TRANSPORT AND WORKS ACT 1992

TRANPORT AND WORKS (INQUIRIES PROCEDURE) RULES 2004

THE NETWORK RAIL (ESSEX AND OTHERS LEVEL CROSSING REDUCTION) ORDER

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APPENDICES

TO PROOF OF EVIDENCE OF DANIEL FISK

Document Reference	NR31/2

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CENSUS GOOD PRACTICE

KNOW YOUR CROSSING, ITS USERS AND ITS ENVIRONMENT

CONTENTS

National Level Crossing Team
If we can't close a level crossing, let's make it safer.

1 Purpose

This document provides guidance in the undertaking of census data collection as part of the risk assessment of level crossing safety.

2 Scope

It is intended for Level Crossing Managers and any other competent person responsible for the safe management and risk assessment of level crossings. It may also be used by other Network Rail personnel undertaking census data collection in support of level crossing risk assessments.

It should be applied to all risk assessments of level crossings and used to support decision making regarding the best means to obtain accurate census data, so far as is reasonably practicable.

3 The importance of accurate census

Census is one of the underpinning elements of a level crossing risk assessment. It is one of the most important influences on the level of risk. Therefore it is vital that a robust census is undertaken to achieve a meaningful and accurate risk assessment.

In general, the window of opportunity for an accident at a level crossing increases with a high level of crossing usage and a high number of train movements. Therefore, the number of level crossing users and the equivalent train moment, or trains per day, is a key influence of risk.

Census is also a key input of the All Level Crossing Risk Model [ALCRM] and forms a critical component in the calculated levels of risk. Underestimating or overestimating census can have a varying effect on the modelled output, which could influence decisions taken by the assessor or the business to manage safety. For example, crossings with a high individual risk and a low collective risk can be sensitive to changes in census data. In this circumstance, ALCRM might evaluate a crossing with weak census data to represent a slightly lower risk than that of the true risk profile. This could result in a lack of intelligence about the level of risk at an asset, leading to inaccuracies in strategic planning to manage safety.

In addition to the volume of use, it is also vital to understand the user demographic; i.e. the types of users who make up the census number, so as to identify hazards which may be prevalent to one or more user segments and to better target risk mitigation in these areas. Accurate census will therefore help us to better identify, and encapsulate within risk assessments, the types and vulnerabilities of users of our assets.

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4 Census types, selection criteria and enhancing census accuracy

4.1 General

In general it may be considered that the greater the duration of census data collection activity, the greater the opportunity to improve the accuracy of the census.

This is an especially pertinent point in relation to determining pedestrian usage and in the undertaking of all census at footpath, bridleway and private user worked crossings.

In some cases due to seasonal fluctuations or peaks and troughs in use, it might be necessary to undertake more than one census data collection activity so as to broaden understanding regarding daily/annual usage. ALCRM can accommodate two censuses for this purpose.

In addition to physical on-site data collection techniques, an array of smart-sources of intelligence should also be used to support understanding; see 8. In determining robust knowledge of crossing usage, it might be necessary to use multiple combinations of on-site activities and other research based intelligence to accrue the complete picture.

4.2 Types of census and the preferred approach

Non-estimated census

The quick census is the least favoured of the non-estimate types due to its limited capacity to accurately reflect usage levels or identify all segments of users. A quick census can be susceptible to the time and date of the visit, omitting or overly including, peaks, troughs, seasonal activity and omitting weekend, evening and variances in use. It has, however, been independently endorsed as a broadly capable method for counting vehicles at public road crossings.

Where-ever possible, nine day census or greater (extended census) should be the census of choice for assessors. It offers strength in accuracy and endorses the company's approach to continuous improvement by enhancing the accuracy of risk assessments and improving level crossing safety.

Estimated census

Estimated census should ideally be a last resort unless using forecast figures to determine the impact of a proposed housing development for example.

If it is to be used as the primary source, every effort should be made to determine usage levels using actual census data collection activity and prior to adopting it as the chosen census gathering technique. As with all census gathering activity, but especially so when using estimated structured judgement, all available intelligent sources should be used to aid decision making; see 5.7 and 8.

Table 1 details the types of census which can be used within the risk assessment process. It also highlights some of the benefits and dis-benefits associated with each census type.

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Type	When to use	When not to use	Strengths and weaknesses	Census owner
	In all cases where a census is required. Applicable to all asset types and all assessments from steady-state to project work where it is a prerequisite; e.g. re-signalling schemes and level crossing (LC) renewals.		**Strengths:** High level of accuracy leading to improved modelling of risk in ALCRM and informed decision making for the assessor and the business. **Weaknesses:** Internal resources needed to deploy equipment and analyse footage. Availability of mobile or fixed camera technology within the Route. Cost to employ external supplier to undertake census. Availability of external supplier to meet business timescales/deadlines. *TIP: Camera equipment should be directed away from train movements to prevent spurious activations and to improve analysis time and resource.*	Level Crossing Manager or External Supplier
Nine day or extended duration	Serves to enhance understanding of LC usage and user behaviour, e.g. identifying night time usage, confirming vulnerable or irregular users, identifying peaks and troughs etc.			
24 hours	To support understanding of LC usage and where time-constraints prevent use of nine day or extended duration census. *NOTE: At lesser used crossings a longer census will be more appropriate to identify consistent usage and afford greater accuracy.*	Not appropriate for understanding weekend, consistent night time usage or where there are known or suspected peaks and troughs in usage which are likely to extend beyond 24 hours.	**Strengths:** A better level of accuracy than a quick census and might otherwise improve the accuracy of the risk assessment. Could be undertaken as a physical count by Network Rail staff in the absence of technology, for expediency or to facilitate engagement with users. **Weaknesses:** Does not provide the same level of accuracy as a nine day census. Resource implications for Network Rail staff to deploy technology or undertake a physical count. Cost and availability of external supplier to meet business timescales/deadlines.	Level Crossing Manager, Operations Staff or External Supplier

