

- 2. BARRHAVEN AND MERIVALE ROAD RAIL GRADE SEPARATION STUDY AND BARRHAVEN RAIL SAFETY PROGRAM**
- ÉTUDE SUR L'AMÉNAGEMENT DE SAUTS-DE-MOUTON AUX PASSAGES À NIVEAU DE BARRHAVEN ET DU CHEMIN MERIVALE, ET PROGRAMME DE SÉCURITÉ FERROVIAIRE POUR BARRHAVEN**

COMMITTEE RECOMMENDATIONS

That Council:

- 1. Receive the Barrhaven and Merivale Road Rail Grade Separation Study, attached as Document 1;**
- 2. Approve the establishment of a Barrhaven Rail Safety Program, as described in this report, including as follows:**
 - a. Approve that funding for a portion of the Barrhaven Rail Safety Program, specifically to undertake the environmental assessments for the rail grade-separations at Woodroffe Avenue, the Southwest Transitway, and Fallowfield Road, as well as for the multi-use pathway underpass at the Jockvale Road/Rail corridor, be included for consideration as part of the 2018 Draft Budget;**
- 3. Delegate the authority to the Mayor, in consultation with the ward Councillors, to seek funding from the Federal and Provincial Government and VIA Rail for the design and construction phase for the Barrhaven Rail Safety Program; and,**
- 4. Direct the City Manager to forward this report and Council's disposition of the recommendations to the Transportation Safety Board for their information.**

RECOMMANDATIONS DU COMITÉ

Que le Conseil :

1. Prenne acte de l'étude sur l'aménagement de sauts-de-mouton aux passages à niveau de Barrhaven et du chemin Merivale, annexée comme document 1;
2. Approuve la mise en place pour Barrhaven du programme de sécurité ferroviaire décrit dans le présent rapport, de même que ce qui suit :
 - a. inclure dans le budget préliminaire 2018 le financement de certains aspects du programme de sécurité ferroviaire recommandé pour Barrhaven, soit les évaluations environnementales sur l'aménagement de sauts-de-mouton aux passages à niveau de l'avenue Woodroffe, du Transitway Sud-Ouest et du chemin Fallowfield et sur l'aménagement d'un passage inférieur à la jonction du chemin Jockvale et du couloir ferroviaire pour y faire passer un sentier polyvalent;
3. Délègue au maire, avec devoir de consulter les conseillers de quartier, le pouvoir de demander l'aide financière des gouvernements provincial et fédéral et de VIA Rail pour la phase de conception et de construction du programme de sécurité ferroviaire de Barrhaven;
4. Demande au directeur municipal de transmettre au Bureau de la sécurité des transports, à titre informatif, le présent rapport et la décision du Conseil en ce qui concerne les recommandations de ce rapport.

DOCUMENTATION / DOCUMENTATION

1. Manager, Transportation Planning, report dated 23 May 2017 (ACS2017-TSD-PLN-0010)

 Rapport du Gestionnaire, Planification des transports, daté le 23 mai 2017
 (ACS2017-TSD-PLN-0010)

2. Extract of draft Minutes 25, Transportation Committee, 7 June 2017.

 Extrait de l'ébauche du procès-verbal 25, Comité des transports, le
 7 juin 2017.

Report to
Rapport au:

Transportation Committee
Comité des transports
7 June 2017 / 7 juin 2017

and Council
et au Conseil
14 June 2017 / 14 juin 2017

Submitted on May 23, 2017
Soumis le 23 mai 2017

Submitted by
Soumis par:

Vivi Chi, Manager / Gestionnaire, Transportation Planning / Planification des transports 613-580-2424 x21877, Vivi.Chi@ottawa.ca

Contact Person

Personne ressource:

Steven Boyle, Senior Project Manager / Gestionnaire principal de projet, Transportation Policy and Networks / Réseaux et politique de transport 613-580-2424 x26087, Steven.Boyle@ottawa.ca

Ward: BARRHAVEN (3); KNOXDALE-MERIVALE (9)

File Number: ACS2017-TSD-PLN-0010

SUBJECT: Barrhaven and Merivale Road Rail Grade Separation Study and Barrhaven Rail Safety Program

OBJET: Étude sur l'aménagement de sauts-de-mouton aux passages à niveau de Barrhaven et du chemin Merivale, et programme de sécurité ferroviaire pour Barrhaven

REPORT RECOMMENDATIONS

That Transportation Committee recommend Council:

- 1. Receive the Barrhaven and Merivale Road Rail Grade Separation Study, attached as Document 1;**
- 2. Approve the establishment of a Barrhaven Rail Safety Program, as described in this report, including as follows:**
 - a. Approve that funding for a portion of the Barrhaven Rail Safety Program, specifically to undertake the environmental assessments for the rail grade-separations at Woodroffe Avenue, the Southwest Transitway, and Fallowfield Road, as well as for the multi-use pathway underpass at the Jockvale Road/Rail corridor, be included for consideration as part of the 2018 Draft Budget;**
- 3. Delegate the authority to the Mayor, in consultation with the ward Councillors, to seek funding from the Federal and Provincial Government and VIA Rail for the design and construction phase for the Barrhaven Rail Safety Program; and,**
- 4. Direct the City Manager to forward this report and Council's disposition of the recommendations to the Transportation Safety Board for their information.**

RECOMMANDATIONS DU RAPPORT

Que le Comité des transports recommande au Conseil :

- 1. de prendre acte de l'étude sur l'aménagement de sauts-de-mouton aux passages à niveau de Barrhaven et du chemin Merivale, annexée comme document 1;**
- 2. d'approuver la mise en place pour Barrhaven du programme de sécurité ferroviaire décrit dans le présent rapport, de même que ce qui suit :**
 - a. inclure dans le budget préliminaire 2018 le financement de certains aspects du programme de sécurité ferroviaire recommandé pour Barrhaven, soit les évaluations environnementales sur l'aménagement de sauts-de-mouton aux passages à niveau de**

l'avenue Woodroffe, du Transitway Sud-Ouest et du chemin Fallowfield et sur l'aménagement d'un passage inférieur à la jonction du chemin Jockvale et du couloir ferroviaire pour y faire passer un sentier polyvalent;

- 3. de déléguer au maire, avec devoir de consulter les conseillers de quartier, le pouvoir de demander l'aide financière des gouvernements provincial et fédéral et de VIA Rail pour la phase de conception et de construction du programme de sécurité ferroviaire de Barrhaven;**
- 4. de demander au directeur municipal de transmettre au Bureau de la sécurité des transports, à titre informatif, le présent rapport et la décision du Conseil en ce qui concerne les recommandations de ce rapport.**

EXECUTIVE SUMMARY

Assumption and Analysis

On December 2, 2015 the Transportation Safety Board (TSB) released its [Railway Investigation Report R13T0192](#) on the "collision between OC Transpo bus and VIA passenger train" that occurred on September 18, 2013 in Barrhaven at the Southwest Transitway crossing of the rail line. The TSB report contained five recommendations, four of which were directed to Transport Canada and one to the City of Ottawa. With respect to the City of Ottawa, TSB Recommendation R15-05 stated,

"The Board recommends that the City of Ottawa reconsider the need for grade separation at the Woodroffe Avenue, Transitway and Fallowfield Road level crossings."

