Executive Summary

Introduction

Aberdeen City Council (ACC), along with Nestrans, Aberdeenshire Council and the Strategic Development Planning Authority (SDPA), as regional partners, wish to take advantage of the current investment in transport infrastructure (road and rail) in the City Region to facilitate the implementation of the City Centre Masterplan's (CCMP's) aim of creating a vibrant city centre with an environment that encourages visits to and lengthens stays in the city centre and to lock-in the benefits of this investment for the whole city.

The partners are seeking to update the city's roads hierarchy to provide a system that reflects the new role of the city centre (as a destination) and makes the most effective use of the Aberdeen Western Peripheral Route (AWPR) for distributing traffic around the city to the most appropriate radial route to reduce the extent of cross-city traffic movements.

AECOM was commissioned by Nestrans and ACC in summer 2018 to develop options for this updated roads hierarchy and to identify possible levels of intervention that could be implemented to support the delivery of the updated hierarchy.

The two key outcomes to be delivered as part of the work were:

- Development of roads hierarchy options to deliver a new roads hierarchy; and
- Identification of intervention levels to support that new roads hierarchy.

The initial focus was to set a new proposed roads hierarchy through the undertaking of a number of tasks. These tasks ultimately provided an understanding of routes in the study area and allowed for the identification of the most appropriate routes for carrying traffic across the city. Once options for the updated roads hierarchy had been developed, intervention levels could then be considered which were designed to support use of the new roads hierarchy, encouraging appropriate use of roads in the study area according to their proposed new classification i.e. use of priority routes for cross-city traffic movements where possible and use of local roads for localised trips only.

The study area for the Roads Hierarchy Study is bounded by the Charleston to Blackdog section of the AWPR. In the city centre, the study adopted the CCMP boundary as its focus.

The Roads Hierarchy Study has been undertaken between July 2018 and April 2019.

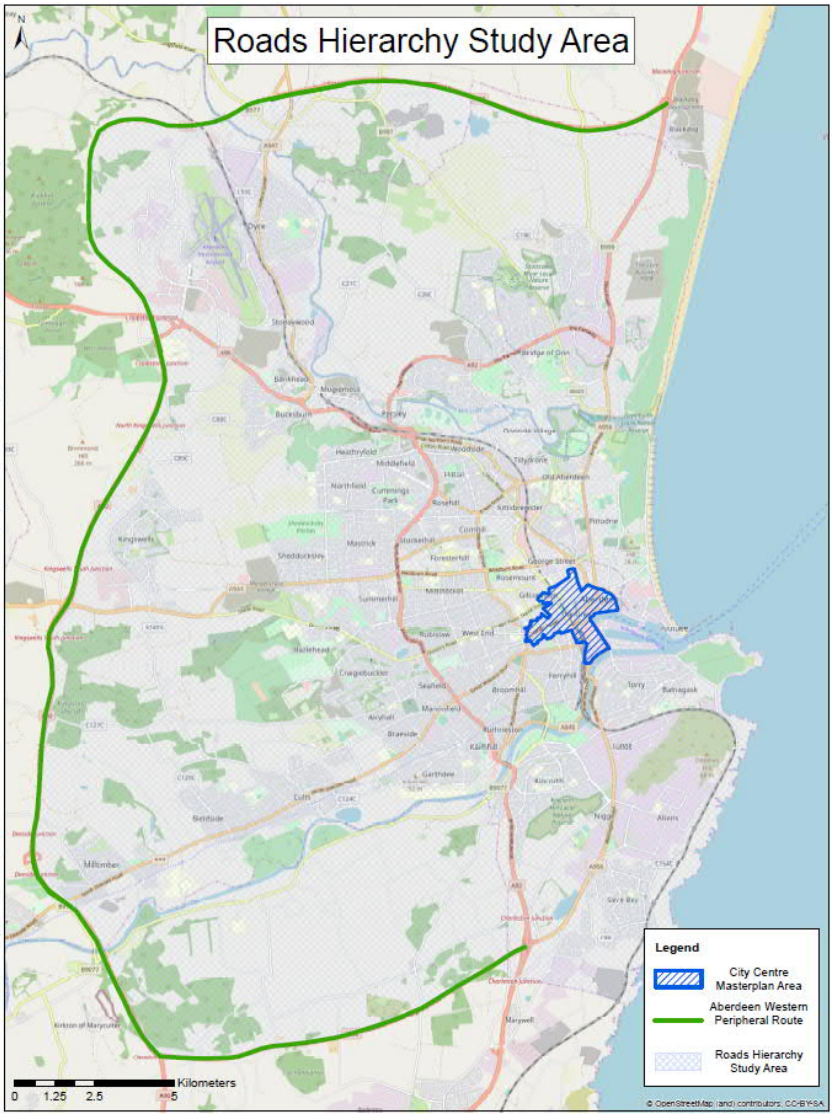

Figure 1: Roads Hierarchy Study Area

Study Approach

A number of tasks contributed towards options for a proposed new roads hierarchy for Aberdeen. These are summarised in the diagram below.

