Summary: Intervention & Options

Department /Agency:	Title:	
Department for Transport	**Impact Assessment of the Traffic Signs (Amendment) Regulations and General Directions 2010 and of the Traffic Signs (Temporary Obstructions) (Amendment) Regulations 2010.**	
Stage: Draft	**Version:** 1a	**Date: 25 September 2009**
Related Publications:		

Available to view or download at:

http://www.dft.gov.uk

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What is the problem under consideration? Why is government intervention necessary?

The Traffic Signs Regulations and General Directions 2002 need to be amended to permit the use of portable pedestrian crossing equipment at road works and to provide temporary stand-alone pedestrian crossings. The regulations and directions also need to be aligned with subsequent powers to give full effect to the Highways Agency Traffic Officer service.

These changes present an opportunity to prescribe a number of commonly-used traffic signs currently needing special authorisation and to provide a series of updates to the regulations and directions.

What are the policy objectives and the intended effects?

The objectives of these statutory instruments are to:

provide highway authorities with a broader range of prescribed traffic signing options;

align the regulations with current legislation, standards and practice;

reduce central government involvement in the process of delivering local traffic management solutions – thereby reducing the associated costs and burdens to local and central government; and

give full effect to the powers of the Highways Agency Traffic Officer (HATO) service.

What policy options have been considered? Please justify any preferred option.

1) Amend the Traffic Signs Regulations and General Directions 2002 and the Traffic Signs (Temporary Obstructions) Regulations 1997.

2) Do not amend those instruments at this time.

Option 1 is the preferred option as it is the only option that will address the problem and policy objectives stated above within an acceptable timeframe.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?

The actual costs and benefits of the proposed changes will be reviewed as part of the ongoing Government review of traffic signs policy.

Ministerial Sign-off For Consultation Stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:

.....Date:

Summary: Analysis & Evidence

Policy Option: 1	Description:

COSTS

ANNUAL COSTS	
One-off (Transition) **Yrs**	Description and scale of **key monetised costs** by 'main affected groups' Local Authorities accelerating the replacement of Traffic Signs to ensure they display both imperial and metric measurements by 2014.
£ 0	
Average Annual Cost (excluding one-off)	
£ 53,000	**Total Cost** (PV) **£ 527,000**

Other **key non-monetised costs** by 'main affected groups' There are costs related to replacing all remaining imperial only traffic signs indicating height and width limits. These are costs to Local Highway Authorites. In addition there may be some costs to both Local Highway Authorites and public utilities who choose to use portable signal-controlled pedestrian facilities.

BENEFITS

ANNUAL BENEFITS	
One-off **Yrs**	Description and scale of **key monetised benefits** by 'main affected groups' Reduction in overheight roof bridge strikes reducing injuries, rail delays and vehicle damage. Improvements in the performance of HATOs and a reduction in unnecessary applications for traffic signs.
£ 0	
Average Annual Benefit (excluding one-off)	
£ 234,000	**Total Benefit** (PV) **£ 2,335,000**

Other **key non-monetised benefits** by 'main affected groups' The proposed changes will help highway authorities manage their road networks more safely and efficiently. Removing the need for special signs authorisation will speed up the delivery of some improvements. All road user groups may benefit as a result.

The additional powers to align the regulations with powers conferred in the Traffic Management Act 2004 will enable HATOs to be more efficient in carrying out their primary duties. This will contribute to reduced congestion and improve journey time reliability.

Permitting portable signal-controlled pedestrian facilities will provide pedestrians with safer crossing places at road and street works. It will also be possible to provide a temporary facility at, say, a large sporting event or festival, which will provide benefits to large numbers of pedestrians attending such events.

Permitting the use of a reduced size 'Keep right' sign will bring operational benefits to the breakdown services.

Key Assumptions/Sensitivities/Risks Although there are a variety of impacts associated with bridge strikes, it has not been possible to estimate all of these at this point. However, some impacts have been monetised, including: the costs of delay to rail users from potential damage to bridges; costs associated with minor and serious injuries and deaths; costs of repairing bridges; delays to road users; damage to vehicles; and, damage to goods carried.

Sensitivity tests have been performed around the values for cost of rail delays arising from bridge strikes to estimate the potential benefits from implementing the new signs assuming a 0.5% reduction, 1% reduction and 2% reduction in the number of bridge strikes (at 2009 prices).

Sensitivity tests have also been performed around values to estimate the annual cost of injuries.

