

OBT

WGT Project
Impacts on HBCC area

Presentation by Andrew O'Brien

IAC

Monday, 4 September 2017

Introduction

- Andrew O'Brien from O'Brien Traffic.
- In addition to my experience outlined in the report, I have extensive experience in freeway design and operations - having initiated VicRoads ramp metering program, modelled then designed the Auckland ramp metering system, and carried out safety and operational audits of numerous freeway upgrade projects including Ringwood Bypass and Central Motorway Junction in Auckland.



Aims



The aim of the presentation is to present:

- key findings of the Traffic Impact Assessment (TIA) review as the WGT Project impacts on HBCC and its residents and businesses;
- comments on evidence of other relevant experts, and
- comments on submissions on behalf of VicRoads
- Respond to relevant Project notes.

Key Findings



The key findings of my report are:

With respect to the project and alternatives:

- The Project needs to identify travel needs by various modes, and combine capacity improvements with more sustainable solutions - e.g. travel demand management, active traffic management, multimodal transport, and integrated land use planning.
- A major concern with the Project is the concentration of so much travel in the one corridor. The previously proposed Western Link used a separate corridor to the north of the WGF. **The major risk now is that a serious incident could close all carriageways, or at least both carriageways in one direction.**
- The project has not considered alternatives to any great degree within this study, or as reported in this study.

With respect to the adequacy and scope of the TIA:

- The TIA needs to include analysis of intersections along Melbourne Road, Millers Road, Geelong Road, Grieve Parade, Kororoit Creek Road and Blackshaws Road.

Key Findings

- the TIA needs to:
 - provide turning movement estimates at interchanges and crucial local intersections;
 - undertake a proper analysis of local impacts in terms of intersection degree of saturation (DOS), and estimates of queue lengths and delays for individual lanes and turning movements a critical locations - fundamental considerations to be addressed in the TIA.
 - At a meeting on Aug 7 it was agreed to provide OBT with traffic data including 2016 traffic counts, needed to assess the model outputs in terms of a reality check. These have not been received.

With respect to strategic issues pertaining to HBCC:

- The direct tolls on trucks between Grieve Parade and Melbourne Road in the outside carriageways need to be removed - these will act counter to the stated aim of shifting trucks from the local roads onto the WGF/tunnels.
- Further details are needed on pedestrian and cyclist path connections, safety, and dedicated infrastructure serving connections to the Fed Trail from key local roads, overpasses and through interchanges.

Key Findings

- to minimise the likelihood of truck traffic diverting onto local roads, and to reduce impacts on Millers Road, a strategic link from Grieve Parade to Market Road should be provided.

With respect to design issues pertaining to HBCC:

- The project needs to extend the new fifth westbound lane to Forsyth Road interchange to overcome the major bottleneck problem at the lane drop westbound between the M80 Western Ring Road entrance.
- The project needs to examine and explain why there is a need for a 3-lane outbound tunnel that reduces to 2 lanes immediately after exiting the tunnel (at the point of maximum traffic flows). I note that the micro-simulation model keeps the 3 lanes, but still has flow breakdown.

With respect to construction issues pertaining to HBCC:

- Key arterial haul routes to the proposed compounds are Blackshaws Road, Millers Road, Grieve Parade, Hudsons Road and Douglas Parade. Local Street access is via New Street and Hall Street.

Key Findings



- Given the construction is anticipated last up to 5 years, there will be significant impacts to the local intersections and road network in HBCC.
- The proposed construction compound accessed via New Street could negatively affect residential environment, and should be accessed from north of the WGF.

With respect to local issues pertaining to HBCC:

- The Millers Road interchange and the road to the south have no ability to accommodate the significant volume increases (30%), even after the geometric changes are made. The existing lane configuration on Millers Road is unchanged south of Clematis Avenue and north Cypress Avenue, and therefore the bulk of the traffic demand would be held up beyond the interchange in queues.
- Significant increases in traffic volumes on the Millers Road entry ramps may require more lanes at the metering stoplines.

