Data, Analytics & Information Access

Led by: Director of Collaboration, Analytics & Innovation

Service 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.
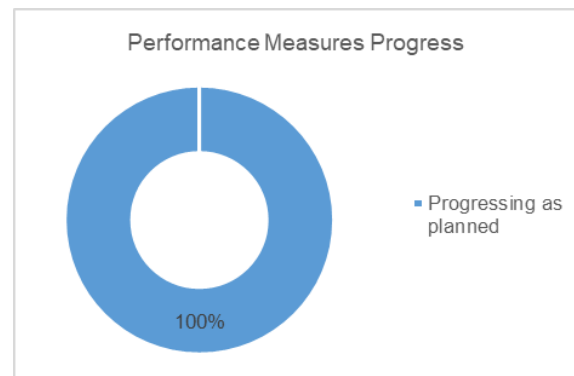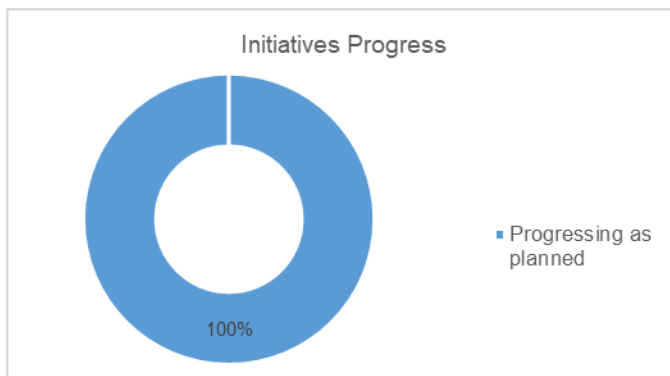
We connect customers with accurate, consistent location intelligence data and analytics. We also support emergency response and recovery under the Municipal Emergency Plan, 911 dispatch routing and mapping, open data, advanced analytics and engineering design, to enable more proactive data-driven decisions, improved services, reduced cost and time saved.

Service Updates

Key service results

Geographic Information Systems (GIS) plays a crucial role at The City of Calgary. It facilitates the collection, management, and analysis of locational data, seamlessly integrating into day-to-day operations, emergency response, and business systems. The ongoing modernization of the GIS platform involves utilizing GIS data portals, ArcGIS Hub, automations, server upgrades, and enhancements to Corporate base maps and GIS applications. These efforts ensure that both the Corporation and Calgarians can leverage new functionalities, reliable data, and secure systems. Additionally, the evaluation of emerging technologies—such as GeoAI, 3D modeling, and expanded building and land data—remains a priority.

Progress summary

Initiatives Progress

- Progressing as planned

100%

Performance Measures Progress

- Progressing as planned

100%

Risk(s) impacting the progress

GIS technology - maintaining current vendor release versions

Measuring Our Performance

Performance Measures	Story behind the numbers	Status

PM 1: Annual number of mapping product views on calgary.ca - Web Mapping Views

Values: 996,228 (2019); 1,022,396 (2020); 3,762,687 (2021); 3,535,510 (2022); 2,239,000 (2023); 2,097,334 (2024 Mid-Year); Expected 2026: 2,620,000
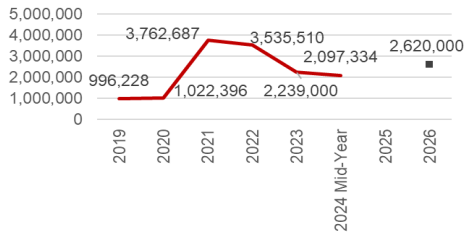
Beginning in 2024, view counts encompassed all publicly accessible maps, including featured mapping products on calgary.ca that utilize feature services managed by Geospatial Business Solutions (GBS). Additionally, views exceeded expectations due to increased viewership of traffic-related maps during weather events.

Status: Progressing as planned →

PM 2: Number of City employees accessing GIS data and mapping products - GIS Technology Adoption

Values: 7210 (2022); 13879 (2023); 5869 (2024 Mid-Year); Expected 2026: 9500
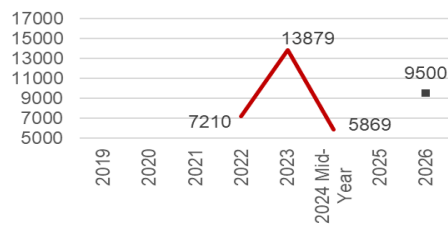
During the first half of this year, there was an increase in the number of users accessing Geographic Information System (GIS) data. It is anticipated that this trend will continue, surpassing the year-end target. This growth can be attributed to the promotion of self-serve employee tools and a broader organizational shift toward leveraging technology for operational efficiencies and data-driven decision-making. This is especially evident in areas that directly support planning services through use of GIS applications including the City-wide rezoning map, Development map (D-Map) and Local Policy Plan maps.

