

2022 Business Plan

Engineering Services

Department Overview

Engineering Services provides ongoing core services to all types of municipal infrastructure. The department delivers capital infrastructure projects (roads, water and wastewater systems, engineered storm systems, bridges) including the design, construction, land acquisition and overall project management from inception to completion. The department manages the County's Asset Management program and coordinates third-party utility installations. Acheson transit operations are also coordinated within the Department.

Engineering Services leads the review and approval of all off-site infrastructure investments by the development community. Working alongside Planning and Development Services, Engineering Services provides guidance and direction through the planning, design, construction inspections of developer contributed assets.

The department is foundational to quality of life for residents, building safe roads, maintaining County infrastructure, and supporting business units with engineering expertise.

Engineering Services:

- Plans and implements capital infrastructure projects and major rehabilitation initiatives
 - Roads, bridges, water systems, wastewater systems, constructed storm systems
- Maintains and operates transit services
- Coordinates delivery of 3rd party utilities; including coordinating investments into regional commission lines
- Supports land development activities through the planning, design, and construction phases
- Provides support services for engineering-related projects including economic development, regional initiatives, CN Rail, major pipelines

Strategic Context

Engineering Services provides ongoing core services to all types of municipal infrastructure. This includes development of long-term infrastructure plans, asset management strategies, establishment of best practises for operations and maintenance, physical maintenance, and growth of infrastructure as well as development of strategies to preserve infrastructure in an economically feasible way. Engineering Services provides extensive engineering support to several business units across the County, with the highest level of support occurring with Planning and Development Services and Economic Diversification.

Highlights and Future Planning

2021 Accomplishments

- Completed Transportation Master Plan
- Completed Updates to the Acheson /Big Lake Water & Wastewater reports
- Facilitated major economic development initiative by supporting Amazon Off-Site Infrastructure investments
- Completed infrastructure deficiencies from development project Acheson Commercial Corner
 - Stormwater management facility
 - As-built drawings and finished transfer of assets into County inventory for roadways, storm infrastructure in 2021
- Completed several initiatives in the Bridge Program including:
 - Construction of Bridge File 09254 (Trestle Creek)
 - Strutting repairs on Bridge File 85064 (Sundance Rd)
 - Design on Bridge File 09046 (ready for 2022 construction)
 - Annual Condition Assessments
- Completed Asphalt Surfacing Preservation program in 14 subdivisions
- Completed Asphalt Overlay Program on 8 grid road segments
- Completed Graded Aggregate Chip Seal program on 16 grid road segments
- Completed Gravel Road Reconstruction Program on 7 locations
- Completed Waterline construction of the Walkerlake Waterloop
- Project support for regional initiatives
 - CN Rail track twinning between Fallis and Seba Beach
 - CN Rail Whistle Cessation implementation

- WILD waterline extension between Wabamun and Seba Beach (spring/summer 2021)
- WILD waterline extension between Seba Beach and Entwistle (fall 2021/winter 2022)
- CRPWSC waterline twinning from Acheson to Spruce Grove
- CRPWSC booster station construction
- Working Committee for Integrated Regional Transportation Master Plan (IRTMP) with EMRB
- Working Committee for Metropolitan Region Servicing Plan Stormwater Collaborative
- Construction coordination of the TransMountain Pipeline
- Alberta Transportation
 - Design improvements / refresh to Hwy 60 Grade Separation over rail line
 - Functional planning study for Hwy 16, Edmonton to Stony Plain (6+ lanes)
 - Access closure strategy on Hwy 16 from Wabamun Interchange to Gainsford
- Initiated review of the Acheson Zone 3 Stormwater / Overland Drainage rehabilitation
- Continued forward with wastewater lagoon lifecycle replacement in Tomahawk – for construction in 2023
- Continued forward with wastewater system upgrades/ rehabilitation in Acheson Zone 1 and 2
- Initiated the Drainage Master Plan in 2021, for completion in 2022

Goals and New for 2022

Major areas of focus for the department in 2022 include:

