

Tasmanian Government  
2012 Submission to Nation Building 2 Program

# Huon Highway/Summerleas Road Intersection Upgrade

September 2012

<p><b>Priority assigned by jurisdiction for NB2 funding consideration</b></p>	<p>Priority two under Safety</p>
<p><b>Details of full scope of project, including objectives, service requirements, project status and project phase(s) seeking funding.</b></p> <p>Note: It is expected that this will be largely addressed through the main IA submission. However, the Department requires cost estimates to be provided using the <b>Best Practice Cost Estimation Standard</b> and at both <b>P50 and P90</b>. Also to use <b>both 4% and 7%</b> for BCRs.</p>	<p>Information on project objectives, strategic context and options analysis is discussed in the Stage 1-6 template.</p> <p>Information on the technical and delivery aspects of the project, including benefit cost analysis, project risks and delivery program is discussed in the Stage 7 template.</p> <p>BCRs for Huon Highway Summerleas Road Intersection upgrades are:</p> <ul style="list-style-type: none"> <li>• Discount Rate (7%) and P50: <b>0.54</b>.</li> <li>• Discount Rate (7%) and P90: <b>0.50</b>.</li> <li>• Discount Rate (4%) and P50: <b>0.85</b>.</li> <li>• Discount Rate (4%) and P90: <b>0.79</b>.</li> </ul>
<p><b>Alignment with objectives of NB2</b></p> <p>Note: This should include how a project aligns with the overarching objective of NB2, as well as how it aligns with the objective of each relevant NB2 subprogram.</p>	<p>The Huon Highway/Summerleas Road Intersection Upgrade is submitted under the Safety theme. It also aligns with the Moving Freight and Connecting People themes of Nation Building 2.</p> <p>The Huon Highway is a key intra-regional corridor in Southern Tasmania, connecting major industry sectors such as forestry, aquaculture and agriculture to central Hobart. It provides the key road link for passengers to and from the Huon Valley. At the junction with Summerleas Road, the Highway passes adjacent to Kingston, one of Hobart's highest growth residential areas, with Summerleas Road a major connection across the Highway linking residential areas to major commercial, educational and other facilities at Kingston.</p> <p>The junction has a history of accidents, notably those related to right-turn movements from Huon Highway to Summerleas Road and cross-highway traffic on Summerleas Road. Upgrade of this intersection will reduce the risk of traffic crashes significantly in the context of forecast traffic growth.</p> <p>Further details are contained under Goal Definition (Stage1-6 template).</p>
<p><b>Alignment with broader Commonwealth and state/territory policies and plans</b></p> <p>Note: Specific plans/policies to be</p>	<p>The project aligns with a number of Infrastructure Australia's strategic priorities, including:</p> <ul style="list-style-type: none"> <li>• Developing Australia's cities and regions</li> </ul>

<p>addressed (at a minimum) include the Commonwealth’s Infrastructure Investment Framework; the National Urban Policy; the National Ports and Land Freight Strategies; and the Australian Government commitment on the incorporation of ITS for major urban roads (as appropriate).</p>	<ul style="list-style-type: none"> <li>• Improve social equity, and quality of life, in our cities and our regions</li> </ul> <p>Further details are contained under Goal Definition (Stage1-6 template).</p>
<p><b>Overall financial exposure including identification of other partner funding</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>Full details of cost estimates are outlined in the Stage 7 template.</p>
<p><b>Identification of key strategic risks to the project</b></p> <p>Note: It is expected that this will be addressed in the main IA submission</p>	<p>A Risk Management Register has been developed for the project. Risks are detailed in the submission under Costs, Risks and Funding (Stage 7 template).</p>
<p><b>Quantification of the expected benefits from the proposal</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>Project benefits are outlined in the Stage 7 template.</p>
<p><b>Information regarding the extent to which the potential for private sector involvement or investment has been evaluated</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>The need for Government funding is discussed in the Stage 7 template.</p>
<p><b>Likely impacts from the project proposal on citizens and the market</b></p> <p>Note: Detail is needed on how each proposal will impact citizens and the market (as two distinct groups) – positively or negatively, and the extent of the impact</p>	<p>Further details on the impacts are outlined in Problem Identification, Assessment and Analysis (Stage 1-6 template).</p>
<p><b>Identification of key stakeholders in the project and the complexity of stakeholder relationships</b></p>	<p>Further details on key stakeholders and relationships are discussed in the Stage 7 template.</p>
<p><b>Extent of multijurisdictional and/or private sector involvement in the proposal</b></p>	<p>No other jurisdictions or private sector entities are involved in developing this proposal.</p>
<p><b>Details of the level of innovation and information technology involved in the proposal, including in relation to</b></p>	<p>An ITS solution is not considered to be applicable to the issues this project</p>