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Type	When to use	When not to use	Strengths and weaknesses	Census owner
Quick 30 to 60 minutes, Mon to Fri between 9:30 - 16:30	Weakest of all non-estimated census types. Primarily best suited for vehicle count at public roads.	Not appropriate where pedestrian usage is inconsistent throughout the day or unlikely to be witnessed during the census, but is known or suspected, or where vehicle use at private crossings is subject to variation. Where an assessor is seeking to identify weekend use, night time usage or where there are known or suspected peaks and troughs in usage, including seasonal variations.	**Strengths:** Speed of data collection and assessor can observe and interact with users of the crossing. **Weaknesses:** Less accurate than a nine day, extended census or a 24 hour census. Only provides a snapshot of use observed during the site visit. Provides poor understanding of crossing user demographic.	Level Crossing Manager
Estimate at passive crossings including 24 hour usage	**No crossing usage witnessed**			
	Authorised user data available where: a). Authorised user provides written daily usage information; or b). Interview conducted with authorised user(s).	Not advisable if an authorised user is known or suspected to provide inaccurate information, e.g. over estimates usage due to fear of asset closure.	**Strengths:** Reasonable expectation of accuracy. **Weaknesses:** Reliability of data provided by user. Behavioural patterns not observed.	
	Interview conducted with crossing user.	Not advisable if it is established or suspected that the user is unfamiliar with the crossing.	**Strengths:** Data potentially more accurate than relying on visual appearance of crossing. **Weaknesses:** Individual's opinion might not reflect accurate usage. User demographic might be misinformed.	Level Crossing Manager
	Based on appearance of crossing.	Not advisable when trying to establish sleeping dog status, or where suspected or known high usage exists. Census needs to be supported with further evidence and is better suited to a nine day count.	**Strengths:** Allows use of structured expert judgement. **Weaknesses:** Relies on structured expert judgement being accurate. Unsupported by factual information. Behavioural patterns not observed.	

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Type	When to use	When not to use	Strengths and weaknesses	Census owner
Estimate at protected crossings	For modelling the effect of changes in predicted traffic flows, e.g. impact of new developments on LC usage.	Not advisable where real time data is available.	**Strengths:** Allows forecast changes to be modelled in ALCRM enabling the impact to safety to be understood. This intelligence enables, for example, informed decision making in regard to planning application approvals or objections. **Weaknesses:** Relies on projected data to be accurate, as far as is reasonably practicable.	Level Crossing Manager

Table 1 Types of census

4.3 Selecting an appropriate census type

Although a nine day or extended census offers the greater opportunity for accuracy and is therefore the preferred choice, as detailed in 4.2, there are many factors that might ultimately influence the type of census chosen by an assessor.

Decisions that influence census selection might include matters such as the availability of source material; such as mobile camera technology, the readiness of resources required to undertake the census or deploy equipment, the confidence in existing intelligence or the financial outlay if using third party suppliers or procuring technology. In addition there are other considerations which can vary between assets and which will influence the requirement. For example:

- Reason for census – e.g. the census is required to support a risk assessment at which intelligence is already rich and relatively current, to verify and quantify vulnerable usage or to support a re-signalling or renewal project.

- Peaks and troughs – where usage can vary significantly during the hours of the day and days of the week, a nine day census or longer is more likely to provide a much better picture of crossing use than a quick 30-60 minute census.

- Seasonal variations – where usage varies significantly at different times of the year, e.g. due to holiday periods, leisure attractions or agricultural use, a second census is advised as this will provide better quality data relating to annual usage.

- Weekend peaks – where high weekend usage is suspected e.g. crossing is on a route to a tourist attraction or is used as a leisure walkway, a nine day census or longer will offer a much better picture of crossing use than a quick mid-week or 24 hour census.

- Logistics, practicalities and costs – e.g. an extended census might be needed for a duration of between nine days to several months to substantiate usage or the crossing might be in a remote location.

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To illustrate this further, the table below offers examples of how factors may shape decision making. The content of Table 2 is not exhaustive.

Factor	Requirement	Census suitability
Uncertainty over night-time quiet period usage	Need to establish the level of use during the hours when whistle board protection is removed.	Quick census is unsuitable for this purpose as it will not offer a consistent picture or pattern. A nine day census or extended census is needed. Deployment of mobile camera technology or third party supplier required.
School in close proximity to level crossing	Need to better understand behavioural patterns and the volume of crossing usage by vulnerable users. *NOTE: Whilst it is essential to understand the effect the school has on crossing usage, it is also important that a quick census does not focus solely on school arrival and departure times or during a lull in activity during the day.*	A nine day census or extended census offers to the best opportunity to identify trending patterns of use. Deployment of mobile camera technology or third party supplier required. A 24 hour census is better suited for this purpose than a quick census, but is not as robust as a nine day or extended census.
24 hour operational business resides in close proximity to level crossing	Need to understand the impact that shift change or deliveries might have on level crossing safety, e.g. night time quiet period, darkness risk and peaks in usage.	Quick census is unsuitable for this purpose as it will not offer a consistent picture or pattern. A nine day census or extended census offers to the best opportunity to identify trending patterns of use. Deployment of mobile camera technology or third party supplier required. *NOTE: Speaking to local businesses for information on working hours can enhance understanding of business impact on level crossing safety.*

Table 2 Additional census selection factors

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5 Good practice regarding census data collection activity

5.1 General

This section contains good practice guidance for assessors when undertaking quick or 24 hour census in-house, in addition it details items to consider when actively recruiting an external supplier to undertake a 24 hour, nine day or extended census.

Section 5 also features guidance on vulnerable users.

5.2 Quick and 24 hour 'manual count' census undertaken by Network Rail staff

If a nine day or extended census cannot be undertaken, it is important that assessors are confident that either a 24 hour or quick census is appropriate to reflect reasoned accuracy for the asset being assessed. Census selection is discussed in 4.

Preparation	**Quick & 24 hour census**
	✓ Always review previous censuses to re-familiarise yourself with the user demographic recorded and take cognisance of observations relating to vulnerable users, irregular users, peaks, troughs and seasonal fluctuation.
	✓ Also use this information to determine the appropriateness of using a 24 hour or quick census.
	Quick census
	✓ Previous census might also offer intelligence to inform decision making when deciding on the best time of day or day of the week to undertake census data collection activity.
	✓ Make sure that you source equipment, tools and other items in a timely manner. Such items might include: downloading of electronic forms, iPad (charged), paper collection forms (contingency), pens, compass, range finder, measuring wheel, camera (charged/memory card with capacity) and appropriate clothing aside of corporate PPE; e.g. taking forecast weather conditions into account, the crossing location and the need for personal comfort.
	✓ Prepare and obtain necessary SSOWPs to assure your site safety during the visit.
	24 hour census
	✓ Agreement with relevant operations staff will be needed if a 24 hour 'manual count' census is considered appropriate. Consideration will need to be given to staff welfare; the ability for this method to provide a robust count and take cognisance of resource implications, so as to justify why this approach is better suited than deploying technology or employing outside parties.
	✓ If a 24 hour 'manual count' census is considered appropriate, a template for this purpose should be provided to staff undertaking the task.