Key Findings



- Increased truck traffic and resultant queues on Millers Road (N) will impact right-turns out of local streets.
- A significant issue is the difficulty for cyclists and pedestrians in Millers Road crossing just north of the interchange, and for cyclists on Millers Road bicycle lanes south of the interchange.
- Due to increased truck traffic, the residents and businesses along Millers Road north of the freeway would experience a tripling of truck traffic, increased noise, increased delays, degraded air quality, each negatively affecting overall quality of life. The increased truck traffic would significantly conflict with the general traffic on Millers Road, and walking and cycling activities at the Federation Trail crossing.
- The project would pour an additional 2,350 AM peak period trips and 2,500 PM peak period trips into Altona North via Millers Road and Grieve Parade. How will these trips disperse on the local network?
- The potential toll avoidance route using Blackshaws Road should be able to be addressed by the Premier's announcement of relevant truck bans.

Key Findings



With respect to the micro-simulation modelling:

- The extent of the micro-simulation modelling does not take into account the locations of flow breakdown that occur now or that will occur under the Project.
- The micro-simulation model does not include the Altona Gate shopping centre accesses, and so cannot reflect likely conditions on Millers Road south of the WGF.
- It is thus of little use in informing the Project or IAC about future operating conditions on the freeway or Millers Road.

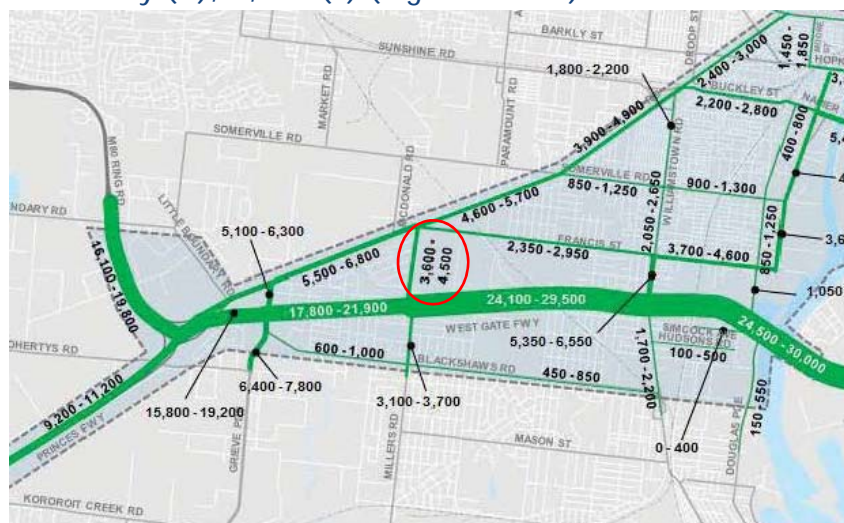
With respect to additional interchanges/ramps:

- The provision of west-facing ramps at Dohertys Road is a 'no-brainer'. Such an interchange would be about 3 km east of Kororoit Creek Road - and well in excess of typical, let alone minimum, interchange spacing. The ramps would serve the area south of the WGF, and also the eastern end of Laverton North. The relevant submissions on behalf of VicRoads are, in technical terms, wrong - and no weight should be given to them - see later slides.

Further Analysis



Existing truck traffic - Millers Road - about 4,000 trucks/day (N), 3,500 (S) (Figure 67 TIA)

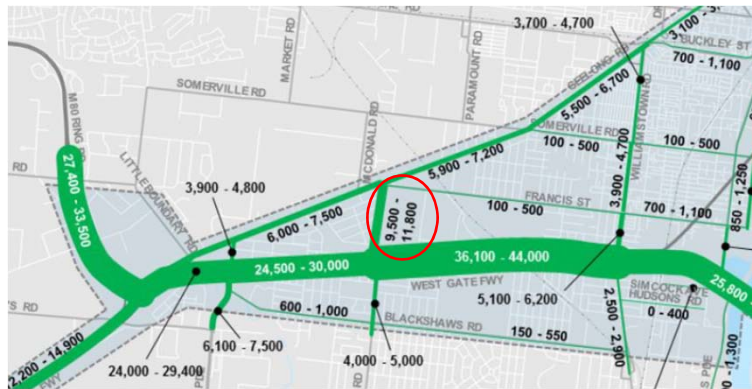


Further Analysis



2031 traffic - no toll point west of Millers Road - about 11,000 trucks/day on Millers Road (Project Note 1 - Figure 7).