<p><b>information technology requirements to successfully manage/implement the proposal</b></p> <p>Note: Detail is to include identification of any new/untried methodologies or technologies to be used in the project, as well as IT requirements for the proponent agency to successfully manage or implement the proposal.</p>	<p>addresses.</p>
<p><b>Details of the proposed procurement methods for the proposal</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>Procurement methods for the proposal are discussed in the Stage 7 template.</p>
<p><b>Level of complexity in construction, and any known issues in relation to the construction of the project, including environmental and heritage considerations</b></p> <p>Note: It is expected that this will be largely addressed through the main IA submission. However, the Department requires sufficient detail to fulfil its probity and accountability requirements, so any additional information not explicitly addressed in the main IA submission should be provided here.</p>	<p>Further details on construction and related issues are discussed in the Stage 7 template.</p>
<p><b>Any known issues in relation to contractual or service delivery obligations stemming from the proposal</b></p> <p>Note: This is to include any issues that are not currently present but could reasonably be foreseen.</p>	<p>There are no foreseen contractual or service delivery issues.</p>
<p><b>Details of the proposed governance arrangements for the proposal</b></p> <p>Note: This should be largely addressed in the main IA submission. However, the Department requires an explicit statement about the experience of the management team in delivering similar proposals and whether there are any expected knowledge gaps or training needs to successfully implement the proposal.</p>	<p>The governance model for this project is outlined in the Stage 7 template.</p>

<p><b>Details of the proposed delivery timetables and whether there are any known challenges to achieving those timeframes</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>The delivery timetable is outlined in the submission.</p>
<p><b>Details of any significant interdependencies for the project</b></p> <p>Note: It is expected that this will be addressed in the main IA submission.</p>	<p>The key interdependencies for the project are outlined in the Stage 7 template.</p>

## Proposal Summary

Initiative Name:	Huon Highway/Summerleas Road Intersection Upgrade
Location (State/Region(or City)/ Locality):	Kingston, Southern Tasmania
Name of Proponent Entity:	Tasmanian Department of Infrastructure, Energy and Resources (DIER)
Contact (Name, Position, phone/e-mail):	David Spence, General Manager Infrastructure Strategy Department of Infrastructure, Energy and Resources Tel: (03) 6233 2089 Email: david.spence@dier.tas.gov.au
Executive summary	<p>The Huon Highway is a key intra-regional corridor in Southern Tasmania, connecting major industry sectors such as forestry, aquaculture and agriculture to central Hobart and other destinations. It provides the key road link for passengers to and from the Huon Valley. At the junction with Summerleas Road, the Highway passes adjacent to Kingston, one of Greater Hobart's highest growth residential areas, with Summerleas Road a major connection across the Highway linking residential areas to major commercial, educational and other facilities at Kingston.</p> <p>The junction has a history of accidents, notably those related to right-turn movements from Huon Highway to Summerleas Road and cross-highway traffic on Summerleas Road. The upgrade of this intersection is intended to reduce the risk of traffic crashes significantly in the context of forecast traffic growth.</p> <p>The objective of the project is to improve safety and access to and from the Huon Highway at the junction with Summerleas Road. Various options have been assessed, with the preferred upgrade consisting of a diamond interchange with Huon Highway raised along its existing alignment with Summerleas Road lowered to pass under the Huon Highway.</p>
Is this a new submission?	Yes
Estimated cost of problems?	The strategic framework and transport system problems to which this project responds are outlined in the Overview document and within this submission. Detailed information on project costs and benefits, to the extent that they can be quantified, is contained in the Stage 7 template.
Estimated Capital Cost of Initiative by Proponent (\$M, nominal, undiscounted):	\$22M
Commonwealth contribution sought by Proponent (\$M, nominal, undiscounted):	\$22M