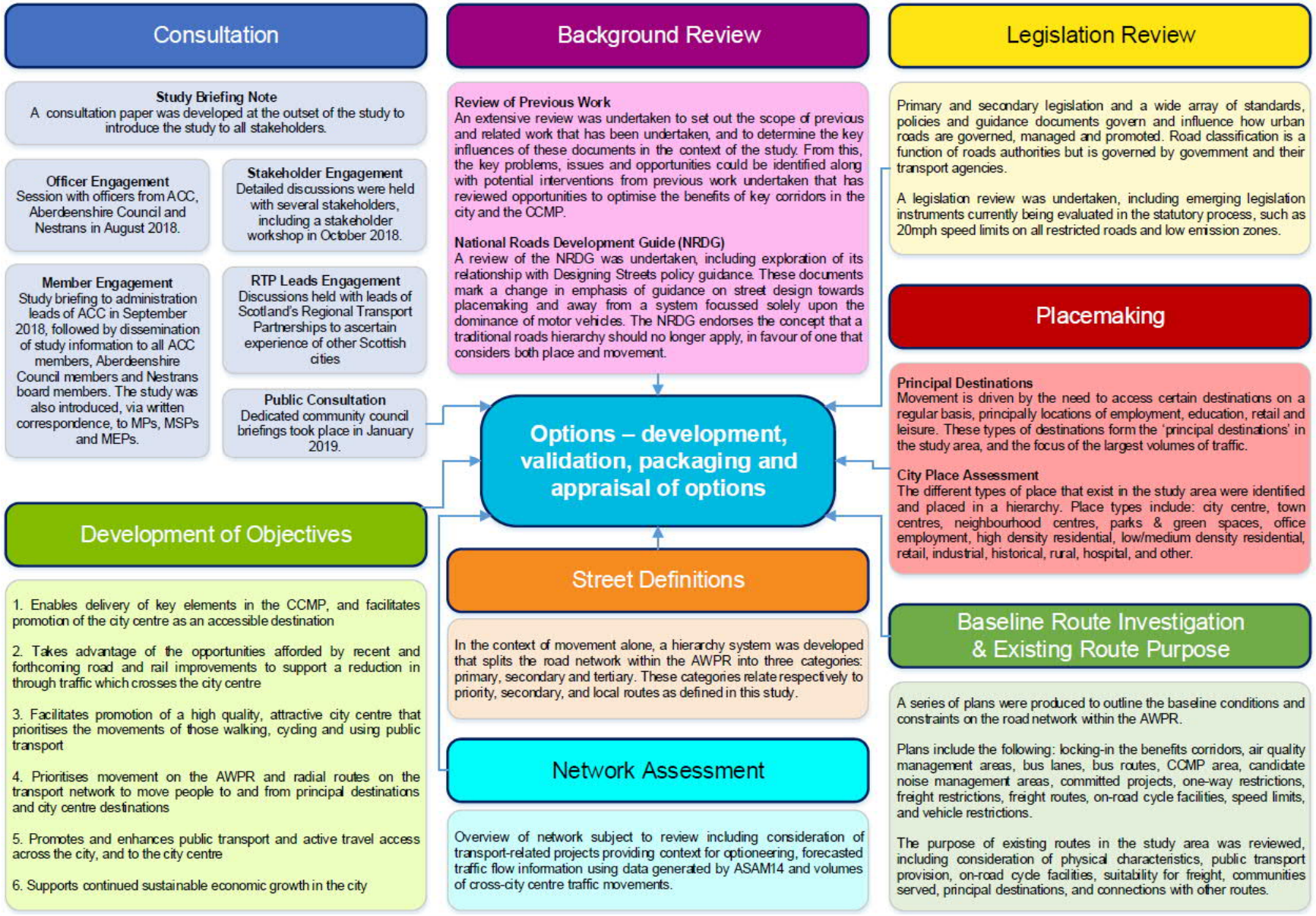

Figure 2: Roads Hierarchy Study Approach

Roads Hierarchy Principles

In 2016, the 'Roads Hierarchy' committee report and accompanying appendices were reported to ACC's former Communities, Housing and Infrastructure Committee. It is outlined in this report that the new roads hierarchy will provide a policy context for future transport planning and will form the basis for identifying future projects following completion of the AWPR. A series of Transport Planning Objectives (TPOs) were developed as part of a Scottish Transport Appraisal Guidance (STAG)-based assessment undertaken to identify how Aberdeen City and Aberdeenshire should operate in the post-AWPR scenario:

