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Item No. 12.1.1 ii
Transportation Standing Committee
October 27, 2022
March 30, 2023

TO: Chair and Members of the Transportation Standing Committee

SUBMITTED BY: 

Jacques Dubé, Chief Administrative Officer

DATE: October 20, 2022

SUBJECT: **Hammonds Plains Road and Lucasville Road – Intersection Improvements**

ORIGIN

September 28, 2021 Halifax Regional Council motion (Item No 15.3.1)

MOVED by Councillor Deagle Gammon, seconded by Councillor Russell

THAT Halifax Regional Council request a staff report on the intersection of Hammonds Plains and Lucasville roads to include:

1. recommendations to upgrade the intersection to ease the congestion of both west bound and east bound traffic;
2. appropriately plan for transit in this intersection;
3. increase pedestrian safety in this intersection.

MOTION PUT AND PASSED

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, Part XII, subsection 321(8) provides:

Subsection 321(8) The Traffic Authority for the Municipality has, with respect to highways in the Municipality, excluding those for which the Provincial Traffic Authority has authority, the powers conferred upon a traffic authority by or pursuant to the Motor Vehicle Act.

Section 4(g) of the Terms of Reference for the Transportation Standing Committee provides that the duties and responsibilities of the Committee include “providing input and review of road and pedestrian safety”.

RECOMMENDATION

It is recommended that the Transportation Standing Committee recommend that Halifax Regional Council direct the Chief Administrative Officer to:

1. Prioritize short-term operational improvements to the signalized intersection, including upgrades to the traffic controller cabinet and vehicle detection, along with updated signal timing plans.
2. Ensure appropriate, longer-term intersection modifications, including accommodation of pedestrians, cyclists, and transit, are appropriately planned for through the development review process.

BACKGROUND

Traffic volume challenges have been a growing concern on Hammonds Plains Road in recent years and reports of traffic congestion during weekday peak periods have increased. The area has been subject to considerable growth as the community of Bedford West has developed, with potential for additional growth, including the Sandy Lake area, that will put further pressure on roadway infrastructure.

In addition to serving as an important connection in the regional roadway network, Hammonds Plains Road has been an important component in accommodating the growth occurring in Bedford West. Road safety statistics show that there have been five vehicle collisions in the last three years including:

- Four multiple-vehicle collisions, one single-vehicle collision, no pedestrian collisions, and no cyclist collisions
 - 1 red-light running (westbound)
 - 2 left-turn across the path of another vehicle (both left turn from Hammonds Plains Road eastbound to Lucasville northbound)
 - 1 rear-end collision
 - One single-vehicle incident – a truck's non-retracted boom struck the traffic signal
 - No fatal or injury collisions (property damage only)

DISCUSSION

Existing Conditions

Hammonds Plains Road is an arterial roadway carrying approximately 18,000 vehicles per day. The speed limit on Hammonds Plains Road had recently been reduced in this area from 70 km/h to 60 km/h. Lucasville Road is a major collector roadway carrying approximately 6300 vehicles per day with a posted speed limit of 70 km/h.

The signalized intersection (Figure 1) includes separated left and through lanes on Hammonds Plains Road in the eastbound direction; shared through/right turn lane on Hammonds Plains Road in the westbound direction and separated left and right turn lanes southbound on Lucasville Road. The storage for left turning vehicles on the eastbound approach is approximately 80 metres. Storage for southbound right turning vehicles is approximately 30 metres. Pedestrian crossings exist across the southbound and eastbound approaches of the intersection. There are no sidewalks or other pedestrian infrastructure near the intersection.

The Halifax Transit Route 433 Tantallon operates along Hammonds Plains Road through this intersection. The nearest bus stop is located approximately 140 metres west of the intersection of Hammonds Plains Road and Lucasville Road. There is currently no transit service on Lucasville Road.



Figure 1: Hammonds Plains Road at Lucasville Road - Signalized Intersection

Traffic data was collected in early 2022 and traffic volumes were modelled to determine the existing conditions of the signal operation. Staff have identified changes to signal timing which can take effect without infrastructure changes to provide greater efficiency in traffic flow through the intersection during peak periods. Staff will continue to monitor for additional changes to traffic patterns and adjust signal phasing and timing accordingly as development continues.

Issues have been identified with the existing controller and vehicle detection equipment which are likely impacting the current operation of the intersection. Vehicle detection equipment at this location has historical occurrences of not properly identifying vehicle demand on Hammonds Plains Road. When detection isn't working properly the intersection essentially goes into failsafe mode whereby the maximum allotted time is provided to each approach even without adequate vehicle demand, creating unnecessary delay at the intersection. Both the traffic controller cabinet and vehicle detection are due for an upgrade which can be done under existing maintenance budgets.

