



Caribou River Road

Preliminary Statement of Impacts

Prepared June 21, 2018

By Caribou City

On April 29, 2018 the ground under the City of Caribou's River Road began to move. This was the start of a landslide causing millions of dollars in damages and a figurative landslide of issues for the regional economy. Public health and safety, delivery of essential services, utility infrastructure, communications, the education system, individuals and families have been or will be affected. The following narrative serves to provide context to the event and outline some of the resulting and anticipated impacts from the River Road calamity.

Background

The River Road is approximately 3.5 miles long and owned by the City of Caribou (See Figure 1). The River Road is a loop system which follows the Aroostook River. It is used for access to 61 single family dwellings, a 14-unit mobile home park, four small home-based businesses (two auto mechanic shops, a contractor and a plumbing business) and is the primary access to two farming operations. Although mainly used by residents and customers to the businesses, this road is also used as a bypass during the winter months when the Fort Fairfield Road (State Route 161) becomes treacherous due to elevation climbs.

Figure 1: The River Road, shown in orange highlight, runs along the Aroostook River with connection points to State Route 161. The portion damaged is highlighted in red.



The affected portion of the road sits 70-80 feet higher than the river to the west. Near the affected area, slopes down to the river exceed 50-80% (See Figure 2). To the east of the affected portion of road are farms which surface drain in the direction of the road. Although this past April was the 3rd wettest on record for Caribou, according to the national weather service, there was no observed surface runoff in area ditches. The ground was becoming saturated.

Figure 2: Area topography (2' contours) showing general drainage slopes toward the affected areas. Note the area of steep slopes between the road and the river.



Cracking on the road was noticed on April 29, 2018, that was approximately 2 inches wide and 2 inches deep. No sinking or sliding of materials was evident at that time but at 6 PM that evening the cracking had worsened to 4-inch-wide by 6 inches deep and the western side of the road had dropped about 6-inches. Over the course of the next week, the road dropped approximately 1 foot per day and by the end of the week the road had dropped 6-feet in the worst section (See Figures 3-5).

Figure 3: (right) View of part of the affected area looking south



Figure 4: Part of affected area looking north on April 30



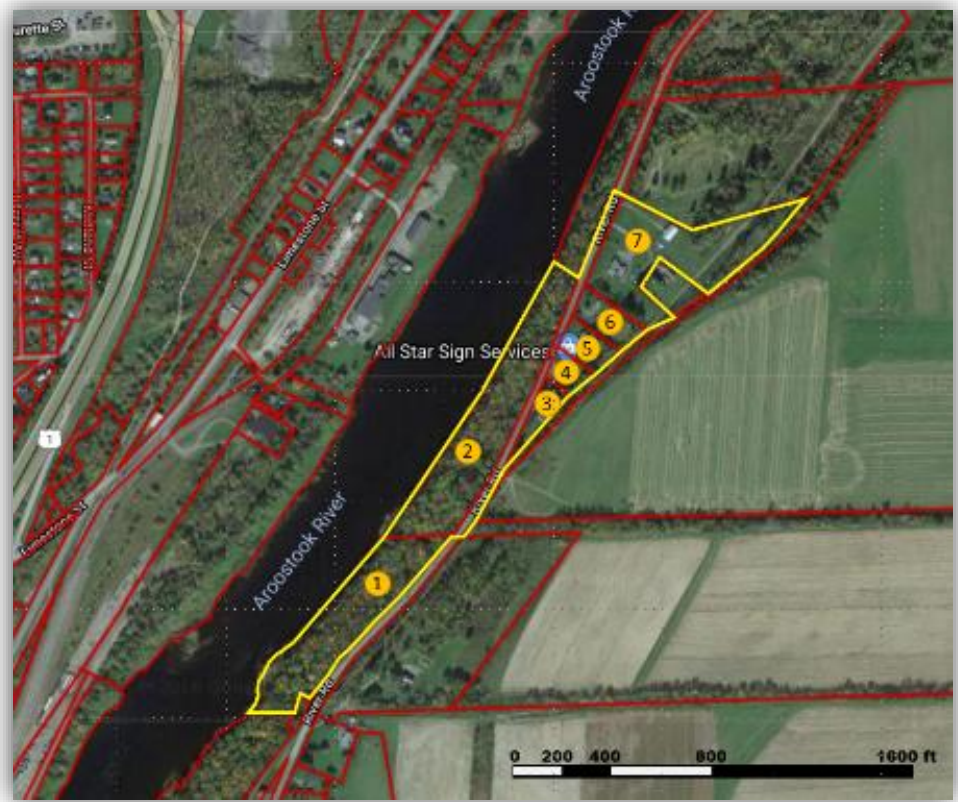
Figure 5: Part of affected area looking north on May 4