<p>Other funding (source/amount/cash flow) (\$M, nominal, undiscounted):</p>	<p>Cost reflective pricing for heavy vehicle access to the road network and road funding reform is being considered as part of the national Heavy Vehicle and Investment Reform agenda, and the Tasmanian government will continue to actively participate in this reform process. Tasmania has many attributes for a pilot study of approaches developed through national processes. It is considered that a national approach to funding and financing transport infrastructure, supported by all levels of government, is critical to effectively address long term transport infrastructure needs. In this context, the recent Infrastructure Australia's Finance Working Group's report "Infrastructure Finance and Funding Reform" is an important lead for national discussion. Tasmania is not in a position currently to adopt a unilateral approach. Further work is required on project financing and the issue of cost reflective pricing in small regional economies.</p>
<p>BCR by Proponent excluding Wider Economic Benefits</p>	<p>0.50</p>
<p>Estimated program</p>	<p>DIER will be seeking early funding to undertake project development from 2013-14; construction 2014-16.</p>

## Goal Definition

The goal of the project is to improve safety and access to and from the Huon Highway at the junction with Summerleas Road.

The Huon Highway is a key intra-regional corridor in Southern Tasmania, connecting major industry sectors such as forestry, aquaculture and agriculture to central Hobart and other destinations. It provides the key road link for passengers to and from the Huon Valley. At the junction with Summerleas Road, the Highway passes adjacent to Kingston, one of Greater Hobart's highest growth residential areas, with Summerleas Road a major connection across the Highway linking residential areas to major commercial, educational and other facilities at Kingston.

## Positive contribution to Infrastructure Australia and Nation Building 2 strategic priorities

The project aligns with the following Infrastructure Australia objectives:

- ***Improving social equity and quality of life in our cities and regions***

The Kingborough area is one of the highest growth municipalities in Greater Hobart, with the population increasing 9% between 2006 and 2011. The proposed upgrades will provide greater connectivity and accessibility for the Kingborough community, including to the commercial centre at Kingston from residential areas north of the Highway, while ensuring that access and connectivity for Huon Valley communities to Hobart and into Kingston, continue to be met.

- ***Achieving better utilisation of existing infrastructure***

The proposed improvements will enable the existing infrastructure to cater for projected growth in both passenger and freight vehicles over the medium term, whilst improving conditions for safety and access and travel times for local and regional communities.

- ***Developing our cities***

The Kingborough municipality acts as a residential satellite suburb for Hobart, providing a suburban and semi-rural lifestyle within a short daily commute into the Hobart CBD. The project intersection facilitates the movement of 10,000 vehicle movements per day (weekday average). With high levels of residential and commercial growth in the Kingborough area, upgrades to this intersection are required to meet forecast demand increases, to improve cross-movements and pedestrian safety, and maintain sufficient connectivity and accessibility to Hobart.

The project is submitted under the *Safety* theme of Nation Building 2, and furthers the objectives of this program area:



- **Safety**

Improved safety is a key objective of the proposed upgrades. The existing Huon Highway-Summerleas Road junction has a history of motor vehicle accidents, notably those related to right-turn movements from the Huon Highway to Summerleas Road and cross-highway traffic onto Summerleas Road.

The last significant upgrade of the intersection occurred in 2003 and involved alterations to traffic islands, signs, linemarking and the installation of semi-formal parking areas to facilitate park-and-ride utilisation of bus services. The speed limit along the Huon Highway through the intersection was reduced from 100km/h to 80km/h in 2008. Despite these changes, the crash rate at this intersection has remained relatively constant.

### Alignment with State/regional strategic plans

#### ***Tasmanian State Road Hierarchy***

The *Tasmanian State Road Hierarchy* identifies the Huon Highway as a Category 2 - Regional Freight Road. Regional freight roads connect major production catchments to major freight networks and carry higher volumes of both heavy freight and passenger vehicles. Regional freight roads facilitate heavy inter-regional and sub-regional freight movements, as well as supporting passenger and tourist movements.

#### ***Tasmanian Road Safety Strategy***

The *Tasmanian Road Safety Strategy 2007 – 2016* provides the strategic direction in supporting key initiatives to eliminate fatalities and serious injuries on Tasmanian roads. Upgrading the Huon Highway/Summerleas Road intersection will follow Safe System design principles to ensure minimal safety risks with increasing intersection usage.

