

**TECHNICAL ANALYSIS****Impact on Emergency Medical Services, Healthcare Access, and Road Severance on the ALTO HSR Southern Corridor***Southern Corridor — Eastern Ontario*

<b>Prepared by</b>	ALTO HSR Citizens Research Initiative
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**KEY FINDINGS**

- Transport Canada confirmed in 2023 that the planned high-speed rail network requires complete grade separation and a fully fenced corridor on an alignment with over 1,000 public and private crossings.
- The 1,000+ figure was based on the northern HFR corridor; the southern option passes through a denser agricultural concession road grid.
- International practice confirms that 30–60% of crossings on rural HSR corridors are permanently closed rather than bridged. This suggests 300–600 road closures across the corridor.
- Each additional kilometre of detour adds approximately 37 seconds to ambulance response time; each minute of delay reduces cardiac arrest survival probability by 6–10%.
- Ontario Regulation 257/00 requires paramedic services to meet 6-minute (cardiac arrest) and 8-minute (CTAS 1) response time targets — targets already under stress due to rural geography alone.
- ALTO’s VP of Systems Engineering confirmed on record at Kingston City Council (February 17, 2026) that the project’s explicit goal is to “limit the number of overpasses.” No health impact assessment has been conducted.

**Section 1 — Grade Separation and Emergency Response****1.1 The mandatory grade separation requirement**

At operating speeds above 200 km/h, high-speed rail cannot share grade-level intersections with road traffic. Transport Canada’s own internal briefing material, prepared for a Parliamentary committee appearance in March 2023, is explicit: the planned network requires a fully enclosed (fenced) corridor and complete grade separation on an alignment that currently has over 1,000 public and private crossings. The southern corridor, running through a more intensively farmed landscape with a tighter concession road grid, would cross a comparable or greater number of roads. Given the cost of constructing grade-separated structures, typically \$5–12 million each for rural overbridges in Ontario, international practice confirms that 30–60% of crossings are permanently closed rather than upgraded, implying at least 300–600 road closures across the full corridor.

## 1.2 Impact on ambulance and first responder routes

In a rural road grid with crossing points historically spaced 1–2 km apart, consolidation to crossings spaced several kilometres apart significantly extends the distance that ambulances, fire trucks, and police must travel to reach any point on the other side of the corridor. The transportation safety literature is explicit about this risk: highway-rail crossing blockages impose “severe and potentially life-threatening consequences” on emergency response vehicles (Ghaffari Dolama and Regehr, 2022). For a rural corridor where consolidation creates structural detours of several kilometres, the effect applies on every call requiring a crossing.

The clinical stakes are quantifiable. A 2025 study published in BMC Emergency Medicine found that each additional kilometre from an ambulance station adds approximately 37 seconds to response time. Multiple peer-reviewed studies document that each one-minute increase in EMS response time reduces the likelihood of survival from cardiac arrest by 6–10%. A road closure adding a 5 km detour to a response route translates to roughly three additional minutes at rural road speeds — a clinically significant margin when the survival window for cardiac arrest is measured in single-digit minutes. Under Ontario Regulation 257/00 (Ambulance Act), paramedic services are required to report performance against a target of 6 minutes or less for sudden cardiac arrest and 8 minutes or less for CTAS 1 calls. These targets are already under stress in rural Eastern Ontario due to geography.

### ON RECORD — DAVID COOK, VP SYSTEMS ENGINEERING AND INTERFACE, ALTO

"The issue about grade separations along the corridor has to be looked at. Some areas there may be more, some areas there may be less. And that's actually going to be part of route selection at the end of the day — when we're talking about trying to limit impacts to communities. So try and limit the number of overpasses that we'll need to get created for sure." — Kingston City Council, February 17, 2026.

## 1.3 Construction-phase disruption

Construction of a 1,000 km HSR network is a multi-decade undertaking. The Eastern Ontario section will involve years-long disruption to the rural road network: temporary road closures, bridge construction, re-routing of concession roads, and creation of new access points. During this period, emergency response routes will be intermittently altered. Formal requirements to maintain updated, accessible EMS detour protocols throughout construction should be built into the project's environmental and community conditions.