1	*Create a city centre that is conducive to walking and cycling*
2	*Reduce bus journey times to make them more competitive with car journey times*
3	*Improve reliability to make public transport more attractive*
4	*Ensure effective and efficient movement of goods to the city centre and harbour*
5	*Facilitate removal of air quality management areas (AQMAs)*
6	*Ensure effective use of the post-AWPR transport network and maximise the benefits by 'locking-in' the additional capacity created by committed road schemes towards sustainable transport modes*
7	*Support implementation of the CCMP*

The assessment resulted in the selection of the following approach to redefining the roads hierarchy:

- Creation of three zones within the city centre with demand restriction for vehicles between them; and
- Public transport and cycling corridors that will penetrate each of the zones while CCMP/Sustainable Urban Mobility Plan (SUMP) proposals for pedestrians, cycling and public transport will remain in the city centre.

The Council resolved to note the proposed principles for the future distribution and management of traffic across the city following the opening of the AWPR, and to instruct officers to engage with stakeholders and the public on the proposed framework and intended hierarchy including an online consultation.

An update to this report sets out a series of key roads hierarchy principles, which were approved by ACC in 2017. These were taken forward for use in the current study:

a) *Through traffic (that without an Aberdeen City destination) is directed (by road signing) to the AWPR;*

b) *Peripheral traffic (i.e. Bridge of Don to Altens or Cults to Dyce or Bucksburn to Torry say) is directed to the AWPR;*

c) *Traffic in Aberdeen with a destination away from Aberdeen is directed to the AWPR at the earliest opportunity (i.e. Mastrick to Peterhead is directed along the A96 Inverurie Road to the AWPR rather than through [the then city roads] Parkway/Ellon Road);*

d) *The city centre should be considered as a destination rather than a through route for vehicle traffic. Crossing the city centre by car should be discouraged (whilst giving due consideration for access to the harbour). Access and exiting the city centre should, as far as possible, be by the same route. In other words, people accessing the city centre from the north and not using public transport, walking or cycling should access it from the north, park in the north and return northwards. The same would be said for people accessing the city centre from the south and west. Crossing the city centre by foot/cycling/bus will be significantly improved by implementing the CCMP proposals. People in the north who particularly wish to access a south or west car park should be directed firstly round Aberdeen, as per b) above, then to access from the south or west. Similarly for south and west access.*

e) *The benefits of the AWPR must be 'locked-in' to prioritise the movement of active and sustainable travel through the reallocation of carriageway space, junction capacity and other traffic management/prioritisation measures, as defined in the Council's agreed Local Transport Strategy (LTS) 2016 to 2021, which is consistent with the principles of other local, regional and national transport, land use, community planning and health strategies, plans and policies.*

Roads Hierarchy Study Objectives

The objectives developed previously were reviewed and reassessed in the context of the Roads Hierarchy Study to provide a targeted approach to assessing the performance of initial options for change and subsequent package scenarios.

1.	**Enables delivery of key elements in the City Centre Masterplan, and facilitates promotion of the city centre as an accessible destination**
	The Roads Hierarchy Study supports the implementation of the CCMP and the management of its impacts across the city. Previous work has reinforced the importance of delivering a quality city centre which is a destination in its own right.

2.	**Takes advantage of the opportunities afforded by recent and forthcoming road and rail improvements to support a reduction in through traffic which crosses the city centre**
	Presently, cross-city centre vehicular movements can be undertaken on several routes. Forthcoming infrastructure projects and the revolution in rail will provide opportunity to support the objective of reducing cross-city centre through traffic.

3.	**Facilitates promotion of a high quality, attractive city centre that prioritises the movements of those walking, cycling and using public transport**
	Previous consultation work has underlined public and stakeholder aspirations to improve the active/sustainable travel environment in the city centre.

4.	**Prioritises movement on the AWPR and radial routes on the transport network to move people to and from principal destinations and city centre destinations**
	The AWPR makes the revision of the roads hierarchy possible by enabling the transfer of through and peripheral traffic from the roads within the study area, providing protection to high-quality places across the city.