On site behaviour	**Site safety and staff welfare is the first priority**
	
	✓ Take the census from a position of safety where the crossing is fully visible.
	
	✓ Do not obstruct user access or distract users during the traverse/within the confines of the crossing.
	
	✓ Park road vehicles appropriately, e.g. do not obstruct signage, crossing equipment or impair safe use of the crossing.
	
	✓ Do not stand where you might obstruct crossing signage or equipment.
	
	✓ If engaging with users to determine a broader understanding of the risk profile:
	
	   – be approachable, professional and prepared to listen;
	
	   – be cognisant of the environment and the positions of safety; and
	
	   – only engage in conversation when it is safe and appropriate to do so

Data collection	✓ Note the start time, date and duration of the activity.
	
	✓ Take cognisance of the type of crossing you are at and the level of concentration that is needed to conduct an accurate census, e.g. are you at a public highway crossing with high traffic moment or are you at a rural passive crossing that is lightly used?
	
	✓ Observe usage:
	
	   – is it in keeping with the calculated traverse time?
	
	   – are users operating the crossing safely?
	
	   – are there a high number of vulnerable and irregular users and how does this translate into applying the 50% safeguard?
	
	✓ It is always useful to engage with users to obtain census information. It might lead to intelligence on risks and hazards that you might be unsighted to. It is often good practice to ask them about user demographics, if they have observed deliberate misuse or safety events and if they have any issues of concern with the asset, e.g. slippery surface, confusion with instructions on safe crossing protocol etc.
	
	✓ Be aware of extreme weather conditions; this might influence the level of use witnessed during the census gathering activity. This can be particularly relevant at footpath or bridleway crossings. For example, very bad weather (gale-force winds, sleet, snow and very cold conditions) might lead to a reduction in the number of crossing users seen and conversely very good weather (heatwave) might result in slightly more users being out-and-about. Whilst both extremes are valid user moment experiences, in terms of quick census they could distort accuracy levels if significant. It is important therefore to consider if the weather conditions might have distorted the accuracy of the census. If appropriate, evaluate the need to revisit the crossing at another time.

Table 3 Quick and 24 hour 'manual count' census data gathering

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5.3 Identifying vulnerable users

5.3.1 Vulnerable user definition

Vulnerable level crossing users can be defined as people who, when compared with typical users:

- are likely to take an extended time to traverse due to disability or distraction; and/or

- might be at greater risk of harm due to their perception of risk.

5.3.2 Defining vulnerability

There are a number of factors that can result in people being at greater risk when using level crossings. These can include but are not limited to:

- Limitations in mobility (take into account not only the ability to walk, but also the ability to turn their bodies or heads and look for oncoming trains)

- Visual or hearing impairment

- Cognitive ability, e.g. making safety related decisions (very young and elderly people are more likely to make poor decisions on the distance and speed of large moving objects such as trains)

- Being encumbered, e.g. crossing with bags, pushchairs, cycles or dogs (consider if dogs are on or off a lead (including the use of extendable versions), and if owners are in charge of more than one dog; it becomes increasingly harder to control multiple animals)

- Inability to comprehend English, i.e. to read signage and / or speak to Signallers

5.3.3 Types of vulnerable users

Vulnerable users can include, but are not limited to:

- People with physical and/or mental disabilities or other impairments; incl. those using mobility scooters

- Young children; unaccompanied or in groups

- Elderly people

- Dog walkers

- Cyclists, e.g. where known not to dismount and considered 'at risk'

- People carrying heavy bags or large objects, with pushchairs etc.

- Non-English language speakers, e.g. migrant workers

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5.3.4 Identifying vulnerable users by location

The likelihood of a level crossing being used by vulnerable users can be influenced by its proximity to:

- Sheltered housing or care homes; residential and nursing

- Schools

- Stations

- Residential thoroughfares

- Busy high streets

- Parks, play areas, known walking areas

- Fixed local attractions, e.g. beaches, caravan sites

5.3.5 Means of identifying vulnerable users

Crossings that might have vulnerable users can be identified by:

- Observation; census

- Research into the crossing environment using intelligent sources of information

- Interviewing users in nearby businesses, residential dwellings etc.

- Near miss or other reporting of precursor events

Other influencing factors can include:

- Location and/or crossing type, e.g. field to field crossings with stiles are less likely to have a high proportion of vulnerable users than a gated footpath crossing in an urban area

- Condition of the asset which might influence user traverse speed further, e.g. skewed crossing, stepped approaches etc.

5.3.6 Higher than average

5.3.6.1 What is higher than average?

NOTE: The below illustrative example does not offer a ratio of application, nor does it take precedence over structured expert judgement where for example, an assessor considers it an essential requirement to protect a minority user group or single person.

If there is ambiguity or uncertainty then, additional research and/or extended census might be necessary to inform decision making.

Deciding on whether higher than average vulnerable usage is prevalent should always be based on structured expert judgement and assessor's acquired knowledge. Decisions should be supported by all available evidence gathered as part of the risk assessment; taking cognisance of physical on-site observation and

intelligent sources of information. As an illustrative means only, it might be appropriate to consider, if for every five users:

- only one in five is made by a vulnerable user, the 50% safeguard might not typically be applied

- two in five is made by a vulnerable user, it is especially important that a risk based decision is made

- three to five are made by vulnerable users, the 50% safeguard would always be applied

The table below can be used to help decide which groups are considered vulnerable; however, it remains the LCMs final decision to add the 50% safeguard

	Vulnerabilities	**When users are not normally considered vulnerable**
Physical or mental disability	Users with known or suspected disabilities should always be considered as vulnerable; records should support this	N/A
Children	Easily distracted	Observed to be using the crossing correctly and safely as an individual user
	Subject to peer group pressures	Observed to be using the crossing correctly and safely as part of a group of users
	Low cognitive ability to interpret risk	Older children who may not be considered to be vulnerable users
	Observed to be unaware of or ignoring safe crossing protocols	Observed using the crossing correctly and safely whilst dismounted from a bicycle, scooter or similar
	Very young children most susceptible to all of the above vulnerabilities	
	Unaccompanied	
	Mounted or pushing a bicycle, scooter or similar	

