



## Crime Reduction & Community Safety Group

### Tilley Awards 2007

#### Application form

Please ensure that you have read the guidance before completing this form. ***By making an application to the awards, entrants are agreeing to abide by the conditions laid out in the guidance.*** Please complete the following form in full, **within the stated word limit and ensuring the file size is no more than 1MB.** Failure to do so will result in your entry being rejected from the competition.

Completed application forms should **be e-mailed to [tilleyawards07@homeoffice.gsi.gov.uk](mailto:tilleyawards07@homeoffice.gsi.gov.uk)**

All entries must be received by noon on **Friday 27th April 2007**. No entries will be accepted after this time/date. Any queries on the application process should be directed to Alex Blackwell on 0207 035 4811. Any queries regarding publicity of the awards should be directed to Chaz Akoshile on 0207 035 1589.

#### Section 1: Details of application

Title of the project: Operation Drum

Name of force/agency/CDRP/**CSP**: British Transport Police

Name of one contact person with position and/or rank (this should be one of the authors):

Paul Hardy. Police Constable 2019. Crime Reduction Officer.

Email address: [paul.hardy@btp.pnn.police.uk](mailto:paul.hardy@btp.pnn.police.uk)

Full postal address:

British Transport Police. Area Intelligence Bureau. Area Headquarters. 1<sup>st</sup> Floor, West Gate House, Grace Street, Leeds, West Yorkshire. LS1 2RP

Telephone number: 0113 2479716 Mobile. 07813 249007

Fax number: 0113 2411984

If known please state in which Government Office area you are located e.g. Government Office North West, Government Office London etc:

Government Office for Yorkshire and The Humber

Name of endorsing senior representatives(s): Daniel Snee

Name of organisation, position and/or rank of endorsing senior representatives(s):

British Transport Police. Detective Chief Inspector

Full address of endorsing senior representatives(s):

British Transport Police, Area Headquarters, 1<sup>st</sup> Floor, West Gate House, Grace Street, Leeds. West Yorkshire. LS1 2PR.

**Please tick box to indicate that all organisations involved in the project have been notified of this entry (this is to prevent duplicate entries of the same project):**

## **Section 2: Summary of application**

In no more than 400 words please use this space to describe your project (see guidance for more information).

### **Operation Drum**

The scanning of cable theft offences committed on the national railway infrastructure identified the number of thefts had increased from 78 offences in 2004/5 to 132 offences committed in the first quarter of 2006.

The rail network uses vast quantities of cable for power distribution and to operate the signalling equipment that control train movements. The cable contains copper wire.

Global demand for copper has fuelled a 47% price rise on world trading markets over the last two years. In turn prices paid at local scrap metal dealers increased. As the price of copper rose, the number of cable related crimes increased.

A national hotspot of railway cable theft criminality was identified in the Knottingley and Pontefract areas of West Yorkshire. This coincided with a renewal project to replace cable over a stretch of 22 kilometres of line in this area.

The project commenced in August 2005. From the onset an average of 47 cable related crimes each month were reported. Train disruption and calls from the industry led to the formation of the policing operation.

From the onset issues arose relating to the inability of being able to establish the identification and ownership of stripped bright copper wire. A wider approach to the problem was explored.

Crime reduction partnership working addressed target hardening of the infrastructure to apply preventative methods aimed at reducing crime levels. Interception methods in the form of policing patrols and operations focused at scrap metal dealers used as the disposal outlets for the stolen property led to the arrest of many offenders.

Environmental offences were used to enforce waste offences relating to goods (copper) being transported without a permit. Road traffic legislation led to offenders vehicles being seized and crushed, thus removing their means to reach remote railway locations and transport stolen cable.

The policing operation ran until the completion of the railway re-signalling project in October 2006. During the operation there were 703 cable related offences recorded of which 439 were cable thefts. There were 140 arrests made and 1067 intelligence reports submitted.

It was evident the policing tactics worked and this is endorsed by the number of arrests made. The operation provided a major reduction to the criminality on the infrastructure. From an average of 47 crimes per month during the 15 month operation crime levels have now been greatly reduced. In March 2007 three offences were recorded.