Modelling of existing peak period traffic volumes at the intersection indicates adequate storage length for the eastbound left turning volume during the am peak period; however, suggests the eastbound left turning volume during the evening peak period is approaching the available storage length capacity. The southbound approach on Lucasville Road demonstrates a need for additional storage capacity during both the morning and evening peak periods. The shared through/right lane on the westbound approach is also near capacity during the evening peak period.

Future Conditions

The communities of Hammonds Plains and Bedford West have seen significant development growth in recent years. This is expected to continue, with increasing traffic volumes putting additional capacity pressure on the Hammonds Plains Road/Lucasville Road intersection. Future volumes were estimated based on a 2% annual growth rate for Hammonds Plains Road over 10 years to capture an increase in background traffic as well as to account for additional, unknown, development traffic. The estimated future (2032) volumes were modeled to determine the extent of capacity upgrades which may be considered at the intersection.

Potential Intersection Improvements

Modelling shows the intersection would benefit from modifications to increase vehicle capacity. The eastbound storage lane is adequate at 80 metres; however, it could be extended to provide residual capacity within the existing hatched area. An extension of the southbound right turn storage lane on Lucasville Road to 60 m should also be considered. Modelling also indicates creating a westbound right turn storage lane approximately 50 m in length plus the appropriate taper length would help ease congestion in the westbound direction. A conceptual design of the noted traffic improvements is presented in Figure 2.

The widening on the southbound Lucasville Road approach does not require property acquisition as the extension of the southbound right turn lane could be accommodated within the existing right-of-way. The widening required for the westbound right turn lane on Hammonds Plains Road, however, would require some minor property acquisition for the signal pole relocation as noted in Figure 2, and would also result in impacts to Nova Scotia Power infrastructure which would need to be relocated to the edge of the right-of-way. Further scoping and design work would ensure the integration of appropriate transit facilities and accommodation of pedestrians and cyclists in the area. The integration of active modes and transit facilities would identify any additional property requirements in order to develop a full cost estimate of the intersection improvements.

There are no immediate plans for the construction of pedestrian or bicycle infrastructure in this area. There is a functional plan and 30% design for a multi-use pathway on Lucasville Road. Most of the work has focused on the other end and the connection between the middle of Lucasville Road and Sackville Drive. The concept for the Hammond's Plain Road end would be a multi-use pathway on one side. Implementation is not in any capital plan at this point. Any permanent physical changes would consider the retention of space for future construction of the Lucasville Greenway. The existing paved shoulders on Hammonds Plains Road, which provide space for people walking and bicycling, would not be impacted by the proposed changes.

This area lies outside of the Urban Transit Service Boundary (UTSB) as outlined in the Regional Plan, and as such, there are no short-term plans for increased or new transit service in the area. Any future service increases or new transit routes would need to be in alignment with regional planning policies and considered as part of a future transit service plan.

Development Opportunities

There is a conceptual development plan for the northwest corner of the Hammonds Plains Road/Lucasville Road intersection which includes 336 additional residential units. This is in the early review stages, though it is assumed the Traffic Impact Study will identify similar intersection upgrades to mitigate the traffic impacts of the additional development traffic. Any intersection upgrades related to the development would also consider appropriate accommodation of pedestrian, bicyclist, and transit facilities. Longer-term infrastructure changes to the intersection should, therefore, be planned in coordination with the upgrades required through development.

