Proposed Weight Restrictions
A362, A3098 and B3092

Final Report
October 2006

Produced for
Wiltshire County Council

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Document Control Sheet

Project Title
Proposed Weight restrictions – A362, A3098 and B3092

Report Title
Implementation Proposals Report

Revision
C

Status
Revised Final

Control Date
10/10/06

Record of Issue

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<th>Status</th>
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<th>Date</th>
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Executive Summary

History

The villages of Chapmanslade (A3098), Corsley Heath (A362) and Maiden Bradley (B3092) in south west Wiltshire, straddle routes which have been used extensively by Heavy Goods Vehicles (HGVs) travelling between Somerset and Wiltshire. None of these roads are designated as HGV routes by Wiltshire or Somerset County Councils. Due to the number and size of HGVs increasing, the impact of these vehicles on the rural communities has increased and considerable local pressure has been applied on the highway authorities to address this issue.

There have been a series of reports and studies undertaken and some restrictions introduced on the A362 through Corsley Heath (17T restriction westbound) and the A3098 through Chapmanslade (17T restriction both directions).

Following a report produced by Mouchel Parkman in January 2005, Wiltshire County Council undertook an informal consultation exercise with stakeholders and residents regarding potential restrictions along the roads referred to above. On receipt of feedback from this consultation, Wiltshire County Council commissioned Mouchel Parkman to develop recommendations for a preferred option for the weight restrictions scheme for implementation.

Approach

The study consisted of a number of options being considered for weight restriction zones based on the January 2005 report. The aim of this study was to develop and assess viable options which could then be implemented on site at a future date where appropriate.

Possible options were identified by means of a desktop, map based study and the economic and environmental impacts were analysed using a spreadsheet assessment framework approach. This approach was originally developed by Symonds Consultancy on behalf of Devon County Council and The Countryside Agency to assess the impact of Large Vehicles in Rural Areas (LVIRA).
Summary

Taking into account the implementation costs, the associated advantages and disadvantages of each option and the results obtained from LVIRA, the preferred options for the scope of weight restrictions for implementation are as follows:

1. The existing 17T weight restriction on the A3098 should be replaced by a reduced 7.5T restriction. The zone covered by this order would need to be an amendment to the area covered by the existing order.

2. The existing 17T west bound restriction on the A362 through Corsley Heath should be extended to include eastbound vehicles and increased to 18T. The zone covered by this order would need to be an amendment to the zone of the existing order with further consideration required in respect of the western extent of the zone, either at the County Boundary or adjacent to the A361 junction.

3. A 7.5T weight limit zone should be introduced over a wide area straddling the B3092 which would extend from the County boundary in the west to the A350 in the east, and from the Stourhead/ Kilmington junction in the south to the A361 in the north (or the County boundary again as an alternative). The weight limit would also be applied to all the ‘B’ & ‘C’ classification roads that would fall within this zone to address potential “rat running” through other communities including Kilmington, Kilmington Common, “The Deverills”, and Horningham.

4. The existing west bound 7.5T weight restriction on the B3089 should be revoked between its junction with the A350 and the A303 at Willoughby Hedge. This is in order to address safety concerns regarding the A350 /A303 junction.

The workshop and desktop identification of options for each area quickly established that there were few alternative approaches to the introduction of the weight restrictions to achieve the desired results. For this reason the preferred options were identified and then modelled using LVIRA, rather than a range of options being modelled.

The LVIRA results show that there will be an adverse impact on alternative freight routes, but significant benefits along the A362 and B3092 in particular. The assessment demonstrates that there is an overall net benefit from introducing a 7.5T weight restriction. These benefits are considered to outweigh the adverse impacts predicted along the alternative routes and are considered significant enough to warrant the introduction of the proposed restrictions.
Additional Recommendations

 Whilst the key recommendations of the report relate to the preferred options stated above, additional recommendations are made in this report in respect of other relevant issues that have been identified during the completion of this commission. These are:-

- The proposals should be presented and explained to the Freight Quality Partnerships within Wiltshire and Somerset;

- A plan for implementation should be drawn up in partnership with Somerset County Council and the Highways Agency in order to reflect the combined interests of the three Highway Authorities;

- Wiltshire County Council should investigate alternative means of weight restriction enforcement across the County that would support the role of the police in this function. This should be a short to medium term aspiration and not affect the implementation timescale for these proposals.

These additional recommendations are included to emphasise the need for co-operative working between the affected parties in order to secure the successful implementation and application.
1 Introduction

1.1 Background

The villages of Chapmanslade (A3098), Corsley Heath (A362) and Maiden Bradley (B3092) in south west Wiltshire; straddle routes which have been used extensively by HGVs travelling between Somerset and Wiltshire. None of these roads are designated as HGV routes by Wiltshire or Somerset County Councils.

As the number and size of HGVs have increased, the impact of these vehicles on the rural communities has increased and considerable local pressure has been applied on the highway authorities to address this issue. The area under consideration is shown on drawing no. 745829/D/006.

There have been a series of reports and studies undertaken and some restrictions introduced on the Wiltshire side of the county dividing line. These affect the A362 westbound – 17T restriction and the A3098 through Chapmanslade – 17T both directions. More details of these previous reports are included in section 1.2.

Following the latest Mouchel Parkman report in January 2005, Wiltshire County Council undertook an informal consultation exercise with key stakeholders and local residents regarding potential restrictions along the three roads referred to above. On receipt of feedback from these consultations, Wiltshire County Council commissioned Mouchel Parkman to develop recommendations of the preferred option, for the weight restriction scheme. This could then be taken forward to implementation by Wiltshire County Council in the future.

This report also refers to the impact of legislative changes introduced through the Traffic Signs Regulations and General Directions 2002. Under these regulations the 17T restriction is effectively replaced by an 18T restriction and the signage associated with the 17T restriction is expected to become illegal from 31st December 2006. These changes will affect the A3098 and A362 regardless of the outcome of the proposals developed within this report and the impact on the implementation of the proposals has been considered in the assessment.

Drawing no 745829/D/006 shows the area under consideration, existing freight routes shown on Wiltshire and Somerset Freight maps and the relevant existing weight restrictions.
1.2 Previous reports

1.2.1 Somerset County Council - February 2004

In February 2004 Somerset County Council produced a “Review of Heavy Goods Vehicles along the A362 and B3092”. This report considered the existing patterns of movement of HGVs using these two roads, which straddle the Wiltshire / Somerset boundary, and undertook an assessment of the economic impact of introducing restrictions on the use of the roads by HGVs. This report concluded that the majority of HGVs on these roads were using the most appropriate route for their journeys and that no action should be taken to prevent the HGVs from using these routes. This report was focused upon the economic factors associated with redirecting HGV traffic onto other routes.

Somerset County Council concluded that HGVs are using the A362 and B3092 because of the absence of a viable alternative route along the strategic road network and that alternative routes would incur significant costs on the HGV operators. This would not be compatible with the policy of considering the need for businesses to compete within the national market place.

The data within the Somerset report highlighted that whilst HGV traffic on National routes had increased by around 18% between 1992 and 2002, HGV traffic on County Roads had declined by almost 14%. This fall in numbers was considered to be at least in part due to the increasing size of vehicles demonstrated by an increased percentage of 4 axle vehicles.

The report recommended that:

i. Dialogue is continued with HGV operators regarding the re-routing of HGV’s from the A362 and B3092 where ever this is possible;

ii. At this time no action will be taken to physically limit HGV traffic currently using the A362 and B3092;

iii. The residents affected by HGV traffic along the A362 and B3092 are kept informed of the processes and progress and that dialogue continues with the residents so that their needs are considered.

1.2.2 Mouchel Parkman on behalf of Wiltshire County Council - January 2005

In November 2004 Mouchel Parkman was commissioned by Wiltshire County Council to investigate the movement of existing HGV traffic using the A362, A3098 and B3092. This commission included reviewing and taking into account previous work by Somerset County Council. The commission arose following representations received by Wiltshire County Council from
residents in the villages of Corsley Heath, Chapmanslade and Maiden Bradley regarding the impact that the HGVs using these roads were having on residents in the villages.

This study considered the economic implications of measures to restrict the use of these roads by HGVs along with an appraisal of the key impacts of the traffic on the villages.

The report established that there is a proportion of HGVs exceeding the existing speed limits on all three roads under consideration with the percentage exceeding the speed limit reaching as high as 75% in some locations. The data collected showed that between 1999 and 2003 there has been a significant increase in the numbers of HGVs using the B3092 as well as an increase in the average size of vehicles. This should be considered against the general trend highlighted by Somerset County Council, see 1.2.1 above, of a reduction of HGVs on county roads.

