One-way systems

Workplace transport site safety information sheet WPT15

This information will be useful to anyone who uses workplace transport or who works where it is used. It will help employers, managers and supervisors to assess their workplace and make improvements. The checklists will help you to prepare your risk assessment.

By law, every workplace must be organised so that pedestrians and vehicles can circulate safely. One-way systems are a form of traffic management used to control traffic around a site. They are designed to limit reversing and prevent conflicting movements caused by 'two-way' traffic flow. They are particularly useful where site access roads are narrow and visibility is poor.

Well-designed one-way systems, used in the right situation, can safely manage traffic around a site. They need to be clearly marked out using road markings and signs so that drivers can follow them easily. Other complementary traffic management measures, such as segregation and speed limits, can often increase their effectiveness by helping to enforce them.

Common problems

One-way systems can bring many benefits but can create their own problems such as speeding and increased mileage. However, most problems are caused by poorly designed or inappropriately used systems.

Poorly designed one-way systems: Poorly designed one-way systems can be unsafe and cause accidents involving vehicles, pedestrians, equipment and property. One-way systems can be too narrow and have poor visibility, particularly at corners, which can lead to an increase in accidents.

Pedestrians can be at risk of being struck by vehicles when they are not provided with segregated routes and safe crossings over the one-way system.

One-way systems that are not clearly marked or signed: Drivers may be unaware of a one-way system if it is not clearly marked or signed. This is particularly a problem where the entrances and exits are not clearly signed. If this happens, the system becomes dangerous and hazardous vehicle movements can occur.

Photo Jackie Stevens

The one-way system has outgrown its usefulness: Over time, a one-way system can outgrow its usefulness for the site and become dangerous. One-way systems need to adapt to changes in site requirements and operations. You may need to consider whether a one-way system is still the best traffic management measure for the site.

Complementary traffic management measures have not been used: A one-way system needs to be used, in conjunction with other safety measures, for it to be most effective, eg segregation to protect pedestrians.

Increased vehicle mileage and speed: One-way systems force vehicles to increase their mileage because they stop them using the most direct routes. Driver confidence can increase because there is no opposing traffic, which can lead to drivers increasing their speed so that they become dangerous.

Vehicles travelling the wrong way: Occasionally vehicles can drive the wrong way through a one-way system. This will cause conflicting movements and block the system. It may cause unnecessary reversing by requiring vehicles to reverse when they meet traffic moving in the opposite direction. This can be a problem where the entrance is poorly signed and drivers are not aware that they are about to join a one-way system.

Reversing vehicles: One-way systems do not prevent reversing – they limit its occurrence. Vehicles that reverse down a one-way system where the road is narrow or not segregated from pedestrians, will cause conflicts. Accidents can damage buildings, equipment and vehicles or injure pedestrians.

Blocked one-way systems: One-way systems can easily be blocked, eg by parked vehicles. This can encourage vehicles to move away from designated routes.

Checklist – what to look out for

- Poorly designed one-way systems.
- Vehicles travelling the wrong way within a one-way system.
- Blocked one-way systems.
- A one-way system that has outgrown its use.
- Other complementary measures that have not been introduced, eg pedestrian segregation.
- Poorly marked or signed one-way systems.
- Increased vehicle mileage and speed.
- Drivers taking shortcuts and ignoring the system.

How can you deal with common problems?

You should first consider whether a one-way system is the most appropriate form of traffic management for your site. If it is, many potential problems can be prevented through careful design and enforcement:

Use signs and markings: One-way systems should be enforced by using signs and markings, eg speed limit signs and direction arrows. This will make sure vehicles are travelling in the right direction, and can help to prevent speeding and rat runs.

Proper signs that are clear and easy to read should be used to mark the entrance and exit to a one-way system.

You may need to use other complementary traffic management measures (such as bollards and fencing) to channel traffic and increase the effectiveness of the one-way system.

Extend or refine the one-way system: A one-way system may need to be refined or extended to meet changes in site layout and operation, eg it may need to be widened so that it is suitable for the widest vehicles using the site.

It may also need refining to include safe pedestrian crossing points and safe parking areas that do not interfere with vehicle movements within the one-way system. It may be possible to provide drive-through loading areas, which will prevent the problems caused by reversing and parking that may be associated with the use of a one-way system.

One-way systems need to be wide enough for the vehicles using them and for the swept path of vehicles at corners. Where visibility remains poor you may need to use other control measures such as traffic lights. It is advised that one-way systems run clockwise so that pedestrians are aware of where vehicles are coming from.