		Vulnerabilities	**When users are not normally considered vulnerable**
Elderly *Judgement is needed as not all elderly people are slow or less able to use a crossing safely. The elderly are often in less of a hurry and can equally take greater time and care when crossing.*		Observed using walking aids or other obvious signs of mobility impairment	Observed to be using the crossing correctly and safely as an individual user
		Encumbered with shopping trolleys or large heavy bags	Observed to be using the crossing correctly and safely as part of a group of users
		Slower cognitive ability and/or reaction times	Observed to be compensating for sensory loss by checking carefully and moving as quickly as possible
		Using a mobility scooter; risks associated with negotiating decked surface (including width considerations) or getting stuck on the flange-way at skewed crossings	Persons who display physical fitness such as ramblers and leisure walkers
		Mounted or pushing a bicycle	
		Have become complacent and overly familiar with the train timetable and safe crossing protocol	
Dog walkers		Distracted due to: • dogs off leads • multiple dogs on leads • dogs on extendable leads	Observed to be using the crossing correctly and safely whilst keeping dogs on leads and under control
		Users who put themselves in danger to recover dogs off leads who are lineside	
		Type of access, stile/gate, and relative position of safety which may import risk to users who are unduly focusing on their dogs rather than making a safe crossing	
Cyclists		Failing to dismount and cycling across the crossing	Individuals observed dismounted and using the crossing correctly and safely
		Groups observed riding over the crossing together	Observed negotiating the crossing from a position of safety when manoeuvring their bicycle through the access and egress points
		Families on outings with small, young children on bicycles	
		Cyclists with trailers	
		Cycling event routes which attract and encourage crossing use by mounted riders	
		Type of access, stile/gate, and relative position of safety which may import risk to users who are unduly focusing on their bicycles	

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5.4 Pedestrian usage at public highway crossings

If undertaking a quick census at public highway crossings, in the absence of the availability of a nine day or extended traffic census, it is good practice to sense-check pedestrian count. Whilst vehicular traffic flow remains 'broadly' consistent, pedestrian moment can be much more volatile and subject to environmental influences. These same environmental factors will also dictate the 'typical' volume of pedestrian use of level crossings; generating peaks and troughs which could be missed by a quick census. For example, if an asset is located in close proximity to residential dwellings and/or community links such as shops or schools, the chances are that the pedestrian footfall is notable; i.e. you would expect to see pedestrian users. If a 30 minute quick census was undertaken mid-morning and resulted in very nominal numbers observed or no pedestrian users witnessed, this might not represent 'typical' pedestrian moment, but could be a rare lull in use. In addition, where users are witnessed, this might not represent the complete user demographic; schoolchildren, students etc. If uncertainty exists, a nine day or extended census might be needed. Utilisation of other intelligent sources, see 7, would be advisable and might also serve to substantiate concerns.

5.5 Nine day, extended or 24 hour census undertaken by external suppliers

There are companies that can be appointed to undertake 24 hour, nine day or extended census gathering activities. Research might be necessary to identify local companies with the capability to do this type of work or if appropriate and economical, national organisations might also be available for this purpose.

Funding for census data collection activity undertaken by external suppliers will need to be considered. Sources of funding for such work might incorporate use of the Route Safety Fund or additionally project funding, for example if census relates to a renewal or enhancement activity, might be available for this purpose.

It might also be necessary to undertake a formal tender process if the cost of work necessitates this. If in doubt, please confirm business protocol requirements.

Instructions to companies undertaking census data collection activities should include requirements for:

a) when the census is to be undertaken and its duration;

b) data to be recorded, e.g. types of users (vulnerability of users: persons encumbered, disabled, unaccompanied children, elderly, dog walkers, headphone wearing, texting etc…), vehicle types (HGV, tractors, buses, cars, vans etc…), and the date/time they are observed;

c) how the data is to be presented, e.g. hourly, daily, mean average per user type and/or hazardous event (e.g. children, elderly, texting, using mobile phone, hood up); and

d) when the data is required by

GRD007 Level Crossing Census Requirements contains further details on this.

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5.6 Modelling of nine day or extended census activity

It is recommended that daily usage is recorded by respective user groups so as to enable an average to be taken per group for the census duration. In this way, the 24 hour entry in ALCRM represents the average daily moment per user group as opposed to overestimating or underestimating usage patterns by taking the highest or lowest daily figure witnessed during the census data collection activity.

5.7 Estimated census

As discussed in 4.1, estimated census is likely to be the least accurate of all census types and is the non-preferred approach. In all cases, actual census activity should be undertaken whenever practicable.

Where estimate census is used, it should only be applied to very lightly used crossings, such as field to field crossings in rural areas or private vehicular crossings with evidence of limited usage e.g. rusty padlock, overgrown approaches.

To estimate the usage of the crossing:

a) use information supplied by the authorised user(s) if applicable/available;

b) If applicable, interview the landowner or neighbouring landowners and ask how often the crossing is used, by whom and if applicable, by what type of vehicles. Ask whether or not there are particular periods which might generate use or greater use e.g. harvesting, holidays etc;

c) speak to owners of nearby dwellings or facilities that might use or witness use of the crossing;

d) look for evidence of use such as tracks or trodden paths, litter or other signs, analyse the extent of vegetation growth around the access points, take account of rust on padlocks (where fitted); and

e) utilise intelligent sources of information to help in the application of structured judgement; see 7.

6 Influencing factors affecting crossing usage

There are many factors that can influence usage patterns over level crossings. These factors might impact census flow daily, weekly, monthly or even annually.

It is important that such intense changes are evaluated when undertaking census gathering activity so as to avoid over or under inflating calculated risk. Where such usage patterns are identified, steps should be taken to provide a balanced census count. This might involve re-commissioning census or an extended census to better reflect accuracy and/or involve adding a second census in addition to the first so as to afford a more accurate representation of user moment.

Intelligent sources of information in addition to on-site observations can help assessors identify influencing factors; see 7.

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The table below details a selection of factors that might influence user moment. The content is non-exhaustive.

Influencing factor	Asset Type		
	Public road	Footpath or bridleway	User worked crossing
Road network: full or partial closures, minor road works, diversionary routes in utilisation, road traffic accidents, road layout alterations under construction	✓		
Asset located near to attractions: funfairs, leisure retreats, historical or tourist matters of interest, beaches, race courses, motor racing circuits, theatres, concert halls, proximity to 'night-life' – e.g. clubs, bars, restaurants etc…	✓	✓	
Proximity of schools, hospitals, health clinics, community centres, shops etc…	✓	✓	
Proximity of businesses, types of businesses and hours of operation	✓	✓	
Type of private asset: field to field access for tending to crops or cattle, residential access, entrance to private facility or business use			✓
Harvest: types of crops, seasonal variance, hours of crop management			✓

Table 4 Influencing factors affecting user moment

NOTE: For further information on census at private vehicle crossings, please also see guidance document LCG12 – Intensive use at UWCs.