The report concluded that the B3092 is not a suitable or appropriate route to accommodate the increased level of HGV traffic to which it is now subjected. The report identified that there would be financial implications for commercial operators, particularly those whose main market relates to shorter journeys for which the B3092 represents a considerable saving in journey time and distance over the designated freight routes. However this consideration was felt to be outweighed by the implications for the environment and on the life of residents of the on-going use of the B3092 by increasing volumes of HGVs. In relation to alterations to weight restrictions, the report recommended:-

i. Improved signage of the strategic freight route and enhanced communication of information possibly through the production of a joint Wiltshire/ Somerset publication;

ii. Introduce a weight restriction on the B3092 of 7.5T (except for access);

iii. Reduce weight restriction on A3098 to two way 7.5T (except for access);

iv. Flows of HGVs through Corsley Heath be monitored to establish any change in pattern of HGV use following the implementation of the additional restrictions recommended;

v. Discussions are instigated with the Highways Agency regarding possible improvements to the A303 / A350 junction. A weight restriction on the B3092 will increase the number of HGVs seeking to turn from the southbound A350 onto the west bound A303. The existing configuration of this junction makes this manoeuvre difficult and there is an existing significant accident record at this junction.
1.3 Previous consultation

Between June and August 2005, Wiltshire County Council undertook an informal consultation process on the proposals being considered to introduce a 7.5T restriction in both directions on the B3092 and A3098; and an 18T both directions on the A362. This was undertaken in order to gauge views prior to initiating any formal processes.

This consultation included the Parish councils, local elected Members of the County Council, neighbouring districts, members of the mineral and freight industries in the local area and other stakeholders. In the region of 140 responses were received to this consultation exercise.

The issues raised are set out in more detail in section 2 of this report.
2 Assessment of Previous Consultation responses

2.1 Summary of Responses

139 responses were received by Wiltshire County Council during the allotted consultation period. A further 2 responses were received outside that timescale and opportunity has been taken to include these in the assessment. Of these 141 responses, 17 were identified as opposing the restrictions.

With the inclusion of large numbers of residents within the consultation exercise, this significant difference between support and opposition is to be expected.

The majority of the support for the restrictions comes from local residents in the three main villages affected, and by far the largest proportion relating to villages on, or near to, the A362.

Opposition is founded within the responses from commercial interests both associated with the quarry industry as well as local farms and businesses that require access to premises for HGVs.

There were differing views expressed by neighbouring parish councils with some supporting proposals and others concerned over the impact of such proposals on local businesses and farms.

2.2 Key supporting factors

The principal factors highlighted by those supporting the restrictions related to the impact of the HGVs on the Quality of Life. These factors relate to:-

- Environmental damage caused by HGVs to villages and roads / highway infrastructure. This refers to physical damage to drainage and roads as well as noise and air quality concerns;
- Perceived danger caused by HGVs;
- Excess speeds through villages.
- Increasing number of HGVs
- Early morning disturbance due to HGVs

The latest available data from automatic traffic counters indicates 13.1% of vehicles on B3092 are HGVs. In comparison with other B roads in Wiltshire, this figure is significantly higher.
Concerns have been raised in respect of the maintenance implications on the roads affected. Consultees do not view the "B" roads as having been constructed to cater for this volume of HGVs. No detailed investigation of the on-going road condition / maintenance expenditure relationship on these roads has been completed for this study. Nor has there been detailed investigation of the construction of the roads to determine the ability or otherwise to cater for the volumes of HGVs using the roads. There is however no doubt that more HGVs using a route does result in a reduced life expectancy of the carriageway. It is also reasonable to expect that the “A” roads have been constructed and maintained to a higher standard due to the expectation that they will generally carry higher volumes than the neighbouring “B” roads.

Supporters of the restrictions consider that suitable alternative routes do exist, particularly in relation to the A362 and A3098, via the A361 and A36. Generally there is a perception that the new A361 was constructed to act as an alternative route, not just around Frome, but also for traffic using the routes through Corsley Heath and Chapmanslade. The original case for the construction of the A361 “Frome bypass” has not been further investigated as part of this report to determine if these perceptions can be supported. It would however be considered a sensible conclusion and one which would appear to be supported by the recommended freight routes developed by both Somerset and Wiltshire County Councils.

Within the large number of responses received from residents affected by traffic on the A362, there were some specific issues raised including:-

The failure of lorries to comply with the existing restrictions has been highlighted by supporters of the proposals. The Wiltshire Constabulary have indicated that they feel the existing one way restriction on the A362 is confusing for drivers and that applying the restriction to the westbound traffic as well will improve compliance.

Traffic starts early in the morning (2am, 3.30 am, 4am all suggested as the earliest time lorries start running). It is likely that the earlier times relate to isolated incidents however the number of reports of early disruption by HGVs does seem to support the conclusion that it is an issue.

Up to 12 or 13 quarry lorries in a convoy have been reported. Whilst it has not been possible to establish the frequency of lorries travelling in convoy, such activity has been observed and this is contrary to the Mendip Quarry Producers Haulier’s Code of Good Practice.

Concern has been expressed at the physical constraints of the A362 with particular reference made to the road being narrow and winding with hills. The slow speeds associated with vehicles climbing these hills is noted as a
problem as is the high speed of vehicles descending the hills in the opposing direction.

Although not specifically raised through the consultation in relation to the B3092, it is considered that the issues of early morning traffic, convoys and the physical constraints are all equally applicable to the B3092.

As the A3098 already has a two way weight restriction on it, there are fewer issues raised through the consultation and clearly less risk of any convoy effect being recorded.

2.3 Key Opposing Factors

The basis for the objections to the proposals relate to four key areas of concern:-

- The economic impact upon businesses, both local farms and hauliers, within the areas affected by the proposals and major businesses associated principally with the quarry industry. Whilst the figures provided in consultation responses varied, there is no doubt that the restrictions would impose additional costs on the businesses that regularly transport goods or materials along these three routes;

- The environmental impact due to the consequences of the additional mileage required to complete trips if the restrictions are introduced;

- The potential increased speed of general traffic on these roads as a result of the removal of slower moving HGVs and consequential increase in both number and severity of accidents;

- Enforcement will be impractical and, even if enforcement is evident, the financial penalties associated with the alternative routes could still see drivers prepared to risk prosecution to avoid the additional operating costs.

In relation to the B3092, the accident statistics support the premise that most accidents reported on this road involve cars not HGVs. The perception that HGVs are effectively working as mobile traffic calming is however not one that can be subscribed to without further investigation and substantiation. It is possible for example that HGV’s actually contribute to frustration in other drivers resulting in inappropriate driver behaviour.

Consideration of the alternative routes has been raised with a perception that the A350 in particular is not a more suitable route than those potentially to be restricted. This has been backed up by the view of some consultees that it is better to spread the HGVs over a larger number of routes than concentrate them in one area or on a single route.
2.4 Summary of further discussions with unsupportive consultees

A selection of the consultees, who indicated they did not support the introduction of weight restrictions, was contacted by Mouchel Parkman to discuss their reasons for opposition. These discussions were used to examine if there were options that could be introduced that would address the concerns leading to the opposition as well as to ensure the statements for the opposition were understood by Mouchel Parkman in producing the potential implementation plan required by this commission.

Enforcement issues were discussed at length with the Avon and Somerset Constabulary. It was not possible however to identify any mechanism of implementation or enforcement that could address the concerns of the police in relation to the enforcement of weight restrictions over such an extensive area. Primarily this relates to the need for the police to prove that vehicles have not required access to any premises within the area covered by the restriction. There is no onus on the drivers to provide evidence that they have good cause for using a particular route and thus the police in effect have to follow vehicles through the restricted area when enforcing the restriction. This issue even relates to clearly branded single company vehicles that have no premises within the restricted area.

Further discussions with representatives from the quarry interests has failed to establish a form of weight restriction that would achieve the environmental and quality of life objectives whilst not impacting on the commercial state of the businesses. Consideration of suggestions for night time restrictions are not considered applicable as this approach would only address the issue of early morning traffic and not the wider quality of life / environmental concerns of residents.

The Mendip Quarry Producers operate an apparently well organised “How am I driving?” scheme. This records instances of complaints received in relation to quarry linked vehicles and where appropriate instigates relevant action against persistent offenders. There has been no evidence found that this scheme is well promoted within the local communities affected by the HGVs movements or what sanctions can be initiated by the relevant companies. At present the compliance with the Mendip Quarry Producers Code of Good Practice for Hauliers seems somewhat varied. There is clear evidence of lorries exceeding the speed limits and travelling in convoy on the roads under consideration which is in conflict with the code of practice.