WITH a toll point west, Millers Road is about 14,000 trucks/day (7000 - 3000 additional) - an increase of 10,000 trucks/day. Both increases are unacceptable.



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Further Analysis - VicRoads Submissions



The Brooklyn Evolution Long-term Framework Plan (Next Slide) shows the proposed connection between Grieve Parade and Market Road.

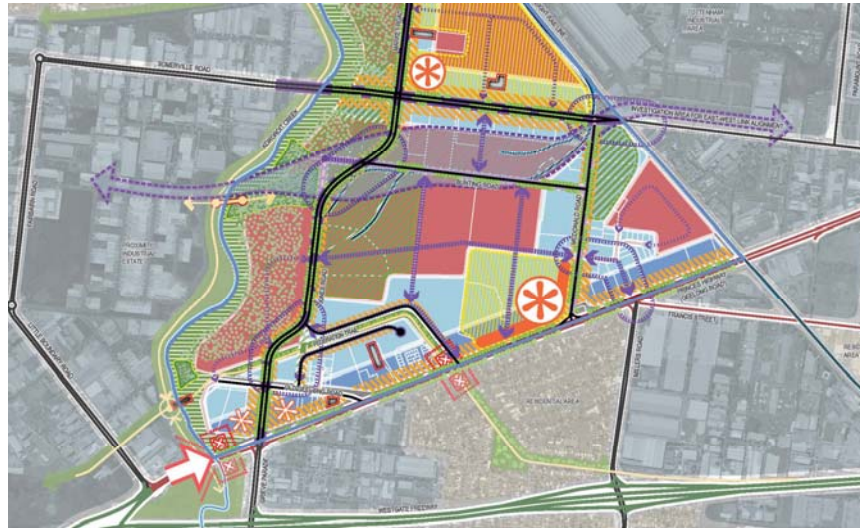
In my opinion, that link would provide significant relief to Millers Road as it would substantially reduce truck demands to use Millers Road.

Kiriakidis "may have some intuitive high-level merit . . ."



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Further Analysis - VicRoads Submissions



Map 1: Long Term Framework Plan

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Further Analysis - VicRoads Submissions



OBTR proposes west-facing ramps from Princes Freeway to Dohertys Road. The proposal has been modified slightly in response to VicRoads geometric objections - the eastbound exit has been moved to the west, and the westbound mainline widening proposed to be in the median - each to avoid acquisition.

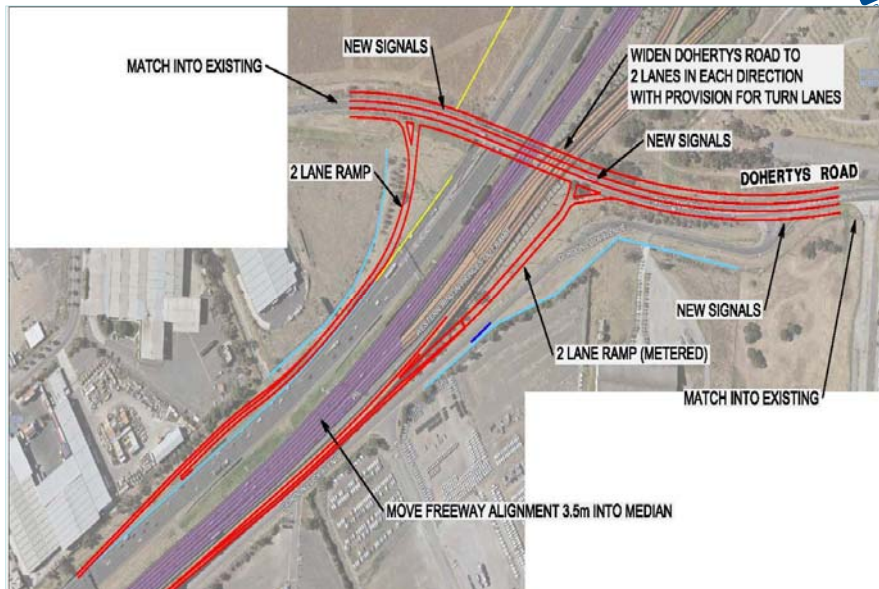
Each of the other objections by VicRoads can be dismissed, and the basis of this is in my Second Addendum Report.