Pedestrian routes should be incorporated into the design of one-way systems.

Design places for vehicles to wait, such as holding areas. This will prevent vehicles parking dangerously in turning or loading areas.

Include oversight of the one-way system within the duties of a site supervisor: If the problems are operational rather than relating to infrastructure then it may be necessary to include oversight of the one-way system within the duties of a site supervisor. They will be able to direct and control traffic to make sure that the one-way system is used correctly by drivers.

Remove the one-way system if it is no longer useful: Where a site's layout or vehicle movements have changed, and the one-way system has become too restrictive, it may be necessary to remove it.

Checklist

- Use signs and markings to mark out the one-way system.
- Use complementary traffic management measures to increase effectiveness.
- Extend or refine the one-way system.
- Remove the one-way system if it no longer serves a purpose.
- Employ a site supervisor to oversee traffic movement.

Checking your site

Carry out a visual inspection of your site to look at how appropriate a one-way system is. It will help you to work out whether a one-way system is necessary. Walk around the premises, make notes and take photographs of any problems. In particular, highlight where the one-way system is not clearly signed or marked out, where the system is narrow and where visibility is poor. Mark the problem areas on a site plan. You may also want to consider driving round the site.

A visual site survey or inspection is a good way of assessing the usefulness of one-way systems for your site. Think about whether you can carry out the survey yourself or if it would be more cost effective to commission a professional inspection.

You should consider the following when making a site inspection:

- Is the one-way system appropriate?
- Are there any blind spots?
- Are vehicles parking and preventing traffic flow?
- Is there sufficient segregation?
- Are vehicle routes suitable?
- Are vehicle movements adequately controlled?
- Would the site benefit from employing a site supervisor?
- Are there signs where they are needed?

As well as a visual site inspection, it is helpful to ask for feedback from staff and visitors about the suitability and safety of the vehicle routes they use. Ask them if they feel

that the use of a one-way system is justified and whether they find it beneficial.

If you find conflicting pedestrian and or vehicle movements consider commissioning a traffic and pedestrian flow survey. This will identify the areas within your site where there are problems with conflicting movements, parking or reversing. It will highlight areas where a one-way system would help. The survey results will also help to identify other solutions, such as segregation, signing and road markings.

If you require a more detailed and wider-reaching guide, see the *Site inspection: Workplace transport checklist* at www.hse.gov.uk/workplacetransport.

Checklist

- Walk and drive around your site – look for blind spots, conflicting movements, areas where reversing occurs and assess the clarity of signage.
- Ask for staff and visitor feedback about traffic movements and the use of the one-way system.
- Commission a traffic flow survey to identify areas of conflicting movement.
- Consider whether a one-way system is the best form of traffic management for your site.

Where to get help

If you have a problem with vehicle movements and one-way systems on your site, you might be able to fix it yourself. If you are unsure, speak to your health and safety workplace representative or contact HSE for advice. It may be more cost effective to have a professional assess your site and carry out the work.

You can also get advice by speaking to other similar local businesses – look for examples of good practice. Contact your local trade association or Chamber of Commerce for recommended local suppliers or look in the *Yellow Pages* for traffic consultants.

Checklist

- Consult your health and safety representative.
- Speak to HSE if further advice is needed.
- Employ a traffic consultant to design or assess a one-way system.

What might it cost?

- Professional site survey: around £2000.
- The design and build of a one-way system with bollards, lining and signs is likely to cost £5000–£10 000.

(These costs are a guide and may vary significantly for individual sites and circumstances.)

Find out more

Workplace transport safety: An employers' guide HSG136 (Second edition) HSE Books 2005 ISBN 978 0 7176 6154 1

Segregation Workplace Transport Information Sheet WPT21 HSE 2009 www.hse.gov.uk/workplacetransport

Signage Workplace Transport Information Sheet WPT22 HSE 2009 www.hse.gov.uk/workplacetransport

Road markings Workplace Transport Information Sheet WPT27 HSE 2009 www.hse.gov.uk/workplacetransport

DfT, DSA The Official Highway Code (Revised 2007 edition) The Stationery Office 2007 ISBN 978 0 11 552814 9

Traffic Signs Manual: Chapter 5: Road markings The Stationery Office 2003 ISBN 978 0 11 552479 0

Traffic Signs Regulations and General Directions 2002 SI 2002/3113 The Stationery Office 2002 ISBN 978 0 11 042942 7

Further information

HSE priced and free publications can be viewed online or ordered from www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications are also available from bookshops.

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

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This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This document is available web-only at: www.hse.gov.uk/pubns/wpt15.pdf.

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