### **Section 3: Description of project**

*Describe the project in no more than 4000 words (see guidance for more information in particular Section 7 - judging criteria).*

## **Operation Drum**

The British Transport Police (BTP) is the national police force for the railways providing a policing service to rail operators, their staff and passengers throughout England, Wales and Scotland. The force is divided into seven geographical policing areas. The North East Area of the force covers from Lincolnshire to the Scottish border.

## **The Problem**

Cable theft is one of the BTP's biggest challenges. Driven by steep rises in the price of copper on the world's commodities markets, cable theft has emerged as a growing problem for the rail industry. The exponential growth in the Chinese economy, which currently consumes more than four million tonnes of copper per year has fuelled a massive demand for copper. Exports of copper scrap from the UK to China have increased by 80% in the last five years.

The railway system uses vast quantities of cable for power distribution and to operate the signalling system that control train movements. The cable contains copper wire.

The scanning of cable theft offences committed on the national rail infrastructure identified the number of crimes recorded by the force had been increasing from 2004/5. During the first quarter of 2006 a more significant rise had been identified.

Force wide in 2004 there were 78 cable thefts recorded. This rose to 139 in 2005. An increase of 56%. In the first quarter of 2006, 132 crimes were recorded.

## **Samples of copper cable commonly used in railway installations**



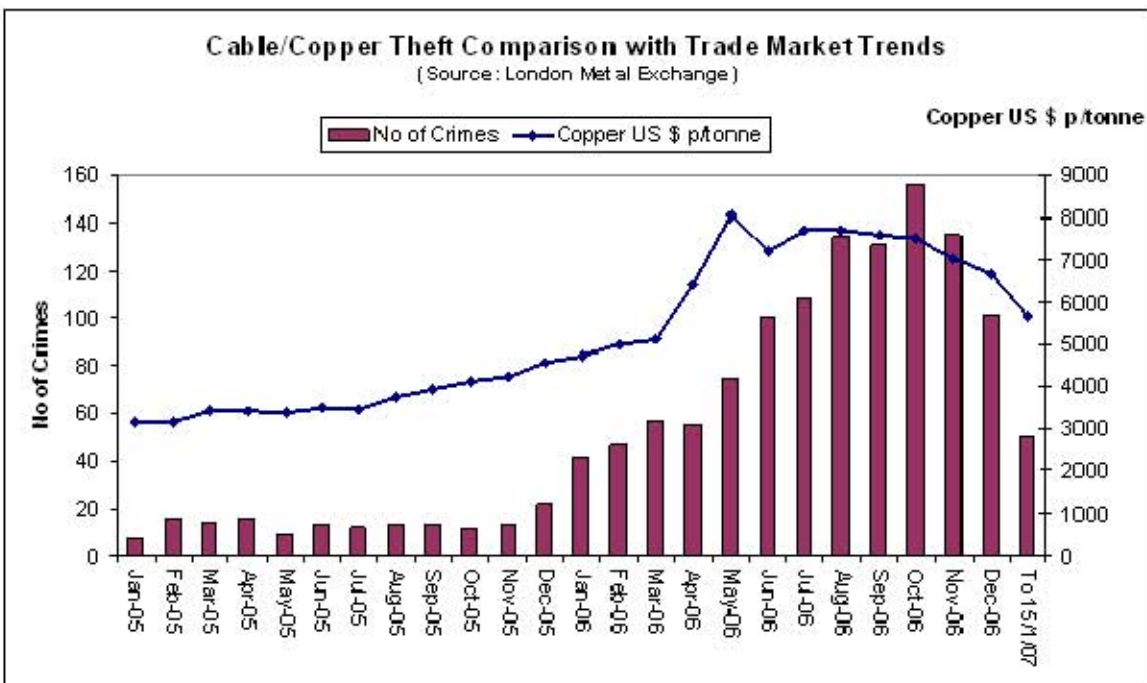
The price of copper on world markets has increased 47% over the last two years. In January 2004 the price for copper on the London Metal Exchange (LME) was in the region of \$2500 per tonne. In August 2005 this figure rose to \$4000. By March 2006 the price had increased to \$5250.

In 2006 a strike by miners at the world's largest copper mine in Chile further fuelled a price increase on world markets as the supply of raw copper was reduced.