On February 26, 2016, Members of Council received a memorandum from John Moser, the Acting Deputy City Manager, Planning and Infrastructure, outlining the City of Ottawa's commitment "to undertake a technical study to determine the feasibility of grade separation at these three level crossings." It noted that the study would "be in partnership with VIA Rail Canada in recognition of VIA's shared interest in public safety and service reliability at all rail crossings...In addition, the City [would] study the Merivale Road and Jockvale Road level crossings in order to have a complete understanding of all remaining level crossings in this part of Ottawa."

In response to the City's plan, the TSB advised that it was "pleased that the City of Ottawa will conduct a feasibility study at these three crossings, and commends the City

for including additional crossings in the scope of its study". The \$250,000 cost of the study was shared between VIA Rail (\$100,000) and the City of Ottawa (\$150,000).

This report provides Council with a high-level overview of the results of the Barrhaven and Merivale Road Rail Grade Separation Study (Document 1), and a recommendation to establish a Barrhaven Rail Safety Program, which anticipates a phased and affordable approach to improving safety at rail crossings in Barrhaven for all users.

The Barrhaven and Merivale Road Rail Grade Separation Study's main purpose was to 1) provide an updated review of information on the feasibility of rail grade separation at the five subject locations (Woodroffe Avenue, the Transitway, Fallowfield Road, Merivale Road and Jockvale Road), and 2) identify a high level cost estimate for grade separations at those locations.

Calculations were done using the Crossing Exposure Index (CEI), a tool used to assess the merit of grade separating a road and rail by examining the current and projected number of roadway vehicles and the number of trains that use a crossing during an average day. The CEI is a guideline that provides a benchmark that flags the need for consideration of grade separation. Calculations indicate that all five crossings should ultimately be grade separated due to the existing and anticipated increases in road, Transitway and rail traffic.

The study also concludes that the previously identified soil and hydrogeological conditions at the Woodroffe, Transitway and Fallowfield locations will present challenges for construction. Overpasses of the rail line are recommended at those locations. Underpasses are recommended for Merivale Road and Jockvale Road.

The Study recommends that priority should be first focused on the crossings at Woodroffe and Southwest Transitway and at Fallowfield Road, with Merivale Road being the next priority, and then the Jockvale Road crossing.

Although the Jockvale Road grade-separated crossing is lower in priority, there are significant numbers of pedestrians and cyclists crossing at this location to access parks, places of worship, commercial businesses and schools. Staff is recommending that the City consider developing a plan to implement a stand-alone multi-use pathway (MUP) underpass in the near term for the safety of residents. This facility will need to be designed to minimize throw-away costs should Jockvale Road be grade-separated in the future.

Given the results of the study, staff is recommending the establishment of a Barrhaven Rail Safety Program, which anticipates a phased and affordable approach to improving safety at rail crossings in Barrhaven for all users.

The Barrhaven and Merivale Road Rail Grade Separation Study estimates that the cost (in 2017 dollars) to construct the five grade separations would range from approximately \$75 million to \$145 million per crossing, for a total of approximately \$430 million, at a high level, not including related expenses like escalation costs, the potential provision of new piped service for properties currently on private well services that may be impacted in the Merivale Road area, OC Transpo's detour operating costs and costs for environmental assessment studies or addendums. In addition, a high level cost estimate for the planning, design and construction of the stand-alone MUP grade separation at Jockvale is in the order of \$6 million (not including escalation and property costs). All costs will be refined and confirmed through subsequent planning and design efforts.

In order for these projects to fit within the City's long-range financial plan and affordability model, partnership funding from the federal and provincial governments, and potentially VIA Rail, will be required, and it is anticipated that projects will be phased in over time.

Both the federal and provincial governments have announced that they will be investing in transportation infrastructure over the next 10 years. In order for the City to be in the best possible position to take advantage of these infrastructure funds for the design and construction of the grade separations, staff is recommending that work begin on the environmental assessments for the rail grade-separations at Woodroffe Avenue, the Southwest Transitway, and Fallowfield Road, as well as the stand-alone MUP underpass at Jockvale/Rail Corridor in 2018, and that funding for these environmental assessments studies be included in the 2018 Draft Budget for Council's consideration.

The requirement for shovel-ready projects has been a common element of recent federal and provincial infrastructure partnership programs. Undertaking these environmental assessments studies would best position the City to take advantage of federal and provincial funding programs for the design and construction phase of the Barrhaven Rail Safety Program projects as eligibility requirements of such programs are announced.

To this end, staff are also recommending that the Mayor, in consultation with the ward Councillors, be given the delegated authority to initiate discussions with the federal and provincial governments and VIA Rail on funding for the Barrhaven Rail Safety Program.

Upon approval of the staff report recommendations, the City Manager would forward this report and Council's disposition of the recommendations to the Transportation Safety Board for their information.

Financial Implications

The grade-separation projects are not currently reflected in the transportation and the City's long range financial plans, and will require federal, provincial and potentially VIA funding in order to fit within the financial plans and affordability model. Funding for the environmental assessment will be included in the 2018 Draft Budget for Council consideration.

Public Consultation/Input

No consultation with the general public was undertaken as part of the preparation of this technical study. Public consultation will be a required component of the environmental assessment process.

RÉSUMÉ

Hypothèses et analyse

Le 2 décembre 2015, le Bureau de la sécurité des transports (BST) publie le [rapport d'enquête ferroviaire n° R13T0192](#) au sujet de la collision entre un autobus d'OC Transpo et un train de voyageurs de VIA Rail survenue le 18 septembre 2013 à Barrhaven, à la croisée du Transitway Sud-Ouest et du couloir ferroviaire. Le rapport du BST contient cinq recommandations, dont quatre s'adressent à Transports Canada, et une à la Ville d'Ottawa, soit la recommandation R15-05 :

« Le Bureau recommande que la ville d'Ottawa étudie à nouveau la nécessité d'aménager des sauts-de-mouton aux passages à niveau de l'avenue Woodroffe, du Transitway et du chemin Fallowfield. »

Le 26 février 2016, les membres du Conseil reçoivent une note de service de John Moser, directeur municipal adjoint par intérim, Urbanisme et Infrastructure, énonçant l'engagement de la Ville d'Ottawa à « réaliser une étude technique pour déterminer s'il est faisable d'aménager des sauts-de-mouton à ces trois passages à niveau ». L'étude sera menée « en partenariat avec VIA Rail Canada, compte tenu de leur intérêt commun pour la sécurité publique et la fiabilité du service pour tous les passages à niveau ». La Ville étudiera aussi « les passages à niveau des chemins Merivale et

Jockvale afin de broser un tableau complet pour tous les autres passages à niveau de ce secteur d'Ottawa ».

Devant ce projet, le BST est heureux que la Ville d'Ottawa prévoie mener une étude de faisabilité pour ces trois passages à niveau et la félicite d'avoir ajouté d'autres passages à niveau à son étude. Le coût de l'étude, qui se chiffre à 250 000 \$, est partagé entre VIA Rail (100 000 \$) et la Ville d'Ottawa (150 000 \$).