#### ***Southern Integrated Transport Plan***

The Southern Integrated Transport Plan – released in 2010 – is a collaborative initiative of the Tasmanian Government, the Southern Tasmanian Councils Authority and twelve member councils. It identifies one of its infrastructure strategies as improving the ‘safety and consistency of key regional roads, including the Huon Highway.’

### Problem identification, assessment and analysis

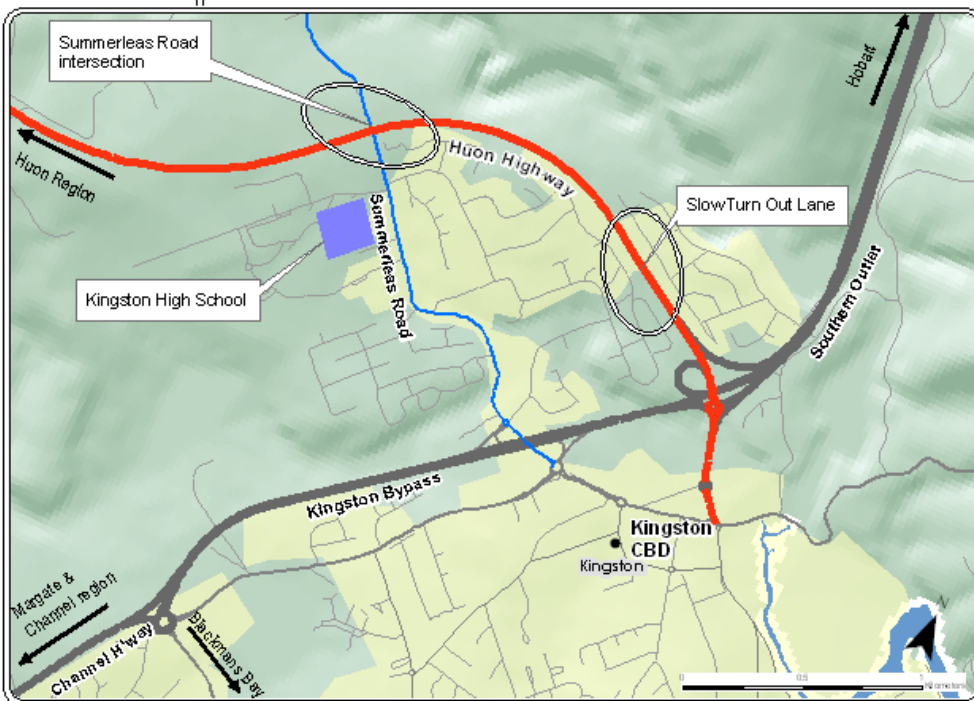
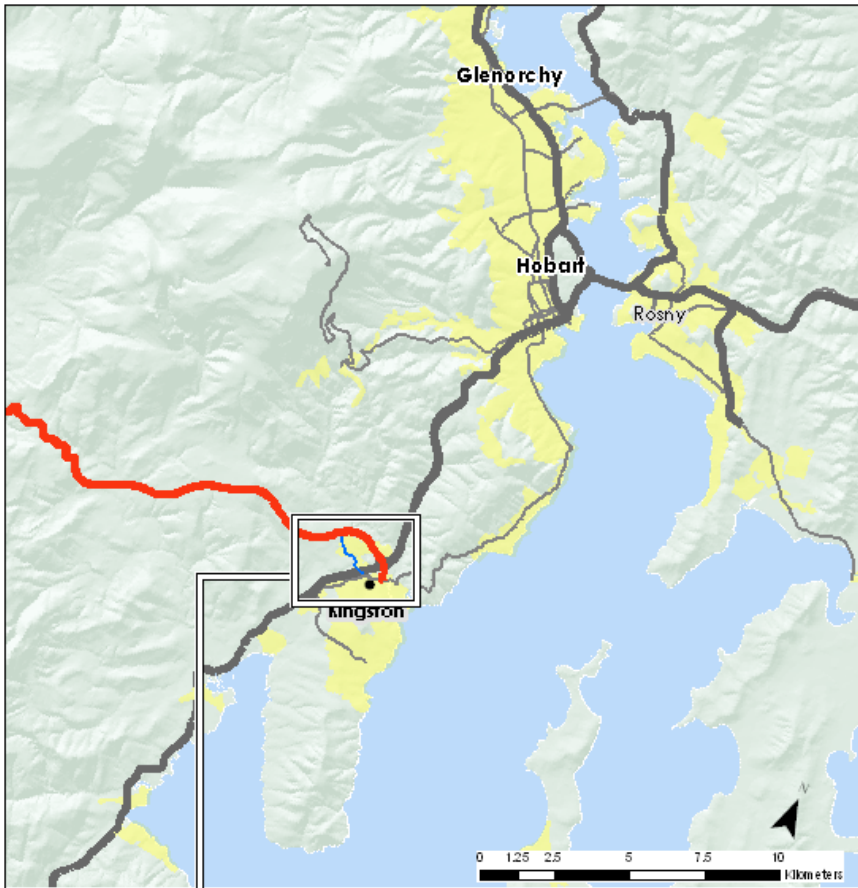
The Huon Highway is a regional freight road connecting the Huon Valley region to Hobart (Map 1). The Highway is classified as a Category 2 – Regional Freight Route under the Tasmanian State Road Hierarchy. A Category 2 Road:

