

# Western Highway Duplication Rethinking Section 2B Buangor – Ararat

An Occasional Paper on Smarter Infrastructure

Paper No. 5

Project Aims, Value for Money  
and Responsible Investment



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# Western Highway Duplication

## Rethinking Section 2B Buangor – Ararat

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Photograph of works in 2016.

### 1. About KORS Inc.

KORS Inc. (Keep the Original Route Supporters) is a community-based organisation comprising environmental advocates, local residents and affected landholders. KORS supports completion of the Western Highway Duplication but advocates reconsideration of the approved southern deviation between Buangor and Ararat.

The organisation's position is simple: if equivalent transport outcomes can be achieved with lower cost, less environmental damage, less cultural harm and shorter construction time, then that option deserves proper consideration.

This paper examines the project through the lens of public value, economic efficiency and responsible infrastructure investment.

## 2. Summary

Governments are entrusted with making infrastructure decisions that balance safety, economic productivity, environmental stewardship and prudent use of public funds.

The approved Section 2B alignment between Buangor and Ararat, with its hilly deviation, raises important questions in each of these areas.

While the project undoubtedly delivers road safety improvements, the available evidence suggests:

- traffic volumes remain relatively modest;
- economic returns are limited;
- benefits to road users are limited;
- environmental and cultural impacts are substantial;
- construction costs have increased significantly since the route was selected;
- an alternative route remains available that appears capable of delivering similar transport outcomes with materially lower impacts and financial costs.

Some key statistics are tabled here:

|                                                                |                                              |
|----------------------------------------------------------------|----------------------------------------------|
| Current capacity adequate for:                                 | 20 - 90 years,                               |
| Benefit /cost ratio                                            | 0.32 (lossmaking) at official discount rates |
| Travel time saved by cars (110 kph)                            | 22 seconds                                   |
| Return on expected crashes savings                             | >0.1%/year                                   |
| Price /kilometre on other section vs price/km on the deviation | \$6.5 million vs \$15 million                |

The purpose of this paper is not to oppose the highway duplication.

Rather, it is to ask whether Victoria is currently pursuing the most efficient and responsible way to achieve the duplication. A safer, cheaper, faster and less destructive solution may exist.

If the same highway outcome can be achieved faster, cheaper and with significantly less environmental and cultural damage, why would Victoria not test that proposition thoroughly before proceeding?

### 3. The Original Purpose of the Project

The Western Highway is an interstate freight corridor linking Melbourne with Western Victoria, South Australia and beyond.

The duplication program was established to:

- A. Improve road safety<sup>a</sup>.
- B. Increase transport efficiency<sup>b</sup>.
- C. Improve traffic capacity<sup>c</sup>.
- D. Maintain community connectivity.
- E. Support regional economic development.

These are legitimate and worthwhile objectives.

However, infrastructure projects should continually be tested against changing information, particularly where construction has been delayed and significant new environmental, cultural or economic information has emerged.

The question today is not whether these objectives remain valid.

The question is whether the currently approved route remains the best means of achieving them.

### 4. Is There Urgency to Proceed on The Existing Alignment?

Public discussion has often created the impression that the Buangor–Ararat section represents one of Victoria's most dangerous roads.

Recent fatalities have understandably reinforced this perception.

Every life lost on Victorian roads is a tragedy.

However, long-term crash data presents a more nuanced picture.

Independent analysis of twenty-five years of crash history suggests the section remains comparatively safe when measured against broader Victorian and regional averages.

Crash rates remain below regional and state-wide averages<sup>d</sup> and traffic volumes remain relatively low<sup>e</sup> compared with many other major road corridors.

This does not argue against safety improvements.

Rather, it suggests there is sufficient time available to ensure the right alignment is chosen before irreversible works proceed<sup>f</sup>.

A short reassessment of route options would not compromise public safety.

## 5. When Does Duplication Normally Become Necessary?

One of the principal justifications for duplication is an increasing traffic-demand.