Les résultats de cette étude sur l'aménagement de sauts-de-mouton aux passages à niveau de Barrhaven et du chemin Merivale (document 1) sont exposés sommairement dans le présent rapport. Est aussi énoncée dans ce rapport une recommandation sur la mise en place d'un programme de sécurité ferroviaire pour Barrhaven fondé sur une approche progressive et abordable pour améliorer la sécurité de tous les utilisateurs des passages à niveau de Barrhaven.

L'étude sur l'aménagement de sauts-de-mouton aux passages à niveau de Barrhaven et du chemin Merivale visait principalement à fournir 1) une évaluation fondée sur des données récentes concernant la faisabilité du projet d'aménagement de sauts-de-mouton aux cinq endroits visés (avenue Woodroffe, Transitway, chemin Fallowfield, chemin Merivale et chemin Jockvale) et 2) une estimation globale de ce qu'il en coûterait pour réaliser ce projet.

Les calculs ont été effectués au moyen du Crossing Exposure Index (CEI), un indice de risque servant à évaluer les avantages de convertir un passage à niveau en saut-de-mouton selon le nombre moyen actuel et projeté de véhicules routiers et de trains traversant chaque jour ce passage à niveau. Le CEI est un outil de référence qui permet de savoir s'il est nécessaire ou non d'envisager des sauts-de-mouton. Ainsi, les résultats de l'étude indiquent qu'il y a lieu d'aménager des sauts-de-mouton aux cinq passages à niveau visés, étant donné la croissance actuelle et projetée du volume de circulation sur les voies routières, ferrées et du Transitway concernées.

En outre, les résultats laissent entrevoir des difficultés dans la construction de sauts-de-mouton aux passages à niveau de l'avenue Woodroffe, du Transitway et du chemin Fallowfield en raison des conditions géologiques et hydrogéologiques observées. Ce sont donc des passages routiers supérieurs qui sont recommandés pour ces endroits, à la différence des chemins Merivale et Jockvale, pour lesquels l'étude recommande des passages inférieurs.

L'ordre de priorité préconisé par l'étude est le suivant : les passages à niveau de l'avenue Woodroffe, du Transitway Sud-Ouest et du chemin Fallowfield, suivis de celui du chemin Merivale, puis de celui du chemin Jockvale.

Au sujet du passage à niveau du chemin Jockvale, bien qu'il figure au bas de ces priorités, il s'agit d'un endroit hautement fréquenté par les piétons et les cyclistes, qui l'utilisent pour se rendre aux parcs, aux lieux de culte, aux commerces et aux écoles du secteur. Le personnel recommande donc que la Ville élabore un plan visant l'aménagement, dans un avenir proche, d'un passage inférieur qui n'abriterait qu'un sentier polyvalent, afin d'assurer la sécurité des résidents. La conception de cette installation devra tenir compte des pertes financières possibles, dans l'éventualité où l'on déciderait de convertir le passage à niveau à cet endroit en saut-de-mouton.

Compte tenu des résultats de l'étude, le personnel recommande la mise en place d'un programme de sécurité ferroviaire pour Barrhaven fondé sur une approche progressive et abordable pour améliorer la sécurité de tous les utilisateurs des passages à niveau de Barrhaven.

Selon les coûts estimatifs fournis par l'étude (en dollars de 2017), il en coûterait de 75 à 145 millions de dollars pour construire chaque saut-de-mouton, soit un total d'environ 430 millions de dollars pour les cinq sauts-de-mouton proposés. Toutefois, ces estimations générales ne tiennent pas compte des dépenses connexes, comme celles qui pourraient découler de l'escalade des coûts, de la nécessité de relier le réseau de conduites aux propriétés du secteur du chemin Merivale branchées sur un puits privé qui sont susceptibles d'être touchées, des coûts de fonctionnement d'OC Transpo liés aux déviations, ainsi que des évaluations environnementales envisagées et de leur éventuelle modification. Par ailleurs, les coûts généraux estimés pour la planification, la conception et la construction d'un saut-de-mouton abritant uniquement un sentier polyvalent au chemin Jockvale sont de l'ordre de 6 millions de dollars (escalade des coûts et coûts associés aux propriétés exclus). L'ensemble des coûts à prévoir reste à préciser et à confirmer dans le cadre des travaux de planification et de conception qui s'ensuivront.

Pour assurer le respect du Plan financier à long terme et du modèle d'abordabilité de la Ville, il faudra obtenir l'aide financière des gouvernements provincial et fédéral, et possiblement celle de VIA Rail. De plus, ces projets devront probablement être échelonnés dans le temps.

Justement, les gouvernements provincial et fédéral ont tous deux annoncé qu'ils investiraient dans l'infrastructure de transport dans les 10 prochaines années. C'est pourquoi le personnel recommande à la Ville, si elle veut être dans la meilleure position possible pour tirer parti de ces investissements en vue de la conception et de la construction des sauts-de-mouton envisagés, de commencer dès 2018 les évaluations environnementales concernant les passages à niveau de l'avenue Woodroffe, du Transitway Sud-Ouest et du chemin Fallowfield, ainsi que le passage inférieur destiné exclusivement au sentier polyvalent à la croisée de Jockvale et du couloir ferroviaire. Il recommande aussi d'inclure le financement de ces évaluations environnementales dans le budget préliminaire 2018, pour que le Conseil puisse se pencher sur la question.

Les récentes initiatives fédérales et provinciales de partenariat en matière d'infrastructure ont ceci en commun qu'elles exigent des projets prêts à démarrer. Le fait d'entreprendre les évaluations environnementales d'avance avantagerait la Ville au regard de ces programmes de financement lorsque les critères d'admissibilité seront annoncés. La Ville serait alors en bonne position pour obtenir des fonds pour les phases de conception et de construction des projets composant le programme de sécurité ferroviaire de Barrhaven.

À cette fin, le personnel recommande aussi de déléguer au maire, avec devoir de consulter les conseillers de quartier, le pouvoir d'aborder la question du financement du programme de sécurité ferroviaire de Barrhaven auprès des gouvernements provincial et fédéral et de VIA Rail.

Une fois approuvées les recommandations du présent rapport du personnel, le directeur municipal aurait pour tâche de transmettre au Bureau de la sécurité des transports, à titre informatif, le rapport et la décision du Conseil à l'égard de ces recommandations.

Répercussions financières

Les projets d'aménagement de sauts-de-mouton ne sont pas actuellement reflétés dans le plan sur le transport et le plan financier à long terme de la Ville. Un financement des gouvernements fédéral et provincial, et possiblement de VIA, sera nécessaire afin de cadrer avec les plans financiers et le modèle d'abordabilité. Le financement de l'évaluation environnementale sera compris dans le budget préliminaire de 2018 aux fins d'examen par le Conseil.

Consultation publique/commentaires

Le public n'a pas été consulté lors de la préparation de l'étude technique. Un exercice de consultation publique devra toutefois être mené lors du processus d'évaluation environnementale.