It has not been possible to identify specific major markets served by the Mendip Quarries to the south of Frome that generate the volume of heavy vehicles using the B3092. Destinations seem to be well spread over the area without specific key customers in a static location. This makes it difficult to accurately predict the cost to the businesses as the number of loads affected
by the additional trip length will vary, as will the percentage of the additional cost in relation to the total cost.

Discussion with farm owners, particularly in the Kilmington area, have identified factors associated with deliveries of animal feeds, the transporting of animals and milk pick ups as areas of concern. The introduction of an “except for access” exemption on any restriction would alleviate these issues. It is considered that the use of the target roads by the volumes of vehicles associated with this purpose will not be of significant scale to cause problems within the villages concerned. Issues raised by other local businesses were similar to objections raised in section 2.3.

2.5 Conclusions from Informal Consultation

The issues raised within the informal consultation are predominantly as one would expect in relation to proposals such as these.

Those that can be addressed by the form of any restrictions relate primarily to access required to businesses and farms within the area of any restriction. It is normal under these circumstances to include “Except for access” exemptions within any formal restriction. This allows for local businesses, farms etc which are located within the restricted area to gain access to and from their property. An “except for loading” restriction would not allow these vehicles to be parked for any period of time as the term “loading” is deemed for very short periods of time.

Enforcement is a major issue both in relation to existing restrictions and the introduction of new ones. As a consequence there is a need for a means of enforcement to be developed to address the existing regulations regardless of the introduction of any additional restrictions. This should be considered on a County wide basis in order to develop the most cost effective mechanism. However it is not considered that enforcement difficulties alone should be the deciding factor in determining whether to proceed with the proposals.

The remaining issues reflect the conflicting points of view that can be summarised as those that consider villages as places to live and those that consider roads to be something for moving goods along. As can be seen from the opposing views expressed, an issue identified by one person as a threat is identified as another by an opportunity. For example in relation to safety the case is made that HGVs both reduce and improve the safety of the roads. Either or both of these points of view could be right under certain circumstances and trying to rationalise between them is a complex drawn out process that is unlikely to be conclusive. This conflict between valid points of view is demonstrated by Table 2.1.
On the basis of the informal consultation, it is clear that any proposals will face substantial commercial opposition and residential support. It is unlikely that the physical extent of the limits and the granting of certain exceptions can be used as mechanisms for addressing the majority of the objections which relate to commercial and financial issues.
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<td>Lorries travel at inappropriate speeds and create a danger to other road users including pedestrians</td>
<td>Lorries act as traffic calming and without them general traffic will travel faster causing more accidents</td>
<td>It is difficult to substantiate any claim that HGVs travelling on these roads actually make them less safe as the accident statistics do not show significant numbers of accidents involving HGVs.</td>
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<td><strong>Economics</strong></td>
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<td>The alternative routes represent significant investment in providing improved routes for HGVs which should be used</td>
<td>The alternative routes are too long and will significantly adversely affect the viability of the businesses.</td>
<td>There is no dispute that the alternative routes will increase operating costs. Approximate turnover from the Mendip Quarry producers is £150m per annum (Source:www.mendipquarries.co.uk/stats.htm) and against this turnover, the estimated additional cost using figures provided in letters relating to these proposals is thought to be around £1.5-£2m (1% – 1.33%). The impact of these costs though on the viability of the businesses depends upon the location of the individual markets under consideration and overall length of the trip affected. This will vary from company to company.</td>
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<td><strong>Environmental</strong></td>
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<td>The HGVs cause environmental damage within the villages affected</td>
<td>Use of the alternative routes will result in more environmental damage and pollution though increased emissions and consumption of non renewable energy sources.</td>
<td>The strategic freight routes in Somerset and Wiltshire have been developed to assist drivers of HGVs find the best and most environmentally friendly access around the counties. It is acknowledged that these may not be the shortest routes but that they represent the routes which should minimise impact on the environment and local residents as well as reducing driver stress by avoiding unsuitable roads. The environmental impact goes beyond that related to emissions from the vehicles</td>
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*Table 2.1 Simplified examples of conflicting points of view*
3 Assessment of options for weight limit

3.1 Desktop Study

The objective of this part of the study was as follows:

3.1.1 To identify existing, proposed and undesirable HGV routes:-

i. Focus has been based on the overall objective of restricting the use of the A362, A3098 and B3092 to specific classes of vehicles based on weight, whilst balancing any economic, environmental and social consequences;

ii. Options for each route to be initially identified through a desktop map based exercise;

iii. The viability of the options identified including alternative routes to be verified on site where appropriate.

3.1.2 Identify a preferred option

i. A preferred option for each route to be developed taking into account the practical aspects of implementation and enforcement of the proposed restrictions;

ii. Following agreement of the preferred option, a detailed implementation plan including cost estimate and programme to be prepared.

This analysis of possible options was undertaken by means of a desktop map based study. A number of options were then considered for weight restriction zones based on the report produced by Mouchel Parkman in January 2005. The aim of this study was to develop viable options which could then be implemented on site at a future date where appropriate.

The first task of the desktop study was to identify the existing recommended freight routes. This was done by referring to the Wiltshire County Council and Somerset County Council Freight Maps which clearly outline current strategic freight routes.

The next stage was to establish which routes were likely to be un-suitable for HGV traffic. This was done by liaising with the Wiltshire County Council Area Highway Engineer (Highways Southern Division) and Wiltshire County Council Officers who were able to identify which ‘B’ and ‘C’ classification roads are considered unsuitable for HGV traffic making significant use of local knowledge. These routes could detrimentally suffer from ‘rat-running’ of
freight traffic should new weight restrictions be imposed on surrounding roads and were therefore identified for protection from any increase in freight movement along them. However lorries requiring access, and in some cases local deliveries would still need to be permitted even if a weight restriction were introduced.

The final stage was to produce preferred options for the weight restriction areas identified with the underlying concept that a weight limit should prevent large vehicles from using inappropriate roads, routes and areas in order to:

i. prevent damage to buildings, roads and bridges;

ii. preserve the character, amenity and environment of an area;

iii. reduce and manage congestion on the roads; and

iv. reduce danger to pedestrians and other road users.

Consideration of the options for the introduction of the proposed restrictions was undertaken by a working group of Mouchel Parkman staff and County Council officers including a representative from the local highways office.

3.2 Options Identified

The options identified are summarised as follows:

- Option 1 – A3098 - 7.5T route based restriction to match extent of existing 17T restriction;
- Option 2 – A362 - 18T zone based to match existing Order but including eastbound traffic;
- Option 3 – B3092 - 7.5T route based restriction;
- Option 4 – B3092 - 7.5T zone based restriction.

3.2.1 Option 1 - A3098 - 7.5T route based restriction to match extent of existing 17T restriction extended south along the southern boundary; (Drawing no. 745829/D/007)

The existing Traffic Regulation Order (TRO) on the A3098 through Chapmanslade is proving to be successful, based on discussions held with the Area Highway Engineer (Highways Southern Division). Therefore it was decided that this option should remain as per the existing route based restriction along the A3098 and should only have two minor alterations:

1) to extend the southern boundary southwards to just north of Corsley to tie in with options 2A or 2B and
2) alteration of the weight restriction from 17T to 7.5 T as identified in the recommendations of the January 2005 report by Mouchel Parkman to Wiltshire County Council.

Outcome - No discussion or option comparison required
## 3.2.2 Option 2A - A362 - 18T zone based on existing Order but with amended northern and western boundaries including eastbound traffic; (Drawing no. 745829/D/008)

Consideration was made of the existing 17T Order (westbound) on the A362 through Corsley Heath. After discussion with the area surveyor it was determined that this option should address the need for either an 18T or 7.5T order being imposed in both directions along the A362. Wiltshire County Council have indicated a preference to a revised 18T order so, for the purpose of this work, no further consideration has been given to a 7.5T restriction.

The existing order (westbound) would be revised to 18T, applied to both directions and would effectively create an isolated zone. To ensure this zone would tie in with the existing 17T or proposed 7.5T zone for Chapmanslade (option 1); the zone would now terminate just north of Corsley. This would provide for any vehicles between 7.5–18T travelling from the Corsley Heath area towards Chapmanslade to return to the A362 without breaching the 7.5T restriction.

However, by now imposing a weight restriction eastbound on the A362; there would need to be an allowance made for heavy goods vehicles, which would normally travel eastbound along the A362 (that would exceed the proposed weight limit), to divert safely onto recommended routes. This could be achieved by extending the western side of the existing zone west from the county boundary to south east of Frome, principally at the A361/ A362 junction.

This would therefore become an individual 18T zone for Corsley Heath and the surrounding hamlets (Elliots Green, Longhedge, Corsley, Lane End, Lye’s Green and others) including many farms and other premises which require consideration for access purposes.

It should be noted though that this will require the agreement of Somerset County Council to the proposed weight restriction and subsequently new sign locations (within Somerset) for this option to succeed.