Road agencies typically begin considering duplication where traffic volumes approach thresholds at which safety, travel reliability and freight movement become constrained.

Current traffic volumes near Buangor are estimated at approximately 6,500 vehicles per day.

Many transport planners regard duplication thresholds as being in the order of 10,000–15,000 vehicles per day, depending upon local circumstances<sup>g</sup>.

Even using optimistic growth assumptions, traffic demand may not approach these thresholds for decades<sup>h</sup>.

At observed growth rates, the timeframe may be substantially longer<sup>i</sup>.

This does not mean duplication should not proceed.

However, it does suggest the project is not facing an immediate capacity crisis requiring rapid implementation regardless of cost or impact.

## 6. The Value-for-Money Question

Major infrastructure projects compete for limited public funding.

Every dollar spent on one project is unavailable for hospitals, schools, public transport, housing or other road upgrades.

For this reason, governments commonly use Benefit-Cost Ratios and economic assessments to evaluate investment priorities.

The economic analysis prepared for the project identified relatively modest returns<sup>j</sup>.

Many of the anticipated benefits are “minor” and localised<sup>k</sup>.

Travel time savings are measured in seconds rather than minutes<sup>l</sup>.

Safety improvements contribute positively<sup>m</sup> to the assessment, but overall economic performance remains comparatively weak for a project of this scale.

Importantly, the economic analysis does not fully capture several impacts now known to exist, including:

- loss of over 30 hectares of significant native vegetation on private land, 4.3 hectares of it critically endangered;
- loss of large 600-year-old trees;

- fragmentation of wildlife habitat and severing of 7 corridors for echidnas, phascogales, antechinus, barking owls (400 left), ;
- impacts on agricultural land including substantial severance<sup>n</sup>;
- impacts on a significant Aboriginal cultural place, rare in this developed landscape;
- broader landscape degradation from heavy excavation, headlights and noise (see Fig.1 for scale of works to date)

If these costs were fully reflected in the economic assessment, the project's value proposition would probably become less favourable<sup>o</sup>.

## 7. Construction Costs Have Changed

When Option 1 was selected, construction costs reflected a very different economic environment.

Since then Australia has experienced:

- substantial construction inflation;
- labour shortages;
- escalating fuel costs;
- rising earthmoving costs;
- increased freight costs;
- increased costs associated with environmental offsets.

These changes are particularly relevant because the approved southern deviation is construction-intensive.

It requires:

- major earthworks;
- extensive cut-and-fill operations;
- multiple bridge structures;
- significant haulage of construction materials;
- substantial landscape modification.

The Northern Option avoids many of these requirements by remaining largely within an existing transport corridor.

Consequently, the financial advantage of the Northern Option may be greater today than when it was first proposed.

## 8. The Northern Option

The Northern Option<sup>P</sup> is not a proposal to abandon the project.

It is a proposal to deliver the project differently.

The proposed route largely follows the existing highway corridor through a 5.2-kilometre section where the approved route diverges south into largely undeveloped terrain.

This approach offers several potential advantages.

### Lower Cost

A flatter route and remaining close to existing infrastructure reduces the need for major earthworks, additional structures and extensive landscape modification. It includes upgrading the existing carriageway and so avoids materials haulage for this.

### Faster Delivery

The alignment avoids the sheer volume of earthworks and many of the engineering complexities associated with the southern deviation.

### Improved Construction Safety

Reduced excavation, reduced heavy vehicle movements and fewer complex construction activities lower risks to workers and road users.

### Lower Environmental Impact

The route avoids many of the environmental impacts identified in more recent studies.

### Reduced Cultural Heritage Impact

The route avoids the culturally sensitive area at the eastern end of the project and removes the ongoing conflict surrounding a significant Djab Wurrung cultural heritage place.

## 9. Responsible Government Requires Reassessment When Facts Change

Major projects are frequently modified after approval.