It has not been possible to estimate the value of time lost due to road user delays arising from bridge strikes. It is expected that the value of this element of the cost would be a non-trivial amount in relation to the other costs estimated.

The responses from the consultation should help to inform the Impact Assessment on these areas later in the process.

Price Base Year 2009	Time Period Years 10	**Net Benefit Range** (NPV) **£ 863,000- 2,220,000**	**NET BENEFIT** (NPV Best estimate) **£ 1,808,000**

What is the geographic coverage of the policy/option?			England, Scotland and Wales.	
On what date will the policy be implemented?			April 2010	
Which organisation(s) will enforce the policy?			A combination of authorities including highway authorities, traffic authorities, police and traffic officers.	
What is the total annual cost of enforcement for these organisations?			£ 0	
Does enforcement comply with Hampton principles?			Yes	
Will implementation go beyond minimum EU requirements?			No	
What is the value of the proposed offsetting measure per year?			£ 0	
What is the value of changes in greenhouse gas emissions?			£ Minimal	
Will the proposal have a significant impact on competition?			No	
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices) (Increase - Decrease)

Increase of £ Decrease of £ **Net Impact** **£** None

Key: **Annual costs and benefits: Constant Prices** **(Net) Present Value**

Evidence Base (for summary sheets)

[Use this space (with a recommended maximum of 30 pages) to set out the evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Ensure that the information is organised in such a way as to explain clearly the summary information on the preceding pages of this form.]

Impact assessment for the Traffic Signs (Amendment) Regulations and General Directions 2010 and for the Traffic Signs (Temporary Obstructions) (Amendment) Regulations 2010

Objective

1. The objective of these statutory instruments is to:

- provide highway authorities with a broader range of prescribed traffic signing options;
- align the regulations with current legislation, standards and practice;
- reduce central government involvement in the process of delivering local traffic management solutions – thereby reducing the associated costs and burdens to local and central government;
- give full effect to the powers of the Highways Agency Traffic Officer (HATO) service; and
- permit the use of a smaller sign by breakdown services.

Background

2. By virtue of section 64 of the Road Traffic Regulation Act 1984 (the Parent Act) traffic signs for use in Great Britain (including traffic signals and road markings) must either conform to the standards set mainly in the Traffic Signs Regulations and General Directions 2002 (TSRGD) and also in the Traffic Signs (Temporary Obstructions) Regulations 1997 or be specially authorised by the Secretary of State (or appropriate devolved administration); authorisation would occur, for instance, where a local need is not met by the regulations.

3. Other signs relating to pedestrian crossings are prescribed by the Zebra, Pelican and Puffin Pedestrian Crossings Regulations and General Directions 1997. These signs are beyond the scope of the amendment regulations – as are traffic signs in Northern Ireland, which are subject to the Traffic Signs Regulations (Northern Ireland) 1997.

4. Traffic signs are strictly regulated to ensure national consistency of traffic sign design and use, to maximise road user understanding. Clear and consistent traffic signing plays a key role in achieving effective traffic management, while contributing to increased road safety.

5. The purpose of the authorisation process is to further safeguard consistency in respect of non standard signs.

6. The proposal to introduce amendment regulations was welcomed by stakeholders as a key area for change prior to completion of the wide-ranging Traffic Signs Policy Review, which this department launched in September 2008. Stakeholders include representatives from relevant areas of the DfT and other government departments; the Local Government Association, CSS (formerly the County Surveyors Society); Transport for London; the Highways Agency; the Institution of Highways and Transportation; and the devolved administrations.

Proposed policy option

Portable signal-controlled pedestrian facilities

7. Currently the UK does not permit the use of portable signal-controlled pedestrian facilities. Portable vehicle signals are widely used to control traffic at street works and road works, but it is currently not possible to provide pedestrian facilities with this type of signal. We are proposing to amend the TSRGD to allow the use of portable pedestrian facilities. This entails changes to allow the portable signal heads to be placed with the pedestrian signal heads, a combination which is currently not permitted.

Giving full effect to the HATO service

8. Provisions contained in the Traffic Management Act 2004 (TMA) gave powers to the Highways Agency's uniformed traffic officers to carry out traffic management duties in support of the emergency services in the event of an incident on the Highways Agency's network (the Highways Agency is an executive agency of the Department for Transport). This network includes the motorways and all-purpose trunk roads in England. These duties include stopping and directing traffic and closing lanes and carriageways.