Status: Progressing as planned →

PM 3: Base Map Updates - registered survey plans that are mapped within 21 days of receipt (per cent)

Values: 95 (2019); 95 (2020); 95 (2021); 99 (2022); 96 (2023); 91.8 (2024 Mid-Year); Expected 2026: 95
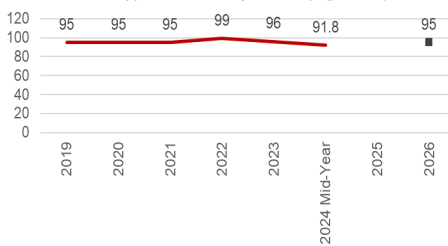
In 2024, the workload for this aspect of our operations remained consistent with the increased workload observed in 2023. Other areas of our operations also experienced heightened activity, including a greater volume of tentative plans, address management, and mapping of building footprints for new construction. However, due to this substantial increase in workload, the base mapping staff faced challenges in maintaining operational efficiency and meeting processing targets.

Status: Progressing as planned →

PM 4: Addressing Updates - external addressing service requests resolved within 10 days of receipt (per cent)

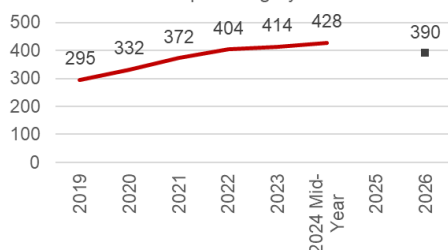Values: 58 (2019); 16 (2020); 24 (2021); 55 (2022); 29 (2023); 16.5 (2024 Mid-Year); Expected 2026: 50
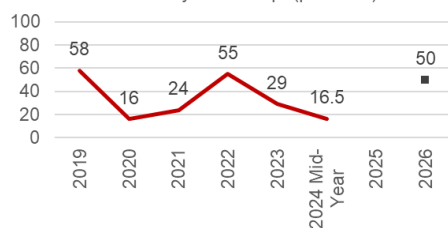
The lower-than-expected performance can be attributed to increased workloads resulting from new developments and redevelopments. Between June 2023 and June 2024, job volume rose by 41 per cent, even more significant considering the record 56 per cent increase in 2023. Additionally, the increase in number of online systems relying on addressing information led to extensive triage for suspected invalid addresses, causing address validation delays.

As a result of these challenges, staffing remains an issue due to the workload surge. Limited-term staffing ensures service continuity.
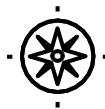
Status: Progressing as planned →

PM 5: Number of open data sets available on Open Calgary Portal

Values: 295 (2019); 332 (2020); 372 (2021); 404 (2022); 414 (2023); 428 (2024 Mid-Year); Expected 2026: 390

The increase in the number of available datasets corresponds to the capacity of our current Open Data Strategist resource. As we expand our team in this area, we anticipate an even larger increase of available datasets.

Status: Progressing as planned →

Progress on Service Delivery

Initiative 1	Impact Area: City-wide	Funding Type: $O $C

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

UPDATE →	The corporate-wide geospatial technology platform, data, applications, and analytics are used across various service lines in the corporation, benefiting businesses, citizens, post-secondary institutes, and government entities for planning and decision making. Notable projects in 2024 include collecting aerial imagery for southern Alberta, upgrading servers, and utilizing drone data from Spyhill Landfill. Additionally, DA&IA has conducted workshops for city employees on best practices for Geographic Information System (GIS) architecture and data management.

Initiative 2	Impact Area: City-wide	Funding Type: $O $C

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

UPDATE →	Provided business units and service lines with new and updated geospatial tools, including preparation and operational support to Calgary Emergency Management Agency (CEMA) and spring run-off season, launch the new Flood Emergency Response Manual (FERM) application, updated data and documentation for emergency activations, 2 updates to dispatch and mobile maps for Calgary Police, Fire and Parking, biweekly updates to Calgary 911 with new Calgary addresses, weekly address updates provided to Alberta Health Service (AHS), worked with CSC to launch new interactive public Greenline map.

