Data, Analytics & Information Access

Led by: Collaboration, Analytics & Innovation

Description

Data, Analytics & Information Access (DA&IA) provides Geographic Information System (GIS) platforms, Imagery, intellectual property management, innovation training and consulting services, Computer-Aided Design and Drafting (CADD) platforms, asset drafting, base maps, addressing and open data hubs for administration, council and citizens.
We connect customers with accurate, consistent location intelligence data and analytics. We also support emergency response and recovery under the Municipal Emergency Plan, 911 dispatch routing and mapping, open data, advanced analytics and engineering design, to enable more proactive data-driven decisions, improved services, reduced cost and time saved.

Value and benefits

Customers need authoritative sources for reliable and accessible City data, analytics, maps, drawings and open data, to enable transparency in how The City makes informed decisions. Innovation tools and methodologies create a nimble organizational culture with a willingness to experiment, fail and iterate to increase the value and effectiveness of services to modernize government, meet citizens' expectations, and build trust in municipal government. CADD, GIS, and data analytics provide the foundations for accessing and analyzing information in a spatial context relevant to City services such as catchment areas, ward boundaries, demographics, service requests, and infrastructure assets. In addition, CADD and GIS tools are available to support city operations such as routing city crews, mobile data collection, asset design and construction, asset management, and emergency management.

Customers

Addressing, mapping, imagery, data and information users such as City services, Federal and Provincial Government Agencies, Energy and Telecommunications Utilities, School Boards, Civic Partners and Related Authorities, Businesses, Post-Secondary Institutions, Professional Institutions and Associations, Not for Profits, and the General Public.

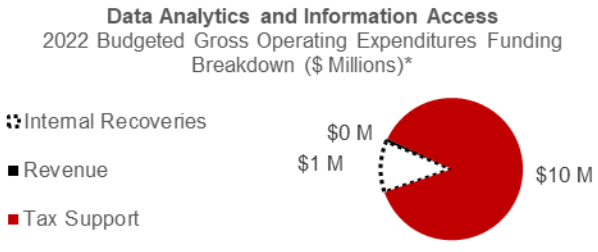
What we deliver

Data, information, products/services, including the data.calgary.ca portal, eCommerce solutions, design, construction & record drawings, base maps and addresses, CAD standards, dashboards, map gallery, vehicle routing, imagery and LiDAR derived products, 3D models, advanced analytics, scanning and content management, GIS location intelligence, maps.calgary.ca gallery, innovation tools & training.

Partners

IT, Supply Management, Law, Customer Service & Communications, Operational Services, Community Services, Infrastructure Services, Planning & Development, CEMA, University of Calgary, SAIT, Mount Royal University, Calgary Housing, ENMAX, Calgary Airport Authority, Calgary Police Service, Municipal Emergency Partners, Downtown Strategy, Platform Calgary, Calgary Economic Development.

27,193	New addresses created
493	City staff trained in Innovation tools
6,384,275	Number of infrastructure files shared
163	GIS technology projects requested



** Gross operating budget may include internal recoveries that are also included in other services' gross operating cost.*

Note: Internal recoveries is how The City accounts for the costs of goods or services between services

Key assets

Geospatial data, design and as-built CAD drawings, Historical aerial photo library, LiDAR and derived imagery products, ETL Processes, data.calgary.ca, City Online, Cognitive Computing Environment, myCityInnovation, GIS platform/products, CAD Standards/framework, Calgary Automated Survey Plan Evaluation & Reporting

What we have heard & what we are watching

What we have heard

Global trends indicate that Data Analytics and Data Governance are increasingly important for cities to remain competitive. Open data and transparency are increasingly important for municipal governments to build and maintain trust with citizens.

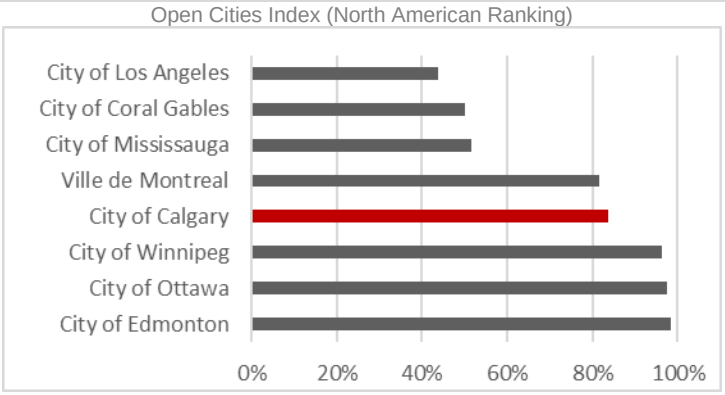
Customers value the availability and accessibility of data to optimize their operations and find innovative ways of doing business. They also value data quality and responsive service, enabling them to make more informed decisions. Based on interactions with customers, it is known that they value the ability to customize service offerings for their unique needs.