This is not unusual.

It reflects good governance.

Projects are routinely adjusted when:

- better environmental information becomes available<sup>Q</sup>;
- new engineering solutions emerge;
- costs change materially;

- stakeholder concerns remain unresolved.

Section 2B satisfies all four conditions.

Multiple subsequent studies have identified environmental and cultural values that were not fully understood when route selection occurred.

Construction costs have increased.

Alternative designs have matured.

Community concerns remain active.

Under these circumstances, reassessment should be viewed not as delay but as responsible project management.

## **10. A Better Outcome for Victoria**

The choice facing government is not between duplication and no duplication.

The choice is between two alignments.

One route delivers higher environmental impact, higher cultural impact and higher construction complexity and cost.

The other appears capable of delivering equivalent transport outcomes with lower overall impact.

The question therefore becomes straightforward:

If the same highway outcome can be achieved faster, cheaper and with significantly less environmental and cultural damage, why would Victoria not test that proposition thoroughly before proceeding?

### **Our Message to Victorian MPs**

KORS supports completion of the Western Highway Duplication.

We support improved road safety.

We support better freight infrastructure.

We support investment in regional Victoria.

We simply ask that the final alignment be tested against current evidence rather than against assumptions formed more than a decade ago.

We respectfully request that Members of Parliament support an independent reassessment of Section 2B comparing the approved route and the Northern Option using current:

- construction costs;

- environmental data;
- cultural heritage information;
- traffic forecasts;
- engineering scope for low impact.

A safer, cheaper, faster and less destructive solution may already exist.

Victorians deserve confidence that it has been fully considered before irreversible impacts are made.

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<sup>a</sup> 2.9% of project funds are estimated to be returned in crash savings after 30 years.

<sup>b</sup> As with all high-speed road projects, fuel consumption per kilometre will rise around 10% at the planned 110 kph speed limit compared with the current 100 kph.

Avoiding this extra fuel-cost is soon likely to be more profitable than driving at higher speeds to save waged-time, if fuel prices continue to rise faster than wages. A car using 8 litres/100 km travelling at 100 kph costs around \$39 /hr to drive, allowing \$1.75/litre for petrol and a modest 25 cents per kilometre (\$25/hour) for maintenance costs. A 10% saving on wages at 110 kph must exceed the price of greater fuel consumption (10-12%, less 1-2% greater efficiency on the new road). Allowing \$40/hour for businesses' driver-wages, this makes higher speeds suitable only for activities funded by discretionary income, if fuel prices continue to rise faster than wages.

Conversion to electric cars will not happen fast enough to alter this trade-off for nearly two decades, with electric cars not estimated to reach 50% of the fleet until 2044:

"In 2021, 0.08% of registered vehicles (all types) were fully electric. By 2025, it had reached 1.13%. However, 15% of new car sales were EVs in March, pushed up by the fuel 'crisis'. That still means 85% were not EVs, of course.

There are about 22 million registered vehicles in Australia at present, that's 0.8 vehicles per person. If this stays constant, when the population reaches 35 million (about mid-century) there'll be 28 million vehicles.

Car manufacturers worldwide are aiming to phase out fossil fuelled vehicles by around 2040 (some sooner). After that, we can assume that all new cars will be EVs.

Even then, given the size and age of the fleet and the amount of annual new vehicle sales, I estimate that EVs will reach 50% of the fleet by about 2044, and 100% by 2058." (William McDougall, traffic planner, email 8-4-'26 to M. Mackenzie)

<sup>c</sup> One of "the key aims of the Project [on Section 2] is to increase capacity": (Page 3, last paragraph, Scoping Requirements, Western Highway Duplication Project, Section 2 Beaufort to Ararat Environmental Effects Statement (EES), September 2012.)