Stolen copper is a profitable commodity both stripped and sold in the form of bright wire or in its entirety as sheathed cable. The abundance of re-sale outlets such as scrap metal dealers assist the offender in the realisation of the property for cash.

The graph below compares the increasing value of copper as listed on the LME with the increasing number of railway cable thefts recorded by the force. The number of crimes rise in line with the increasing value of copper.

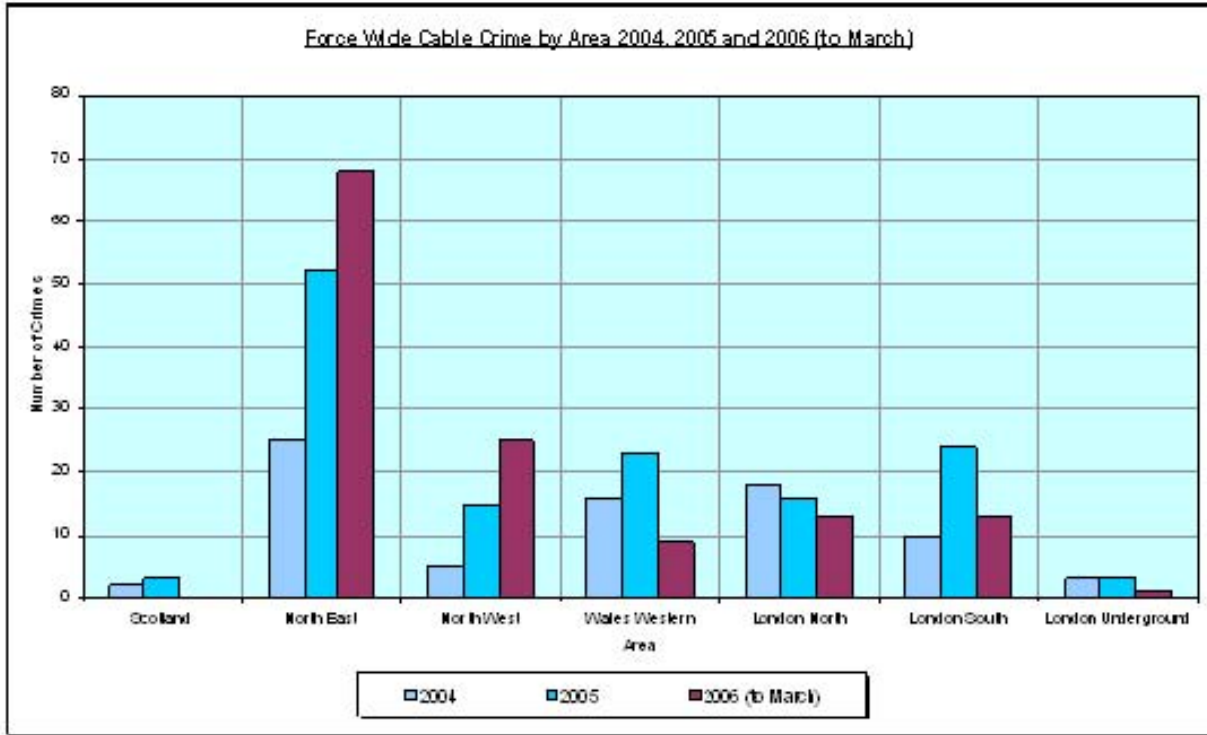
**Force wide cable crime offences compared to the value of copper on world markets**



In August 2005, with the price of copper approaching \$4000 per tonne, the force recorded 11 cable thefts. One year later, with the price rising to \$7500 per tonne, crime had increased to 132 incidents.

Having identified the national problem of increasing cable theft force wide crimes were analysed to identify a hotspot geographical area and the underlying cause.

## Comparison of cable crime by Force Area



The above graph clearly indicates that the North East Area has been the most affected by crime in this category.

North East Area cable theft increased from 25 offences in 2004 compared to 68 offences in the first three months of 2006. This accounted for 51% of the Force total and as such had a considerable impact on the Force crime trends. Further analysis of crime locations identified a concentration of criminal activity occurring around the Knottingley and Pontefract areas of West Yorkshire.

A problem profile was compiled by the Area Intelligence Bureau. As a result of these findings the policing operation commenced in August 2005.