9. These enabling powers were introduced subsequent to the current TSRGD, which therefore requires some consequential changes to enable traffic officers to carry out the following functions: to direct traffic to cross double white lines, to stop at green traffic signals, or to pass under gantry mounted lane closure signals over live carriageways (these signals appear as a red 'X'). The proposed amendments would give HATOs the same powers as uniformed police officers and traffic wardens to carry out these functions as intended under the TMA.

10. The amendments to align TSRGD with the powers in the TMA are urgent, in order for the traffic officer service to give full support to the emergency services in minimising traffic disruption in the event of an incident.

Reducing the number of specially authorised traffic signs

11. Over time, new signs are developed in response to the changing needs of traffic authorities and the requirements of other initiatives. In recent years, such signs have included those for restricted parking zones or to direct pedestrians in tunnels in time of emergency. Until such time as new signs can be prescribed, they require individual authorisation. This can cause a considerable drain on the resources of both the highway authorities and the Department.

Providing updates to the regulations as required.

12. Since the introduction of the current TSRGD in 2002, a number of British Standards and other statutory specifications referred to in the regulations have been changed. While the proposed amendments to realign TSRGD with current standards are minor, they are nonetheless necessary in order to ensure that the requirements of the regulations reflect current standards.

Permitting use of smaller keep right signs in event of breakdown

13. Currently, the Traffic Signs (Temporary Obstructions) Regulations 1997 require that, if a keep right sign is placed on the highway in the event of a breakdown, it must be at least 900 millimetres in diameter. The amendment regulations will reduce this size requirement to 600 millimetres. We consider that this will have no cost impact as it is permissive not mandatory.

Consultation

14. Within government - the proposals in respect of the HATO functions have been developed with the Highways Agency.

15. Public - We have shared these proposals with the steering group as part of the Traffic Signs Policy Review. The proposals will be subject to the usual 12-week consultation in accordance with Cabinet Office guidelines. As part of this consultation we will seek views from local highway authorities in Great Britain, and other organisations and groups with a professional interest in traffic signing issues.

Groups affected by the proposed policy option

16. The proposed amendment regulations and directions will mainly affect local highway authorities. The provision of portable signal-controlled pedestrian facilities could also affect equipment suppliers and contractors, as additional equipment may need to be purchased or rented should they wish to do what the regulations will permit. However, the change to permit the use of portable traffic signals at these pedestrian facilities is permissive, not mandatory, so there is no requirement on suppliers or contractors in this regard.

Benefits

Portable signal-controlled pedestrian facilities

17. Permitting portable signal-controlled pedestrian facilities will enable the government to fulfil our commitment to the European Commission in this matter.

18. Pedestrians will have the benefit of safer crossing places at road and street works. It will also be possible to provide a temporary facility at, say, a large sporting event or festival, which will provide benefits to large numbers of pedestrians attending such events.

HATOs

19. We consider that the additional powers will enable HATOs to be more efficient in carrying out their primary duties. This will contribute to reduced congestion and improve journey time reliability. In 2007 it was estimated that HATOs would bring benefits of £29.9 million[1]. The Highways Agency considers that the benefits of these proposals amount to approximately 0.5 per cent of this, and would therefore be in the region of £150,000 per year at 2007 prices.

Reducing traffic signs authorisations

20. By prescribing the additional signs as proposed, it is estimated that 150 fewer authorisation requests would be received from local authorities each year. (This is based

[1] Derived from a study undertaken by the Highways Agency before the introduction of HATO's.

on analysis of recent authorisation trends, by sign category, contained in the Department's traffic sign authorisation database.)

21. Having consulted with relevant stakeholders, the cost of preparing an application, and addressing any actions arising, is estimated to be £50, based on 0.5 man day at junior technician or engineer level, at an annual salary of £23K The Department therefore considers that the financial saving to local authorities in reducing the number of signs that need to be authorised is approximately £10K per year.

22. Not taking forward these changes would mean that local authorities would need to continue applying for authorisation for non-prescribed traffic signs. Departmental analysis has shown that many applications for these (now) commonly used traffic signs require little or no changes – indicating that highway authorities intend to use these signs in line with best practice. Therefore, in respect of these signs, the analysis would suggest that the authorisation process is adding an unnecessary burden.

23. In addition, capturing these traffic signs in amendment regulations could reduce the timescales involved in delivering new traffic management schemes - thus delivering the benefits of the scheme earlier.

Replacing imperial only height and width limit signs.