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However, the future traffic flow appears to have been overestimated, as detailed in Section 5. The highway was operating with peak hourly traffic flow of one third the road's theoretical capacity near Ararat in 2012, with a doubling time is measured in decades. (315 v/hr vs 1273 v/hr, EES, Appendix D, page 17, last paragraph)

This overestimation is consistent with a 2011 Auditor General's report which found VicRoads "fell short of the standards required to reliably forecast traffic and estimate projects' economic benefits when informing the decision to proceed" (report no. 2010- 11.34, "Managing Major Road Projects" 1 June 2011, page viii, paragraph 1.)

Further, "Build it and they will come", concluded the route-selection Planning Panel chairman Trevor McCulloch on 4 or 5 December 2012 in Beaufort. This concedes that there was no foreseeable demand for the extra capacity in a timeframe that would justify the project, even using an overestimate of the traffic flow's growth-rate.

These points mean there is time to reassess the route.

<sup>d</sup> The Western Highway is one of Victoria's safer roads with a crash rate 46% of the average Victorian regional rate. The crash rate is 37% of the Victorian rate (McDougall, 2025).

<sup>e</sup> Section 2B of the Western Highway is "operating well below its theoretical capacity", meaning the project is not urgent in this respect (EES Appendix D, p. 17, last paragraph).

<sup>f</sup> In deciding which projects to fund, the Federal Department of Infrastructure has had regard to factors including a project's business case, its deliverability in current market and macro-economic conditions (which includes heavy State debt), the impact on regional communities of ceasing or deferring it, and industry capability if deferred. These points were listed in a 29 June 2023 letter to KORS treasurer. We believe these considerations support route refinement.

<sup>g</sup> A common threshold for road duplication is 10,000- 15,000 vehicles per day (Averaged Annual Daily Traffic (AADT) (Traffic planner, William McDougall, Pers Comm, 2 June 2016)

<sup>h</sup> The earliest a duplication would be considered at 1.6% increase/year as assumed in the EES at a 10,000 vpd warrant is around 2050.

<sup>i</sup> At the measured growth rate of 0.5%/yr between 2012 and 2025, rather than the 1.6%/yr estimated in the EES, we have 90 years before the traffic flow exceeds 10,000 vpd. (Mark Williams, planner, has confirmed the current traffic flow as around 6500 vpd (Pers. comm. William McDougall 2 June '26)). This figure is up from 6105 vpd in 2012 (EES Appendix D, page 18, Table 8).

<sup>j</sup> "The project is not economically justified ... ": EES, Section 2, Appendix P, page 47).

The overall project returns 32 cents in the dollar or less after 30 years using official discount rates McDougall, 2025, page 6, section 2.6.6

This BCR figure combines public benefits from fewer crashes and private benefits from lower vehicle operating costs.

<sup>k</sup> This is a major road project with extensive impacts but its expected benefits are limited. Table 26 shows that the project will provide: "Minor benefits at a local level or significant benefits for a small number of 10

individuals” (from Table 25) for 6 of 8 considerations regarding increased capacity, efficiency and safety from the duplicated road. Table 25 shows that “Partial” is second lowest of five rankings. Our point is that there is time to reassess the route.

**Table 25 Benefit Ratings**

| Rating          | Potential Project benefits                                                                                                                                    |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Very well       | Significant benefit to the State<br>Superior benefit to the region<br>Policy consistency with superior positive impact                                        |
| Well            | Moderate benefit to the State<br>Significant benefit to the region<br>Superior benefit to the locality<br>Policy consistency with significant positive impact |
| Moderately well | Moderate benefits to the region<br>Significant benefit to the locality<br>Policy consistency with moderate positive impact                                    |
| Partial         | Minor benefits as a local level or significant benefits for a small number of individuals                                                                     |
| Negligible      | Minimal benefit at any level                                                                                                                                  |