- Links major production catchments to Tasmania’s major freight and passenger networks;
- Carries a large number of both heavy freight and passenger vehicles; and
- Provides safe and efficient access to Tasmania’s regional areas.

In 2009, the Huon Highway carried over 1.1 million tonnes of freight. This is forecast to increase to 1.65 million tonnes by 2030. In 2008, AADT counts on the northern approach to the Summerleas Road intersection were 8422 vehicles; in 2010, AADT counts on the southern approach to the intersection were 7792 vehicles.

At the intersection with Summerleas Road, the Huon Highway passes adjacent to Kingston, a high growth residential and commercial centre in Southern Tasmania. The road at this point supports both through and local traffic. Summerleas Road is a key connection across the Huon Highway, connecting residential areas located north of the Highway to major commercial, educational and other facilities located within Kingston.

Summerleas Road is an urban, local government-owned road that extends both north and south of the Huon Highway. Bus stops are located on either side of the Huon Highway in the vicinity of the Summerleas Road intersection along with adjacent unsealed car parks which effectively form small scale park-and-ride facilities serviced by regional bus services travelling between the Huon Valley and Hobart. The bus stops are also used by school bus operators. These facilities generate a need for pedestrians to cross the Huon Highway at an uncontrolled intersection and with limited infrastructure to accommodate cross-movements.



Map 1. Location of Huon Highway/Summerleas Road intersection.

## Safety

The Huon Highway/Summerleas Road junction has a history of accidents, notably those related to right-turn movements from the Huon Highway into Summerleas Road and cross-highway traffic on Summerleas Road. For the 10 year period, August 2002 to August 2012, the intersection recorded 33 crashes. More than a third of these were 'cross-traffic' crashes, with two resulting in serious injury. Upgrade of the intersection will significantly reduce the risk of traffic accidents.

Vehicles on the Summerleas Road approach to the Highway often experience lengthy delays before entering the intersection, which may result in some drivers accepting a smaller gap in the highway traffic than is safe.

The last significant upgrade of the intersection occurred in 2003 and involved alterations to traffic islands, signs, linemarking and installation of semi-formal parking areas to facilitate park-and-ride utilisation of bus services. The speed limit along the Huon Highway through the intersection was reduced from 100km/h to 80km/h in 2008. Despite this reduction, the crash rate at this intersection has remained relatively constant.

## Capacity for growth in traffic volumes

Whilst current levels of traffic delay for through traffic along the Huon Highway are minimal, forecast growth in traffic volumes will result in lengthy delays for crossing and entering the general highway flow. Modelling based on the implementation of the preferred design option in 2032 suggests considerable savings in both peak and off-peak vehicle hours.

Traffic modelling was used to model the existing and proposed intersection configurations for both existing (2012) and forecast future traffic volumes (2032). Analysis of the modelling for the existing intersection configuration indicates:

- There are currently minimal delays for traffic turning from the Huon Highway into Summerleas Road (average delays in the order of 12 seconds) during both morning and evening peak periods;
- Vehicles turning right from Summerleas Road onto Huon Highway experience substantial delays, up to 2 minutes during both peak periods, however the traffic volumes performing this movement are relatively low;
- Queue lengths of 4-5 vehicles are regularly experienced on the Summerleas Road approach during both peak periods; and
- With increasing traffic volumes on Huon Highway, future modelling shows stop-line delays on the Summerleas Road approach increasing significantly due to difficulty in selecting appropriate gaps in the major traffic stream.