5.	**Promotes and enhances public transport and active travel access across the city, and to the city centre**
	As noted in Objective 3, previous consultation work has underlined aspirations to improve the active/sustainable travel environment in the city centre. The importance of improving the wider active and sustainable travel network across Aberdeen (i.e. the whole study area) is also a key feature in local and regional transport policy and was a strong message during consultation; i.e. the importance of locking-in the benefits of the AWPR.

6.	**Supports continued sustainable economic growth in the city**
	The revision of the roads hierarchy will require to take cognisance of significant development taking place in the short to medium term. A key challenge will be to future-proof the hierarchy to enable sustainable growth in the study area to be achieved, whilst also supporting existing principal destinations and access to these destinations by appropriate routes.

Street Definitions

In the context of movement alone, a hierarchy system was developed that split the road network within the AWPR into three categories: primary, secondary and tertiary. These categories relate respectively to priority, secondary and local routes as defined in this study. Figure 3 illustrates the relationship between hierarchy status, definitions used in the Roads Hierarchy Study and classification.

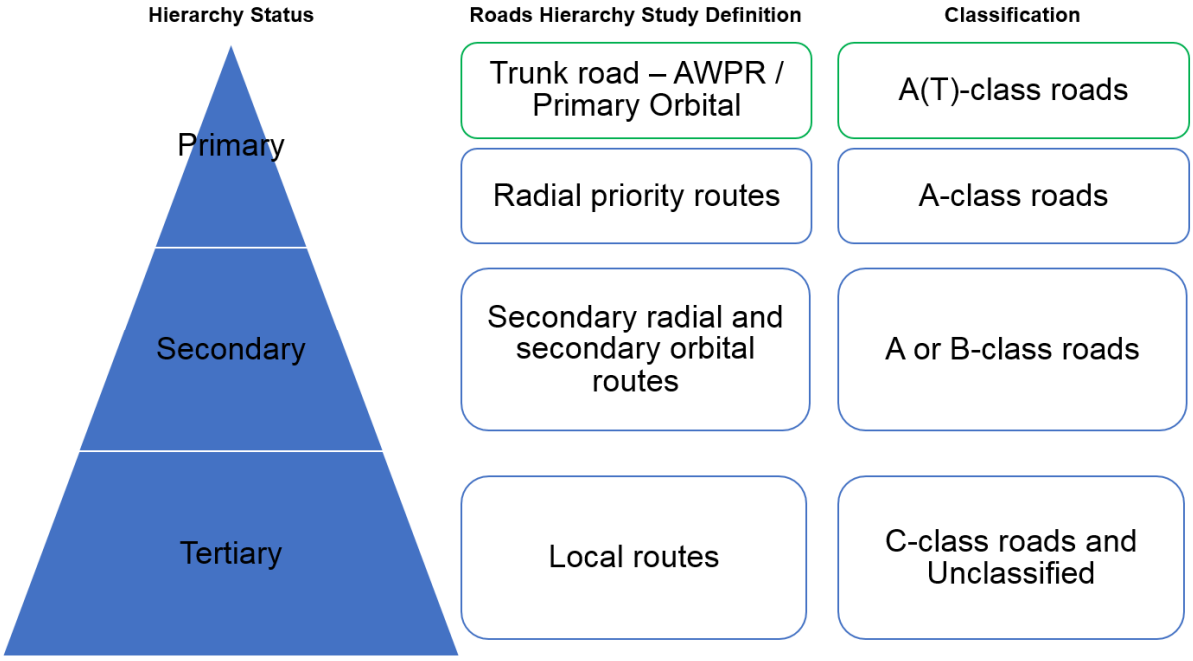

Figure 3: Street Definitions Diagram

Option Development, Sifting and Validation

A long-list of initial options was developed for the following elements within the roads hierarchy:

- Priority radials;
- Secondary radials;
- Secondary orbitals;
- Local roads; and
- C-roads under consideration.

For the options developed, consideration was given to both routing and to the route's future roads hierarchy status (priority, secondary, local). Options for change were generated whereby existing priorities were no longer considered to be appropriate or where it was felt that changes were required to align with the principles of the Roads Hierarchy Study.

Following the development of the long-list of options, a sifting exercise was undertaken to determine options that could be ruled out of further consideration. A red, amber, green process was used to assess the performance of each option against the six objectives and against the implementability criteria of technical feasibility and public acceptability (assumption-based). As a result of this process, 28 options were rejected.

A further validation test was then undertaken on the principles and suitability of place for the initial roads hierarchy options that had been developed. This included consideration of the established AWPR signing framework developed by ACC with particular focus on key considerations for active travel, public transport, freight, general traffic and road classification as a result of the options for change in a potential new roads hierarchy.