Outcome – Preferred option subject to confirmation of agreement from Somerset County Council.
Diagram showing proposed weight limits and routes. Key includes:
1. Proposed weight limit
2. Proposed route
3. County boundary

Legend explains the symbols used on the map.
3.2.3 Option 2B - A362 - 18T zone based on existing Order but with amended northern boundary and including eastbound traffic; (Drawing no. 745829/D/009)

As discussed in option 2A, the same consideration was made of the existing 17T Order (westbound) on the A362 through Corsley Heath. The existing order (westbound) would be revised to 18T, applied to both directions creating the isolated zone as mentioned in option 2A. This would therefore become an individual 18T zone for Corsley Heath and the surrounding hamlets mentioned in option 2A but would terminate at the county boundary and therefore would not include Elliots Green and neighbouring areas.

It should also be noted that by now imposing a weight restriction eastbound, this option would not make any allowance for heavy goods vehicles exceeding the weight limit to turn safely at Lane End by the county boundary. This situation could result in dangerous manoeuvres being encouraged within Somerset as a result of actions taken by Wiltshire County Council. It is considered inappropriate that one highway authority should introduce measures that could potentially adversely affect the safety of the roads within the neighbouring authority area.

The issue could be addressed by high impact advanced warning signing at the A362 / A361 junction. It is likely however that there would still be instances of drivers, particularly those not local to the area, being confronted with a weight restriction at the County boundary with no alternative legal route.

Outcome –. Option not preferred due to potential HGV U-turn safety issues mentioned in previous paragraph. However the potential advanced signing of a restriction at this location should be revisited in the event that agreement cannot be reached with Somerset in respect of the formal introduction of a restriction on the A362 within the Somerset County boundary.
3.2.4 Option 3 - B3092 - 7.5T route based restriction; (Drawing no. 745829/D/010)

For this option the introduction of a linear restriction at a suitable point along the B3092 was considered. The advantages and disadvantages associated with this approach are listed below and the list is followed by the conclusions drawn in relation to this option.

Advantages

1. Smaller isolated zones would be easier to implement than a large zone.
2. Cheaper scheme costs (signage / traffic orders etc).
3. Less roadside street furniture in the form of signs being installed therefore less impact on the visual environment especially, important due to the majority of the signs being in rural areas or small villages.

Disadvantages

1. Any weight restrictions imposed on an isolated route such as the B3092 would lead to inherent ‘rat-running’ by freight traffic. For example, the recent closure of the B3092 for essential works resulted in HGV drivers identifying an alternative route through Kilmington Common despite the narrow carriageway.
2. Premises outside the area controlled by the isolated restriction could not be served by vehicles travelling through the restricted area and out the other side. With local businesses such as light industry, farms, public houses and shops along and adjacent to the B3092, it would be impossible to introduce an isolated restriction on the B3092 without adversely affecting these businesses.
3. The options available to freight traffic could be confusing with regard to not only which routes they can and cannot legally use, but also which route might be suitable for them to use.
4. A weight restriction on the B3092 will increase the number of HGVs seeking to turn from the southbound A350 onto the west bound A303. The existing configuration of this junction makes this manoeuvre difficult and potentially dangerous.

A review of option 3 concluded that any further options developed for the B3092 should be done as a larger area zone. Primarily this was determined because a linear restriction could not ensure that rat-running along neighbouring ‘B’ and ‘C’ classification roads would not occur as a consequence. A zone would also ensure that the freight operators and
drivers have a clear understanding of the legal routes available. Finally a zone would address the crucial issues associated with the accessibility of local farms and businesses. Section 3.2.5 sets out this option for an area wide weight restriction around the B3092.

Outcome – No further consideration of possible linear restriction on the B3092 required.
3.2.5 Option 4 - B3092 - 7.5T zone based restriction; (Drawing no. 745829/D/011)

This would involve introducing a 7.5T weight limit zone covering the B3092 through Maiden Bradley and the surrounding area. The area to be covered would extend from the County boundary in the west to the A350 in the east, and from the Stourhead/ Kilmington junction in the south to the A361 in the north (or the County boundary again as an alternative). The weight limit zone would also include all the ‘B’ & ‘C’ classification roads that could under option 3 have been affected by rat-running.

The advantages and disadvantages of this option are listed below followed by the conclusion drawn in relation to this option.

**Advantages**

1. A ‘blanket’ weight restriction zone would prevent inherent ‘rat running’ by freight traffic and only strategic freight routes would be available to HGV traffic. This would help prevent a shift of HGV traffic from currently used routes onto ‘B’ and ‘C’ classification routes unsuitable for freight traffic particularly on the B3095 through the ‘Deverills’ and routes through Kilmington.

2. Access to various local businesses such as light industry, farms, public houses and shops can be simply accommodated

3. For a single weight restriction zone, legal route options available to HGV traffic would be easier to represent on freight route literature and therefore more simple to understand. This in turn would help to encourage hauliers to adhere to recommended routes.

4. Stakeholders should be more supportive of a clearly defined zone which is easier to understand.

5. Straightforward to implement Advanced Direction Signage for the weight restriction zone as boundaries are clear and restricted routes more simple to sign and alternative routes are easier to establish and sign.

**Disadvantages**

1. Higher scheme costs (increased amount of signage / traffic orders etc),

2. Slightly more roadside street furniture in the form of signs required at restrictions and in advance of junctions therefore more impact on the
visual environment; however a reduction of freight traffic on rural roads may help offset public concerns regarding any visual intrusion.

3. A weight restriction on the B3092 will increase the number of HGVs seeking to turn from the southbound A350 onto the west bound A303. The existing configuration of this junction makes this manoeuvre difficult and potentially dangerous.

Outcome – This option should be taken forward for further consideration as the preferred option for restricting traffic by weight on the B3092.

3.3 Preferred Option

Taking into account the considerations of the working group and the advantages and disadvantages identified above with associated discussions, the adoption of restrictions should be considered in the following form:

A3098 – As set out in option 1

A362 – As set out in option 2A

B3092 – As set out in option 4

In relation to options 2A and 4, the assessment has been undertaken on the basis of an 18 T restriction in the former case and a 7.5 T restriction in the latter
4 Assessment of preferred option using LVIRA

4.1 Introduction to ‘LVIRA’ Assessment Framework Spreadsheet Model

4.1.1 Framework Assessment Approach

To further assess the preferred option it has been decided to use a spreadsheet based assessment framework. This has been based on a process that was developed by Symonds Consultants for the Countryside Agency/Devon County Council to assess intervention scenarios to overcome potential problems of large vehicles in rural areas (LVIRA). This initial work was undertaken using a case study of the South Hams in Devon.

The assessment looks at various assets that could be affected by large numbers of HGV’s and are grouped into a number of fields. The areas the framework uses to assess intervention scenarios are shown in Table 4.1. These are split into five categories, known as ‘fields’, each of which has a number of indicators. The indicators from the first four fields make up what are known as the ‘asset’ and ‘condition’ indicators. These have been used to define the ‘assets’ of the study area and the ‘condition/level’ of various factors which may have an impact within the study area.

The final field, ‘Integration’ makes up what is known as the ‘Impactor’. This is an indication of the density of HGV flows within the study area.

<table>
<thead>
<tr>
<th>Field</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>Landscape Designations</td>
</tr>
<tr>
<td></td>
<td>Ecological Designations</td>
</tr>
<tr>
<td></td>
<td>Cultural Heritage Designations</td>
</tr>
<tr>
<td>Society</td>
<td>Settlement Density</td>
</tr>
<tr>
<td></td>
<td>Proximity of Sensitive Uses</td>
</tr>
<tr>
<td></td>
<td>Noise / Pollution Levels</td>
</tr>
<tr>
<td>Safety</td>
<td>Accident Records</td>
</tr>
<tr>
<td></td>
<td>Severance Levels</td>
</tr>
<tr>
<td></td>
<td>Speeds</td>
</tr>
<tr>
<td>Economy</td>
<td>Area Productivity</td>
</tr>
<tr>
<td></td>
<td>Track Costs</td>
</tr>
<tr>
<td></td>
<td>Freight Cost Sensitivity</td>
</tr>
<tr>
<td>Integration</td>
<td>HGV flow density ranking</td>
</tr>
</tbody>
</table>

Table 4.1 Framework Assessment Indicators Measured
Each of the indicators is discussed in more detail within this section.

The study area examined and data collection required for the assessment is discussed in section 4.2.

The spreadsheet used in the LVIRA assessment was developed to be used on an area wide basis. As this project is concerned with looking at specific corridors and the potential for introducing HGV weight restrictions on a number of routes the spreadsheet has been modified so that it is ‘fit for purpose’. The modifications and assumptions made are discussed in section 4.3.