7 Using in-house technology to collect census information

In-house technology is widely used by assessors to help gather census intelligence. Available technologies adopted include use of mobile cameras, gate counters, pressure pads and SmartCam fixed equipment.

Camera equipment offers the best intelligence gathering capability as it can be used not only to count users, but to identify user demographics, including the presence of vulnerable users, and capture the behavioural attitude of users of level crossings. Naturally cameras are suited to 24 hour, nine day and extended censuses.

Gate counters and pressure pads, although suited to similar census conditions, have weaknesses which limit their successful deployment and effectiveness. The primary shortcomings with these census solutions is their inability to differentiate between user groups, provide capability for assessors to interrogate behaviour and the uncertainty of activation; e.g. a counter could be triggered by wind moving a gate or an animal standing on a pressure pad.

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7.1 Use of fixed or mobile camera solutions

7.1.1 General and pre-planning activity

Deploying camera technology for nine days or more or using fixed equipment (where available) offers the greatest opportunity for accurate census.

It is important to pre-plan this activity well in advance so as to maximise the accuracy of the census gathering opportunity. You should take account of the date of the planned risk assessment and the duration of the census needed to provide a robust census, so that sufficient time is allocated to deploy camera technology. This applies where a single census is proposed to portray annual usage or where a second census is needed to support a more balanced annual picture.

When using camera equipment for the purpose of census gathering data collection, there are other important things to consider and procedures to follow. These are discussed below.

7.1.2 Knowing the law and complying with our legal obligations

Network Rail is subject to various acts of legislation and codes of practice. In particular, information security and data protection acts apply to the use of camera technology where it is used for the purpose of gathering census information at level crossings.

It is important that these instructions are adhered to so as to prevent legal or reputational risks to the company or individuals within the company. This includes regulatory or other operational threats and financial penalties which might ensue.

7.1.2.1 Notifying the general public/private land owners

Before camera equipment is switched on and during its operational use, it is essential that a conspicuous notice is provided on each side of the crossing informing users of its operational status and purpose.

The wording of notices shall be:

"A CCTV recording system is operated at this level crossing for the purposes of safety and the prevention of crime. The organisation responsible for the management of the system is Network Rail, which can be contacted on 03457 114141".

These legal notices demonstrate that Network Rail is complying with the requirements of the Data Protection Act 1998. Specifically we must demonstrate that we are conforming to the following principles:

- Personal data shall be processed fairly and lawfully – *Organisations must be transparent about how they intend to use the data and give individuals appropriate privacy notices when collecting their personal data.*

- Personal data shall be obtained only for one or more specified and lawful purposes – *Organisations must be clear from the outset about why they are collecting personal data and what they intend to do with it.*

7.1.2.2 Data security

Data security is an important aspect of our company compliance with legislation and codes of practice. It is important that camera equipment is secured against vandalism or theft, and where equipment is mobile, that all practical steps are taken to reduce the temptation or likelihood of such acts.

The essential requirements that must be undertaken when deploying any camera technology are:

- Placing the camera equipment in a security box which is securely located and padlocked; and/or

- Encrypting the SD card prior to use.

In addition, locating equipment which will reduce attention, conspicuity or the likelihood of tampering is strongly advised.

7.1.2.3 Data retention/storage

Census data cannot be held indefinitely without good reason. A reason for retention of footage or an image might be necessary because it highlights a risk or bad practice that can be used to promote awareness and educate others. Before images are shared, whether externally or internally, it is essential that they are redacted so as to preserve a user's identity. Retention shall be by exception and a record should exist of any pictures held including where they are located.

In normal operation, data must be deleted once the census has been completed and intelligence analysed.

When making decisions about retention, consider the implications of the following principle of the Data Protection Act 1998:

- Personal data processed for any purpose or purposes shall not be kept longer than is necessary for that purpose or those purposes – *Organisations need to:*

    - *Review the length of time personal data is kept for;*

    - *Consider the purpose or purposes the information is held in deciding whether (and for how long) to retain it;*

    - *Securely delete information that is no longer needed for this purpose or these purposes; and*

    - *Update, archive or securely delete information if it goes out of date.*

7.1.2.4 Subject access requests (SARs)

So as to comply with SARs, a log of camera deployment, a record of data deletion and the location of any retained images or footage (as above 6.1.2.3) must be kept.

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7.1.3 Positioning of mobile solutions

NOTE: *When deploying camera solutions always remember that your personal safety is essential – make sure you have arranged a safe system of work before you begin.*

It is important to position camera equipment so that it can record the very best footage and afford the very finest intelligence. In deciding on the location of equipment there are many things that need to be taken into consideration. These include, but are not limited to:

- The quality and capability of the technology; e.g. will the image quality be sufficiently robust to depict the user demographic and age profile if positioned remote from the asset.

- Optimal positioning so as to facilitate the identity of the user demographic, identify vulnerable, encumbered or obviously impaired users, whilst contextualising the user and the asset and helping to identify behaviours, hazards and risks.

- The likelihood that equipment may suffer from theft or vandalism.

- The possibility that the environment may trigger spurious activations where motion detection is in use due to vegetation, wildlife or passing trains.

- Battery life and data capacity; the greater the number of users/motion activated triggers, the greater the impact on battery drain and memory card capacity.

- The need to understand greater second train coming frequency.

There are a number of good practice indicators which have been identified within the Level Crossing Manager community in regard to camera deployment. Excerpts of these are shown below:

- When mounting census equipment within the railway boundary, ensure that it does not interfere with the safe operation of trains, crossing equipment or positioned so as to result in user distraction.

- Try to avoid installing equipment on the direct route a user will travel to minimise the likelihood that the camera might be subject to theft or tampering.

- Take cognisance of the trespass history of the crossing in determining the positioning or appropriateness of deploying camera technology.

- It is advisable to mount camera equipment at a height of between 2ft and 6ft from the ground to reduce the likelihood of spurious activations from vegetation or animals.

- Where camera equipment is located in close proximity to trees or other shrubbery, make sure that branches will not foul the field of vision during bouts of wind or rain.

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- Be aware of positioning equipment in such a way that activity from roads or paths parallel to the railway might cause spurious activations and result in unanticipated battery drain and/or quickly fill capacity of memory cards.