24. Although there are a variety of impacts associated with bridge strikes, it has not been possible to estimate all of these at this point. However, some impacts have been monetised, including: the costs of delay to rail users from potential damage to bridges; costs associated with minor and serious injuries and deaths; costs of repairing bridges; delays to road users; damage to vehicles; and, damage to goods carried.

25. If consultees disagree with any of these estimates, they are invited to provide evidence in support of their objection. This will be used to inform the final impact assessment.

Costs of delay to rail users

26. The Bridge Strike Prevention Group has estimated that in the year 2008/09, 172,175 minutes, (or 2,900 hours), of delays were caused by bridge strikes. Figures of a similar magnitude have been confirmed within the Railway Safety Report 2002[2].

27. The Department has estimated the average cost of these delays in terms of the delay to affected rail passengers. It is estimated that each train carries an average of 200 passengers on a complete journey. However, as a bridge strike may occur at any stage of the journey, on average it is assumed that 100 passengers will be delayed. This may be an underestimate as, in the event of a completed line closure, there may significantly worse impacts in terms of lost commuter type.

28. Using the Department's data on the different journey purpose of rail users, during work, commuter, or other, and the average proportion of each of these types of commuter, together with estimates of the Values of Time associated with each of these groups[3], it is possible to estimate the average value of lost time per year from this data.

29. It is noted that the value of time for transport delays is valued at 300% of normal value of time, due to the potential cumulative impacts on work and other plans. Therefore this factor has been applied to the values.

[2] Can be found at: http://www.rssb.co.uk/pdf/reports/Bridge%20Strikes%20-%20Special%20Topic%20Report.pdf
[3] Can be found at: http://www.dft.gov.uk/webtag/webdocuments/3_Expert/5_Economy_Objective/3.5.6.htm

30. **Table 1** estimates the total cost of delay arising from bridge strikes – irrespective of cause - on both the sides and the soffit of the bridge. To estimate the number of bridge strikes caused by over height vehicle roof collisions, we have used the ratio of the total number of deaths, serious injuries and injuries. This may be an underestimate of the actual ratio, as over height vehicle damage is often confined to the container and not the driver's cabin, resulting in fewer injuries than with bridge side impacts.

Table 1. Total Cost of Rail Delays Arising From Bridge Strikes in Starting Year

	Value Of Time In The Starting Year (2009 Prices)	Value Of Delay Cost In The Starting Year	Percentage of Trips	Average Number of Passengers Affected	Annual Delay Caused By Bridge Strikes	Percentage of Over Height Vehicle Bridge Strikes	Annual Cost of Delay
Rail (Work)	£52.00	£155.99	7.60	100	2,869.58	24	£816,477.48
Commuter	£6.67	£20.00	52.20	100	2,869.58	24	£719,153.47
Other	£5.90	£17.70	40.30	100	2,869.58	24	£491,315.48
						Total	£2,026,946.42

31. The Department has guidance detailing how these values should be assumed to increase each year over the span of the impact assessment. It is assumed that, with an individual's wealth increasing over time, the value of time should increase - although the value of work time is assumed to grow faster than that for non-work time. From these values we have estimated the total cost of delays from over height vehicle bridge strikes over 10 years (at 2009 prices) to be in the region of £20m.

32. Sensitivity tests have been performed around these values to estimate the potential benefits from implementing the new signs assuming a 0.5% reduction, 1% reduction and 2% reduction in the number of bridge strikes (at 2009 prices). These are at **Table 2** below.

Table 2. Reduction in Rail Delay Costs Over 10 years

Reduction in Delay Benefits Over 10 Years		
0.5%	1%	2%
£86,388.01	£172,776.01	£345,552.02

33. The Department's statistics confirm that, since 2001, there have been five fatalities on Britain's roads resulting from reported personal injury road accidents involving an over height vehicle striking a bridge over the carriageway.

34. The cost per accident / injury includes lost output, medical and ambulance costs, the human costs, costs incurred by the police, insurance and administration costs, and damage to property.

<u>Reduction in Injuries from New Signs</u>

35. The number of accidents caused by over height vehicle bridge strikes is recorded from 1999 to 2008. These show that over this period there were a total of 5 fatalities, 66 serious injuries and 779 injuries over the period.

36. The cause of these accidents is difficult to determine as, although there are records for factors contributing to injury, these have only been recorded since 2005. Since then there have been no fatalities and a small sample of serious injuries and injuries. Furthermore, there have been few reported injuries due to misunderstanding the height limit traffic signs.