What Council has directed

This service aligns with and supports the Information Management & Security Policy, Open Data Strategy, Digital Strategy, and GIS Roadmap. Climate resilience: This service helps ensure the water utility's asset data is maintained and accurate, supports flood mitigation, and models Calgary's watershed, floodway/fringe and the solar potential of buildings. Economic resilience: This service promotes data-informed decision-making, sharing of data, research and expertise across the corporation—collaboration and connection to help customers eliminate service silos and simplify the process to be more cost-effective. Quality data, products and services through channels such as CITYonline, Calgary.ca and the Open Data portal also support Calgary businesses. Social resilience: Geospatial analytics, routing, and 911 dispatch mapping support The City's front-line service providers to ensure public spaces are safe, vibrant, and support efficient transportation of people and goods across the city

What we are watching

Local Governments are experiencing a digital shift to using data and AI technology to increase efficiency and deliver value as they evolve to meet the needs of citizens, the economy, and the environment. However, many of these new technologies and data have yet to be fully leveraged for strategic planning and City operations. Modernizing and ensuring an equitable approach to human centered service design and delivery is necessary, supported by innovation tools & methodologies. In addition, population growth will increase demand for services, products and infrastructure. Public access to authoritative data and transparency of City operations is an ongoing trend that builds trust, allowing further connections and innovative uses of City data. It promotes data mining, location intelligence, 3D visualization and virtual/augmented reality. These insights enable The City to make smarter investments in infrastructure, and develop services that better meet the evolving needs of Calgarians.



Benchmarking study for municipal open data programs by PSD Citywide

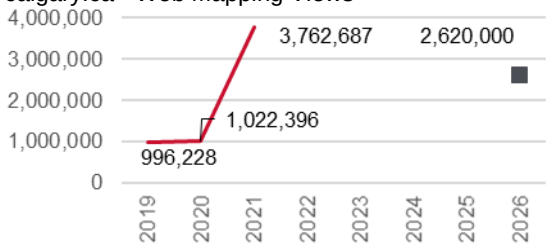
Comparing our service

With open access to public sector data becoming increasingly important through legislation and public demand, the bi-annual Open Cities Index provides a way for local governments to measure the maturity and performance of their open data programs and initiatives, while providing insights on how to improve. Compared against other North America municipalities, Calgary's overall index ranking retained fourth place in 2020 with a score of 83.7%. This was well above national average score of 56.6% for 2020.

Measuring performance & where we want to go

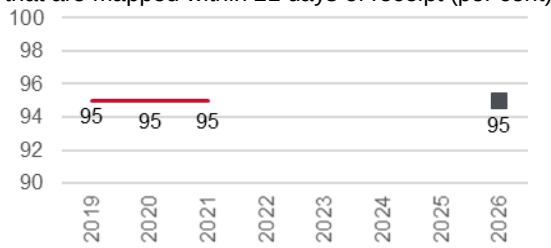
Actuals ■ Expected Future Performance

PM1: Annual number of mapping product views on calgary.ca - Web Mapping Views

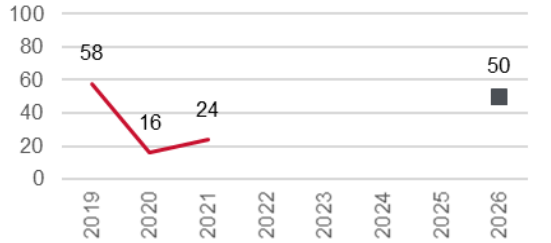


PM2: Number of City employees accessing GIS data and mapping products - GIS Technology Adoption

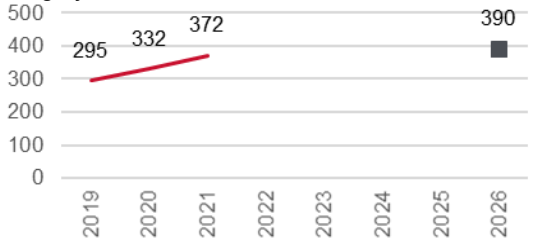
PM3: Base Map Updates - registered survey plans that are mapped within 21 days of receipt (per cent)



PM4: Addressing Updates - external addressing service requests resolved within 10 days of receipt (per cent)



PM5: Number of open data sets available on Open Calgary Portal



Story behind the curve

Mapping information and products on calgary.ca are integrated to source data and updated in near real-time, and demand will continue to grow over the next four years as business units incorporate more location intelligence and mapping into citizen facing content. Continued growth in the demand is anticipated for mapping data and location analytics by Calgarians and businesses who go to Calgary.ca for city services, events and facilities information. As the population of the city increases more Calgarians want location based information that will help them stay connected to The City.