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**Table 26 Project Benefits and Associated Rating**

| Benefit                                                                                                                                                                                                                                             | Rating          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Increased capacity along the key arterial road between Melbourne and Adelaide, which 'future proofs' this key link;                                                                                                                                 | Partial         |
| Potential to reduce the traffic from local roads due to the Western Highway becoming the preferred route. This increases safety within the region as the Highway is designed to be a higher standard road and does not have at-grade intersections; | Partial         |
| Improve efficiency of freight by designing for High Productivity Freight Vehicles.                                                                                                                                                                  | Moderately Well |
| Travel time saving by not having to reduce speed through townships and by reducing the number of intersections along the Western Highway.                                                                                                           | Partial         |
| Increased safety through the township of Buangor.                                                                                                                                                                                                   | Partial         |
| Increased safety with all intersections becoming grade separated.                                                                                                                                                                                   | Moderately Well |
| Increased safety along the route by providing adequate and improved rest areas.                                                                                                                                                                     | Partial         |
| Increased Provision of Clear zones.                                                                                                                                                                                                                 | Partial         |

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<sup>l</sup> There will be an insignificant 22 seconds saved by cars. No time saving for trucks. At higher speeds, fuel consumption per kilometre will rise around 10% at the planned 110 kph speed limit compared with the current 100 kph. This applies to all high-speed road projects.

Avoiding this extra fuel-cost is soon likely to be more profitable than driving at higher speeds to save waged-time, if fuel prices continue to rise faster than wages.

Facilitating greater volumes of traffic at higher speed will increase emissions ([https://en.wikipedia.org/wiki/Fuel\\_economy\\_in\\_automobiles](https://en.wikipedia.org/wiki/Fuel_economy_in_automobiles) (Speed and Fuel economy studies)). Consistent with this, the project is predicted to have “zero savings in Greenhouse emissions, air pollution and noise over 30 years” (WHP EES Section 2, Appendix P, p. 44). Further, construction will remove vegetation including around 250 large old trees which are carbon sinks.

The project is not urgent in this respect.

<sup>m</sup> Savings from reduced crash costs for the whole of Section 2 (Beaufort to Ararat) are estimated to be \$9.4 million over 30 years<sup>m</sup>, out of \$322 million spent on Section 2 ( 2.9% returned after 30 years as above). (Appendix P, p.49.)

Even this overestimates the return, which is likely to be closer to one third of this. The figure of 30% reduction in the crash rate from this project is based on the erroneous assumption that, because the Road Safety Strategy of the day was targeting 30% reduction in crashes, this road improvement would do the same. There was no comparison of crash rates on 110km/h dual carriageways with 100 km/h single carriageways. If there had been, it would have shown that the reduction would be far less than 30%. The Road Safety Strategy in place at the time failed to achieve the targeted 30% state-wide reduction by a wide margin. (William McDougall, pers. comm. 2 June 2026)

<sup>n</sup> “Option 1 involves substantial property severance [around] Hillside Road...[and] has the greatest negative impact on agricultural land, property and severance.” - EES, Appendix P, p.48 , paragraph 2

<sup>o</sup> The BCR for Option 1 would be more unfavourable if social and cultural values and habitat destruction were priced and included in the BCR as costs. “[Because of the strength of public concern,] it could be argued that efforts should have been made to value [the cultural heritage] in economic terms using the above principles [...] . It is reasonable to expect that this would produce further large disbenefits, thus worsening the already poor economic performance of the project.” McDougall, 2025, Page 8, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs.

<sup>p</sup> The Northern Option was originally assessed by the Planning Panel and erroneously rejected using incorrect environmental data, misinterpreting an ecological criterion, assuming a disturbance width wider than necessary and assuming that a service road would be built as well, despite few side roads and other ways to provide local access.

Data errors:

- the area of native vegetation on Option 1’s deviation: 10.61 initially vs 31.85 hectares today. This includes:
- 4.3 hectares of a federally protected, critically endangered type of Box-Gum Grassy Woodland that is yet to be acknowledged despite two expert witness statements and strong, clear evidence that it exists, and
- the area of Golden Sun Moth habitat on Option 1’s deviation was understated: 11.4 hectares initially and 39.46 hectares today.