7.2 Use of gate counters and pressure pads

Due to the limited capabilities of gate counters and pressure pads in comparison with camera technology, as discussed in 6, the value added ability of this equipment is to support census intelligence by validating user numbers. For example, the use of quick census combined with multiple intelligent sources might, in isolated cases, provide enough information on which to make a judgement regarding user demographic, vulnerable usage and user behaviour. Gate counter or pressure pad technologies, could therefore help assessors to determine usage numbers over a sustained period of time and in doing so validate the quantitative output of the quick census.

In addition and where equipment can record date and time of activations, gate counters or pressure pads might be used to provide intelligence relating to peaks and troughs and night-time quiet period usage for example.

In summary and as illustrative examples, these technologies can be used for confirming:

a) sleeping dog status;

b) night-time quiet period use or usage during darkness;

c) peaks and troughs: daily or weekly;

d) provide a numerical count to check the accuracy of a quick census or validate other intelligent sources of information; and

e) to gather generic data, i.e. not user type intelligence, in support of level crossing closures.

8 Identifying crossing use through intelligent sources of information

8.1 General

As discussed in 4.1, it is important in addition to on-site census activity, to make full use of all available intelligent sources when determining usage of level crossings.

The fatality at Frampton level crossing on 11th May 2014, involving unknown unauthorised use of the bridleway element of the crossing by trail bike riders, highlights the type of activity that takes place across our network. It is acknowledged even with extended census and the use of intelligent sources, that this type of event might still go undetected, but the broader the research and active data collection, the greater the opportunity to identify such practices.

It is therefore advocated that the combined use of census which is nine day or greater, with the proactive use of intelligent sources (internet searches, researching social media and local club sites), in addition to seeking visual cues when on-site

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(tyre tread patterns or other clues); betters the opportunity for identifying the risk of unsafe or unauthorised activity than a quick, 24 hour or nine day census in isolation.

This is especially important so as to identify usage or patterns of use that might not be apparent even where nine day or extended census is undertaken. For example, organised groups promoting monthly or annual events which impact on the use of a level crossing could be missed from census activity alone, even where extended census is applied.

Utilisation of intelligent sources might also serve to identify vulnerable users or unauthorised use of level crossings. In this regard it can help assessors to identify organised groups so as to engage with them proactively and/or target risk mitigation appropriately.

8.2 Use of intelligent sources

Intelligent or smart-sources of information can take many forms. The information sources detailed below are not exhaustive, but they are a good source from which to build a portfolio of research material. Their sequence is also not representative of any hierarchical order of importance.

8.2.1 The internet

The world-wide web offers an abundance of opportunities to identify information to support census gathering intelligence. This rich smart-source may hold the key to significantly increasing assessor knowledge about the use of a level crossing and/or its users.

Detailed internet searches may yield information about the immediate environment, identify the promotion of rights of access or events and highlight use of level crossings by organisations or societies. When using the internet, consider:

- Local authority websites – might contain information on redevelopment proposals, road diversions, public attractions such as funfairs or other risk influencing intelligence.

- Rights of way maps and other mapping services – will highlight risk influencing factors within the immediate environment such as schools, businesses, public attractions, road layouts and afford understanding of how an asset serves the local community; e.g. provides a thoroughfare link, commuter route etc. The Definitive Map will help to identify if the route over a level crossing is publically promoted.

- Social media sites – intelligence relating to the use of level crossing might be available from social media channels such as: Facebook, YouTube, Twitter and Instagram. Individuals and organisations often promote activities via these network channels. Intelligence might include *posts* on forthcoming organised events within the locality, video footage or images of actual crossing use (including unauthorised or risk taking activity) and/or highlight

trends in use or frequencies of use including use by an unknown user demographic.

- Dedicated websites or chatroom forums – National groups such as the Ramblers or more localised groups such as off-road trail bike, 4x4 vehicle communities or regional scout groups often share or discuss experiences, social activity and promote events on their dedicated websites. A search for such communities and groups within the area of a level crossing may yield unknown intelligence about level crossing activity.

8.2.2 Highways authority traffic surveys

It is prudent to discuss with local authorities their programme of traffic surveys; both planned works and available footage or census data from completed activities. It might be possible to utilise this intelligence within risk assessments wholly or partially with agreement. Direct liaison with local authority contacts or through Road Rail Partnership Groups is advised.

8.2.3 Discuss the level crossing with the local experts

It might be that the best intelligence is accrued from the local community or those who interface with the asset directly. Often information may come to light through engaging with persons or groups that would otherwise reside unknown from census activity alone. Such intelligence might be obtained through discussion with people or groups such as:

- Local authority rights of way officers or community leads

- Council or Highways Agency officials

- Level crossing users

- Authorised users of private level crossings

- Local residents or businesses, schools or colleges

- Local user groups or clubs

- Signalling staff (Signallers or Crossing Keepers)

- Off-track, S&T, patrolling or other operational staff; e.g. MOMs

- Train operating companies (Drivers, Guards, station staff)

- British Transport Police

8.2.4 Operational records of crossing use

For private vehicle crossings equipped with telephones or automatic half barrier crossings (AHBs), record keeping in the form of occurrence books should exist to supplement intelligence for vehicle movements; albeit only for large or slow movements in the case of AHBs. In addition, in cases where the crossing provides

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access to business premises, there might be separate registers or site visitor logs which could support intelligence regarding vehicle use.

Accuracy of records is unlikely to be such that numbers or intelligence can be considered to be 100% assured, but if information is combined with additional research, it might contribute toward a broader understanding of actual crossing usage.

8.2.5 Tagging

At very lightly used or perceived dormant crossings, tagging a gate can be a useful way to determine if the asset is actually used, by whom and at what frequency. There is no guarantee that a user will make contact if they break the tag to cross, but its presence might:

a) Promote contact, resulting in useful intelligence that would not otherwise be forthcoming; or

b) If removed to cross, but no contact is made, it will be apparent to the assessor during the next risk assessment or asset inspection; an obvious sign that the crossing has been used and that greater intelligence is needed.

If tagging a gate, the user instruction should be stored in a waterproof container with the tag in a conspicuous place. As a minimum its contents should include:

* Level crossing details; name, type, UID (ELR, miles, chains)

* Date tag was placed at the crossing and the reason for the tag

* Telephone number and/or email address of contact point (typically this might be a Control Centre to ensure a 24 hour response)

9 Intelligence driven response to census

9.1 General

The undertaking of active census in conjunction with the use of intelligent sources of information will often confirm 'known' or suspected patterns of use, substantiate risks or hazards and endorse the user demographic; including the presence of vulnerable users. In other cases it may highlight unknown threats, unauthorised use or unsafe practices which require immediate interim actions, in addition to long-term plans, to control.