BACKGROUND

On December 2, 2015 the Transportation Safety Board (TSB) released its [Railway Investigation Report R13T0192](#) on the "collision between OC Transpo bus and VIA passenger train" that occurred on September 18, 2013 in Barrhaven at the Southwest Transitway crossing of the rail line. The TSB report contained five recommendations, four of which were directed to Transport Canada and one to the City of Ottawa. With respect to the City of Ottawa, TSB Recommendation R15-05 stated,

"The Board recommends that the City of Ottawa reconsider the need for grade separation at the Woodroffe Avenue, Transitway and Fallowfield Road level crossings."

On February 26, 2016, Members of Council received a memorandum from John Moser, the Acting Deputy City Manager, Planning and Infrastructure, outlining the City of Ottawa's commitment "to undertake a technical study to determine the feasibility of grade separation at these three level crossings." It noted that the study would "be in partnership with VIA Rail Canada in recognition of VIA's shared interest in public safety and service reliability at all rail crossings. In addition, the City [would] study the Merivale Road and Jockvale Road level crossings in order to have a complete understanding of all remaining level crossings in this part of Ottawa."

The study outcomes were to "include a review of all previous study work related to these crossings; an analysis of current and projected traffic data; geotechnical work where required; recommendation on whether these crossings could be improved by an underpass or overpass; financial estimates for any feasible works; and any recommendations that could enhance safety at the crossings in the interim."

Figure 1 illustrates these five study locations together with the additional crossing sites of Greenbank Road where a rail grade separation opened last year and Strandherd Drive where the City has plans for grade separation as part of a widening of that arterial roadway.



Figure 1 – Road and rail crossing locations

In response to the City's plan, the TSB advised that it was "pleased that the City of Ottawa will conduct a feasibility study at these three crossings, and commends the City for including additional crossings in the scope of its study".

The result is the Barrhaven and Merivale Road Rail Grade Separation Study, which was undertaken in partnership with VIA Rail in recognition of VIA's shared interest in public safety and service reliability at all rail crossings. Prior to both the initiation of this study and the September 18, 2013 accident, VIA Rail had been monitoring and reviewing issues related to the functioning of at-grade crossing at the Woodroffe, Transitway and Fallowfield locations. The \$250,000 cost of the study was shared between VIA Rail (\$100,000) and the City of Ottawa (\$150,000).

DISCUSSION

The main purpose of the Barrhaven and Merivale Road Rail Grade Separation Study, attached as Document 1, was to 1) provide an updated review of information on the feasibility of rail grade separation at the five subject locations (Woodroffe Avenue, the Transitway, Fallowfield Road, Merivale Road and Jockvale Road), and 2) identify a planning level costing for grade separations at those locations.

While outlined in more detail below, the study concluded that all five crossings should ultimately be grade separated due to the existing and anticipated increases in road, Transitway and rail traffic.

Given the results of the study, staff is recommending the establishment of a Barrhaven Rail Safety Program, which anticipates a phased and affordable approach to improving safety at rail crossings in Barrhaven for all users.

The study estimates that the cost (in 2017 dollars) to construct the five grade separations would range from approximately \$75 million to \$145 million per crossing, for a total of approximately \$430 million. In order for these projects to fit within the City's long-range financial plan and affordability model, partnership funding from the federal and provincial governments, and potentially VIA Rail, would be required.

Both the federal and provincial governments have announced that they will be investing in transportation infrastructure over the next 10 years. In order for the City to be in the best possible position to take advantage of these infrastructure funds for the design and construction of the grade separations, staff is recommending that work begin on the environmental assessments for the rail grade-separations at Woodroffe Avenue, the Southwest Transitway, and Fallowfield Road, as well as a stand-alone MUP underpass at Jockvale/Rail Corridor in 2018, and that funding for these studies be included in the 2018 Draft Budget for Council's consideration.

The following sections provide a high-level overview of the Barrhaven and Merivale Road Rail Grade Separation Study's findings.

Background study documents and existing conditions

For each of the crossing study locations, summary information was compiled from a number of pertinent existing background reports and previous studies that looked at the issue of safety and the need for grade separation. These included the Environmental Assessment (EA) studies prepared for Merivale Road (2004) and for the Southwest

Transitway Extension and Woodroffe Widening (1997). Follow through from the latter EA led to the undertaking of geotechnical studies in 2001 and 2003 for the then-proposed underpasses of Woodroffe Avenue, the Transitway and Fallowfield Road under the rail line. Those studies identified significant problems with the underpass option due to soil conditions and the hydrogeological properties of the bedrock. Very significant risk to property and safety of persons both during construction and post-construction were highlighted and decisions were made at that time not to advance with grade separation. Other significant documents that were reviewed include the Detailed Safety Assessment Report (2014) done for the City of Ottawa and VIA Rail and the aforementioned TSB 2013 report. There was no EA report nor geotechnical studies available for the Jockvale Road crossing location.

A review of existing conditions was done for each crossing looking at social, planning, natural and physical features at and in the vicinity of the study crossing locations. This included reference to the Greenbelt Master Plan, Ottawa Cycling Plan, archaeological and heritage resources, etc. The information compiled assisted in the process of developing and evaluating grade separation options.

Future conditions analysis – Crossing Exposure Index calculations

Current and forecasted future train and traffic volumes were obtained for the five crossing locations. That data was then applied to calculations of the Crossing Exposure Index (CEI), which is a tool used to assess the merit of grade separating a road and rail. The index is obtained by multiplying the number of roadway vehicles by the number of trains that use a crossing during an average day. It is also known as the “Cross Product”. At this time, the CEI is only a guideline that provides a benchmark that flags the need for consideration of grade separation when a value of 200,000 or over is calculated. Figure 2 demonstrates the cross product values for the Merivale Road, Woodroffe Avenue, Fallowfield Road and Jockvale Road. The first three roadways have current cross product values significantly above the 200,000 value, and all four will be above that level in future.

Estimated Crossing Exposure Rate – AADT X Total No. of Trains					
Crossing Name	Daily Crossing Exposure Rate				
	2010	2014	2016	2021	2031
Merivale Road	219,570 ⁽¹⁾	380,280 ⁽²⁾	427,908	600,633	1,087,114
Woodroffe Avenue	377,310	632,881 ⁽²⁾	796,094	1,115,598	2,019,241
Fallowfield Road	238,756 ⁽¹⁾	481,500 ⁽³⁾	559,892	618,165	1,467,420
Jockvale Road	95,200 ⁽¹⁾	159,256	217,588	240,217	570,244

Note:
 (1) No 2010 ground traffic count for this location, therefore 2010 AADT is based on back-casting the 2.0% annual growth rate
 (2) No 2014 ground traffic count for this location, therefore 2014 AADT is based on the recommended 2.0% annual growth rate with 2010 AADT acting as a base year
 (3) 2015 AADT used instead of 2014 since there was a sudden drop in the 2014 AADT on Fallowfield Road

Figure 2 – Estimated Crossing Exposure Rate

For the Southwest Transitway a similar tool was used, called the Occupant Crossing Exposure Index, which is the product of the number of train crossing per day multiplied by the average number of vehicle occupants/bus. This is shown in Figure 3.