37. However it should be noted that, as there are a very few accidents attributable to low bridge heights, this may simply mean that the sample of these types of accidents is simply too small currently and that we will have to wait for a more representative sample to form.

38. The Department has data on the cost of injuries for injuries by severity Fatal, Serious and Slight.[4] These have been applied in **Table 3** below.

Table 3. Annual Cost of Injuries Due To Over Height Vehicle Bridge Strikes In Starting Year (2009 Prices)

Accident / Injury Severity	Number of Injuries Due To Over Height Vehicle Bridge Strikes	Cost Per Injury	Total Cost of Injuries Due To Over Height Vehicle Bridge Strikes
Fatality	0.5	£1,748,920	£874,460
Serious / Major	6.6	£197,715	£1,304,922
Slight / Over 3 days	77.9	£15,243	£1,187,458
		total	£3,366,840

39. From these values the Department has estimated the total cost of delays from over height vehicle bridge strikes over 10 years (at 2009 prices) to be around £37m. We have performed sensitivity tests around these values to estimate the potential benefits from implementing the new signs assuming a 0.5% reduction 1% reduction and 2% reduction in the number of bridge strikes (at 2009 prices). See **Table 4**.

Table 4. Potential Reduction in Injury Costs from Over Height Vehicle Bridge Strikes Over 10 Years

Percentage Reduction in injuries from Roof Bridge Strikes		
0.5	1	2
£159,138.82	£318,277.65	£636,555.29

Reduction in Damages due to Bridge Strikes

40. Alongside data on the cost of injuries the Department also publishes values on the damage-only costs of accidents. These are estimated for the average vehicle on the average road to be at £1,982 per accident. It should be noted that this value is likely a significant underestimate of the total damage costs of over height vehicle bridge strikes due to the fact that these will often be Heavy Goods Vehicles – with an estimated 62%[5] carrying valuable goods that may be damaged. Unfortunately it has not been possible to quantify what the difference may be at this stage.

[4] Can be viewed at:: http://www.dft.gov.uk/webtag/webdocuments/3_Expert/4_Safety_Objective/3.4.1.htm#01
[5] Derived from the Railway Safety Report

41. Using the ratio for the number of injuries the Department the proportion of bridge strikes that can be apportioned to roof collisions can be estimated. The Bridge Strike Prevention Group has published data on the total number of bridge strikes from 1999 to 2009[6]. This provides an estimate of the average number of over height vehicle bridge strikes and the difference between this figure and the average corresponding number of injuries from 1999 to 2009 can be used to estimate the average number of damage only over height vehicle bridge strikes at **Table 5** below.

Table 5. Average Damage Only Costs of Over Height Vehicle Bridge Strikes

Average Annual Bridge Strikes	Proportion of Over Height Vehicle Bridge Strikes	Number of Injury Over Height Vehicle Bridge Strikes	Estimated Annual Damage Only Strikes	Cost of Damage Only Accident (2009)	Annual Cost
1,845.90	0.24	85.00	366.72	£1,981.65	£726,707.44

42. From these values we have calculated, at **Table 6** below, the total damage costs over 10 years to be in the region of £6.3m and have defined a range of benefits from replacing signs based on assumptions surrounding the reduction in over height vehicle bridge strikes.

Table 6. Potential Reduction in Damage Costs Savings over 10 Years

Percentage Reduction in Damage only Costs from Over Head Roof Bridge Strikes		
0.50	1.00	2.00
31,276.35	62,552.70	125,105.40

Road User Delay Cost from Bridge Strikes

43. Where Bridge Strikes occur it is likely that this will cause traffic delays to surrounding road network. The extent of the delay is complex to estimate and will vary according to a number of factors: including, the traffic flows along the affected routes, the number of lanes closed due to the accidents and the journey purpose of the road users along the routes.

44. Unlike disruption to rail services where timetabling facilitates a straightforward estimate of lost time, there is no equivalent data source for road users. Therefore in this case it has not been possible to estimate the value of time lost due to road user delays from bridge strikes. It is expected that the value of this element of the cost would be a non-trivial amount in relation to the other costs estimated.

Amendments to take account of changes since 2002

45. Although the main benefit of these proposed amendments is to remove the need for highway authorities to seek authorisation for certain signs and variants, many of the additional permitted variants will give authorities more flexibility in their choice of signs.