As a prerequisite of risk management protocol, it is important that intelligence is acted upon to mitigate threats or hazards and manage safety. In no hierarchical order, actions or parallel actions might include:

* Redeploy camera equipment (if appropriate) to better identify usage, patterns of use, user groups or collate additional evidence to support intelligence.

* Work collaboratively with operations staff (OM, LOM, and MOM), BTP, train operators and other stakeholder partners. If regular patterns of use are identified and as appropriate, arrange for evening or weekend visits to the

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crossing, so as to talk directly with users to re-educate them regarding unauthorised use and unsafe acts. A BTP presence might also serve to enforce key messages. Operations staff working on a shift basis, such as MOMs, may be best placed to support this approach, unless by agreement, a Level Crossing Manager volunteers to work 'out-of-hours'.

- Revisit the internet and make specific use of targeted user group searches; specifically this should include using social media and local community or club websites to identify groups or clubs that observed users may belong to.

- Make direct contact with relevant local organisations, such as trail bike, 4x4, equestrian or walking societies, so as to promote safe crossing protocols, highlighting the risks and hazards associated with level crossings and unauthorised use. Work collaboratively to address safety concerns.

- Make contact with any county or national organisations if it is possible that the group or organisation is broader than the immediacy of the parish. Contact the central level crossing team if there are national implications and transferrable risks. It is important and advantageous to engage with and promote safety within larger institutions.

- Work collaboratively with local authorities, highways agencies and rights of way officers to:

    - determine if public and private status is accurately represented in documentation such as the Definitive Map;

    - identify whether restrictions and prohibitions by vehicles or other groups is suitably recorded and visible in public documentation; and

    - understand what additional actions can be taken by local authority colleagues to support Network Rail in managing asset safety.

- Take practicable steps to improve safety through delivery of physical improvements and provision of mitigation:

    - Re-evaluate closure opportunities, diversionary access and downgrades in status (where applicable).

    - Evaluate the requirements to provide risk reducing mitigation such as MSL, POGO for example.

    - Signage: review optimal positioning and order of signs, clarity of instructions; are there too many leading to signage cluttering and ambiguity or confused information, is there unnecessary signage or duplication, if appropriate and safe to do so without resulting in distraction or dilution of safety critical information – is there scope to provide an additional safety information or trespass sign etc…

    - Take steps to improve the crossing layout and undertake general infrastructure improvements: channelling, user segregation, improving traverse, sighting etc…

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10 Census protocol

10.1 General

Every effort should be made to undertake a new census when undertaking a new risk assessment. In this way data is kept current with latest intelligence and:

- recorded census is reflective of the most current position, taking account of environmental or other external influences and the user demographic;

- calculated risk is representative of the current threat; and

- it facilitates analysis of the trending risk profile of the asset.

Where a quick census is used, see 4.2, this should be undertaken at the time of the site visit. In exceptional circumstances, it might be necessary to undertake the census on a different day, for example, if weather conditions adversely affect the accuracy of census data on the planned day of collection. If the census needs to be taken on another day, it should be undertaken as close to the date of the original site visit as possible.

Where a 24 hour, nine day or extended census is used, pre-planning activity should facilitate a structured timeline to deploy census gathering equipment or arrange external support, so as to tie-in with the date of the risk assessment site visit.

Where additional census is needed, this should be undertaken during the most appropriate parameter; taking account of intelligence, the reason for the second census and all other pertinent factors.

10.2 Applying new census data to an existing risk assessment

10.2.1 Acceptable use

Sometimes, more recent census data than that used in the current risk assessment becomes available or a need for new census data is identified. For example:

- a Network Rail project might commission a nine day census as part of an asset renewal or re-signalling scheme;

- a developer might submit a current nine day census for comparison against projected usage;

- an authorised user might provide unsolicited census data;

- an additional census might have been undertaken to capture seasonal variations in use;

- a Highways Authority might undertake a traffic survey and share it directly with the Level Crossing Manager or through Road Rail Partnership Groups; or

- a third party report might be received which generates a requirement for a more recent census, for example, usage is identified during the night-time quiet period at a whistle board protected crossing.

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The new census information can be applied to the existing risk assessment provided there is confidence that all other cumulative data remains fit for purpose. If there is any doubt or ambiguity over this or if an extended period has lapsed since this data was accrued, a complete new risk assessment might be necessary.

If there is a significant change in the ALCRM score as a result of using new census data:

a) evaluate the need to undertake a new risk assessment;

b) re-evaluate the need for new or additional risk control measures or the need to expedite planned mitigations or implement interim controls; and

c) review the impact of the change on the risk assessment frequency.

10.2.2 How to record this in ALCRM

When it has been established that it is appropriate to use new census data in an existing risk assessment (in place of existing data), this should be recorded in ALCRM as follows:

a) Create a new option below the current (LIVE) risk assessment and in the census tab enter the new census date;

b) Enter the name or source of the census taker/provider, duration and type for the census being used and the census data itself;

c) Add any pertinent information about the new census within the notes section and explain why the decision to use it has been made; and

d) Set the option to recommend, approved and implemented so that it becomes the LIVE risk assessment.

10.3 Using old census data in new risk assessments

10.3.1 Acceptable use

In exceptional circumstances it might be appropriate to use census data that pre-dates the risk assessment being undertaken. This is only appropriate where the census is believed to give greater accuracy than that completed during the site visit. Examples are shown in table 4.

Wherever possible, the old census data should be compared to the census completed during the site visit. This is important to establish if the old census continues to provide accurate data on crossing usage.

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Old census	New census	Validation	Comments
Nine day or extended census or 24 hour census	Quick census	Compare the daily usage from the new quick census with the daily usage from the previous nine day, extended or 24 hour census.	If the data is broadly comparable, use the nine day, extended or 24 hour census. If there is significant variation, decide which census offers the greater accuracy using structured judgement and accounting for intelligent sources of information. If needed, undertake a new nine day, extended or 24 hour census.
Estimate provided by an authorised user	Quick or estimate census	Compare the daily usage from the new quick or estimate census with the data provided previously by the authorised user. *NOTE: A quick census might over or under estimate usage. The AU estimate might identify different patterns of use not identified by a quick or visual estimate.*	If the data is broadly comparable, use the estimate provided by the authorised user. If there is significant variation, decide which census offers the greater accuracy using structured judgement and accounting for intelligent sources of information.
Quick census, users witnessed	Quick census, no users witnessed and estimate made	Apply structured expert judgement to decide if either census is appropriate or if a new census is needed.	Use the old census data if it is believed to more closely reflect usage than the estimate made, making use of structured judgement and accounting for intelligent sources of information within decision making. If not satisfied that either census reflects crossing usage accurately, a new nine day or extended census should be undertaken.