Occupant Crossing Exposure Index – Transitway ⁽²⁾					
Crossing Name	Daily Crossing Exposure Rate				
	2010	2013	2016	2021	2031
Transitway ⁽¹⁾	187,200	805,084	945,152	1,466,784	3,255,168

Note:
 1) Average number of vehicle occupants per bus equaling 32
 2) Total number of trains used to calculate crossing exposure rate at 2016, 2021, and 2031 are based on forecasted values obtained from VIA Rail

Figure 3 – Estimated Occupant Exposure Index

Development and evaluation of grade separation options, including detour plans

Various options for grade separation were evaluated for each crossing including road under rail, road over rail, rail over or under the road, partial lowering/raising of road and rail. Detour location options and interim measures were also reviewed for each site. The study describes the evaluation screenings of these various options. Below are summaries for the recommended options for each crossing.

Merivale Grade Separation – A road underpass is recommended, this being consistent with the preferred option from the 2004 EA study (Figure 4). A potential detour route has also been prepared showing a temporary road location on the east side of the road corridor (Figure 5); this would require the temporary closure of MacFarlane Road. The

underpass option would have property access impacts with the closures (cul de sac) of Capital Drive and of Brookdale Avenue and relocated accesses for the St. Monica School and the commercial businesses on the north east side of the crossing.

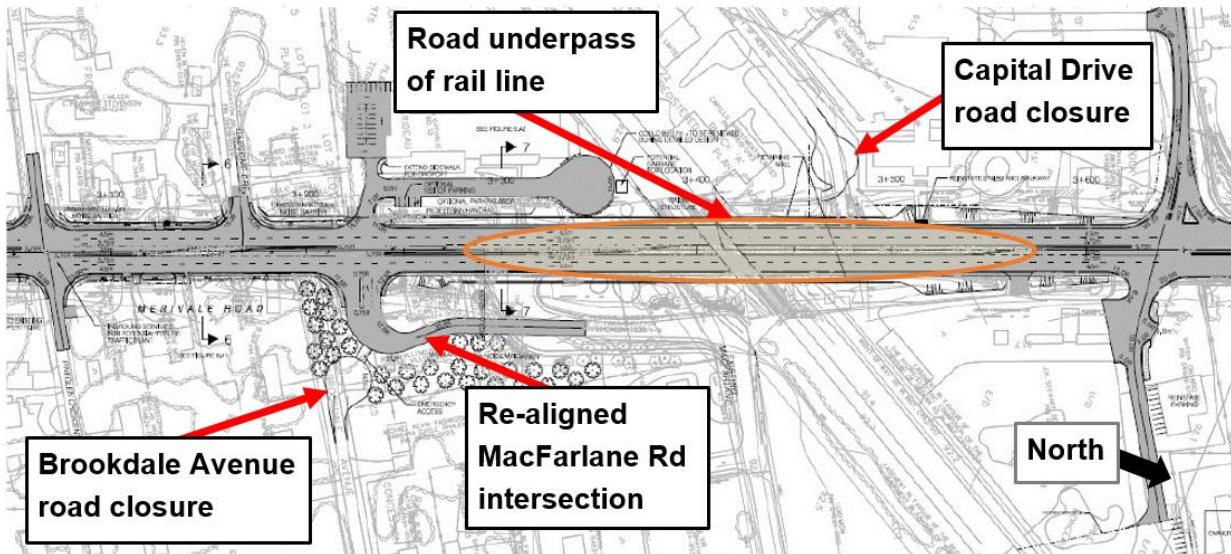


Figure 4 – Merivale: Underpass and street closures/re-alignments (2004 EA excerpt)

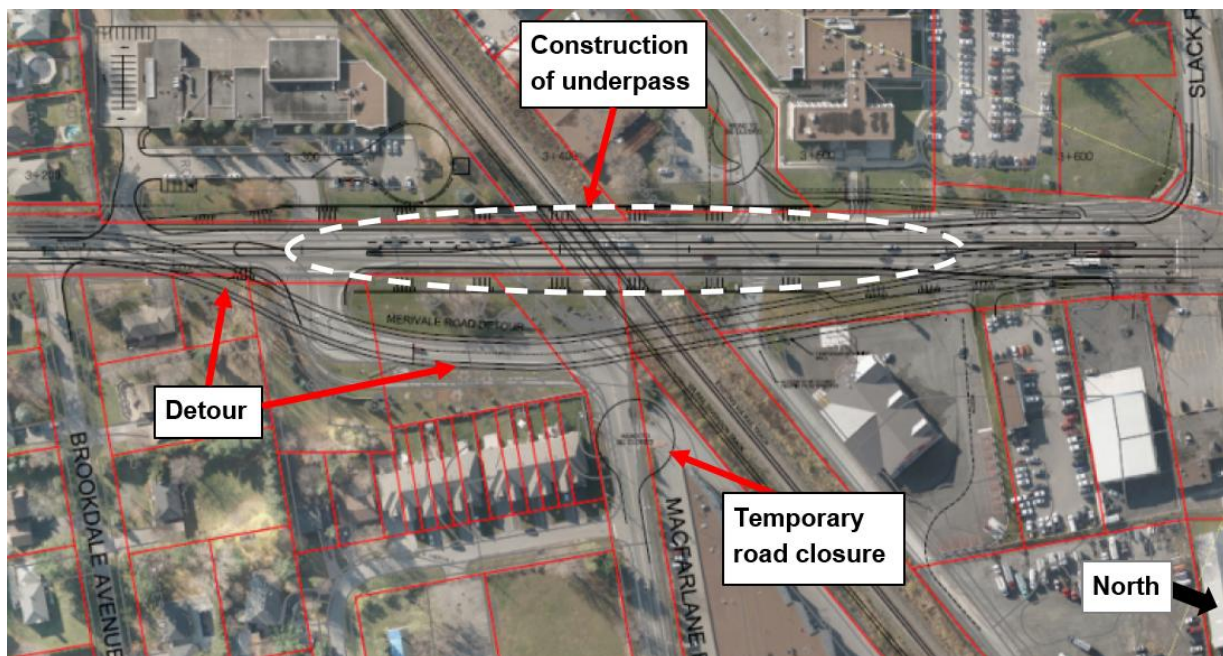


Figure 5 – Merivale: Underpass and detour on east side

Woodroffe and Transitway Grade Separation – An overpass of the roadway and Transitway (combined structure) over the rail line is the recommended option for this crossing location (Figure 6). It is proposed that a detour be constructed on the west side of the existing roadway (also Figure 6). Further analysis, at the EA addendum stage, will be required to ensure that there is sufficient spacing between this detour and the operational rail requirements for the Barrhaven station and its siding. The detour would see southbound buses on their own reserved lane from the Transitway to the Transitway station. Northbound buses would need to exit via Fallowfield Road, turn north on Woodroffe Avenue, and be in mixed traffic until the Nepean Sportsplex where reserve lanes begin.

