

Transportation Report to
SPC on Transportation and Transit
2019 May 22

ISC: UNRESTRICTED
TT2019-0687

Capital Project Construction Planning and Management

EXECUTIVE SUMMARY

This report provides an overview of Transportation's procedures for the planning and construction of capital projects, in response to the Notice of Motion - Addressing Traffic Concerns during Construction (Attachment 1). Administration provided Council with a Briefing Note prepared April 23 (Attachment 2) documenting the specifics of the April 19 construction activity that preceded the Notice of Motion. Administration recognizes that all construction activities have impacts, and continually strives to mitigate these impacts while balancing cost, schedule and quality. This report details the mitigation strategies we undertake to lessen these impacts, including the communications tactics we implement to support this work.

ADMINISTRATION RECOMMENDATION:

That SPC on Transportation and Transit recommends that Council:

1. Receive this report for information.

PREVIOUS COUNCIL DIRECTION / POLICY

At the 2019 April 29 Combined Meeting of Council, the attached Notice of Motion (NM2019-0574, Addressing Traffic Concerns during Construction) was referred to the May 22 meeting of the Transportation & Transit Committee.

BACKGROUND

The City plans, designs, constructs and maintains a full network of streets, sidewalks and pathways that serve all Calgarians. This infrastructure enables delivery of and access to goods and services, and provides for safe travel by foot, bicycle, bus, train and vehicle for employment, education, social and recreational needs.

In support of Calgarians' needs, the City has constructed over 16,000 lane kilometers of paved road with associated sidewalks and pathways, including approximately 50 interchanges, 200 bridges and tunnels and 1,000 signalized intersections. The City has also constructed 56km of light rail with 45 stations and operates approximately 1,000 buses on 166 bus routes via 6,144 bus stops throughout Calgary. More than one billion trips are made per year on the network.

Continued investment in the transportation network is required to optimize service, improve accessibility, address safety needs, reduce congestion across the network, and to provide new access for growing communities. Nearly \$3B has been invested in over 50 construction projects on the network over the past eight years.

Project Planning and Design

Functional planning studies are undertaken for all major infrastructure projects to inform capital planning and budgeting. These studies explore a range of alternatives with robust community engagement. Once projects are approved by Council and funded, detailed design proceeds.

Detailed design plans are circulated to more than 40 parties at progress milestones, including divisions within Transportation, subject matter experts and affected partners such as Parks, Water, Fire, Enmax, ATCO, EMS, and major owners/stakeholders external to the City. This process allows the design team to anticipate and provide for a wide range of needs.

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Traffic accommodation is a key consideration during design, including the minimum number of core travel lanes to be maintained through construction, temporary bypass routes, time restrictions for lane closures, nighttime work, etc. Tender documents include a suggested detour plan, and contractors are expected to apply their constructability expertise to each project and work with the City on refined staging, detour plans and schedule to optimize value.

Capital Project Construction

Construction of infrastructure projects requires a high degree of technical expertise, compliance with legal requirements and codes, and a degree of flexibility to handle unexpected conditions such as soil conditions, utility locations/conditions and weather constraints (temperature, frost depth, snow/ice, rain/mud).

The Prime Contractor develops and maintains a detailed construction schedule with hundreds of tasks and establishes critical path(s) for project completion. Project scheduling includes coordination of 20 or more different trades such as material suppliers (asphalt, concrete, gravel, steel, ducts, wires, fixtures, etc.), paving, concrete work, earthworks, structural elements, gravel placement, utility placement, electrical, piling/drilling, reinforcement, lighting, landscaping, roadmarking installations, sign installations, etc.

Project scheduling also includes often highly complex coordination activities with City utilities such as sewer, storm and water, and with privately owned utilities such as gas lines and shallow utilities (owned by companies such as ATCO, Enmax, Shaw, etc.).

Throughout the project lifecycle, the City maintains a project management role, providing direction and leadership to the project team on all matters relating to the project, attending weekly site coordination meetings, facilitating shop drawing review and quality assurance review, fielding information requests, processing change orders, supporting detour requests and leading project communications.

Detours

When temporary lane closures or road closures are needed for construction, the City typically designs, furnishes and installs the barriers, signs and traffic cones as required. Contractors provide 4-days notice for single lane closures and 7-days notice for full closures. The advanced notice allows the detour technicians to develop design plans for the closures and to work with traffic signals engineers where signal timing changes are needed.

The detours team meets weekly to coordinate upwards of 200-250 closures per day across the City during the peak season. There are 10 technicians who field requests and create detour plans, and approximately 30 field staff who set up and take down the detours each day. While the majority of detours are conducted without issue, there are times that changes to the construction schedule cannot be immediately accommodated.

