating system for municipal infrastructure.</b>	<ul style="list-style-type: none"> <li>· Acquire buy-in from necessary partners.</li> <li>· Involve departments in development and application of inventory and rating system.</li> <li>· Establish a process to maintain, update and report inventory annually.</li> <li>· Address the basic elements of asset management.</li> </ul>	A quality infrastructure asset management inventory that will provide decision-makers with accurate and detailed information about the state and condition of infrastructure assets.
<b>1.2 Determine the current and projected use of infrastructure assets and related costs.</b>	<ul style="list-style-type: none"> <li>· Analyze growth scenarios.</li> <li>· Assess and project future infrastructure needs.</li> </ul>	Current and projected use of infrastructure that will facilitate planning for future investment and reinvestment in infrastructure.
<b>1.3 Develop a process to evaluate levels of service.</b>	<ul style="list-style-type: none"> <li>· Identify current service levels.</li> <li>· Link service levels and delivery costs to infrastructure requirements.</li> <li>· Review and confirm service levels with citizens and City Council.</li> <li>· Develop system of implementing and applying levels of service.</li> </ul>	Service levels that produce sustainable infrastructure and meet citizens' needs.
<b>1.4 Report infrastructure performance in the meeting of broader social, economic and environmental objectives of the City.</b>	<ul style="list-style-type: none"> <li>· Determine criteria and establish performance indicators.</li> <li>· Measure performance.</li> <li>· Estimate social, economic and environmental implications of infrastructure.</li> <li>· Benchmark performance with other municipalities.</li> </ul>	Indicators that measure performance of infrastructure assets in support of City's plans and priorities.
<b>1.5 Communicate to the public the scope, value and importance of investment in infrastructure.</b>	<ul style="list-style-type: none"> <li>· Coordinate a unified corporate voice.</li> <li>· Develop and implement an infrastructure communications plan.</li> <li>· Provide the public with an opportunity to provide feedback.</li> </ul>	Increased public awareness and support of the City's infrastructure needs.

**Goal 2:** Develop solutions: Implement sustainable infrastructure asset management practices

KEY ACTION ITEMS	TACTICS AND ACTIVITIES	OUTCOMES
<p><b>2.1 Develop and apply evaluation tools that enhance corporate policies and support infrastructure investment decisions.</b></p>	<ul style="list-style-type: none"> <li>· Involve departments in development and application of evaluation tools.</li> <li>· Acquire buy-in from departments and senior management.</li> <li>· Apply tools such as life cycle costing, risk assessment, return on investment, and business case models.</li> <li>· Promote consistent corporate-wide use of tools.</li> <li>· Conduct training sessions on use and applicability of tools.</li> <li>· Provide a liaison to support departments in the use of tools.</li> </ul>	<ul style="list-style-type: none"> <li>· Innovative evaluation tools that facilitate informed infrastructure management decision-making.</li> <li>· Techniques that quantify social, economic and environmental impacts.</li> </ul>
<p><b>2.2 Evaluate approaches to sustainable service delivery.</b></p>	<ul style="list-style-type: none"> <li>· Identify and evaluate methods of service delivery.</li> <li>· Assess feasibility of implementing best practices in the City of Edmonton.</li> <li>· Report findings and make recommendations.</li> <li>· Facilitate department information and resource sharing.</li> <li>· Explore methods to increase interdepartmental synergy.</li> </ul>	<ul style="list-style-type: none"> <li>· Recommendations to improve service delivery.</li> <li>· Stronger working relationship between departments for effective infrastructure management.</li> </ul>
<p><b>2.3 Develop a long-term financial strategy to support investment in existing and new infrastructure – operations and maintenance; renewal, upgrading and expansion.</b></p>	<ul style="list-style-type: none"> <li>· Determine long-term infrastructure investment and reinvestment needs.</li> <li>· Determine current and potential sources of revenue.</li> <li>· Develop a sustainable long-term corporate financial strategy for infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>· Strategy that will identify measures to ensure sustainable long-term investment in infrastructure.</li> </ul>
<p><b>2.4 Encourage the balanced allocation of limited infrastructure resources.</b></p>	<ul style="list-style-type: none"> <li>· Determine renewal, upgrading and expansion needs.</li> <li>· Determine implications on levels of service.</li> <li>· Determine criteria for balanced allocation of resources.</li> <li>· Identify investment priorities.</li> </ul>	<ul style="list-style-type: none"> <li>· Guidelines for a balanced allocation of resources.</li> </ul>
<p><b>2.5 Research infrastructure management and service delivery best practices.</b></p>	<ul style="list-style-type: none"> <li>· Participate in provincial, national and international organizations.</li> <li>· Develop alliances with other municipalities.</li> <li>· Network with research institutes and other government agencies.</li> <li>· Establish Edmonton as a credible authority on infrastructure issues.</li> </ul>	<ul style="list-style-type: none"> <li>· Adoption of best practices and new technologies for better infrastructure management.</li> </ul>