In my opinion, that ramps would provide significantly safer and more direct access to the industrial areas both north and south of Princes Freeway east of Grieve Parade. It would relieve congestion on PHW at Lt Boundary Road and Grieve Parade, and make the M1/M80 interchange less congested.

Raised in 'conclave' notes, but not addressed by Kiriakidis in his presentation.

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Further Analysis - VicRoads Submissions



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Key Recommendations



The key recommendations of my report are:

With respect to the project and alternatives:

- Incorporate sustainable solutions such as travel demand management, active traffic management, multimodal transport, integrated land use planning into the project.
- Provide justification for moving away from the earlier proposed alignment.

With respect to the adequacy and scope of the TIA:

- Extend the local area in the TIA to include intersections along Melbourne Road, Millers Road, Geelong Road, Grieve Parade, Kororoit Creek Road and Blackshaws Road.
- Update the TIA to provide turning movement estimates at interchanges and local intersections, compare with existing conditions, then undertake a proper analysis of local impacts in terms of intersection degree of saturation (DOS), and estimates of queue lengths and delays for individual lanes and turning movements.
- Provide detailed strategic and spreadsheet modelling outputs and adjustments in the TIA

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Key Recommendations



With respect to strategic issues pertaining to HBCC:

- It is my strong recommendation that the proposed direct tolls on trucks between Grieve Parade and Melbourne Road be removed - to minimise the demand for truck use of local roads.
- Provide further details for pedestrian and cyclist path connections, safety, and dedicated infrastructure serving connections to the Federation Trail from key local roads, overpasses, and through interchanges.
- Develop a strategic link from Grieve Parade to Market Road as a longer-term measure to relieve Millers Road north of WGF.

With respect to design issues pertaining to HBCC:

- Extend the new fifth westbound lane to Forsyth Road interchange.
- Examine and explain why there is a need for a 3-lane outbound tunnel that reduces to 2 lanes immediately after exiting the tunnel.

Key Recommendations



With respect to construction issues pertaining to HBCC:

- Provide further details of traffic impacts arising from the construction compounds and haul routes including microsimulation models showing peak congestion conditions during construction and also the analysis to assess traffic performance during construction.

With respect to local issues pertaining to HBCC:

- Alternate recommendation to removing direct tolls on trucks between Grieve Parade and Melbourne Road is to introduce full truck bans on Blackshaws Road, Hudsons Road, North Road, Millers Road and Kororoit Creek (east of Millers Road).
- Preserve Millers Road as key N-S corridor for residents, businesses, pedestrian and cyclists, and upgrade the Grieve Parade interchange by adding ramps to/from the M80 Western Ring Road and construct new ramps to Dohertys Road to Princes Freeway on the west.
- Assess ramp metering operations and determine upgrades, such as number of metering lanes at the on-ramps.

Key Recommendations

With respect to local issues pertaining to HBCC (cont):

- Alternate to truck bans on Millers Road is to enhance landscaping, cross section and local access on Millers Road north of the freeway to minimise impacts to local residents and businesses. A corridor study is required on Millers Road between Geelong Road and Blackshaws Road to specify future anticipated problems and conflicts between various modes, to identify locations of 'pinch points' and delays, and to propose improvements to mitigate impacts of additional traffic using this route.
- Provide dedicated bus lanes and priority measures to assist bus operations and services. Public transport should be prioritised/augmented during construction to assist managing traffic capacity/performance along the Project corridor.
- Transit lanes should be provided to encourage multi-occupant passenger vehicles on the Freeway.
- Provide further details on pedestrian and cyclist path connections, safety and dedicated infrastructure onto the Federation Trail from key local roads, overpasses, and through interchanges.