Initiative 3	Impact Area: City-wide	Funding Type: $O $C

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.

UPDATE →	Updated city-wide transportation networks to ensure emergency dispatch and publicly available maps have timely, accurate & complete data. Collaborated with neighboring municipalities and universities to share data, knowledge and expertise. Included are MRU, SAIT, UofC, Regional GIS Council, Lethbridge College. Aligned standards with Customer Service & Communications (CSC) and Information Technology (IT). Hosted 3 learning sessions with City summer students, City GIS users & partners to share knowledge and standards and update of the Geospatial Information Hub for employees on an ongoing basis.

Initiative 4	Impact Area: City-wide	Funding Type: $O $C

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

UPDATE →	Collaborated with Climate & Environment (C&E) to develop a corporate tool for monitoring climate and environmental data. This tool helps us track corporate performance, assess committed actions, and monitor community progress toward our goals. Additionally, DA&IA is developing a public-facing dashboard. Moreover, DA&IA has launched the first Artificial Intelligence (AI) Dashboard Assistant in our corporation. This AI provides automated insights into our Community Indicators Dashboard, implemented on 8 metrics and will be expanding to all remaining metrics by year-end.

| Initiative 5	Impact Area: City-wide	Funding Type:

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).			
UPDATE	We will continue to support the City's current data exchange repositories with external partners such as Underground Utility Location and Damage Prevention (USIC), and parcel ownership data for Alberta Government, ENMAX, ROGERS, Telus, and others.		
Initiative 6		**Impact Area: City-wide**	**Funding Type:**
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.			
UPDATE	The Innovation Lab delivers projects, training and collaboration across The City. Current initiatives include implementing two solutions at Village Square Leisure Centre to improve pool safety for Calgarians, with another seven in progress. In addition, five prototypes are being tested in summer 2024 to enhance Calgarians' experience with construction at Mission Bridge. Additionally, 783 City staff have received training to build innovation capacities with 91 per cent reporting an increase in innovation skills and mindsets and 69 per cent feeling more confident to try new things.		
Initiative 7		**Impact Area: City-wide**	**Funding Type:**
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.			
UPDATE	The Open Data portal maintains its existing datasets and explores the possibility of including new datasets by engaging with data stewards to ensure compatibility.		
Initiative 8		**Impact Area: City-wide**	**Funding Type:**
Modernize eCommerce across the Corporation through standardization of commerce transaction processes, a rationalization of technologies, improved data insights, and improved customer experiences.			
UPDATE	The Modernizing eCommerce project is ongoing, focusing on analyzing our current status and exploring opportunities for growth within our current implementation and licensing framework, while also evaluating alternative options as necessary.		
Initiative 9		**Impact Area: City-wide**	**Funding Type:**
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.			
UPDATE	The City's Computer-Aided Design (CAD) Standards and Templates Project has transitioned to the maintenance phase after completion. In 2024, the project involved collecting submitted inputs and requests for review and inclusion in the 2024 update. Additionally, the Transportation Computer-Aided Design (CAD) Drawings Maintenance Modernization Project charter was approved, and progress is underway for the Computer-Aided Design (CAD) Reference File Modernization project.		
Initiative 10		**Impact Area: City-wide**	**Funding Type:**

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.		
UPDATE ➡	Construction Drawings Repository (CDR) Project (AIM 2.0) has successfully deployed Projectwise software across the corporation. The next phase involves integrating Projectwise. The project charter and business case for the Computer-Aided Design (CAD) Drawing and Quality Control (QC) Checker were finalized in June 2024. The eSubmission Project Charter was completed in June 2024 and is in the planning stage. This initiative aims to enhance efficiencies by providing a drawing checker for public use before submission and creating a streamlined process to submit drawings to The City.	

Initiative 11	**Impact Area:** **City-wide**	**Funding Type:** $C

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.		
UPDATE ➡	The Transportation Computer-Aided Design (CAD) Drawing Maintenance and Modernization Project Charter was finalized and is pending approval and the analysis phase of the project was completed in July 2024. This project is part of the Computer-Aided Design (CAD) Technology Modernization Program.	