**Goal 3:** Secure funding: Ensure adequate fiscal tools and resources to fund infrastructure assets

KEY ACTION ITEMS	TACTICS AND ACTIVITIES	OUTCOMES
<p><b>3.1 Pursue alternative sources of revenue.</b></p>	<ul style="list-style-type: none"> <li>· Identify and evaluate appropriateness of potential revenue generating options.</li> <li>· Evaluate and monitor the use of debt.</li> <li>· Clarify roles and responsibilities – and associated resource requirements – with the other orders of government.</li> <li>· Pursue legislative change to grant municipalities the flexibility to generate new revenue sources.</li> </ul>	<ul style="list-style-type: none"> <li>· Recommendations for viable alternative sources of revenue.</li> <li>· Equitable positions among all orders of government to share costs of infrastructure.</li> <li>· Increased municipal capacity to invest in infrastructure.</li> </ul>
<p><b>3.2 Review shared service delivery and cost/revenue-sharing mechanisms within the Capital region.</b></p>	<ul style="list-style-type: none"> <li>· Develop alliances in the Capital region to benefit from shared services and best practices.</li> <li>· Establish inter-municipal committee to share best practices among municipalities and assess benefits of shared services arrangements in the Capital region.</li> <li>· Implement shared service initiatives, as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>· Defined responsibilities within the Capital region that can be shared and mutually beneficial.</li> </ul>
<p><b>3.3 Encourage effective coordination with other service providers (power and water, cable, school boards, etc.).</b></p>	<ul style="list-style-type: none"> <li>· Network with other infrastructure/service providers.</li> <li>· Develop mechanisms for a coordinated approach with other providers of infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>· Cooperation among other infrastructure/service providers to optimize infrastructure investment.</li> </ul>
<p><b>3.4 Collaborate on key investments by other orders of government, institutional stakeholders (University of Alberta, Grant MacEwan, NAIT, Capital Health Authority, etc.), the development industry and nongovernmental organizations.</b></p>	<ul style="list-style-type: none"> <li>· Identify key investments in the City.</li> <li>· Explore opportunities for collaboration.</li> </ul>	<ul style="list-style-type: none"> <li>· Collaboration with external stakeholders to optimize infrastructure investment opportunities.</li> </ul>



## Appendix A: Infrastructure asset management definitions



**Asset:** A useful or valuable resource with the intended purpose of providing a benefit or service.

**Asset management:** An integrated approach involving planning, engineering and finance to effectively manage existing and new municipal infrastructure to maximize benefits, reduce risk and provide satisfactory levels of service to local users and citizens.

**Best practices:** State-of-the-art methodologies or technologies for municipal infrastructure planning, design, construction, management, assessment, maintenance and

rehabilitation that consider local economic, environmental and social factors.

**Contributed Assets:** Assets that have been constructed and funded by developers or other partners and upon completion transferred to city ownership.

**Expansion:** Investment in new assets designed to extend the similar standard and type of service to a greater number of users, e.g., extending a drainage or road network.

**Infrastructure:** The physical assets developed and used by a municipality to support its

social and economic activities. The City of Edmonton's infrastructure inventory includes such diverse assets as drainage, roads and right-of-way infrastructure, parks and green spaces, buildings, fleet vehicles, LRT and transit facilities, buildings, traffic control infrastructure, recreation facilities, computer networks, affordable housing and library resources.

**Infrastructure gap:** The difference between the capital needs and financing capabilities.

**Level of service:** A composite indicator that reflects the social and economic goals of the community and may include any of the following parameters: safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost and availability.

**Life cycle costing:** A method of expressing costs in which both capital costs and operations and maintenance costs are considered over the expected service life of an asset.

**Maintenance:** The set of activities required to keep a component, system, infrastructure asset or facility functioning as it was originally designed and constructed. Maintenance refers to all actions necessary for retaining an asset as near as possible to its original condition, including repair but excluding renewal (rehabilitation or replacement).

- **Repair:** The action of restoring a component, system, infrastructure asset, or facility to its former condition after failure or damage. Repairs do not extend asset life or expand capacity and do not increase or improve functionality.

**Operations:** The set of on-going activities and expenses that allow the use of an asset for its intended function. Operations refer to the use of an asset that consumes resources such as manpower, energy, chemicals and materials.

- **Operations (Asset):** The set of on-going activities that allow the use of the asset for its intended function.

- **Operations (Service delivery):** The set of activities and resources required to deliver the service or program related to the use of the infrastructure asset.

**Renewal:** Investment in existing infrastructure to restore to its former condition and may extend its service life, which may include replacement of individual components as they age or become obsolete. Capital investment in renewal extends the period of service potential but does not change the replacement value, and so does not increase the size of the infrastructure asset portfolio.

- **Rehabilitation:** The action of restoring a component, system, infrastructure asset, or facility to a former condition or status.

- **Replacement:** The action of replacing a component, system, infrastructure asset or facility.

**Replacement value:** The cost of total replacement of an existing asset in today's dollars.

**Upgrade:** Investment in added or enhanced components to existing infrastructure assets designed to improve the type of service provided to existing ratepayers. Upgrading generally prolongs the asset's service life or improves its functionality, and may sometimes be the result of building code changes, new regulations, adjusted service levels, or technology improvements.

**User-pay:** Fees charged specifically to the users of a service based on the user's consumption of or reliance on the service.

**Utility:** A service that operates on a self-supporting and cost-recovery basis.



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