Table 5 Examples of using old census data

10.3.2 How to record this in ALCRM

When it has been established that it is appropriate to use old census data in a new risk assessment, this should be recorded in ALCRM. The date of the old census should be recorded appropriately and any pertinent information about the old census, including the decisions taken to use it and any comparison or validation with new census data, should be documented within the notes section.

10.4 Comparing new census with historic census

10.4.1 General

It is good practice to compare new census information with historic census so as to:

a) identify when significant changes have taken place such as:

– changes in user numbers;

– changes in user demographic, e.g. increase in vulnerable and/or irregular users

– changes in vehicle use or type, e.g. increase in or introduction of HGVs; and

b) take account of historic census activity so as to utilise all intelligence and remain consistent in the identification of vulnerable and irregular users or types of vehicles and patterns of use, SFAIRP;

c) consistently apply an appropriate traverse time applicable to the user demographic or vehicle moment;

d) apply the correct minimum sighting requirements appropriate to the user demographic or vehicle moment; and

e) reduce the likelihood of errors within census counts so as to increase the accuracy of modelled risk and the application of structured judgement within risk assessment.

A comparison of data between new and historic censuses can help to identify trends, highlight any potentially significant changes in risk or signpost errors in census data. It is good practice to make this comparison using more than the last census taken so as to comprehensively take account of all available information.

Changes to look for should include:

• significant movement in usage figures;

• alterations in use by vulnerable and irregular users; taking account of any broader demographic change; and

• peaks and troughs and seasonal variation.

Such transitions in use or by users can significantly impact on the risk controls in place, or those proposed. It might also serve to provide assessors with a true holistic understanding of the assets history and an insight into future risks.

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10.4.2 Analysis and actions

Where significant changes are identified, it might be necessary to undertake further detailed analysis to validate new intelligence. This will enable assessors to determine the full impact on risk.

Examples of changes that might trigger further investigation include:

a) the new census does not identify vulnerable users when they have been identified previously;

b) previous census(es) indicate night-time quiet period use and the new census does not;

c) previous census(es) include vehicle types which import risk, e.g. tractors and trailers or HGVs, the new census does not;

d) there are significant changes in user numbers (vehicle and pedestrian);

e) previously identified irregular use is not recorded in the new census, e.g. irregular usage previously recorded due to: leisure attractions, seasonal variation (beach access, fruit farms) etc.

Where conflicting information between assessments exists, it is important to utilise intelligent sources of information, in addition to further census activity or site-visits, to determine the accurate position.

Section - Risk Assessment Info

Question - Which Key Stakeholder(s) have been engaged with during the risk assessment?
Answer - Internal Stakeholder (e.g. Signaller, MOM, LOM) Please State...
Question Notes - N/A

Question - Internal Stakeholder (e.g. Signaller, MOM, LOM) Please State...
Answer - LOM-Signaller - email sent for other concerns.
Question Notes - N/A

Question - Did the key stakeholder(s) attend the Risk Assessment?
Answer - No
Question Notes - N/A

Question - If no why did they not attend?
Answer - Not required
Question Notes - N/A

Question - Please state why they are not required to attend:
Answer - Electronic correspondence.
Question Notes - N/A

Section - Approach

Question - At what speed do the vehicles approach the crossing*
Answer - LESS THAN OR EQUAL TO 30MPH
Question Notes - N/A

Question - At this approach speed the visibility of the signs and crossing equipment*
Answer - is easily sufficient - a vehicle would have surplus time to react if the crossing is activated
Question Notes - N/A

Question - Are there any other known visibility problems at the crossing at certain times of the year (e.g. fog or foliage)?*
Answer - YES
Question Notes - N/A

Question - If yes, please describe*
Answer - Fog at certain times of the year may reduce visibility of the crossing
Question Notes - N/A

Question - What is the road surface type?*
Answer - Good road surface with no significant gradient
Question Notes - N/A

Question - Is ice, mud,loose material or flood water a known problem at certain times*
Answer - YES
Question Notes - N/A

Question - If yes, please describe*
Answer - Melton crossing is prone to localised flooding. P/Way are aware of the problem.
Question Notes - N/A

Question - Is there a risk of vehicle grounding on the crossing?
Answer - NO
Question Notes - N/A

Question - If yes, please describe
Answer - N/A
Question Notes - N/A

Question - If grounding is a risk, are there risks of grounding signs?
Answer - NO
Question Notes - N/A

Question - Is the approach road long and straight*
Answer - NO
Question Notes - N/A

Question - Are there features on the crossing or on the distant side of the crossing (e.g. roundabout, road junction) that could distract a driver approaching the crossing*

Section - TrainInfo 1

Sub-Section - General

Question - Type of Train*
Answer - Passenger
Question Notes - N/A

Question - Number of trains per day*
Answer - 12
Question Notes - N/A

Question - Max Speed of train (mph)*
Answer - 10
Question Notes - N/A

Question - Normal length of trains (m)*
Answer - 46
Question Notes - N/A

Question - Normal Strike-time (s)*
Answer - 63
Question Notes - N/A

Section - TrainInfo 2

Sub-Section - General

Question - Type of Train*
Answer - Passenger
Question Notes - N/A

Question - Number of trains per day*
Answer - 21
Question Notes - N/A

Question - Max Speed of train (mph)*
Answer - 10
Question Notes - N/A

Question - Normal length of trains (m)*
Answer - 69
Question Notes - N/A

Question - Normal Strike-time (s)*
Answer - 64
Question Notes - N/A

Section - TrainInfo 3

Sub-Section - General

Question - Type of Train*
Answer - Freight
Question Notes - N/A

Question - Number of trains per day*
Answer - 2
Question Notes - N/A

Question - Max Speed of train (mph)*
Answer - 10
Question Notes - N/A

Question - Normal length of trains (m)*
Answer - 80
Question Notes - N/A

Question - Normal Strike-time (s)*
Answer - 65
Question Notes - N/A