### Objectives of OP Drum

- Arrest and deter offenders
- Establish active links with partners to address the problem
- Work with rail companies to provide crime reduction recommendations to reduce theft
- Promote rail staff reporting of incidents to improve intelligence and apprehend offenders

### The Cause

Towards the latter part of 2005 plans were put in to place to replace power and signalling cable over a stretch of 22 kilometres of railway line in the Knottingley, Pontefract and Ferrybridge areas of West Yorkshire. The project was due for completion in October 2006.

Local residents use this rail link as a commuting route to work in Leeds and Wakefield. Each day Knottingley Station has 60 passenger train services with 115,000 users annually. Daily up to 125 freight trains pass through this area supplying the local power stations with coal.

Between August and September 2005 large quantities of copper cable was laid on the surface of the track side in preparation for installation. The cable runs consisted of heavy duty copper power cable to smaller diameter multi core signalling cable. Redundant cable was to left in the existing line side cable ducting.

For many weeks after the initial installation work the cable remained dormant, exposed on the ballast surface of the railway lines and without being connected to a power supply. Without security guarding or connection to an alarm system, any theft would not be discovered until long after the offence took place.

The consequence of an offender cutting through a live cable would be a power loss to the signalling system, thus stopping all train movements in the local area. For the rail commuter this would cause delays or train cancellations. Coal supplies to the power stations would also be halted.

Line side railway power cable is fed from a 650 volt electrical supply. Offenders risked serious injury or death by cutting through a live cable due to the high voltage. The theft of dormant cable would delay the completion of the project as contractors were removed from their daily work plan to carry out repairs and replacement of the stolen cable.

Knowledge of the cable renewal project in the Knottingley area was already documented in the form of recorded crimes and calls from the industry relating to their concerns of repeat thefts at such an early stage of the project.

### **Knottingley and Pontefract cable theft locations**



The locations with the highest number of cable theft crimes were identified as Knottingley, Pontefract Monkhill and Pontefract Baghill. The Knottingley area accounted for 40 or 63% of the overall crime. Cable to the value of £142,000 had been stolen.

## **The Location**

The location in which the problem exists is historically a mining and working class area. Unemployment is relatively high and job opportunities scarce. Scrap metal dealers were offering up to £2 per kilo for bright copper wire. A 100 metre length of heavy duty power cable can weight up to one tonne. To the offender the pay off was high.

In some areas scrap metal dealers were advertising on local radio and using road side hoardings to encourage sellers to use their premises as opposed to other outlets. One dealer offered a prize draw ticket for every purchase of copper they made. The prize was a car.

The ready availability of the cable makes this particular problem appealing to local residents who live close to the railway and are aware when new cable is being laid.

Parts of the railway line in the Knottingley area run through remote locations. It was identified that a stretch of railway line extending from Common Lane Crossing in the East of Knottingley, West towards Headland Lane Bridge and a spur line leading towards Spawd Bone Lane, a distance of approximately 3km was subject to the most frequent cable thefts.

The railway line at this point runs through two housing estates of Broom Hill and Pentland Avenue, Knottingley and affords ease of access to a potential offender.

Over the distance of the problem area there are five level crossings and many trespass points.