LVIRA considers the impact of individual vehicles on the route taken when making a journey. Consequently it makes no allowance for the relative scale of any increases or decreases in flows in comparison to the overall flows. The impact of a change of daily flow of 100 vehicles on a road with a 1000 vehicles per day would be recorded as the same value if that road had a flow of 10,000 vehicles per day. Clearly in relation to people’s perceptions, the former case would represent a far greater impact than the latter although the impacts calculated by LVIRA would be the same.

The overall outcome within the assessment framework process is to summarise the outputs onto a single sheet that can be used to compare between areas, between forecast scenarios or between intervention scenarios. The framework, sums the ‘asset’ and ‘condition’ indicators described in 4.1.2 to 4.1.5 and multiplies them by the Freight Flow Rank ‘Impactor’, described in 4.1.6, to give an overall score. A lower score equates to the worse situation. The scores for each scenario relate to the improvement or deterioration for each route. The results of the assessment are discussed in section 4.4.

4.1.2 Environment

The environment data required is broken down into three areas, Landscape, Ecology and Heritage. The designations used in the assessment are shown in Table 4.2.

<table>
<thead>
<tr>
<th>Landscape</th>
<th>Ecology</th>
<th>Heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Park (NP)</td>
<td>Special Areas of Conservation (SAC)</td>
<td>World Heritage Site (WHS)</td>
</tr>
<tr>
<td>Area of Outstanding Natural Beauty (AONB)</td>
<td>Special Protection Areas (SPA)</td>
<td>Scheduled Ancient Monument (SAM)</td>
</tr>
<tr>
<td>Special Landscape Area (SLA)</td>
<td>Wetlands of international importance (Ramsar)</td>
<td>Area of Archaeological Importance (AAI)</td>
</tr>
<tr>
<td>Green Belt (GB)</td>
<td>Site of Special Scientific Interest (SSSI)</td>
<td>Listed Buildings (LB)</td>
</tr>
</tbody>
</table>

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Table 4.2  Environment Designations

Data for each of these designations has come from a number of sources including English Nature, English Heritage and District Local Plans.

4.1.3  Society

Other data, such as settlements and sensitive uses (schools, surgeries etc.) along links has been obtained from OS mapping.

To determine the degree to which traffic impacts upon local communities, the number of settlements along all roads within the study area has been defined. The number has then been converted to a density value per route km per sq km.

The measure is fairly crude and does not reflect the population of these settlements, as this would be particularly difficult and costly to define across a large area. The indicator could be refined, at additional cost, to measure the proportion of the population that sits astride a route and thus provide a better measure of impact on community than the coarse version used here.

The number of Education, Welfare and Health uses within 100m of each link has been assessed and converted to a density value per route km per sq km. This is considered to be an appropriate proxy for ‘sensitivity’ of receptors.

Where there are more sensitive uses closer to the route, the implication is that there will be a larger impact on users of these facilities. In turn this will result in a lower score within the LVIRA assessment process reflecting the worse situation.

Noise and air quality values are calculated by reference to the national guidance contained in the Design Manual For Roads and Bridges: Volume 11. The calculations are point source assessments, which are then factored to route typology and route length as a proxy for overall output.
4.1.4 Safety

Consideration of road safety and perceptions of road safety on communities is important to the assessment of conditions and the appropriateness of intervention techniques. There is presently considerable debate at the national level regarding the appropriateness of current road hierarchies and speed limits, which may need to be reflected in forecast scenarios.

To this end, the key indicators selected relate to accident records, community severance and vehicle speeds.

Accident Records

The number of accidents on each element of the road network (both by individual link and by road typology) has been determined and normalised to a rate per route km per sq km relative to flow.

Severance Function

Severance is often perceived as a function of flow, road type, location and HGV component. The calculation for this indicator has therefore been based on these elements and seeks to reflect actual and ‘perceived’ severance within a single calculation. The function is then normalised to a rate per route km per sq km.

Average Speeds

There is a considerable body of evidence that links vehicle speed to accident rates, it is understood that this relationship is strongest in rural locations. It is also the case that accident clusters and problem points are less clearly defined in such areas. Speeds have been defined for each network link and for each road type.

4.1.5 Economy

Previous work looking at the implications of HGV restrictions in the Maiden Bradley area has been undertaken, therefore for this assessment it has been assumed that economic activity is uniform in all scenarios tested. The only economic indicator that will change is ‘Track Costs’ which is principally a measure of operating costs.

The National Economic Research Agency has developed a ‘track cost model’ to measure the economic costs (and some environmental costs) of freight haulage operations. The LVIRA framework uses a simplified version of this, which has regard to link type, flows and HGV proportions which acts as a proxy for track costs by road type within the study area.
This calculation includes a nominal ‘weighting’ by road type to reflect the risks of HGV vehicles meeting and imposing congestion costs on each other and on general traffic flows, this weighting is known as the ‘Route Congestion Weighting’ and are shown in Table 4.3 for each route type used within the LVIRA assessment tool. These reflect the road typologies, which have in turn been defined to reflect the passing requirements of HGV traffic and the risk of verge damage (open and closed aspect lanes). In simple terms, the weightings increase as road widths decrease and are worse for routes with a ‘closed aspect’, where vehicles find it more difficult to pass each other.

<table>
<thead>
<tr>
<th>Route Type</th>
<th>Route Congestion Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorway</td>
<td>1.0</td>
</tr>
<tr>
<td>Dual Carriageway</td>
<td>1.0</td>
</tr>
<tr>
<td>Wide Single (Open Aspect)</td>
<td>1.0</td>
</tr>
<tr>
<td>Wide Single (Closed Aspect)</td>
<td>1.0</td>
</tr>
<tr>
<td>Standard Single (Open Aspect)</td>
<td>1.1</td>
</tr>
<tr>
<td>Standard Single (Closed Aspect)</td>
<td>1.15</td>
</tr>
<tr>
<td>Narrow Single (Open Aspect)</td>
<td>1.2</td>
</tr>
<tr>
<td>Narrow Single Closed Aspect</td>
<td>1.25</td>
</tr>
<tr>
<td>Lane (Open Aspect)</td>
<td>1.3</td>
</tr>
<tr>
<td>Lane (Closed Aspect)</td>
<td>1.35</td>
</tr>
</tbody>
</table>

Table 4.3 Route Congestion Weightings

4.1.6 Integration - Freight Flow Rank ‘Impactor’

Within Transport Planning, Integration refers to policy synergy between land-use and transport policy as well as multi-modal interactions. However, given that the LVIRA framework seeks to reconcile the unique impacts of Large Vehicles (or freight movements) the focus for this study is on the ‘reliance’ on road freight and the impact that freight has on the assets and conditions set out within the framework. The simplest indicator of this reliance / impact is freight flow density, known as the ‘freight flow rank’ within the assessment process. The density has been calculated as a function of freight flows per km of route.

4.2 Data Collection/Collation

4.2.1 Study Area

The approach taken has been to look at the area as a whole where there is likely to be an element of diversion, this being an area bounded by the A37 to the west, A361 to the north, the A36 and A350 to the east and the A303 to the south. Only the key road links have been included in the assessment, which includes those roads where the HGV weight restriction will be
instigated and those potential routes that HGV’s could be diverted onto. The roads included are;

- A36 (From A361 to A350)
- A350 (From A36 to A303)
- A362 (From A361 to A36)
- A3098 (From A361 to A36)
- A361 (From A36 to A37)
- A37 (From A361 to A303)
- B3092 (From A361 to A303)

The assessment has been undertaken of individual links/routes that will be affected by re-assignment of HGV resulting from the implementation of the weight restrictions. The five individually assessed routes are;

- B3092
- A3098
- A362
- A361/A37
- A361/A36/A350

The LVIRA spreadsheet is data intensive and requires data to be collected from a number of sources. In summary the data is broken down into the following;

- Traffic/Highway Data
- Environment Data
- Society; and
- Economy

The majority of the data is input for each individual link. Links are categorised in table 4.4 by route type as shown in table 4.3.