Hazard Mitigation & Stakeholder Coordination

The River Road was barricaded on April 29th to prevent automotive traffic through the area. Seven property owners were also put on notice about the apparent hazard (See Figure 6 and Exhibit A, for information about the affected property owners). Although affected owners can still get to and occupy their homes, they have expressed concerns about the habitability of their homes since the city's barricades restrict delivery of services by large vehicles including heating oil, fire trucks and EMS and no snow plowing in winter. The City Council has authorized up to \$1,000 per month for each of the home owners desiring to relocate from their homes until a fix is provided. To date, only one of the home owners has moved and is receiving the city's aid.

Other affected persons/entities contacted include the Caribou Utilities District (water and sewer), Caribou Public Works, Police, Fire/EMS Departments, EMERA Maine (power), the US Postal Service, and local area communications providers.

Figure 6: Property owners directly affected by River Road damages



Other government entities which were engaged for assistance to repair the road include Aroostook County, Maine Emergency Management Agency, and the Federal Emergency Management Agency. Because of damage in other communities caused by runoff events this spring, Aroostook County worked to coordinate a federal disaster designation. The application was denied in early June based on cost eligibility protocols. Without assistance from other government agencies, the city has little available funding to repair the road but has been investigating options and the impacts to stakeholders that may result.

Options and Impacts

Temporary Fix

When the city was asked if a temporary fix would be considered to prevent additional damage, the response has been that the city will make sure the affected residents are safe and likely let happen what will happen if no additional funds are available. Barricades will remain in place to prevent through traffic, but no work will be done until a solution is determined, and all land/access rights have been acquired.

Road Closure

On face value, the city's most cost-effective means of handling the issue long term is to keep the road closed. However, the following impacts would result:

Property Acquisition. Affected property owners will need to be compensated for the loss of access and use of their properties. This may necessitate full compensation and purchase of their lands or acquisition of easements and construction of a new access route. Based on the type of construction and valuation of affected homes and properties, this could cost \$253,700 with appraisals, survey and title work. Additional costs are likely for incentive payments or legal work and damages if there are condemnation proceedings. Caribou has not engaged the property owners about selling their properties at this time.

Although not directly impacted by the affected section of road, there is a 109 acre farm which is only accessed by a single point within the affected area (see Figure 7). Caribou already widened the shoulder in the affected area so that heavy farm equipment would not be traveling on damaged areas (see Figures 8 & 9). The City would need to coordinate with adjacent land owners and secure appropriate access routes to the farm, most likely from the north side. Bringing access into the farm from the north will add nearly 3.5 miles to farmer's access and 7 miles to their hauling route.

Figure 7: Guerrette Farms Corp property which would not have access if the affected area were closed.

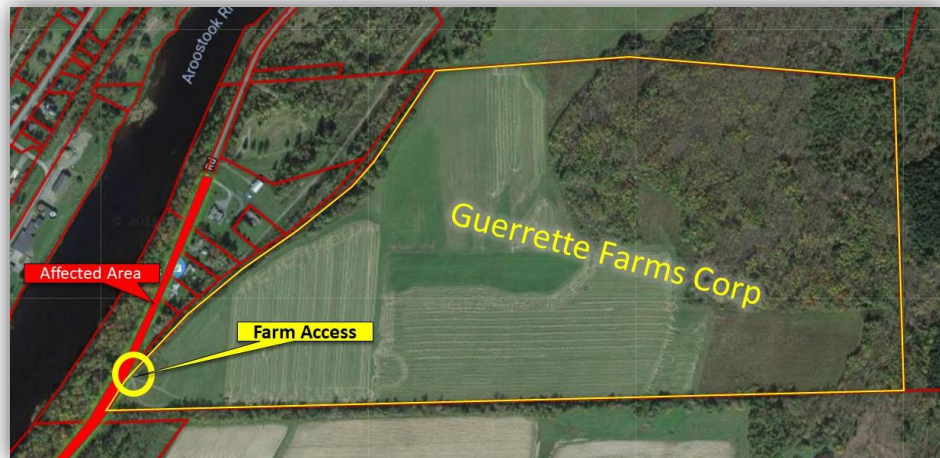


Figure 8: Portion of affected road where additional materials were placed by the city to accommodate heavy farm equipment travel.