## **The railway line at Knottingley looking towards Spawd Bone Lane**





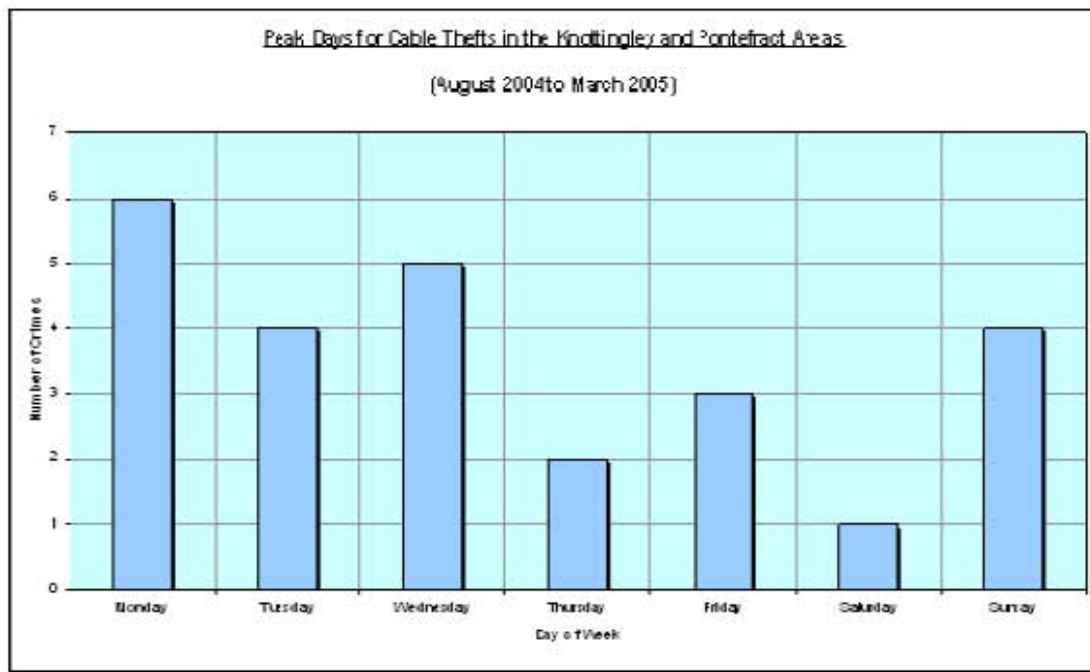
Data indicated 90% of cable crime occurred at line side locations as opposed to offenders targeting railway depots used as cable storage areas. Depots are staffed and provide increased security levels.

Remote locations such as quarries were being used to burn off cable during the hours of darkness which provides cover for the black smoke emitted from the fires. The smell of burning rubber would go unnoticed.

The nature of the crime is that offenders predominantly operate between 1700 - 0300 hours

The graph below charts offences through days of the week and identifies Sunday to Wednesdays as the key offending days. Railway installation work takes place at weekends aimed at minimising train disruption. Peak offending days can be attributed to the quantity of new cable installations during this period.

### Comparison of crimes and day of the week



### The Offender

Offenders tended to be white males aged from late teens to early thirties, lived close to the railway and were unemployed.

Offender's targeted any form of cable, live, dormant or redundant, often removing it from the line side ducting. In some cases the offender placed cable across the running lines in order to be cut by a passing train. Heavy duty power cable offered the largest financial gain due to the amount of copper it contained. Hand tools such as hacksaws had been used to saw through cable.

Due to the weight of the cable offenders needed to cut it into manageable lengths in order to remove it from the scene. The cutting will in turn involve noise and time at the scene of the offence. Some form of transportation was needed to remove large quantities of cable from the line side to the point of disposal.

Early indications identified offenders were lifting the loose ducting lids, removing cable and taking it to less obvious locations such as dense grassed embankment areas and gardens of nearby residential premises. The lids were then replaced so that thefts were not immediately identifiable or discovered.

Motorcyclists were observed on a number of occasions suggesting offenders were working as a team, providing a lookout and quick get away opportunity.

Several arrests were made in the course of the initial investigation. As a result of a house search stripped sheathing was recovered from an offender's garden. At another location sheathing was found in a garden shed. The copper had been sold to a scrap metal dealer.

This was further supported by the recovery of scrap copper receipts recovered from other premises and vehicles. It became apparent the existence of a collection of pool vehicles exchanged between offenders to commit crime.

### **Cable sheathing recovered from offenders premises**



### **The Victim**

Historically the power supply and signalling cables for the railway at track side have been enclosed in sectional concrete ducting laid on the ballast surface. Unsecured cable ducting lids seal the chamber and assist in protecting the cable.

Surface ducting has been seen as a cost effective method of installation and removes the need for expensive excavation if the cable was to be buried. Whilst offering easy access for maintenance, this also allows for access to the cable by offenders.

In some areas the railway boundary is defined by a simple post and wire fence offering ease of access to the line by a motivated offender.

Boundary gates and vehicle access points to the line are required for rail vehicles. These too can afford offender access to the line side.

In order to identify railway cable a dot matrix specification is stamped on the outer sheath at regular intervals along its length. Once this casing has been removed no other identifiable markings either on the steel wire armouring or internal sheathing and copper conductors exist.