[6] Report included in the 21 April 2009 minutes of the Bridge Strike Prevention Group

46. The regulations will also deliver safety benefits, particularly in the area of road/rail interface. New signs and permitted variants for use at level crossings, together with a requirement that low headroom bridges are signed in both metric and imperial units, will contribute to a reduction in the potential for serious accidents at these locations. However, individually these measures are small in nature and it is hard to estimate the extent of the increase in road safety they will deliver. Therefore the Department has been unable to quantify the estimated road safety benefit for the package of amendments.

Costs

Portable signal-controlled pedestrian facilities

47. Currently portable signal controlled pedestrian facilities may not be used in Great Britain as they are not included in TSRGD. Whilst they will be prescribed in TSRGD their use will not be mandatory, therefore the regulatory change has no cost implications.

HATO powers

48. The new HATO powers will not result in any additional costs being incurred as the Highways Agency intends these functions to be carried out by the existing officers.

Reducing the amount of traffic signs authorisation casework

49. The Department considers that prescribing more signs and variants in TSRGD will not lead to any additional costs to authorities. Scheme designers have to use the most appropriate sign when developing a scheme and frequently require special authorisation to use non-prescribed signs. The additional signs and permitted variants mean that many signs previously requiring special authorisation would be prescribed and may be used by authorities without reference to the Department.

New burdens

50. There will be direct costs to some local highway authorities associated with the requirement to replace, by April 2014, all remaining imperial-only traffic signs indicating height and width limits with signs indicating the restriction in both imperial and metric units. This includes both triangular warning signs and regulatory roundels.

51. Allowing for varying conditions associated with sign face size and location, the functional life of a traffic sign is generally considered to be 10 years. Beyond this point, reflective properties are likely to have diminished, and certain colours – including the red borders on regulatory roundels and triangular warning signs - are susceptible to sun damage.

52. The replacement of regulatory roundels is merely a matter of replacing the imperial only signs with the slightly larger dual unit version on existing support equipment.

53. The conversion of triangular warning signs from imperial-only to dual unit requires an additional sign, as it is not practicable to include dual measurements on one sign - to do so would increase the size of the sign considerably. Instead, to keep the size of these signs in proportion, imperial and metric units must be placed on two separate warning signs and displayed in combination.

54. There are no centrally-held records of the precise number of low bridges on Britain's road network, and no way of estimating how many are currently signed with imperial-only signs. However, the April 2009 edition of 'AA Close-Up Truckers Atlas Britain' – to which Network Rail contributed – contains some 3,800 road and rail low bridge heights on classified and minor roads.

55. It is understood from the minutes of recent meetings of the Bridge Strike Prevention Group that the number of reported bridge strikes at Network Rail underline bridges was in the region of 2,000 p.a. over the last 5 years. Based on records from Network Rail's incident logs since April 2008, approximately 10 – 12% of bridge strikes involved foreign lorries. This is disproportionately high in terms of the number of foreign lorries on the road network.

56. We are aware that, since dual imperial / metric signing was permitted for the first time in TSRGD 1994, the imperial-only signs have often been replaced with the dual unit alternative, as part of authorities' maintenance programmes. Furthermore, for several years this Department has recommended, through the Traffic Signs Manual, the use of the dual unit height limit warning and regulatory signing in preference to the imperial only alternative. In addition, this message was strongly reiterated in the joint DfT / Network Rail / County Surveyors Society October 2007 publication: 'Prevention of Strikes on Bridges over Highways - A Protocol for Highway Managers and Bridge Owners'.

57. As there are no prescribed warning signs for width limits, the proposals affect only the regulatory roundel which, again, would be replaced on the existing support structure.

58. Unlike height limit signing, there is no point of reference with which to begin gauging the number of width restriction signs in place, much less the percentage of those with imperial only regulatory signs remaining in place.

59. Furthermore, costs are not expected to be high as the vast majority of low bridges are on minor rural roads and in urban areas, where minimal diversion signing is necessary.

60. An examination of three sign manufacturers' prices showed the cost of a replacement roundel or additional warning sign, to be below £150, including fittings. Assuming that any replacement applies to both sides of the each bridge, the maximum sign face cost per bridge has been assumed to be £300.

61. However, the associated traffic management costs are less quantifiable, as there are a number of variable factors such as the nature of the road, length of diversion route and traffic volumes. It is also common practice to employ term contractors to carry out maintenance work. This presents the added difficulties in identifying clear itemised costs.

62. With no reliable means of estimating the number or location of signs requiring replacement as a result of the proposals, it is not possible to accurately calculate the overall costs.