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Misinterpretation:

Protecting ecological connectivity, a route selection criterion, calls for avoiding big new barriers in the landscape like a new wide road. This protection was misinterpreted to mean “keep the new road away from best patches of native vegetation”. In this case, keeping away from the State Park (the best patch) means building Option 1, which degrades landscape connectivity worse than other route options. The Planning Panel members were two retired VicRoads engineers and an agriculturalist/agronomist. In addition, one corridor would be cut on the Northern Option, seven on Option 1. Comparative corridor severance was not mentioned in the summation.

A disturbance width of 25 metres per carriageway and a service road through the edge of the state Park were assumed necessary.

¶ A review from Biosis, commissioned by VicRoads and a second independent review from Ecology Australia, of the EES’ environmental chapter found the chapter was, unfortunately:

1. Not accurate enough to use for route-selection,
2. Not compliant with legal requirements and
3. Incomplete.

At least seven government-funded reports significantly revise various parts of the environmental and cultural heritage data.

Here is a list of reports commissioned or paid for by VicRoads/Major Road Projects Victoria, conceding errors in:

“Ecology and Heritage Partners, 2012, Western Highway Project: Section 2, Beaufort to Ararat, Victoria, EES, Chapter 13 and Appendix H Biodiversity and Habitat Impact Assessment Report – Flora, Fauna and Ecological Communities. Prepared for: VicRoads.”

- A. VicRoads Media Release, “Tree Discrepancy Investigation Complete” 15 November 2015, *conceding that the Route selection Panel was told number of large old trees threatened was 221, when in fact it was 1645. After the planned tree-loss was publicized, more design effort reduced the total threatened from 1645 to 1148 on the whole of Section 2, while a further 263 Large Old Trees are planned to be destroyed on Section 2B.*
- B. VicRoads, March 2015. “Western Highway Duplication Section 2 Beaufort to Ararat, Underestimation of Large Old Trees within the Environment Effects Statement, Review of native vegetation accounting and environmental planning to identify key learnings and improvement opportunities, Prepared by VicRoads senior environmental and heritage advisor Matt Mooney.”
- C. Biosis, dated April 2016, “Western Highway Project Stage 2B Independent Review” Project no. 21603, (commissioned by VicRoads December 2015, first draft complete January 2016, released June 2016) – *Concludes that the environmental chapter of the EES was not compliant with Victorian assessment protocols due to incompleteness, misclassification and data errors.*
- D. Ecology and Heritage Partners, letter, 12 April 2016, “Assessment of Degraded Treeless Vegetation for the Western Highway Project, Section 2”, reference 7919.- *Concedes that vegetation discounted as “Degraded Treeless Vegetation” was in fact native vegetation, adding 2-3 hectares to the total along the deviation of Option 1.*

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- E. Ecology and Heritage Partners, 29 May 2017, Ecological Assessment: Western Highway Project, Section 2B, Prepared for VicRoads, Project Number 9237 – *Reports some of the additional 32.34 hectares of GSM habitat overlooked on Option 1's deviation.*
- F. On Country Heritage and Consulting, 7 December 2018, Sponsor: Eastern Maar Aboriginal Corporation, "Community consultation on two culturally significant trees along the proposed Western Highway Duplication, between Buangor and Ararat, Victoria", (paid for by VicRoads/MRPV). - *States that scarred trees and birthing trees were not reported in 2012 EES.*
- G. DCCEEW, 13 January 2021, "Variation of Conditions attached to Approval Western Highway Project Section 2- Beaufort to Ararat, Victoria (EPBC 2010/5741)". *Maps an additional 28.73 hectares of Golden Sun Moth habitat on the deviation. Half a hectare is enough to trigger EPBC processes in other situations.*

Figure 1. Road works for duplication at Buangor, 2015. The old highway runs across the top of the photograph.