Initiative 12	**Impact Area:** **City-wide**	**Funding Type:** $C

| 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.		
UPDATE ➡	Collaborating with Geospatial Business Solutions (GBS) on the Location Data Basemap Modernization Program. The Information Technology (IT) business case was submitted to the Corporate Technology Committee (CTC) Board in March 2024 and is awaiting approval. Preliminary analysis is currently in progress for the Joint Utilities Mapping Project (JUMP) Modernization Project, which aims to support project chartering and planning. This includes reviewing governance structures and processes for sharing City information with JUMP partners.	

Service Updates on Financial Performance

Net Operating Budget and Actuals as of June 30, 2024

Data, Analytics & Information Access

- 2024 YTD Net Budget: 7.6
- 2024 YTD Actuals: 7.3
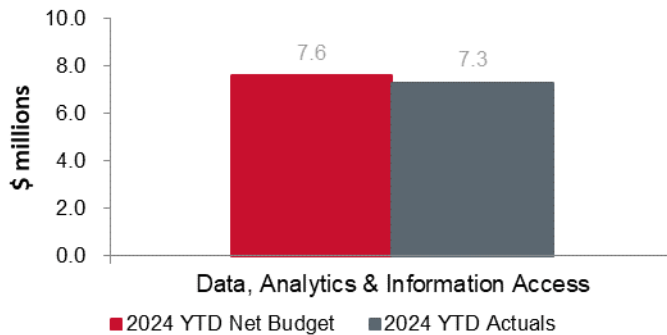
Operating Budget Updates - 2024 YTD net operating budget vs actuals:

Data Analytics and Innovation Access has a favorable operating variance of $0.3 million. The main reasons that have contributed to the variance are savings in salary and wages of $0.5 million due to intentionally managing the workforce; partially offset by unbudgeted communication expenses and contractor services costs of ($0.2) million. The service continues to deliver the ongoing modernization of the Geographic Information Systems (GIS) platform and has achieved several milestones. For example, GIS data portals, ArcGIS Hub integration, automation improvements, server upgrades, and enhancements to corporate maps and applications. The focus is on introducing new functionalities, ensuring data reliability, and securing systems for Calgary's community.

Capital Budget and Spend as of June 30, 2024

Data, Analytics & Information Access

- 2024 Annual Budget: 8.5
- 2024 YTD Spend: 1.8
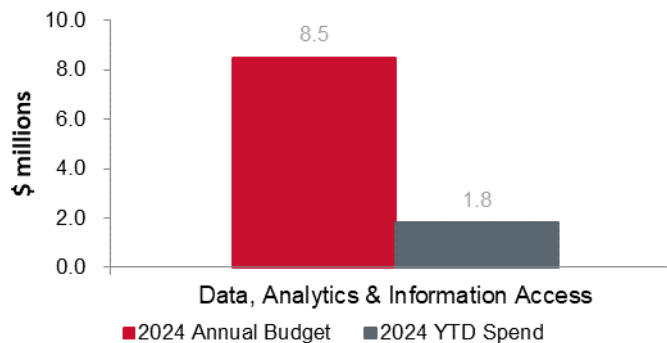
Capital Budget Updates - 2024 total capital budget vs 2024 YTD spend:

Data, Analytics & Information Access has spent 21.2 per cent of the 2024 capital budget. Spend for 2024 is on-track to reach 85 per cent spend rate, with some uncertainty associated with challenges in hiring highly technical resources.

In 2024, capital expenditures have been used to deliver the following:

Corporate Imagery Program: Digital Arial Survey (DAS) and Light Detection and Ranging (LiDAR) vendor contracts renewed and imagery capture completed. Collection of data sets for Imagery Derivative Products, as well as drone data and area imagery continue to ensure The City of Calgary has essential, accurate and current imagery products and solutions that will meet the needs of Corporate projects, business and services.

Corporate GIS Upgrades: Completed upgrades of Structured Query Language (SQL) and Windows servers as well as update of all Geographic Information Systems (GIS) databases to ArcGIS Pro 3.1. Support and coordination of the ArcMap Decommissioning process to retire legacy mapping products including replacement of custom designed applications and toolbars built. This work ensures GIS platform technology and authoritative geospatial data are in current and supported environments to meet business needs.

Location Data Modernization Program: The Information Technology (IT) business case for the Basemap Modernization project was submitted to the Corporate Technology Committee (CTC) and is awaiting approval. Preliminary analysis in progress for the Joint Utilities Mapping Project (JUMP) Modernization Project, to support project chartering and planning. This includes reviewing governance processes for sharing City information with JUMP partners.