<table>
<thead>
<tr>
<th>Route Type</th>
<th>Road Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide Single (Open Aspect)</td>
<td>A361 (From A36 to B3092), A36</td>
</tr>
<tr>
<td>Standard Single (Open Aspect)</td>
<td>A350, A37, A361 (From B3092 to A37) A362, A3098</td>
</tr>
<tr>
<td>Standard Single (Closed Aspect)</td>
<td>B3092</td>
</tr>
</tbody>
</table>

Table 4.4 Route Types

4.2.2 Traffic/Highway Data

Traffic data required for each link used in the assessment includes;

- Traffic Flows
- Proportion of HGVs
- Accident Data
- Link Journey Times
- Link Length
• Link Type

Traffic flows, including HGV proportions have been obtained from traffic counts undertaken by Wiltshire County Council and Somerset County Council. 12-Hour flows have been used for each link. The survey data used was obtained from the following counts;

- B3092 - 8th April 2003 (12 Hour Manual Count)
- A361 (East of B23092) 23rd April 2003 (12 Hour Manual Count)
- A361 (West of B3092) 13th May 2004 (12 Hour Manual Count)
- A37 - 8th September 2004 (12 Hour Manual Count)
- A36 - March 2006 (Automatic Traffic Count)
- A350 - April 2006 (Automatic Traffic Count)

Accident data for the past 3 years has again been obtained from the two County Councils. Total accident numbers have been inputted and are not broken down by severity.

Link journey times were obtained from undertaking journey time analysis out on site. These journey times have been used to calculate average link speed.

Link length has been measured from OS mapping.

4.3 Modifications, Limitations and Assumptions used in Assessment

A number of assumptions and modifications have been made to the assessment framework in order to make it ‘fit for purpose’ and to make the evaluation of the results easier and more transparent.

4.3.1 Modifications

The main modification made to the assessment framework is in the use of the number of bands used to score each of the indicators. The original assessment used bands 1 to 5, and multiplied the total of the ‘asset’ and ‘condition’ indicators by the ‘impactor’ indicator, giving a range of scores of 12 to 300. The number of bands has been increased to 8, which will now give a range of scores of 12 to 768. The increase in bands was undertaken in order to increase the sensitivity of the results, the number of bands could not have been increased further due to limitations within the LVIRA assessment. It is possible to make comparisons between scenarios and between routes by looking at the magnitude of the score.

The area used in the LVIRA assessment normally covers the whole area over which the assessment is undertaken. For the purposes of this assessment the area has been taken as a corridor covering 300m either side
of the road. This has been used as it is the ‘receptor’ distance over which noise assessments are undertaken.

4.3.2 Limitations

A key limitation in the assessment framework is that it is not really possible to differentiate between road classifications over and above those listed in Table 4.2. Therefore, there is no differentiation between A and B classified routes. However, the classification of roads into A and B routes does not necessarily reflect the quality of the route, for example there may be parts of the B3092 that could be argued are of a greater standard than the A3098. This differentiation is therefore not appropriate for the purposes of this work. Similarly, there has been no weighting applied to reflect existing designated freight routes although consideration is given to these in the conclusions and summarising of the findings.

4.3.3 Assumptions

The following assumptions have been made;

i. Average speeds have been assumed to be the same in the existing situation and with the intervention scenarios (HGV restrictions).

ii. The intervention scenarios have been undertaken using the 2005 flows used in the base condition and taking account of re-assignment

iii. All re-assignment has been based on all or nothing

4.4 Assessment

4.4.1 Scenario Tests

The LVIRA framework has been used to assess two scenarios as follows:

Scenario 1 - A 7.5 Tonne Weight Limit around Maiden Bradley / B3092 and on the A3098 and an 18 Tonne weight limit on the A361.

Scenario 2 - An 18 Tonne Weight Limit on all three routes.

The full assessment spreadsheets are produced on a CD attached at the end of the report.
4.4.2 Traffic Reassignment

As part of the assessment process it has been necessary to reassign traffic onto potential routes once any HGV restriction was put in place.

Traffic data collected splits HGVs by number of axles and not by weight, therefore the initial assessment (Scenario 1) has been based on all HGVs being re-assigned (except access) where a 7.5 tonne restriction is implemented and 50% re-assigned on the A362 where an 18 tonne restriction is implemented. A second test (Scenario 2) has been undertaken, where it is assumed 50% of HGVs will be re-assigned to represent 18 tonne restrictions on all routes as best as possible.

The 50% figure has been used following reference to ‘Transport Statistics Great Britain 2005’ published by the Department for Transport. Table 9.8 indicates that around 50% of HGV’s have a gross weight greater than 18 tonnes.

The origin and destination of HGVs on the A362 and B3092 have been obtained from roadside interview surveys undertaken by Somerset County Council in April 2003. These were undertaken in one direction only over a 12 hour period. The interview sample has been factored up to match the latest count available. It has been assumed that the flows in the opposite direction are a transpose of those in the interview direction.

There was no survey data available for HGVs using the A3098, therefore it has been assumed for this study that the origin and destinations are the same as the A362 survey.

The origin destination matrix calculations and route reassignment calculations are attached as Appendix 1. The route re-assignment has been solely based on looking at what would potentially be the most appropriate route HGVs would take if the restrictions were implemented.

Figure 4.1 shows the existing two-way traffic flows on the network assessed, Figure 4.2 shows the changes in two-way HGV numbers once the re-assignment has been taken into account for Scenario 1 and Figure 4.3 shows the changes in HGV flows once the re-assignment has been taken into account for Scenario 2.

4.4.3 LVIRA Scenario Tests

LVIRA assessments have been undertaken separately on individual links/routes as discussed in section 4.1.

Two separate scenarios have been assessed, one which includes a 7.5 tonne weight restriction on the A3098 and B3092 and an 18 tonne restriction
on the A362. The second scenario has an 18 tonne weight restriction on all three routes.

4.4.4 Interpretation of Results

Table 4.5 shows the summary results for 7.5T weight restrictions (Scenario 1) and Table 4.6 shows the summary results for 18T weight restrictions (Scenario 2). The results of the link/route assessments are attached as Appendix 2. A higher score equates to a better situation.

Scenario 1

<table>
<thead>
<tr>
<th>Route/Link</th>
<th>Base Condition</th>
<th>7.5T Weight Restriction on B3092 &amp; A3098</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3092</td>
<td>405</td>
<td>564</td>
<td>+159</td>
</tr>
<tr>
<td>A362</td>
<td>322</td>
<td>465</td>
<td>+143</td>
</tr>
<tr>
<td>A3098</td>
<td>612</td>
<td>620</td>
<td>+8</td>
</tr>
<tr>
<td>A361/A36/A350</td>
<td>107</td>
<td>52</td>
<td>-55</td>
</tr>
<tr>
<td>A361/A37</td>
<td>195</td>
<td>126</td>
<td>-69</td>
</tr>
<tr>
<td>NET</td>
<td></td>
<td></td>
<td>+186</td>
</tr>
</tbody>
</table>

Table 4.5 Summary Results: Scenario 1

The results in Table 4.5 indicate that the A361/A37 route shows a reduction from 195 to 126 with a 7.5T weight restriction implemented and the A361/A36/A350 shows a reduction from 107 to 52.

The B3092 route shows an increase from 405 to 564 with a 7.5T weight restriction implemented, the A362 shows an increase from 322 to 465 and the A3098 route shows an increase from 612 to 620.

The LVIRA assessment demonstrates that there is an overall net benefit from introducing a 7.5T weight restriction on the B3092, A3098 and an 18T restriction on the A362.
Scenario 2

<table>
<thead>
<tr>
<th>Route/Link</th>
<th>Base Condition</th>
<th>18T Weight Restriction on B3092, A362 &amp; A3098</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3092</td>
<td>405</td>
<td>493</td>
<td>+88.5</td>
</tr>
<tr>
<td>A362</td>
<td>322</td>
<td>451</td>
<td>+129</td>
</tr>
<tr>
<td>A3098</td>
<td>612</td>
<td>612</td>
<td>0</td>
</tr>
<tr>
<td>A361/A36/A350</td>
<td>107</td>
<td>52</td>
<td>-55</td>
</tr>
<tr>
<td>A361/A37</td>
<td>195</td>
<td>128</td>
<td>-67</td>
</tr>
<tr>
<td>NET</td>
<td></td>
<td></td>
<td>+95.5</td>
</tr>
</tbody>
</table>

Table 4.6 Summary Results: Scenario 2

The results in Table 4.6 indicate that the A361/A37 route shows a reduction from 195 to 128 with an 18T weight restriction implemented and the A361/A36/A350 shows a reduction from 107 to 52.

The B3092 route shows an increase from 405 to 493 with an 18T weight restriction implemented and the A362 shows an increase from 322 to 451. The A3098 route shows no change from the base condition.

The LVIRA assessment demonstrates that there is an overall net benefit from introducing an 18T weight restriction. However, this benefit is significantly lower than the 7.5T weight restriction option.

It should be noted that the A361/A36 and A361/A36/A350 routes are recommended by both Somerset and Wiltshire County Councils for freight traffic due to their topography, alignment and carriageway strength as being suitable for HGV traffic.

The results for the B3092, which is not a recommended freight route, shows an improvement in condition if a weight restriction is implemented. This improvement is far higher with a 7.5T restriction than if only an 18T weight restriction were implemented. The results indicate that a weight restriction on the B3092 would improve the quality of life along for this road for residents markedly through improvements in severance and air quality.