63. Based on traffic management costs provided by 4 authorities, we have calculated the costs based on a percentage range of affected bridges in **Table 7**. Given the 10 year functional life of a traffic sign, of the 3,800 low bridges, 20% of height limit signs are assumed to have already reached the end of their functional life and thus should already have been replaced.

64. These costs do not account for authorities' ability to programme replacement of these signs in to their existing maintenance programmes, thus reducing or eliminating the associated traffic management costs.

Table 7. Average Sign Replacement Costs (2009 Prices).

Sign Face Cost Per Bridge	Daily Traffic Management Cost	Cost of Temporary Order	Average Cost of Sign Replacement
*300	**650	***1500	2,450

* Sign face cost including fittings = £150. Two signs per bridge.
** Cost = 2,000 per day for mobile platform including two operatives. Assuming 3 work items per day = 650
*** Based on an assumed 50% of bridges requiring a temporary Order costing £3,000.

65. There will be four years before the new legislation will be enforced for these signs. Any signs replaced within this time are assumed to use the new imperial and metric signs, to ensure they do not have to be replaced again later, at cost. This will be done within the normal process and therefore with no additional cost.

66. Where signs are replaced after the first 4 years the additional cost will be that associated with spending the money earlier than they would have without the legislation in place, as signs will be replaced earlier than originally planned. The earlier that this expenditure is brought forward the higher the additional cost this is because of the Social Time Preference Rate, laid out in the Green Book (http://www.hm-treasury.gov.uk/d/green_book_complete.pdf). The suggested discount rate is 3.5% per annum, therefore the cost of bringing the expenditure forward, on replacing signs is equal to the difference between the value of expenditure from having to replace a sign by the end of 2014 against having to replace it in a later year, this is known as the opportunity cost of bringing the expenditure forward.

67. The opportunity cost of bringing the expenditure forward, assuming the average total costs of replacing a sign are £2,450, from replacing the sign in 2014 to 2013 is equal to £74.73. The opportunity cost of bringing expenditure forward from 2018 to 2013, by 5 years, is equal to £349.20. If we assume that there are equal amount of signs replaced in each year and we assume that 50% of signs need replacing then as we have estimated there are 3,800 signs this would be equal to 140 signs being replaced each year on average. To find the total costs we multiply the opportunity costs per sign by the number of signs replaced in that year.

68. As noted there is also the additional cost of adding additional triangular signs these have been estimated to cost £150 per sign. We have assumed that these will be required in 50% of cases.

69. At **Table 8** below we have estimated the costs from replacing a percentage of the signs ranging from all signs, 100%, to only 25% we consider 50% to be the central cost estimate.

Table 8. Potential Total Costs of Replacing Metric Only Signs.

Total Cost: Percentage Requiring Replacement			
100	75	50	25
£1,054,457.97	£790,843.48	£527,228.99	£263,614.49

Balance of Costs and Benefits for Amending Traffic Signs

70. On balance the Department believes that the changes to the legislation to introduce the new traffic signs will be beneficial. This is based around the central estimates that the introduction of the new road signs will reduce the number bridge strikes resulting in benefits to rail users, reduced injuries and damage costs to road users. Furthermore, these are likely to underestimate the overall benefits as there are still benefits from reduced road user delays that are not incorporated into these values. The Department considers that the 1% assumption for represents a conservative estimate of the likely reduction in over height roof bridge strikes.

71. If the assumption is that the number of signs needed to be replaced is greater than the 50% central estimate then the total cost of replacing the signs is higher and this may lead to net negative impacts. If the percentage reduction in bridge strikes is lower than 1% then the benefits will be lower and the net impact of the scheme may be negative. However if there are less signs remaining to be replaced or the reduction in over height bridge strikes are greater than one percent the net benefits will be greater. See **Table 9** below.

Table 9: Net Impacts from Implementing Imperial and Metric Street Signs

		Net Impact		
		Percentage Reduction in Over Height Roof Bridge Strikes		
		0.5%	1%	2%
Assumed Proportion of Street Signs to be Replaced	25%	£13,188.68	£289,991.86	£843,598.22
	50%	-£250,425.81	£26,377.37	£579,983.72
	75%	-£514,040.30	-£237,237.13	£316,369.23

72. Further, as noted before there is reason to believe that the benefits are underestimated as damage costs are likely to be higher and the benefits do not incorporate road user delay costs.

73. The responses from the consultation should help to inform the Impact Assessment on these areas later in the process.

Enforcement, sanctions and monitoring.