Option Packaging and Appraisal

Following the option sifting and validation test exercise, the remaining options were packaged into the following categories:

- Do-Minimum Package;
- City Hierarchy Package;
- Road Space Reallocation Package; and
- Access Only Package.

Figure 4 provides a summary of the option packaging process.

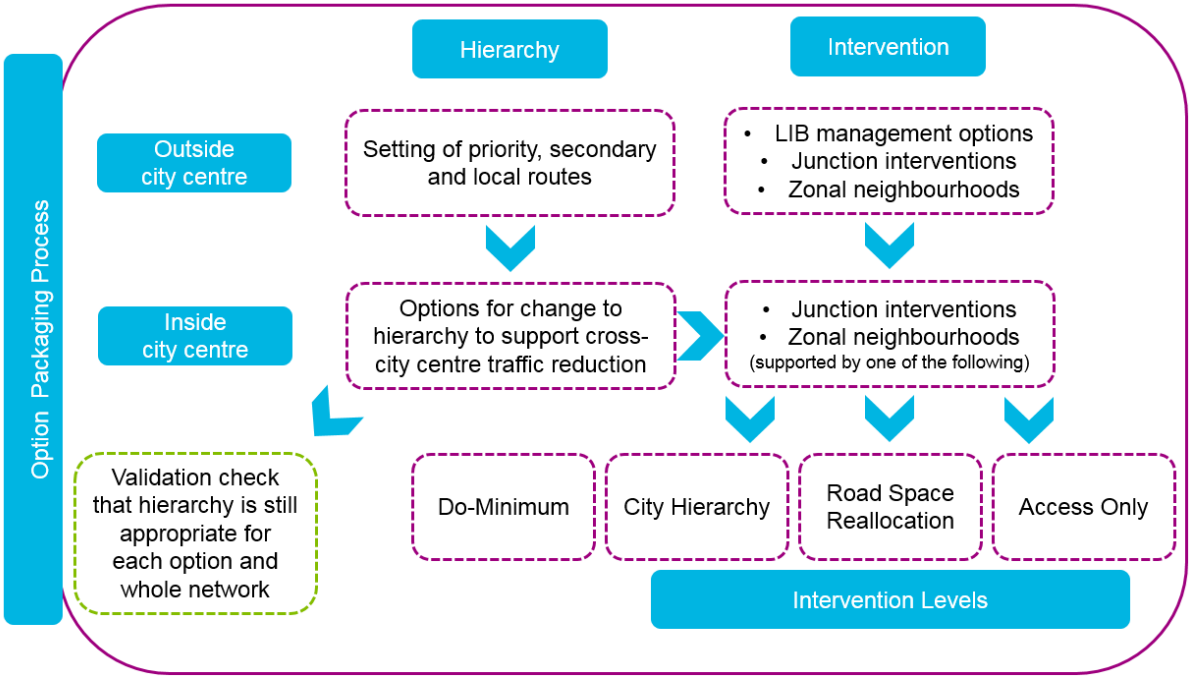

Figure 4: Option Packaging Process

The following table provides further detail on the option packages developed.

Table 1: Option Packages

Package	Description
Do-Minimum Package	• Includes indicative CCMP schemes, other committed schemes and City Signing as per the signing framework developed by ACC (for post-AWPR traffic routing). • In this package, general traffic could find existing alternative routes around the CCMP schemes. It would still be possible to approach the city centre and travel through by a number of routes. Public transport and active travel modes would provide additional cross-city centre travel movement options where CCMP schemes prevent private vehicular traffic.
Change Option: **City Hierarchy Package**	• The 'City Hierarchy' package represents the proposed new roads hierarchy.[1] • The 'City Hierarchy' package represents a change to the local road network, both in terms of routing and hierarchy status of routes. • In addition to what is included within the Do-Minimum package, it includes locking-in the benefits measures along key routes and city junction interventions to support the roads hierarchy. • The purpose of this City Hierarchy package is to review the impact of retaining through routes left by the implementation of CCMP schemes but reducing the attractiveness of these through routes via a number of junction interventions that would aim to encourage general traffic to use alternative routes for a 'to, not through' approach to the city centre. Active travel and public transport modes would provide additional cross-city centre travel movement options.

[1] Alterations to the hierarchy of some routes in the city centre may be appropriate if elements from the Access Only package are applied.