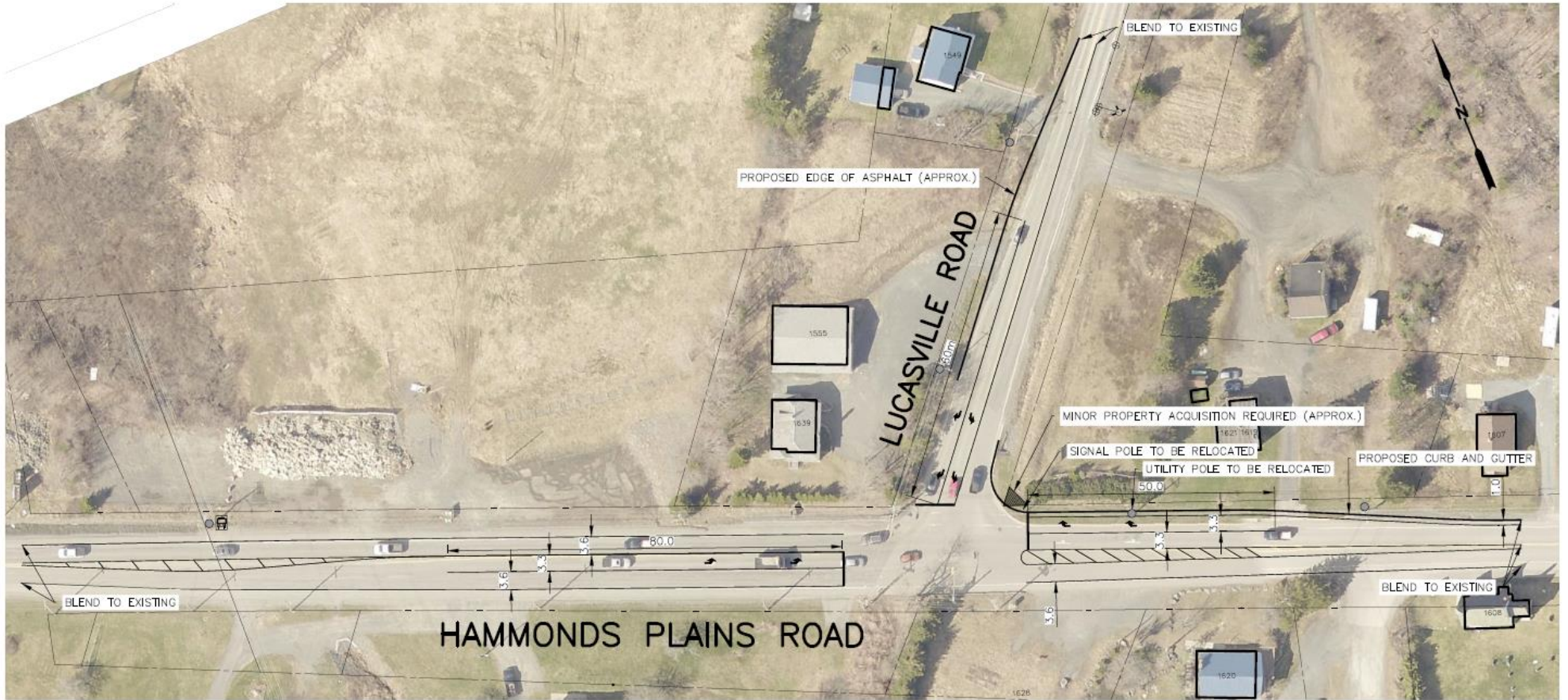


Figure 2: Potential Intersection Improvements

SUMMARY

Short term improvement measures have been identified to improve traffic operations at the Hammonds Plains Road/Lucasville Road intersection. Adjustments to signal timings can be completed without physical changes to the infrastructure. A new set of signal timing plans based on the traffic patterns at various times of day can be developed and implemented. These can then be monitored and adjusted again as required. Modification to the eastbound left turn lane storage length can be completed when the pavement marking programs resumes in the spring. The upgrades to the traffic controller cabinet and vehicle detection will be placed on a workplan with Traffic Maintenance to complete once equipment becomes available.

Longer-term improvement measures have been identified for coordination within the proposed development plans. Lengthening the southbound right turn storage lane on Lucasville Road; including a westbound right turn lane on Hammonds Plains Road; and accommodation of appropriate pedestrian, bicyclist, and transit facilities, should all be considered during the development design phase.

FINANCIAL IMPLICATIONS

There would be no financial implications for moving forward with the short-term recommended changes. These can be accommodated within existing operating and maintenance budgets.

The financial implications of the longer-term recommendations are unknown. Further design scoping is required within the development application process. The recommended longer-term upgrades would be considered as part of future capital budgets.

RISK CONSIDERATION

There are no significant risks associated with the recommendations in this Report.

COMMUNITY ENGAGEMENT

No community engagement was required.

ENVIRONMENTAL IMPLICATIONS

No environmental implications were identified.

ALTERNATIVES

The Transportation Standing Committee may recommend that Regional Council direct the CAO to prioritize infrastructure modifications at full cost to Halifax Regional Municipality, through capital funds, in advance of modifications being recommended through the planned development. This is not recommended as the extent of requirements associated with the proposed development are not yet known and moving forward with larger scale intersection changes before knowing the development impacts/requirements would likely result in increased costs and disruption to newly built infrastructure.

ATTACHMENTS

None

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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HAMMONDS PLAINS ROAD AT LUCASVILLE ROAD – INTERSECTION MODIFICATIONS

JANUARY 17, 2023
SCALE – 1:750