Traffic conditions during closures are monitored from the City's Traffic Management Centre. When unexpected congestion or problems are encountered, the TMC staff dispense a work crew to tend to any signal needs. When unusual conditions or levels of congestion are experienced that require special flagging needs, the TMC will contact Calgary Police Service.

A daily closure report is provided to emergency services outlining all lane closures. Dispatch then coordinates emergency services routing in accordance with the planned lane closures and other available information such as access to traffic cameras, real time traffic data, etc.

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Emergency vehicle drivers are permitted to drive through red lights, around congestion, and in oncoming lanes, enabling emergency services to navigate through and around all types of road conditions.

Communications

There are typically two goals for construction communication:

1. Providing information for people to learn about the project
2. Providing two-way communication with stakeholders through construction completion

A communications plan is prepared at project outset that includes a detailed review of the project scope, stakeholders (Ward offices, people living, travelling and working by/through the site, community and business associations, City partners, emergency services, etc.), and anticipated impacts (major detours, access changes, night work, excessive construction noise, construction completion, etc.). Project information is disseminated through website, social media, media outlets, newsletters, community meetings, information sessions, etc.

Two-way communication between the project team and citizens can allow for changes to the project execution to meet emergent needs. Examples of changes made on projects include adjusting detours and access, scheduling of heavy construction, adding or maintaining travel lanes/sidewalks/pathways through and around construction sites, providing increased support for local businesses and community associations, leading community celebrations, etc.

Specific to construction detours, the City provides the following:

- notification of all major closures to Ward offices, affected communities, land owners and businesses, via project web pages, newsletters, social media and hand-delivered notices
- notification of both major closures and minor single-lane/off-peak closures via the Traffic Report and Road Closures webpages on calgary.ca
- a daily road closure report for use by the media
- an advanced traveler information system, which provides real time traffic information to the public and media outlets via the website
- message board and signs along roads communicating upcoming and current closures to people travelling along the affected routes

INVESTIGATION: ALTERNATIVES AND ANALYSIS

The City recognizes that all construction activities have impacts, and continually strives to mitigate these impacts while balancing cost, schedule and quality.

Some of the City's practices such as value engineering, quality management, safety and environmental construction audits, and the Corporate Project Management Framework are among the most robust practices within the industry. The Macleod Trail/162nd Avenue interchange and West LRT are two examples of completed projects that impacted citizens with limited ingress/egress options during construction. Teams on those projects, worked with the surrounding communities, businesses, and Council representatives to ensure access was maintained to the greatest extent possible and responded to any issues or concerns raised.

The City conducts project lessons learned, including debriefs from discussions with Councillors and citizens on every project. Two areas that have been identified for improvement through

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these session in recent years are improving coordination of construction activities on multiple projects in a given area and minimizing repeat disruptions in the same area.

Some of the steps the team has taken in achieving these objectives include holding weekly Construction Coordination meetings between project managers of overlapping projects to carefully discuss and coordinate planned closures and construction activity and issuing comprehensive area-wide newsletters to update citizens and businesses on all closures that may affect travel in a specific area.

The City also leads a Capital Project Coordinating Committee that meets monthly to review all major capital projects. This group includes stakeholders from utility companies, City business units responsible for major capital construction and other groups responsible for construction on roadways. A five-year time horizon is used to evaluate and coordinate projects with a focus on projects taking place within one year of construction.

Stakeholder Engagement, Research and Communication

The stakeholder engagement and communications process for capital project management is detailed above. Administration has not conducted any stakeholder engagement specific to the April 29th NOM.

Strategic Alignment

Transportation's project management processes align with the objectives of A City that Moves and the associated One Calgary Service Lines, as well as with the Corporate Project Management Framework. Improving the safety, mobility, accessibility and sustainability of the network aligns with 2020 Sustainability Direction and the Calgary Transportation Plan.

Social, Environmental, Economic (External)

Financial Capacity

Current and Future Operating Budget:

This report does not impact the operating budget

Current and Future Capital Budget:

This report does not impact the capital budget

Risk Assessment

Transportation Infrastructure uses integrated risk management and a quality management system in compliance with Corporate Project Management Framework standards to identify risks at each stage of a project. A risk management plan is developed to mitigate identified design and construction-related risks. REASON(S) FOR RECOMMENDATION(S):

In receiving this report for information, Council is provided with an overview of how The City plans and manages the construction of transportation infrastructure.

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ATTACHMENT(S)

1. Attachment 1 – SW Construction Briefing
2. Attachment 2 – Addressing Traffic Concerns during Construction