Package	Description
	• In this package, measures across the city would support the prioritisation of radial routes set to encourage use of the AWPR, including implementation of 'zonal neighbourhoods'.
Change Option: **Road Space Reallocation Package**	• The hierarchy of routes across the network in the 'Road Space Reallocation' package reflects that proposed within the City Hierarchy package. • The Road Space Reallocation package introduces a very high level of intervention, whereby the capacity of routes within the city centre is reduced for general traffic over and above CCMP proposals. Although the implementation of such measures would still permit movements by general traffic, the attractiveness of such movements would be reduced for general traffic and increased for public transport and active travel users. It would be anticipated that some traffic would reroute to use more appropriate routes and there is the potential for some modal shift to occur using new facilities. • The purpose of the Road Space Reallocation package is to review the impact of reducing the capacity for general traffic movements between the north, south and west of the city centre. Full access to all parts of the city centre by general traffic would still be permitted in this scenario by alternative, more appropriate non-cross-city centre routes to encourage a 'to, not through' approach to the city centre. Active travel and public transport modes would provide additional cross-city centre travel movement options, and it is considered that these options would be more attractive in this scenario as increased priority would be given to alternative travel modes. • The Road Space Reallocation package builds on the City Hierarchy package and therefore junction interventions across the city would support the prioritisation of radial routes set to encourage use of the AWPR.
Change Option: **Access Only Package**	• The hierarchy of routes across the network in the 'Access Only' package broadly reflects that proposed within the City Hierarchy and Road Space Reallocation packages, with further consideration required to the priority of a route where access only treatments are applied. • The 'Access Only' package introduces a very high level of intervention, whereby treatments are introduced to restrict through movements by general traffic over and above CCMP proposals. Access only treatments, for example, could relate to the division points between the three zones of the city centre and could involve bus gates to increase the attractiveness of alternative modes of travel and encourage modal shift. • The purpose of the Access Only package is to review the impact of restricting general traffic movements in locations within the city centre. Full access to all parts of the city centre would still be permitted in this scenario by alternative, more appropriate non-cross-city centre routes to encourage a 'to, not through' approach to the city centre. Active travel and public transport modes would provide additional cross-city centre travel movement options, and it is considered that these options would be more attractive in this scenario as increased priority would be given to alternative travel modes. • The Access Only package builds on the City Hierarchy package and therefore junction interventions across the city would support the prioritisation of radial routes set to encourage use of the AWPR.

The appraisal process involved assessing the four option packages against the objectives of the study on a qualitative basis. The following seven-point scale (based on STAG) was used for appraisal:

Major beneficial impact (+3)	
Moderate beneficial impact (+2)	
Minor beneficial impact (+1)	
No benefit or impact (0) (Neutral)	
Minor negative impact (-1)	
Moderate negative impact (-2)	
Major negative impact (-3)	

The appraisal of Objective 6 relating to sustainable economic growth was sub-divided into a score for opportunities and risks to reflect the complexity of assessing the performance of option packages against this objective by each mode of travel.

The findings of the appraisal process against objectives are summarised in Table 2.

Table 2: Appraisal Summary of Option Packages

Option Packages Appraisal		Appraisal							
		Do-Minimum		City Hierarchy		Road Space Reallocation		Access Only	
Objectives	1. Enables delivery of key elements in the City Centre Masterplan, and facilitates promotion of the city centre as an accessible destination	+1		+3		+2		+2	
	2. Takes advantage of the opportunities afforded by recent and forthcoming road and rail improvements to support a reduction in through traffic which crosses the city centre	+1		+2		+3		+3	
	3. Facilitates promotion of a high quality, attractive city centre that prioritises the movements of those walking, cycling and using public transport	+1		+2		+3		+3	
	4. Prioritises movement on the AWPR and radial routes on the transport network to move people to and from principal destinations and city centre destinations	0		+2		+2		+2	
	5. Promotes and enhances public transport and active travel access across the city, and to the city centre	0		+1		+2		+3	
	6. Supports continued sustainable economic growth in the city	Opportunities +1	Risks -1	Opportunities +2	Risks -1	Opportunities +3	Risks -2	Opportunities +3	Risks -2

The results of this appraisal indicated that there are benefits with all option packages, however it is considered that the benefits of the Do-Minimum package are more limited compared with the others. It is considered that the other packages all go a significant way to realising the aims of the Roads Hierarchy Study, however there are opportunities and risks to be considered in detail with all option packages.

Proposed New Roads Hierarchy

The proposed new hierarchy is illustrated in the plan below. It should be noted that the priority of any route could be reconsidered further where access only measures are implemented (e.g. any routes in the CCMP area could be downgraded to tertiary if very high levels of intervention were introduced).