Turnaround Construction. In accordance with NFPA standards, the city will need to construct turnaround areas for any fire apparatus at the south and north end of the damaged areas. These turnarounds would also be necessary for turning snow plows and school buses. The City's Public Works Director estimates the turnaround construction may cost \$49,000-\$98,000 in addition to land or easement acquisition cost.

Utility Relocation. If the road closes, the Caribou Utility District (CUD) and EMERA Maine will need to relocate or alter their infrastructure. CUD has indicated they will need to relocate their sewer force main, gravity main and water lines in the area. The CUD estimated costs for this work is \$507,000.



EMERA Maine has indicated they will need to dead end a transmission line which currently serves as a redundant supply line to the greater Caribou and Central Aroostook region. Dead-ending this line could cost over \$1,000,000 to rebuild redundancy (see Exhibit B, EMERA Letter). The potential loss of redundant power in an emergency would affect hundreds of homes, businesses and many communities in the region. One manufacturing company in Caribou is already working to increase redundancy for their business by adding a standalone backup power generator at cost of \$70,000.



Additional Travel Costs. Creating two dead end roads means many residents, patrons, utility personnel, etc. will have to double back on their routes. The following are some of the estimated additional annual transportation costs due to these movements:

Caribou Utility District	\$ 3,100 yearly
Caribou Public Works	\$ 1,000 yearly
Caribou Snow Plowing	\$ 4,000 yearly
Caribou Police	\$ 6,200 yearly
School Transportation	\$12,400 yearly
Resident Transportation	\$34,770 yearly
Total	\$61,470 yearly

Numbers provided for school transportation costs are due to the current practice of multiple buses for different grades which start at different times in a day.

The costs for residential transportation are associated with residents who would normally travel westbound along the River Road but would have to travel the extra miles to the east Highway 161 connection point before traveling back west to their destination.

There will also be costs associated with delivery of heating fuel, mail and package delivery, maintenance of the power and communication systems and waste collection.

It is difficult to put a number to the farm impacts due to the additional miles added to their haul route. The mileage will affect their tractors, produce haulers, and transportation for workers. In an industry which barely makes it on the margins, these types of financial impacts could cause pause for replanting.

It is not anticipated that the businesses along the River Road will have much additional travel costs, since they are located southwest of the damage or, due to location, are already traveling the longer distances.

Public Safety. For public safety personnel, the concern is not so much the actual cost of additional miles traveled, but the increased response time. The Caribou Fire Chief recently determined response time with the dead end. He found that the response time to the most at risk population along the road, who live in a trailer home park near the northern most point, is 11.5 minutes instead of the historic 4 minutes with the road open. That seven-minute change can mean the difference between a fire attack or defense, or administration of a lifesaving drug or a death. It should also be noted that the closest hydrant location to the trailer park is at the north end of the damaged area, which means a fire truck would have to drive by the fire for supply connections and then drive back to the fire.

Similar to the fire and EMS departments, the response time will increase for police work. Another concern with such long dead-end roads is the propensity for increased delinquent behavior due to reduced natural surveillance. For example, property owners north of the damaged area may currently have 2,500 vehicles pass their homes per day but with the road closure, they may be the only traffic in the area. This reduced amount of “eyes on the street” creates opportunities for ill-behavior and the need for additional patrols.

In the event of an emergency, the road closure also limits escape routes. Not only for residents living along the road, but for those evacuating out of the city. In the winter time, the Fort Fairfield road can be treacherous for east bound traffic to climb from or west bound traffic to descend towards the river. The River Road is often used as a winter time bypass for this very reason.

Road Repair or Relocation

Recognizing that closing the road is not the best option, Caribou started the process to select an engineering firm to study the cause of the problem and design a long-term fix. Preliminary estimates for engineering services ranged from \$250,000 to \$330,000 (design through construction management). The engineering work would provide alternatives and costs for the city to consider for repairing or relocating the road. A local contractor, who helped repair a similar road condition in 2015, was asked for a rough estimate to stabilize and rebuild the River Road. That estimate was \$2.5 Million without design and without acquiring properties or easements for the work.

Summary

The cost to repair the River Road properly will be nearly \$3 Million and the city will have at least a 50-year fix with proper maintenance. If the city closes the road, the first-year financial implications to the regional economy will be nearly \$2 Million but the long term (50 year) total costs will exceed \$5 Million plus the area will have increased risk to public health and safety due to reduced response time, reduced power redundancy, limitation of emergency access and egress infrastructure, etc.

Exhibit A: Affected Properties Information

The following property information was obtained from the Caribou City Assessor's office.

Exhibit B: EMERA Maine Letter of Impacts