The proposed upgrade will generate travel time savings of approximately 20.7 vehicle-hours over a weekday, under current traffic conditions (2012), increasing to a saving of over 50 hours by 2032.

## Option Generation and assessment

The goal of the project is to improve safety and access to and from the Huon Highway at the junction with Summerleas Road.

The following options were considered to achieve this objective, with three grade-separation designs considered:

1. A new roundabout; and

Three grade separation options:

2. Huon Highway under at existing grade; Summerleas Road over
3. Huon Highway at existing grade; Summerleas Road under
4. Lowering of Huon Highway; Summerleas Road over

### *Inclusion of a slow vehicle turnout lane*

This section of the Huon Highway has a grade of 6%, which is problematic for southbound traffic as the speed differential between light and heavy vehicles is substantial. It is common for heavy vehicles to pull onto the gravel shoulder in order to allow light vehicles to pass. A slow vehicle turnout lane provides safe, dedicated infrastructure to manage this interaction between heavy vehicles and passenger vehicles, and is a part of all options considered below.

## Description of options

### *1. Single, at-grade roundabout*

Option 1 examined the construction of a new roundabout, with the approaches regraded to ensure a 3% maximum fall. This option minimises earthworks, with the most significant fill on the eastern approach of Summerleas Road to the roundabout.

A roundabout is problematic for heavy vehicles, requiring acceleration uphill out of the roundabout for movements south to the Huon Valley. After consultation, this option was rejected by the local transport industry.

### *Grade separation*

#### *2. Maintain alignment of Summerleas Road under Huon Highway*

- A diamond interchange, with the Huon Highway at-grade and Summerleas Road lowered to pass under the Highway and largely maintaining its existing alignment. This option resulted in constrained and impractical accesses to some properties fronting the western end of Summerleas Road, with rear-access deemed largely unfeasible and unacceptable to residents.

#### *3. Realign Summerleas Road under at-grade Huon Highway*

- A diamond interchange with the Huon Highway at-grade and Summerleas Road lowered to pass under the Highway and realigned approximately 20m south of its existing alignment. Realignment of Summerleas Road would provide space for a service road along the frontages of those properties otherwise impacted under option 2 above.

#### 4. *Realign Summerleas Road under raised Huon Highway*

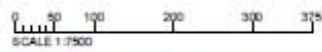
- A diamond interchange with the Huon Highway raised along its existing alignment, and Summerleas Road lowered to pass under the Highway. Summerleas Road would be realigned approximately 20m south of its existing alignment.
- The realignment of Summerleas Road provides adequate space for either a service road or some driveway frontages, otherwise impacted on under option 2. This option is the only one capable of providing a normal bridge clearance (5.4-5.6m compared with 4.4m clearance for each of the other grade-separation options). It is the most cost-effective outcome in terms of cut-and-fill, with an assumption that 70% of cut material would be suitable for embankment works.

#### **The preferred option**

Option 4 is the preferred option. Grade-separation provides safe, effective connectivity between the Huon Highway and Summerleas Road, while maximising efficiency and safety for through movements on the Huon Highway. It provides for a normal bridge clearance, and maintains appropriate vertical alignment standards. It provides the lowest impact drainage option, enables unhindered freight vehicle through-flows along the Huon Highway and will improve overall safety conditions. Option 4 is the lowest-cost grade separation option.

The works to be delivered under this option include:

- Construction of a grade separated interchange with Summerleas Road being lowered and realigned and the Huon Highway being raised to provide adequate clearance over Summerleas Road;
- Construction of roundabouts on Summerleas Road at ramp terminals;
- Construction of bus stops near the start of each entry ramp;
- Construction of a car park area on the south-west corner of the intersection; and
- Construction of a slow vehicle turnout for southbound traffic on the Huon Highway, immediately north of the Kingston Interchange.



Department of Infrastructure, Energy and Resources



Map 2. Overview of project proposal, showing intersection upgrade and slow vehicle turnout lane.

HUON HIGHWAY, SUMMERLEAS ROAD INTERSECTION  
Slow Vehicle Turnout



Department of Infrastructure, Energy and Resources



Map 3. Focus on proposed slow vehicle turnout lane.



# HUON HIGHWAY, SUMMERLEAS ROAD INTERSECTION Grade Separated Interchange



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Map 4. Proposed grade separated interchange upgrade.