City business units use GIS data and mapping products extensively in their service delivery to citizens by adding location intelligence to everyday business decision making. Location intelligence is a growing requirement of service delivery. Our plan is to continue to improve GIS portals and make access easier for users. We anticipate that the number of customers will increase annually throughout the business cycle.

This measures the service level (in terms of turnaround time) to our clients. Performance for 2023–2026 is expected to remain at or above 95%. There may be complex cases that go beyond the 21 days.

This measures the service level (in terms of turnaround time) to our clients and citizens. Our 2023–2026 expected future performance is lower, due to a combination of significantly increased demand and reduced budgets, which has negatively impacted this performance measure. We are examining process improvements to increase the turnaround on these requests.

In support of City transparency, data utilization and innovation, the Open Data program releases City of Calgary data to the public for use by anyone. The number of datasets indicates transparency by openly publishing City related data.

What we plan to do

Result for 2023-2026

The DA&IA service focuses on connecting customers with data, analytics, tools, dashboards, visualizations, innovation practices and transformative technology solutions, to enable informed decision-making and supports collaboration, to improve City services for citizens, businesses, and city staff.

How we are going to get there

Create, manage and provide corporate-wide geospatial technology, data and analytics that are reliable, secure and accessible for customers and Calgarians.

Provide City operational groups with tools and analytics to deliver their services more efficiently and providing them greater insight into strategic decision making.

Promote and expand the use of location-based tools and data by customers and Calgarians to enable self-service and open access to geospatial information.

Develop and support the Corporation’s advanced analytics practice, providing guidance, sharing best practices and developing corporate data analytics and governance solutions.

Support information access by creating a corporate infrastructure and business process for automated inbound and outbound transfers of information regarding critical City infrastructure assets (Gas. Electric, Telecommunications, Water, Sewer).

Provide professional learning opportunities and consulting to build City employee's innovation capacity and continue to partner on cross-corporate innovation projects with business units, to nurture a culture of innovation and human-centered design & prototyping, supporting the development of the next generation of civic services to Calgarians.

Increase the number of data sets available in the Open Data Catalogue and promote easy self-serve access to City data for Calgarians, businesses, researchers and educational institutions.

Modernize eCommerce across the Corporation through standardization of commerce transaction processes, a rationalization of technologies, improved data insights, and improved customer experiences.

Standardize Computer-Aided Design and Drafting (CAD) data and practices by maintaining, updating and expanding The City CAD Standard and make it easily assessable to all customers. Further ensure the use of vendor supported versions of CAD software by managing CAD software licenses and users. Develop an on-demand Engineering Block Profile tool to make the creation of Profiles more efficient.

Centralize the storage and lifecycle of construction drawings by creating a Construction Drawings Repository (CDR) to store, organize and enable accessibility to City CAD drawings, and pilot the electronic submission of construction drawings initiative to align with the CDR.

Transition data maintenance from CAD to GIS environments where permissible, to create more robust attribute rich data that allows for analysis and informed decision making. Support clients with the transition of data and processes between CAD and GIS technology platforms.

Enhance base map and addressing management, stability, quality, and efficiency by transitioning data maintenance processes to modern 3D mapping environments. This modern 3D base mapping product will be the fabric upon which the City's digital twin is created and maintained, allowing for greater accuracy in simulations, and better engagement of citizens in envisioning the future of Calgary's urban form.

Operating budget needed to achieve results

For Council Approval

Breakdown of net operating budget ($000s)

	2023		2024		2025		2026	
	Base	One-time	Base	One-time	Base	One-time	Base	One-time
Previous Year's Net Budget	9,205		13,317		13,427		13,441	
Previously approved One-time budget		-		-		-		-
2022 One-time carry forward		-		-		-		-
Revenue Changes	-	-	-	-	-	-	-	-
Internal Recoveries Changes	(625)	-	-	-	-	-	-	-
Inflation	9	-	13	-	14	-	13	-
Operating Impact of Previously Approved Capital	-	-	-	-	-	-	-	-
Operating Impact of New Capital (Incremental)	-	-	-	-	-	-	-	-
Service Reductions	-	-	-	-	-	-	-	-
Service Increases	1,753	-	97	-	-	-	-	-
Transfers (to)/from services	2,976	-	-	-	-	-	-	-
Total net budget*	13,317	-	13,427	-	13,441	-	13,454	-

*The previous year's One-Time Budget is not carried forward to the following year.