The relative improvements forecast on the A362 with the implementation of a two directional 18T weight restriction are even greater than those on the B3092, again improving quality of life for residents along this route through air quality improvements.
The disbenefits on the routes where HGV’s are reassigned are mainly due to increased severance.
5 Implementation

This section of the report contains detailed proposals for the implementation of the preferred option for each route, including a programme and estimated costs for budget purposes.

5.1 Scheme Costs

The following estimated costs are based on a desktop analysis of proposed signage required for each of the options previously discussed.

Weight restrictions can only be introduced following the procedures associated with a Traffic Regulation Order (TRO). No account of costs has been made for the preparation of the formal TRO’s through the relevant statutory processes. Regulatory signs are erected on site to give effect to the TRO, to inform drivers, and to assist the Police in carrying out its enforcement. Where a TRO restricts the use of a road, route or area to certain vehicles, the signing of a recommended alternative route will need to be considered.

The number of signs estimated for each option is an estimate of the minimum requirement and it should be noted that additional investigations will be necessary which may identify additional signage requirements with consequential impacts on costs. It has been assumed that these options will include 3 main types of signs:

1) Weight Limit Regulatory*¹ signs (RS),
2) Advanced Direction*¹ signs (ADS) and,
3) Direction Informatory*¹ signs (DIS).

(*¹ See drawings 745601/A/008 & 9 for indicative signs)

These estimated costs also include allowance for a site visit (however further sites visits may be required), labour for sign design and an estimated level of site supervision from Mouchel Parkman Staff.

5.1.1 Option 1 – A3098 - 7.5T weight restriction

For isolated restrictions within a larger area, the estimated number of signs would be as follows:

3 x RS,  4 x ADS,  1 x DIS  =  Total Cost £15,000*²

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5.1.2 Option 2A - A362 – 18T weight restriction zone

For this 18T zone preferred option the minimum estimated number of signs would be as follows:

\[3 \times RS, \quad 1 \times ADS, \quad 7 \times DIS = \text{Total Cost £25,000}^{*2}\]

5.1.3 Option 3 – B3092 route based restriction

For this 7.5T or 18T route based option the minimum estimated number of signs would be as follows:

\[2 \times RS, \quad 4 \times ADS, \quad 11 \times DIS = \text{Total Cost £35,000}^{*2}\]

5.1.4 Option 4 - B3092 zone based weight restriction

For this 7.5T or 18T zone option the minimum estimated number of signs would be as follows:

\[13 \times RS, \quad 15 \times ADS, \quad 9 \times DIS = \text{Total Cost £55,000}^{*2}\]

5.1.5 Additional considerations

Signing for the existing restrictions in Chapmanslade and Corsley Heath (Options 1 & 2 respectively) will need to be amended to comply with new legislation effective from January 2007. This cost will be incurred as a matter of course even if the proposed options are never implemented. It is difficult to estimate the cost of such alterations without a comprehensive condition survey of the existing signage. If implementation of the legislative changes and these proposals contained in this report can be timed to coincide there is a potential cost saving to be achieved by the County Council. ²

Note: ² It has been assumed that these costs are based on a new for old replacement of all signs and posts. However further cost savings for each of the options could potentially be gained by plating over existing signs where applicable providing the signs and posts are in a serviceable condition. No costs allowance has been included for removal of old signs in any of the above options.

5.1.6 Cost Summary

The total cost of implementing the preferred options is estimated to be £95,000 assuming no existing equipment / signage can be reused. This cost could be partially offset by the cost implications in respect of the legal requirement to amend the existing restrictions in Corsley Heath and Chapmanslade.
Note: These costs are based on a new for old replacement of all signs and posts. However further cost savings for each of the options could potentially be gained by plating over existing signs where applicable providing the signs and posts are in a serviceable condition. No costs allowance has been included for removal of old signs in any of the above options.

5.2 Timescale for Implementation

Various tasks are required to be completed in order to introduce the preferred restrictions. These will include inception, design, liaison and implementation. The stages of the tasks and their estimated minimum duration are outlined in the project programme overleaf.

The programme does not include the tasks to be undertaken by other parties. It is considered appropriate that additional periods for these other tasks be introduced into the programme in discussion with the Client once a decision has been made to progress the work. This will allow precise dates to be added as at present the programme cannot indicate actual dates, merely timescales for key actions.

Crucial to the project timescale will be WCC approval timescales where this involves fixed committee cycles and member involvement. The consultant is unable to make allowance for these factors at this time and therefore the implementation may extend beyond the 6 months indicated in the programme.
ID
1
Task Name
Implementation Process
2
Site Investigation and Data Collection
3
Site Visit
4
Identify and Agree Locations
5
Utilities Data Collection
6
Liaison with WCC (Inc site visit)

7
Design Process
8
Sign Design for each individual location
9
TRO's
10
Detailed Design
11
Bill of Quantities
12
Response to Adverts (minimum time)
13
Manufacture & Installation
14
Liaison with WCC
15
Raise Orders for signs
16
Phase Change of signs
17
Site Visit
18
Sign Manufacture
19
Site Installation
20
Site Supervision
21
Project Completion

Month 1
Month 2
Month 3
Month 4
Month 5
Month 6

Proposed Weight Restrictions - A362, A3098, B3092
5.3 Programme and Implementation considerations

5.3.1 Risks

Implementation of the preferred options identified within the report will be subject to significant risks. Those currently identified have been considered in the following table.

<table>
<thead>
<tr>
<th>Identified Risk</th>
<th>Recommended Risk Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response from Somerset County Council as neighbouring highway authority due to need for advanced signing, and possibly new restrictions, to be introduced within this area</td>
<td>Maintain dialogue with Somerset CC. Minimise requirements for signing within Somerset on preferred options</td>
</tr>
<tr>
<td>Cost estimate has been based on desk top exercise. Precise locations, lighting requirements and size of required signs may affect estimate</td>
<td>Develop more robust estimates early in process once preferred options have been approved</td>
</tr>
<tr>
<td>Possible duplication of costs due to legal requirements for some restrictions to be changed by 31st December 2006</td>
<td>Prioritise implementation of restrictions affected by legislative change from 17T to 18T in order to realise savings rather than additional costs.</td>
</tr>
<tr>
<td>Responses to Statutory Processes</td>
<td>Maintain high level briefings of decision makers to ensure they are fully briefed as process progresses</td>
</tr>
<tr>
<td>Consideration of other proposals under development for HGV management within Bath and North East Somerset (BANES) and combined impact</td>
<td>Maintain dialogue with BANES and ensure proposals are co-ordinated and considered in combination if appropriate.</td>
</tr>
<tr>
<td>Timescales indicated on programme relate to work required to complete scheme development but not statutory processes.</td>
<td>Develop robust programme to include work to be undertaken by Highway Authority in relation to advertisement, consultation and internal decision making processes</td>
</tr>
<tr>
<td>Consideration of implications of additional turning movements from southbound A350 onto westbound A303</td>
<td>Develop discussions with Highways Agency in respect of A350/ A303 junction and B3089 link at West Knowle</td>
</tr>
</tbody>
</table>

Table 5.1 Risk Assessment Table
5.3.2  Impact on A350 / A303 junction

The implementation of the preferred option for the B3092 results in an estimated 20 additional turning movements per day from the southbound A350 onto the west bound A303. This junction is a T junction configuration and the right turn manoeuvre is considered to represent a significant safety concern. There have been 17 accidents at this junction in the last 5 years. 4 accidents were serious and 13 were slight and 4 of the 17 accidents involved HGVs. It is not known however how many of the 17 accidents involved vehicles turning right from the southbound A350 onto the west bound A303.

This issue will need to be addressed during the development of the implementation plan through discussions with the Highways Agency. It is understood that consideration of amendments to the West Knoyle junction are already on-going in discussions between the Highways Agency and Wiltshire County Council.

Due to the significance of this junction, it is considered essential that an alternative route be provided for HGVs seeking to travel from the southbound A350 on to the westbound A303. Alterations to the A350 /A303 junction itself on initial assessment are considered impractical in relation to the scale of the proposed weight restrictions.

However the alternative route via the B3089 towards West Knoyle, south of the A303, currently prohibited to HGVs by a 7.5T weight restriction, does provide an opportunity for addressing the issue in a relatively cost effective manner. The removal of the restriction for westbound HGVs would allow the additional HGVs making the A350 to A303 manoeuvre to do so via the Willoughby Hedge junction of the B3089 and A303. The accident record of this junction is significantly better than the A350/A303 as the majority of movements in the westbound direction are merging rather than crossing.