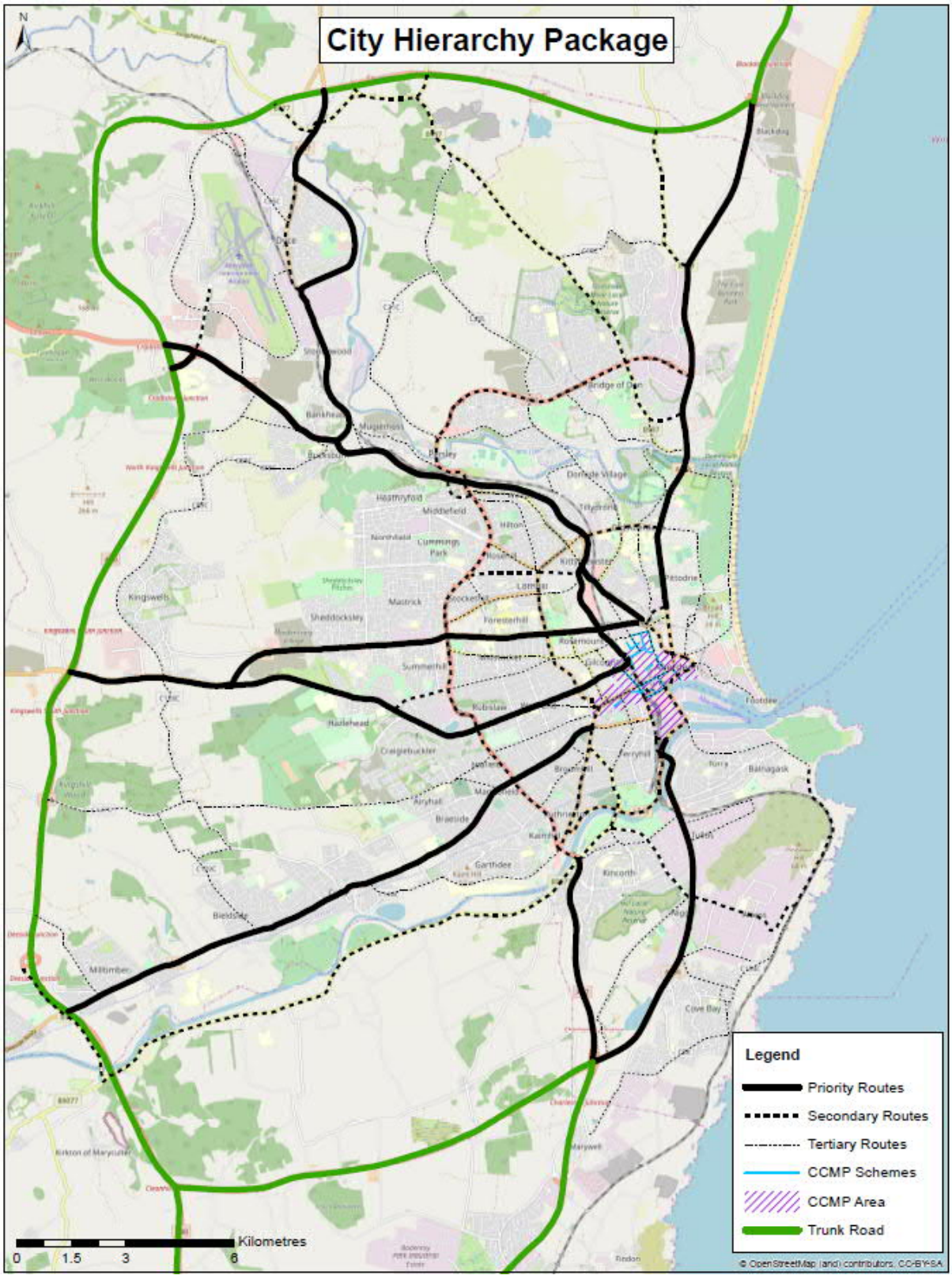

Figure 5: The Proposed New Roads Hierarchy

Summary of Option Packages and Intervention Levels

A summary of the option packages and intervention measures is summarised in the diagram below.