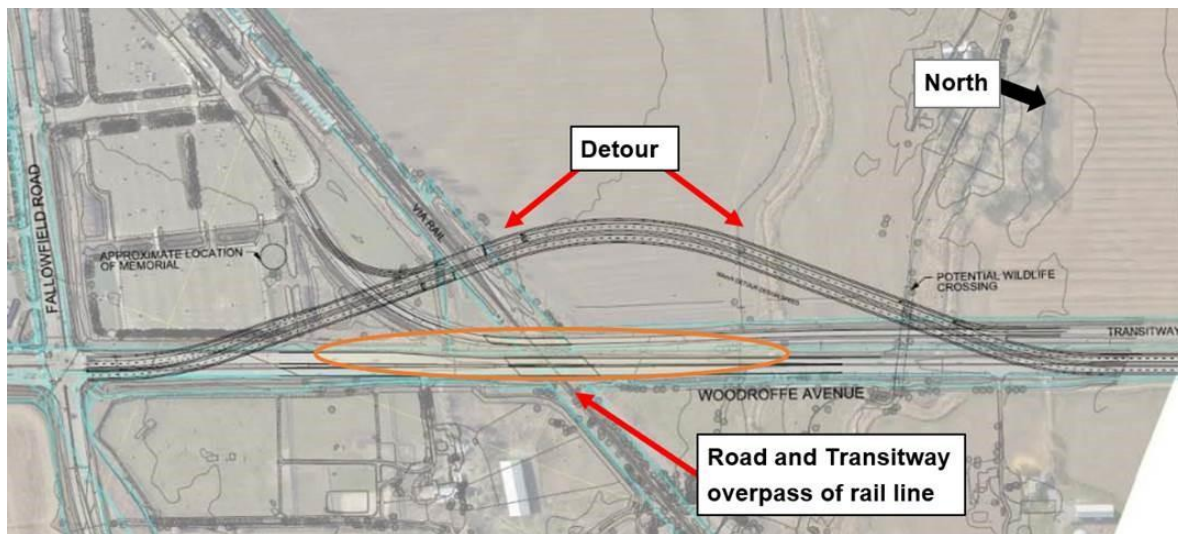


Figure 6 – Woodroffe and Transitway: Overpass and detour on west side

Fallowfield Grade Separation – A longer overpass of the roadway over the rail line and adjacent Transitway is the recommended option for this crossing location (Figure 7). The location of the new Fallowfield overpass and roadway would be approximately 60 m to the north of the existing alignment. This would further distance the roadway from housing on the southeast side and allow for the current roadway to function while the new facility is constructed immediately adjacent. The EA addendum would confirm this option and if it proves to not be possible, an alternative detour route is shown in Figure 8 (with the overpass built in the same road alignment as currently exists and requiring a detour extending further to the north, onto NCC leased farmland). This large detour swing to the north is due to the regulatory restrictions for the angle that a detour can cross a rail line. The proximity to the Barrhaven station will need review as to the ability

of the detour to respect the operational rail requirements for trains arriving/departing from the station and its siding.

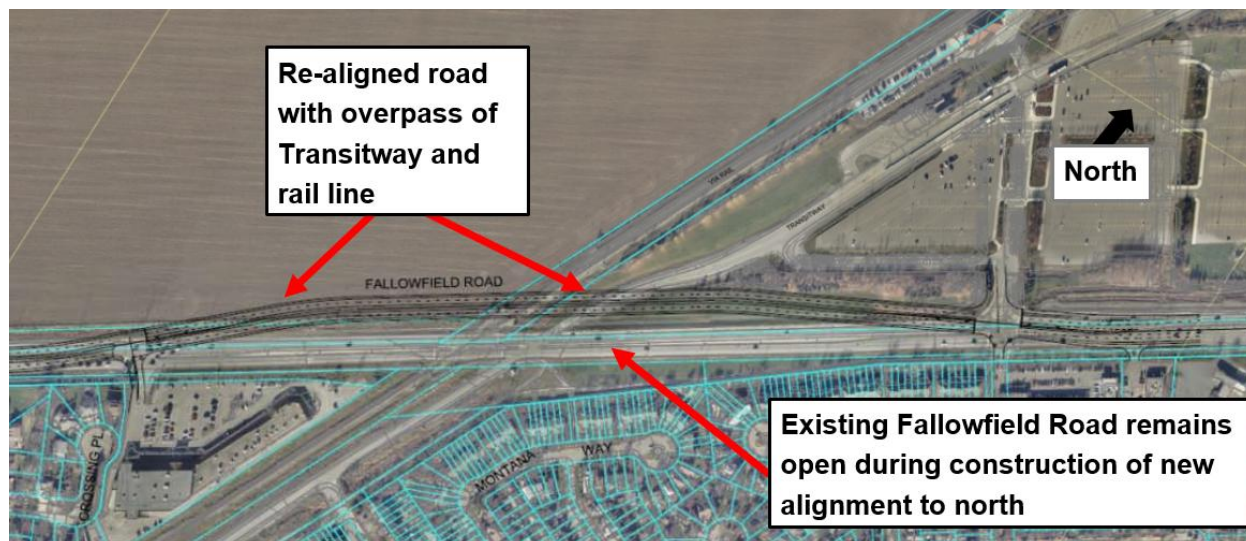


Figure 7 – Fallowfield: New overpass alignment

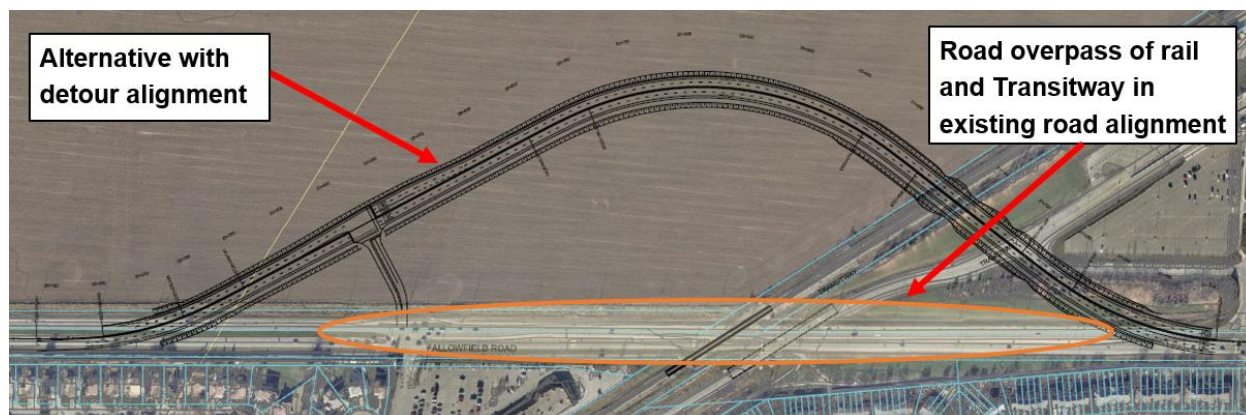


Figure 8 – Fallowfield: Overpass alternative with detour

Jockvale Grade Separation – A road underpass is recommended at this location (Figure 9). Access to the Barrhaven Fellowship Christian Reform Church site would likely be both realigned and modified to potentially a right turn in and right turn out only, and there could be the addition of a short new access from Townsend Drive, which is a local street to the southeast where an unused city road allowance exists in that plan of subdivision. A detour is proposed to be accommodated on the east side of the roadway (Figure 9). There are existing multi-use pathways (MUPs) along the full length of the

west side of Jockvale Road and both sides of the railway line coming from the south-west to Jockvale. Along the rail line east of Jockvale there is no formal MUP but one is planned on its south side to connect with the new MUP that links to Greenbank Road. Both interim and ultimate options for these MUP connections would be studied as part of the EA for this crossing. Unlike the other crossing locations in this study, no EA exists for Jockvale Road. Furthermore, the EA efforts would need to include a detailed investigation of the soil and hydrogeological conditions at this site.