74. There is no formal enforcement, sanctions or monitoring of traffic signs in Great Britain. Both the Highways Agency and local highway authorities are responsible for their roads and for complying with TSRGD. This will remain the case after the amendment regulations come into force.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	*Results in Evidence Base?*	*Results annexed?*
Competition Assessment	No	Yes
Small Firms Impact Test	No	Yes
Legal Aid	No	Yes
Sustainable Development	No	Yes
Carbon Assessment	No	Yes
Other Environment	No	Yes
Health Impact Assessment	No	Yes
Race Equality	No	Yes
Disability Equality	No	Yes
Gender Equality	No	Yes
Human Rights	No	Yes
Rural Proofing	No	Yes

Annexes

63.

Competition Assessment

The Road Traffic Regulation Act 1984 requires traffic signs to be of the size, colour and type specified in regulations – being mainly TSRGD. These regulations do not preclude any manufacturer from producing compliant traffic signs. Therefore we do not consider that there are any competition issues arising from the proposals.

The changes will also open up the market to new products as portable signal controlled pedestrian facilities have not previously been permitted. There is an opportunity for the traffic signal industry to develop and market new equipment, and we believe this will be taken up.

Small Firms Impact Test

It is thought that the impact on small business would be limited as only the introduction of portable pedestrian crossings affects the private sector. Although the proposals will also have cost implications for the large utility companies, they would, in the main, affect maintenance contractors, carrying out street works on the utilities' behalf. It would also affect companies supplying traffic management equipment.

Representatives of those small businesses with a professional interest in traffic signing will also be consulted as part of the 12-week public consultation on the draft proposals.

Legal Aid

The proposed amendment regulations will not introduce new criminal sanctions or civil penalties.

Sustainable Development

The Department does not consider that the proposed amendment regulations comply with sustainable development principles.

Carbon Assessment

The Department does not consider that these regulations will affect the level of green house gas emissions.

Other Environment

The Department does not consider these regulations will have an adverse environmental impact.

Health Impact Assessment

The Department considers that these proposals will improve the level of road safety and therefore the health of road users. However as described above we have been unable to quantify the extent of this benefit.

Race Equality

There will be no impact on race equality.

Disability Equality

Under the Disability Discrimination Act 1995, it is unlawful for a public authority to discriminate against a disabled person in carrying out its functions. We do not consider that these regulations will discriminate against disabled people as the purpose of traffic signs is to provide the requisite information in order for them (and others) safely to navigate their journey. These are no disability related issues in these proposals.

Gender Equality

There will be no impact on gender equality.

Human Rights

There will be no impact on human rights.

Rural Proofing

The proposed amendment regulations should not impact on rural communities unfairly.

Value for Money - Impact Assessment of Traffic Signs (Amendment) Regulations and General Directions (TRSGD) 2010

The Draft Impact Assessment considers two options: amending the traffic signs regulations and general directions or do not amend the regulations. Our best judgement is that the first option **delivers benefits** to the UK, without cost to government, while the latter would have little impact.

The legislative option will align the Traffic Management Act (TMA) with TSGRD enabling Highways Agency Traffic Officers to perform functions contained in the TMA. This is expected to release benefits associated with the role at no cost. The Highway Agency have estimated that these benefits may be in the order of £150,000 per year.

This option will also reduce the need for traffic signs authorisations by Local Authorities by prescribing additional signs. This is expected to result in 150 fewer authorisations saving Local Authorities an estimated £10k per year with no cost to government.

The legislative option also proposes to replace imperial only bridge height and width limit signs with those including both imperial and metric measurements, before 2014. This will involve costs to Local Authorities due to the accelerated replacement of signs, for those expected to be replaced after 2014, and additional signs for arched bridges. The costs of Over Height Roof Bridge Strikes are estimated; these include delay costs to rail users, the damage costs to vehicles and the injury costs of Over Height Roof Bridge Strikes. A conservative estimate that a reduction of 1% in the number of bridge strikes would be expected to deliver net benefits using the central estimate of costs.

There is uncertainty over the total costs to local authorities of replacing signs as data on the number of signs is not held centrally and records are not easy to obtain, an assumed central estimate of 50% of signs to be replaced is made with a range of costs. There are also uncertainties regarding the potential reduction in bridge strikes from the switching to imperial and metric signs. The consultation requests additional information from stakeholders to meet these evidence needs, and where assumptions have been made they have been clearly stated.

Based on the available evidence it is our view that the legislative proposal offer **net benefits** to the UK.