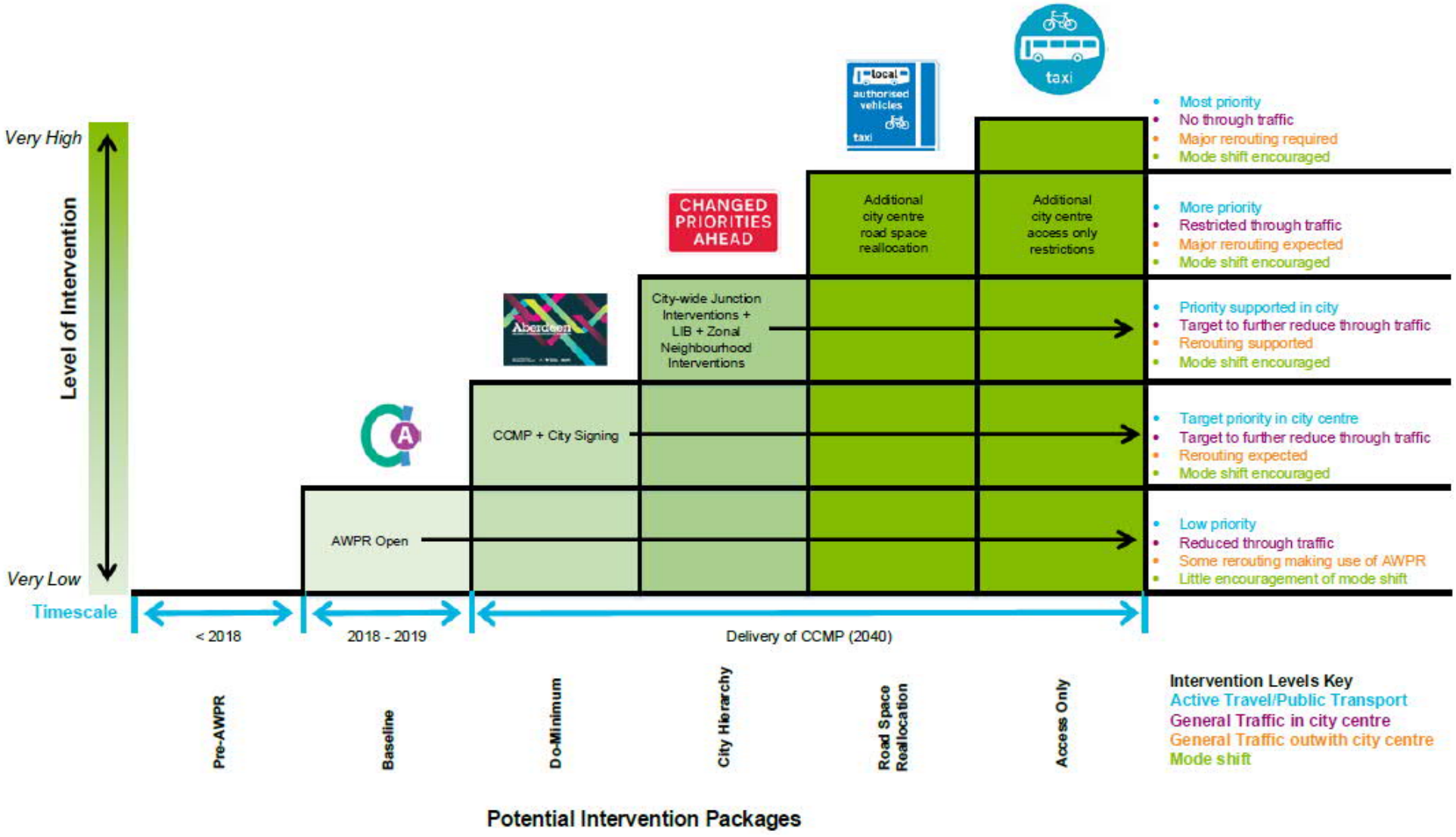

Figure 6: Option Packages and Intervention Measures

Key Outcomes

The Roads Hierarchy Study has:

- Interpreted the ACC principles of a roads hierarchy devised in 2016 and assessed where there is a need for a change of prioritisation of roads inside the AWPR boundary;
- Considered a number of city-wide and additional city centre levels of intervention to promote mode shift and facilitate use of appropriate routes to support continued sustainable economic growth and delivery of the CCMP.

Detailed and difficult decisions on individual elements within the road network and interventions now need to be made across the city. It is recognised that this will not be easy, and a balance must be found between supporting a healthy, active and vibrant high-quality place environment and the needs of people and goods to access principal destinations and other local destinations.

Based on community and stakeholder feedback, the Roads Hierarchy Study has presented a number of approaches that could be developed over time, incrementally supporting previous interventions taken forward by ACC, Nestrans and partners.

A number of previous risks associated with bringing forward the CCMP have now been mitigated, such as the implementation of major infrastructure and transport improvements, including the AWPR and rail improvements. Quantification of the impacts of these improvements can now commence and this will help to provide the rationale for those involved in decision-making.