Total Operating Budget ($000s) for Approval

	2022 Budget	2023			2024			2025			2026		
	At April 30	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total
Expenditures	11,121	21,577	-	21,577	21,687	-	21,687	21,701	-	21,701	21,714	-	21,714
Recoveries	(1,298)	(7,621)	-	(7,621)	(7,621)	-	(7,621)	(7,621)	-	(7,621)	(7,621)	-	(7,621)
Revenue	(68)	(640)	-	(640)	(640)	-	(640)	(640)	-	(640)	(640)	-	(640)
Net	9,754	13,317	-	13,317	13,427	-	13,427	13,441	-	13,441	13,454	-	13,454
Base	9,205												
One-Time	549												

Capital budget needed to deliver service

For Council Approval

Budget ID	Investment Name	2023 Request ($000s)	2024 Request ($000s)	2025 Request ($000s)	2026 Request ($000s)	2027+ Request ($000s)	Total Request ($000s)
Annual Investment Program(s)							
480703	Corporate GIS Upgrades	850	1,150	1,350	1,150	-	4,500
411308	Corporate Imagery Program	435	1,325	1,323	1,752	-	4,836
411350	Business Equipment	40	40	40	30	-	150
Program(s)							
480707	Location Data Modernization	1,325	3,275	2,795	2,835	-	10,230
480708	CAD Technology Modernization	647	1,200	1,300	791	-	3,938
480709	Modernizing Commerce @ City	1,416	1,416	1,506	1,446	-	5,782
Projects(s)							
Sub-Total (New Budget Requests)		4,713	8,406	8,314	8,004	-	29,437
Previously Approved Budget Remaining		-	-	-	-	-	-
Total Capital Investment		4,713	8,406	8,314	8,004	-	29,437

Explanation of capital budget requests

Annual Investment Program(s)

Activity 480703: Corporate GIS Upgrades

Ensure the Graphical Information System (GIS) platform is upgraded & build on significant existing city investments in geospatial technologies used increase resiliency of geospatial data collection, access & information distribution. Reduce customization & risks of disruptive largescale upgrades.

Funding From: Lifecycle Maintenance &Upgrade Reserve $4,500 (thousand)

Contributing Services: None

Operating Impact: None

Activity 411308: Corporate Imagery Program

Deliver aerial imagery data for daily operations and emergency response. Results in efficiency, cost savings and revenue for The City via data sharing. Fulfill the Corporate need to update & deliver accurate aerial imagery information & products, which are critical inputs for business unit operations.

Funding From: Pay-As-You-Go $4,836 (thousand)

Contributing Services: None

Operating Impact: None

Activity 411350: Business Equipment

Replace specialized equipment at the end of their lifespan to ensure these assets are well managed and able to best deliver our services. Replacement of specialized equipment at the end of their lifespan will ensure these assets are well managed and able to best deliver our services.

Funding From: Pay-As-You-Go $150 (thousand)

Contributing Services: None

Operating Impact: None

Program(s)

Activity 480707: Location Data Modernization
Digital transformation of location data and tools ensure The City becomes future ready, agile & able to meet needs of citizens, businesses & employees. Driven by data access & people-centric design this project leverages existing & emerging technologies to meet needs of citizens & City decisionmakers.
Funding From: Pay-As-You-Go $10,230 (thousand)
Contributing Services: None
Operating Impact: None

Activity 480708: CAD Technology Modernization
Modernize and sustain Computer-aided Design (CAD) platform and content management efficiency through updates to dated technologies, processes, source. Updating, integration and automation of CAD platform is essential to our operation and allows for more efficient creation and use of The City's data.
Funding From: Pay-As-You-Go $3,938 (thousand)
Contributing Services: None
Operating Impact: None

Activity 480709: Modernizing Commerce @ City
Common commerce approach with outcomes where users can easily find what they need, pay for what they need, and access goods and services they need. The program will strengthen the connection with citizens, allowing The City to respond to their needs through improved analytics and communications.
Funding From: Pay-As-You-Go $5,782 (thousand)
Contributing Services: Financial Support, IT Solutions, Citizen Information & Services
Operating Impact: None