# Section 2 — Healthcare Access Context in Rural Eastern Ontario

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## 2.1 Physician shortages

Across Canada, rural communities are served by only 8% of physicians while accounting for approximately 18% of the population (CFPC, 2020). In Ontario, 1.8 million people lack access to a family doctor, with rural communities most acutely affected (OCFP, 2024). In Frontenac County, which sits directly within the southern corridor study area, physicians are concentrated in Kingston with limited clinic access in communities such as Sharbot Lake and Verona. Many residents in the rural townships are 45–90 minutes from the nearest emergency department under normal road conditions.

## **2.2 Rural populations are older and more vulnerable**

Rural populations in Canada are, on average, older, less affluent, and carry a higher burden of chronic illness than their urban counterparts (Wilson and Rourke, 2020). An infrastructure project that adds distance or travel time to healthcare journeys disproportionately harms this population. There are no ALTO stations planned between Ottawa and Peterborough; the rural townships along the corridor receive all of the road severance costs with none of the travel time benefits.

## **2.3 Expropriation, displacement, and continuity of care**

For elderly rural residents who have lived in a community for decades, forced relocation disrupts established relationships with local physicians, nurses, pharmacists, and specialists. This can result in loss of chronic disease management, medication continuity, and early intervention for developing conditions. The uncertainty of expropriation which may persist for years during route selection and design, can also generate significant mental health impacts before any physical relocation occurs.

## **Section 3 – Assessment of the Healthcare Connectivity Argument**

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ALTO's published materials reference "improved access to education, employment, healthcare options, and services for youth, seniors, and workers" as a key benefit for Eastern Ontario communities. This argument fails on several fronts for the affected communities:

- The planned ALTO rail line does not improve connectivity to Kingston Health Sciences Centre, the Cancer Centre of Eastern Ontario, or the medical community at Queen's University.
- Local residents without cars and without access to a train station within reasonable distance derive no travel benefit from a high-speed line that passes through their township without stopping.
- The project's P3 structure creates incentives to maximise ticket prices. If fares are comparable to short-haul air travel, the service is inaccessible to lower-income rural residents.
- Emergency patients need ambulances, not high-speed trains. The healthcare connectivity argument cannot be used to offset the concrete access risks associated with road network severance.

## Section 4 — Formal Requests

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<b>1</b>	<b>Require a formal Health Impact Assessment</b> <p>A formal Health Impact Assessment (HIA) must be a mandatory condition of the federal Impact Assessment process. This assessment must specifically examine: EMS response time modelling for the corridor; patient travel time impacts from road network changes; displacement effects on patient–provider relationships; and mitigation requirements. The HIA must be conducted in consultation with local paramedic services, Ornge air ambulance, Ontario Health teams, and affected municipalities.</p>
<b>2</b>	<b>Publish a road crossing assessment before consultation closes</b> <p>ALTO must publish a preliminary road crossing assessment identifying the number and type of crossings on each corridor option, the criteria that will be used to determine whether a crossing receives a grade separation or is closed, and the methodology for assessing detour adequacy in rural settings. Without this information, communities cannot meaningfully assess the project’s most direct local impacts.</p>
<b>3</b>	<b>Protect all emergency response crossings from closure</b> <p>All road crossings on established EMS, fire, and police response routes must be identified before corridor finalization and protected from closure. Where necessary, full grade separations must be constructed at these points regardless of traffic volume criteria. The cost of these structures must be treated as a non-negotiable project commitment, not a value-engineering trade-off.</p>
<b>4</b>	<b>Establish construction-phase EMS protocols</b> <p>ALTO and the Cadence consortium must develop and maintain, in partnership with local EMS services, updated detour and response protocols for every phase of construction. Changes to road access must be communicated to EMS providers in advance with sufficient lead time to adapt dispatch procedures.</p>

## Key Sources

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- BMC Emergency Medicine (2025). “Modelling emergency response times for OHCA patients in rural areas of the North of England.” doi: 10.1186/s12873-025-01170-7
- PMC 12065030 (Bangkok EMS study, 2025): each 1-minute increase in response time decreased likelihood of survival at the scene by 6%.
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