5.3.3  Enforcement

The enforcement of weight limit restrictions is primarily undertaken by the police because not complying with the restriction is a criminal offence. Unfortunately many police forces are not able to place a high priority on the enforcement of such restrictions and rely on the measure(s) being mainly self-enforcing. This can lead to consistent flaunting of regulations by hauliers and thus devalue the purpose of the restriction.

Recognising the resource constraints within which the police operate, various different approaches have been developed in other parts of the country to assist in the effective enforcement of weight restrictions of this nature. These range from the use of new camera technology to partnerships utilising the services of the local authority trading standards officers. It is recommended that Wiltshire County Council consider the development of a
County wide initiative, in partnership with the police and other stakeholders as appropriate, to establish an enforcement mechanism that is effective whilst not calling solely upon police resources on the ground.

As previously stated, the enforcement issue should not be considered as having a veto on the proposals for weight restrictions. These proposals do however represent an opportunity for the County to consider the difficulties faced by the police and, through joint working, develop enhanced enforcement regimes. These can ensure that the work undertaken in developing and implementing weight restrictions across the County provides the maximum intended benefits and thus value for money.
6 Conclusions and Recommendations

6.1 Conclusion

Taking into account the implementation costs, the associated advantages and disadvantages of each option and the results obtained from LVIRA, the preferred options for the scope of weight restrictions for implementation are as shown on drawings nos. 745829/D/007 - 011. The LVIRA results show that there will be some adverse implications on the alternative routes in terms of increased freight traffic. The principle contributor to these adverse impacts is an increase in severance along these corridors. In the context of how LVIRA works this is not considered to be a significant adverse impact. LVIRA considers the impact of individual vehicles but does not put this impact in the context of existing traffic flows. The A36, A37 and A361 already have substantial traffic flows causing considerable severance along their routes. The impact of the addition of the diverted vehicles onto these routes is potentially overstated by LVIRA as it gives the same impact regardless of the current traffic flows. Clearly if there is already severance caused by large traffic flows, the addition of some extra vehicles would have less additional impact on the severance than if there was only a small existing flow to which the same number of additional vehicles was added.

In addition, it should be noted that these alternative routes are already recommended by both Somerset and Wiltshire County Councils for freight traffic due to their topography, alignment and carriageway strength being suitable for HGV traffic.

“Strategic Freight Routes....promote the effective and efficient sustainable distribution of freight in Somerset.....help drivers of HGV’s to find the best and most environmentally friendly access around this and neighbouring counties.” Somerset County Council Strategic Planning Group

“Wiltshire’s HGV Route Network……to inform HGV drivers of the most appropriate routes in Wiltshire. By using these routes, drivers will minimise their impact on the environment and local residents, whilst reducing driver stress by avoiding unsuitable roads.” Wiltshire County Council Transportation and Development Group

The LVIRA results also show that there will be significant benefits along the A362 and B3092 in particular. The LVIRA assessment demonstrates that there is an overall net benefit from introducing a 7.5T weight restriction on the B3092 and A3098 and an 18T weight restriction on the A362.
These benefits are considered to outweigh the adverse impacts predicted along the alternative routes and are considered significant enough to warrant the introduction of the proposed restrictions. These benefits include improved quality of life to residents of villages with roads not designed to cater for HGV traffic, a reduction in noise and vibration to many buildings along the B3092 and a potential saving on annual maintenance costs for the local authority on highway works. Comparison of the option of implementing just an 18T restriction on the B3092 area shows that the 7.5T restriction has a substantially greater benefit and therefore this remains the preferred option. Tables 4.5 and 4.6 show the relative differences in the forecast improvements. There will also be a less tangible benefit to the Mendip Quarry Producers through the demonstration of a commitment to a good neighbour policy. This would go beyond the production of the Hauliers Code of Good Practice which seems to be largely ignored by the drivers operating on behalf of the Quarry Producers.

The impact of the proposals on the economic viability of the quarry producers of the Mendips is undoubtedly a significant issue. By putting the figures quoted in correspondence in the context of the overall scale of the commercial activity generated by the quarry industry in the Mendips, it is possible to assess the significance of the arguments that the weight restrictions will affect the viability of the businesses. Depending on the distribution pattern of the materials produced by the quarries, the evidence provided by local operators indicates that the increase in operating costs could be in the region of 1 – 1.33% of the gross turnover. Although previous reports have acknowledged that for some individual trips this increase could be in the region of 10%. It is therefore evident that there is scope for the isolated substantial increases identified for individual trips affected by the restriction of the B3092 to be absorbed to a substantial degree by the scale of the overall business involved.

The Mendip Quarry Producers are aware of the impact their business has on the local environment and already invests in measures to offset the primary visual impacts of the work they carry out. These would appear however to be predominantly impacts within the confines or immediate surroundings of the excavations and not off site considerations. The use of rail for much of their produce distribution is noted and undoubtedly this helps reduce the local impacts. The potential investment between 1% and 1.33% of the annual turnover in order to address the concerns of the communities directly affected by the quarrying operations and promote its good neighbour policy is presented as an opportunity for the industry.
6.2 Recommendations

6.2.1 Recommendation 1

The proposals should be presented and explained to the Freight Quality Partnerships within Wiltshire and Somerset.

Reason – The issues within the report should be debated in open forum to promote understanding if not acceptance.

6.2.2 Recommendation 2

The existing 17T weight restriction on the A3098 should be replaced by a reduced 7.5T restriction. The zone covered by this order should be an amendment to the zone of the existing order (as discussed in section 3.2.1 and shown on drawing no. 745829/D/007).

Reason – LVIRA assessment of the proposal shows that there are limited net benefits to be gained from introducing this option due to low HGV flows on this route in the base situation. This alteration will however aid enforcement as the existing 17T restriction is reportedly being regularly abused. Adopting the existing extents of the 17T limit for the 7.5T limit where possible will reduce the time and cost of producing orders and adverts for the statutory processes.

6.2.3 Recommendation 3

The existing 17T west bound restriction on the A362 through Corsley Heath should be extended to include eastbound vehicles and increased to 18T. The zone covered by this order should be an amendment to the zone of the existing order and include extension into Somerset (as discussed in section 3.2.2 and shown on drawing no. 745829/D/008).

Reason – LVIRA assessment of the proposal shows a 40% improvement in the rating to be gained from extending the restriction to both directions. This is considered a significant improvement and supports the case that the A362 should not be included as part of the designated freight routes. This substantial improvement is in part attributed to the numbers of HGVs currently using the A362 in accordance with direction signage from the A361 within Somerset.

Adopting similar boundaries as the existing zone where possible will minimise the cost of the preparation of formal orders and implementation but the extension into Somerset is recommended to address potential difficulties with terminating the restriction at he county boundary.
6.2.4  **Recommendation 4**

A 7.5T weight limit to be introduced over a wide area straddling the B3092 as shown on drawing no. 745829/D/011.

Reason – The LVIRA assessment of the proposal shows a 39% improvement in the rating to be gained from introducing this option. This is considered to be a significant improvement when taking into account the nature of the road and that it is not included as part of the designated freight routes for the area. An area wide approach provides the best protection from ‘rat running’ and adverse impacts on small businesses and farms within the restricted area.

6.2.5  **Recommendation 5**

The existing west bound 7.5T weight restriction on the B3089 be revoked between its junction with the A350 and the A303 at Willoughby Hedge.

Reason – By removing this weight restriction, HGVs will be able to more safely access the westbound A303. This use of this section of the B3089 by additional HGVs will not affect existing residential properties and will have minimal quality of life and environmental implications. Additional work may be required to ensure the geometry of the A350 / B3089 signalised junction is adequate to cater for the additional traffic movements.

6.2.6  **Recommendation 6**

A plan for implementation should be drawn up in partnership with Somerset County Council and the Highways Agency in order to reflect the combined interests of the three Highway Authorities.

Reason - Effective signing of the restrictions will be essential and this can only be achieved through the introduction of new signs within Somerset. These will require approval by Somerset County Council as Highway Authority. The issue of the A303 / A350 junction needs to be considered during the implementation of these proposals and therefore close co-ordination with the Highways Agency will be required. Detailed plans are required for budgetary purposes in order to improve the reliability of the financial forecasting and advanced planning is required in order to proceed through the necessary statutory stages leading to implementation. The preparation of a carefully developed implementation plan will provide local communities with better information in respect of likely timescales.
6.2.7 **Recommendation 7**

The County Council should investigate alternative means of weight restriction enforcement across the County that would support the role of the police in this function.

Reason – It is clear that, whilst there is a difference of view regarding the need for the restrictions, neither of the affected police constabularies are going to be able to commit significant resources to the enforcement of environmental weight restriction. The use of either technology or other council resources such as Trading Standards to support or supplement police resources should be considered. This has proved successful in other counties.