- Develop an implementation plan for the strategic actions outlined within the 2021 Transportation Master Plan
- Implement updates to the Acheson & Big Lake Water and Wastewater Servicing Plans completed in 2021
- Continue forward with detailed design on improvements to storm water systems in Acheson Zone 3 (stormwater rehabilitation program)
- Continue lifecycle replacement plan for Tomahawk Wastewater Lagoon (2020-2023)
- Complete the construction of wastewater mains in Entwistle (design completed in 2021) - lifecycle replacement of wastewater mains
- Ongoing annual services as part of the 2022 Infrastructure Program for the following areas:
 - Graded aggregate seal coating (up to 15 Km)
 - Subdivision Pavement Preservation (up to 9 locations)
 - Asphalt Overlays (up to 15 Km)
 - Bridge Program (two replacements, three design (for 2023 construction), and major repairs on two bridges)
- Continue with asset condition assessments through CCTV program and develop future strategies for managing infrastructure priorities
- Finalize the Amazon development off-site infrastructure requirements
- Continue with Drainage Master Plan (2021-2022)

- Introducing active modes initiatives with first few projects proposed as:
 - Trail connection between Tomahawk and Tomahawk School (2023)
 - Trail connection between Entwistle Industrial Area and Tubing Road (south) and Entwistle to Pembina River Provincial Park (2024)

Ongoing Regional Support Initiatives include the following

- Ongoing construction of WILD waterline Phase 3 – extension to Entwistle
- Ongoing construction of CRPWSC waterline between Acheson and Spruce Grove
- Ongoing construction of Booster Station connection in Acheson Zone 4
- Rehabilitation of ACRWSC wastewater line between Hwy 60 and East County Limits
- Ongoing design support for temporary overflow discharge facility for ACRWSC
- TransMountain Pipeline expansion
- Alberta Transportation
 - Continued forward with design improvements / refresh to Hwy 60 Grade Separation over rail line
 - Functional planning initiative for Hwy 16, from Edmonton to Stony Plain (6+ lanes)

The proposed four-year infrastructure construction program is outlined in the 2022-2025 Capital Infrastructure Plan, which is provided with the budget package. The document includes a complete list of every project identified over the next 4 years – with specific focus on what is planned for 2022. The lists are also represented in geographic maps to identify where the projects are located.

Longer Term Opportunities and Threats

Opportunities:

- The department's strong asset management plan allows it to prioritize tasks and maximize benefits for major capital expenditures
- Enhance Asset Management Reporting by full inclusion of all asset categories:
 - Paved roadways are well established in our Asset Management program. During the past three years, we have been adding sidewalks, water, wastewater, and storm systems into the database. We are gaining a comprehensive view of our asset inventory to better manage and report on the condition of our assets. We have moved away from individual, site specific reporting and moved into holistic county wide reporting metrics, which provides a comprehensive view of our current state of infrastructure and assists in evaluating needs and assigning priorities.

- Updating Engineering Design and Construction Standards. Engineering Services started an internal administrative update in 2020 and will continue working on updates throughout 2021 and beyond to maintain current design standards. The expectation is that they align with current practises and industry expectations.
- With Transportation Master Plan in place, there is an opportunity to pursue the Strategic Actions identified in the report through development of an implementation plan.

Threats:

- Extended timelines for obtaining provincial approvals for projects makes it difficult to meet deadlines, particularly for projects involving Alberta Environment Regulatory Approvals
- Depreciating capital assets are a growing concern across the County. Reductions in funding, or lack of inflation-based increases, for road preservation/overlay programs have been occurring leading to a growing infrastructure deficit. It will become very difficult to bring road surface conditions back to desired service levels if left underfunded for an extended period. Options to address this concern include shifting expectation on service levels provided by the County (reduce expectations) or increase funding to ensure the existing infrastructure deficit is maintained or decreased.
- Depreciating provincial assets. Bridge infrastructure is a provincial asset that municipalities maintain with provincial funding. Across the province, and specific to Parkland County, approximately 80% of bridge files are rated poor to very poor. Limited funding from the province has placed these assets at risk. A provincial wide review of asset conditions is required and associated funding to address the current situation is required. Engineering Services aims to reconstruct 1 bridge per year and design 1 bridge per year for the following year. That pace is not sustainable given current bridge condition ratings. To put into perspective, there are approximately 118 bridge files within Parkland County. With an average lifespan on 40 to 50 years, the County should be replacing at least 2 to 3 per year. Given current condition ratings, the County should be closer to 4 to 5 locations per year to address immediate concerns. Alternatives are that Parkland County directly fund the projects or strategically close bridges once beyond serviceable life and continued use becomes a safety concern.

Key Performance Indicators

- Safe Work Environment: no lost time reported
- Project completion with consideration of quality, cost and schedule
- Engineering consultation and construction services
- Customer service performance – construction activities; asset conditions ratings



- Utility application response timelines
- Transit service delivery (ridership, business satisfaction)