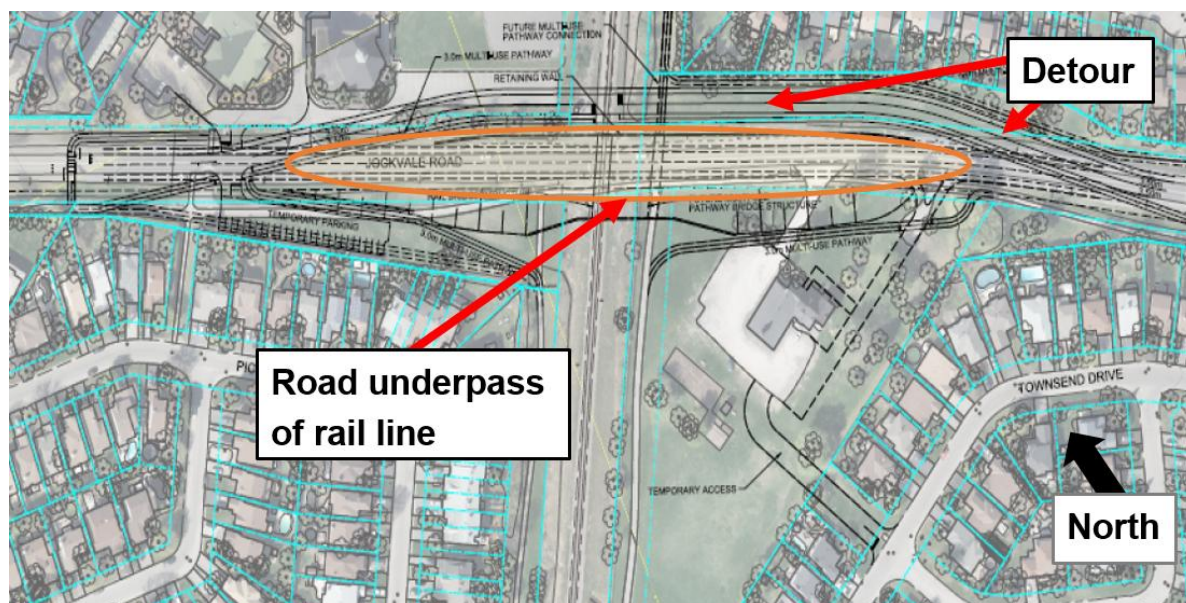


Figure 9 – Jockvale: Underpass with detour on east side

For each of the crossing locations, the study also identified potential interim measures. Some of these are expected to be further reviewed as part of the recommended EA or EA addendums. It is acknowledged that rail grade separation at all five locations is not affordable in the immediate future without federal and provincial funding, and the City may wish to consider implementation of interim measures. These could include improved pedestrian and cycling facilities on the east sides of Jockvale and Merivale Roads, where none currently exists, and potential crossing options of Jockvale Road to permit the MUP along the rail corridor (east-west movement) to be completed.

Cost estimates (2017 dollars)

Conceptual level (Class D) cost estimates were prepared. Assumptions used for the cost calculations are based on existing geotechnical information, except for Jockvale Road where none is available. These cost estimates do not include a number of items such as: escalation for future construction costs, provision of new piped water service

for potentially affected properties currently on private well services in the Merivale Road area, OC Transpo's detour operating costs, lands for stormwater management and EA studies and addendums. With these caveats, the cost estimate for the grade separations is approximately \$430M, comprised of the following:

Merivale Grade Separation - \$75M

Woodroffe and Transitway Grade Separation - \$145M

Fallowfield Grade Separation - \$130M

Jockvale Grade Separation - \$80M

All costs would be refined and confirmed through subsequent planning and design efforts.

Order of priority

The study's suggested order of priority for grade separation is derived from the Crossing Exposure Index totals presented earlier. This results in an order of implementation, starting with top priority, as follows:

1. Woodroffe Avenue and Southwest Transitway Grade Separation (overpass)
2. Fallowfield Road Grade Separation (overpass)
3. Merivale Road Grade Separation (underpass)
4. Jockvale Road Grade Separation (underpass)

Although the Jockvale Road grade separation is listed lowest in priority ranking, staff note that there are a significant number of pedestrians and cyclists crossing at this location to access parks, places of worship, commercial businesses and schools within cycling distance. Staff recommends developing a plan and implementing a stand-alone MUP underpass in the near term for the safety of residents (Figure 10). This facility would need to be designed to minimize throw-away costs should the road be grade-separated in the future. A high level cost estimate for planning, designing and constructing the MUP crossing is in the order of \$6M (not including escalation and property costs). As with the other grade separations, the funding for this stand-alone MUP underpass is not included in the City's long-range financial plan.



Figure 10: Jockvale stand-alone multi-use pathway (interim)

Next Steps – Establishing a Barrhaven Rail Safety Program

The findings and recommendations of the Barrhaven and Merivale Road Rail Grade Separation Study are the first stage of a response to the Transportation Safety Board's recommendation for the City of Ottawa contained in [Railway Investigation Report R13T0192](#). In considering next steps, it should be noted that the City's current transportation and long term financial plans do not include the five grade-separation projects. The 2013 Transportation Master Plan (TMP) identifies within its planning horizon of 2031 the rail grade-separation of Strandherd Drive in Barrhaven; this being part of a widening project for a 3 km segment of that roadway. The TMP does not reference grade-separation at the five locations noted in this study; nor is project funding identified in the City's Long Range Financial Plan. As noted earlier, partnership funding from the federal and provincial governments, and potentially VIA Rail, would be required for the design and construction of these projects.

In order to proceed within the City's affordability envelope, it is proposed that staff formally establish a Barrhaven Rail Safety Program to address these five crossings over the long term. Immediate next steps are recommended to include sourcing funding in 2018 Draft Budget to undertake the environmental assessments for the rail grade-

separations at Woodroffe Avenue, the Southwest Transitway, and Fallowfield Road, as well as the stand-alone MUP underpass at Jockvale/Rail corridor.

The requirement for shovel-ready projects has been a common element of recent federal and provincial infrastructure partnership programs. Undertaking these environmental assessment studies would best position the City to take advantage of federal and provincial funding programs for the design and construction phase of the Barrhaven Rail Safety Program projects as such programs are announced.