Key Recommendations

With respect to local issues pertaining to HBCC (cont):

- Grade separation of Federation Trail at Hyde Street with a seamless connection to the Coastal Bay Trail, including an upgrade of the shared use path between the end of Federation Trail and the West Gate bike punt.
- The proposed upgrade of Federation Trail west of Millers Road to be a full reconstruction in concrete, including public lighting should be included along the upgraded and new alignment of the Trail.
- Provision of a shared path through the land along the edge of the Freeway and connecting the State Government land to the west of Beevers Street (that could also be used for emergency vehicle access).
- In the design of the two pedestrian overpass upgrades consider current access to the ramps and ensure connections are provided to a high standard in consultation with HBCC.
- All proposed new and upgraded active transport linkages should be delivered as early as possible to encourage travel behaviour change and ongoing local connectivity.

Key Recommendations

With respect to local issues pertaining to HBCC (cont):

- A corridor study should be undertaken on Geelong Road to identify upgrades to the Grieve Parade, Millers Road, Francis Street and McDonald Road intersections due to the tolling impacts.
- The project should contribute to the LATM plans for Altona North, South Kingsville, Spotswood and Brooklyn areas.
- Reconfigure Blackshaws Road / Shute Street / Melbourne Road intersection to achieve additional capacity.
- Consider pedestrian/cycling links to Spotswood and Newport Rail stations.
- Improve the link between the proposed open space at Precinct 15 and Edwards Reserve through the establishment of a shared path along the railway reserve.
- Address the undesirable issue of freeway access from the local street network in Spotswood, e.g. intersection treatments, parking and local access considerations.

Key Recommendations

With respect to local issues pertaining to HBCC (cont):

- Truck bans introduced in Spotswood to protect the local area from traffic short cutting through the area.
- The use of Hall Street as a construction traffic route is not supported due to the environmental, amenity and visual impacts on the Emma McLean Kindergarten and an alternative access needs to be identified.
- Further analysis is required in regard to the traffic impact on Douglas Parade and Hyde Street.
- Further detail is required on the likely frequency and impacts of tunnel closures during operation and incidents and the stated use of the Hyde Street ramps to detour traffic.

Freeway Flow Breakdown & Recovery



If needed for discussion

- Flow breakdown:
 - is defined as "the condition where free-flowing traffic experiences significant and sudden reduction in speed, with a sustained reduction in throughput ... as flow breakdown occurs the speed may drop by 20-40 km/h within minutes"
 - starts when the freeway bottleneck capacity is reached
 - usually occurs where an on-ramp merges with a mainline
 - actually reduces the mainline bottleneck capacity by around 10% compared to the pre-breakdown maximum throughput
- 'Natural' recovery from flow breakdown:
 - as vehicle speeds return to near the speed limit and full capacity of the mainline is restored
 - occurs 'naturally' when demands entering the congested area are sufficiently reduced for long enough for either the ramp or mainline queues to clear
 - is inhibited by the 10% capacity drop as large queue build-ups can occur that maintain flow breakdown conditions long after demands have dropped sufficiently at the back of the mainline and/or on-ramp queues to allow recovery

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Ramp Metering Basics



- Dynamic ramp metering is used to:
 - manage inflows into a bottleneck area to generally prevent 'flow breakdown' from occurring in the first place; and
 - to detect flow breakdown when it does begin to occur to force rapid recovery and so avoid the 10% capacity drop and prevent the build-up of queues that sustain flow breakdown much longer than necessary under unmetered conditions
- Dynamic ramp metering operates:
 - On the verge of flow breakdown (i.e. targeting maximum throughput through the critical bottleneck being managed)
 - Fluctuations in vehicle behaviour and route selection (e.g. a sudden, short term drop in traffic exiting prior to a critical on-ramp merge) can trigger the start of flow breakdown
 - Meters then respond by (preferentially) restricting inflows until fast recovery has been successfully forced - *to avoid the 10% capacity drop and associated queue build-ups*
 - Once forced recovery has been achieved, ramp queues that may have built up can also be cleared preferentially

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Questions?