To this end, staff are also recommending that the Mayor, in consultation with the ward Councillors, be given the delegated authority to initiate discussions with the federal and provincial governments and VIA Rail on funding for the Barrhaven Rail Safety Program.

RURAL IMPLICATIONS

This report does not have a direct impact on the rural area of the city.

CONSULTATION

This study's efforts involved participation and consultation with the City's funding partner, VIA Rail, and contact with the National Capital Commission. City staff from several departments were also involved. No public consultation was undertaken as part of this study. When the EA and EA Addendums are initiated, there would be a consultation program with local residents, community associations, City Advisory Committees, First Nations and others.

COMMENTS BY THE WARD COUNCILLOR(S)

Councillor Jan Harder provided the following comments:

I am pleased that the recommendations once implemented will increase safety at our VIA Rail Crossings in Barrhaven. I look forward to working with our government partners and VIA Rail to identify funding sources as soon as possible.

Councillor Keith Egli provided the following comments:

The study addresses the TSB's recommendation that the City review the need for rail grade separations in Barrhaven. Undertaking the environmental assessment studies as described in the staff report is a responsible go-forward plan for the City. However, the implementation of these high cost grade-separations will require funding contributions from senior levels of government and VIA Rail to make it a reality.

ADVISORY COMMITTEE(S) COMMENTS

No City Advisory Committee has been consulted in the preparation of this report. Relevant Advisory Committees will be consulted as part of the environmental assessment process.

LEGAL IMPLICATIONS

There are no legal impediments to implementing the recommendations in this report.

However, Council should be aware that there is a legislative framework which governs, by virtue of the *Canada Transportation Act* (“CTA”) in conjunction with the *Railway Safety Act* (“RSA”) the ability of a road authority, the City of Ottawa and a railway company, VIA Rail Canada Inc. (“VIA Rail”), to negotiate an agreement on how to apportion construction and maintenance costs of a grade separation at a level crossing.

If the City and VIA Rail cannot come to an agreement, through direct negotiations, then the City may apply to the Canada Transportation Agency (“Agency”), pursuant to section 16 of the RSA, for a determination of apportioning of the costs. The Agency has published formal guidance with respect to the manner in which it may apportion the cost of a grade separation crossing as between road authorities and railway companies. The document is entitled “Apportionment of Costs at Grade Separations: A Resource Tool” (“Apportionment Guidelines”). This resource tool is not binding but influential and would most likely be used to determine the cost sharing.

The Apportionment Guidelines state that if a grade separation is to be constructed, the construction costs are normally apportioned as follows:

1. On projects due primarily to a need for road development:
 - 85% road authority;
 - 15% railway company
2. On projects where both road and railway development have contributed largely to the need for the project:
 - 50% road authority;
 - 50% railway company
3. On projects due primarily to a need for railway development:
 - 15% road authority;
 - 85% railway company.

The Apportionment Guidelines also provide for the apportionment of maintenance costs to each of the road authority and the railway company which are allocated based on whether an overpass (overhead bridge) or underpass (subway) is being constructed at the crossing.

At this time, it is too premature and speculative to determine the apportionment of the construction and maintenance costs of the grade separation at each of the five crossings identified in the report through direct negotiations with VIA Rail or an application to the Agency if those negotiations prove to be unsuccessful.

Legal Services will be prepared to assist staff in the negotiations with VIA Rail together with preparing crossing agreements for each of the grade separations in addition to making an application to the Agency, if necessary.

In light of the various potential outcomes relating to funding scenarios as described above, and in light of the increasing and competing demands on the limited municipal tax dollar, Council may be required at a subsequent juncture to assess and make difficult policy decisions regarding the feasibility and/or timing of grade separation, to be informed by a number of factors at that time, including but not limited to economic considerations.

With respect to questions relating to municipal liability associated with Council's policy decisions, generally speaking, municipalities are immune from liability for policy decisions made in good faith exercise or non-exercise of a discretionary power, or the performance or non-performance of a discretionary function. This defence is set out in Section 450 of the *Municipal Act, 2001*, which is subtitled, "Policy Decisions". The courts have held that governments, including municipalities may be exempt from the application of the traditional tort law duty of care if an explicit statutory exemption exists (e.g. Section 450 of the *Municipal Act, 2001*), or if the decision arose as a result of a policy decision. In its 1998 decision of *Just v. British Columbia*, the Supreme Court of Canada stated that "[as] a general rule, decisions concerning budgetary allotments for departments or government agencies will be classified as policy decisions. Further, it must be recalled that a policy decision is open to challenge on the basis that it is not made in the *bona fide* exercise of discretion." Furthermore, more recently in 2011, the Supreme Court in the *Imperial Tobacco* case held "that "core policy" government decisions protected from suit are decisions as to a course or principle of action that are based on public policy considerations, such as economic, social and political factors, provided they are neither irrational nor taken in bad faith." In light of the foregoing, these factors should be further

evaluated once more information comes available which may better inform Council in making future policy decisions relating to grade separation.

RISK MANAGEMENT IMPLICATIONS

There are no risks associated with the receipt of this study and the recommendations in this report.

ASSET MANAGEMENT IMPLICATIONS

The recommendations documented in this report are consistent with the City's Comprehensive Asset Management (CAM) Program ([City of Ottawa Comprehensive Asset Management Program](#)) objectives. Undertaking the recommend studies and environmental assessments will provide the necessary information for the City to fulfill its obligation to deliver quality services to the community in a way that balances service levels, risk and affordability.

FINANCIAL IMPLICATIONS

Funding for the environmental assessments will be included in the 2018 Budget for Council's consideration. The combined projects, including the Jockvale multi-use pathway underpass, total close to \$440 million and is not included in the Transportation Master Plan affordability model or the City's Long Range Financial Plans. In order for these projects to meet the City's long-range financial plan and affordability model, partnership funding from the federal and provincial governments, and potentially VIA Rail, will be required.

ACCESSIBILITY IMPACTS

There are no impacts to current accessibility conditions based on this report.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications to the receipt and acceptance of this study.

TERM OF COUNCIL PRIORITIES

The recommendations contained herein aim to support the following Strategic Directions adopted by Council:

Transportation and Mobility

TM2 Provide and promote infrastructure to support safe mobility choices

TM4 Improve safety for all road users

SUPPORTING DOCUMENTATION (*Held on file with the City Clerk*)

Document 1 – Barrhaven and Merivale Road Rail Grade Separation Study

DISPOSITION

Upon approval of the staff report recommendations, the City Manager will forward this report and Council’s disposition of the recommendations to the Transportation Safety Board for their information

As well, staff will source funding to undertake the environmental assessments for the grade-separations at Woodroffe Avenue, the Southwest Transitway, Fallowfield Road, and the stand-alone multi-use pathway underpass at Jockvale/Rail corridor in the 2018 Draft Budget for Council’s consideration.

The Mayor, in consultation with the ward Councillors Jan Harder and Keith Egli, will communicate with officials from the provincial and federal governments and from VIA Rail regarding funding for implementation.

The findings and recommendations of the Barrhaven and Merivale Road Rail Grade Separation Study will be referred to the City’s next review of the Transportation Master Plan (TMP) for consideration.