In its stripped state bright copper wire from railway cable cannot be distinguished from any other bright copper wiring available on the open market. Without the ability to establish identification and ownership of the property the offence of theft could not be proven.

In the event of a theft or damage (cut) occurring to operational cable controlling the signalling system an indication would show in a staffed control centre. Some operational cables are fed back to smaller signal boxes that were not continually staffed, hence in the event of a theft or fault developing no such indication would be monitored.

It was identified redundant cable was left in the ducting runs when new cable was installed. This fact drew offenders to the target knowing this type of cable could be stolen without alerting a monitoring station.

Short cable ends were often abandoned after installation as worthless to the contractor and not cost effective to recover. This attracted the offender to the scene and highlighted a house keeping issue.

It was felt that there was an under reporting of incidents by rail staff as they were unaware of the escalating industry problems surrounding cable theft.

There was little involvement of the British Transport Police by the rail companies at the planning stage relating to offering security recommendations for new projects.

### **The Response**

A team of officers were tasked full time to Op Drum. Uniformed constables were supplied from many police stations rather than deplete shift resources from one station.

CID officers investigated the offender's activities to achieve best possible evidence to support case building.

Arrest process procedure included a search of the offenders premises aimed at recovery of stolen cable or documentation relating to the sale of copper.

Off road mobile support was provided by the motor cycle unit to access line side tracks too rough for road vehicles.

Police dogs were used to track and detect offenders in remote areas.

Concentrated high profile police patrols were conducted at line side locations. Additional support was provided by Community Wardens and Home Office Police Community Support Officers to gain intelligence from the residential community.

Pulse patrols of uniform and plain clothes officers targeted hotspot locations at irregular intervals.

Micro beat areas provided high profile uniform patrols in a concentrated area.

Pro-active visits by police officers were made to scrap metal dealers throughout the region to highlight the problem to owners. Samples of railway cables were shown to staff and documentation served to owners outlining the consequences of handing stolen cable.

Regular and robust checks were carried out on records held at scrap yards to establish if they were conforming to the recording and registration of items weighed in. Record books were examined and compared with the copper held. Intelligence was obtained relating to sellers and their vehicles.

Multi agency scrap metal dealer operations were conducted with Home Office Police Forces, Local Authorities and Environment Officers to target the offender's main disposal outlets.

Portable Automatic Number Plate Recognition (ANPR) equipment was used in planned operations targeting scrap metal dealers.

Environmental Officers used powers to enforce offences relating to goods (copper) being transported without a waste permit and pollution offences connected with cable burning.

The Vehicle and Operator Standards Agency (VOSA) conducted examinations on vehicles transporting materials. Road traffic legislation led to offender's vehicles being seized and ultimately crushed, thus removing their means to travel to remote locations and convey stolen cable to the point of sale.

## The first seized car crushed during the operation



Information relating to housing tenants either stripping or storing stolen cable at their homes was exchanged with local housing authorities aimed as intelligence case building to address issues of anti social activity committed by tenants.

In cases where cable ownership could not be proven, consideration was given to other offences such as handling stolen goods, Proceeds Of Crime Act, Endanger The Safety of Passengers On The Railway, trespass and vehicle document related offences,

Impact statements were used at court to highlight the underlying problem rather than infer the case was a one off offence involving a small quantity of cable.

Air support was provided by use of the Network Rail helicopter. Aerial photography provided documentation that was used in briefing packages for planned operations. Air support during these operations directed officers on the ground to sightings made by air observers. A Police Community Support Officer (PCSO) was trained as an air observer to work on such operations.

An ANPR system was installed in the helicopter, a force first in police aviation history.

Q train operations were ran that involved officers travelling onboard a special police train supplied by the Train Operating Company. The train could make unscheduled stops at the request of officers who detected offences or directed other officers engaged in the operation to an incident.

Media publicity highlighted the dangers to offenders of cutting through live high voltage cable and the fact that they risk severe injury to themselves as well as prosecution for Obstruction of the Railway and Endanger Safety Offences that carry a sentence of life imprisonment. Publicising court cases cumulating in prison sentences sent out a message to potential offenders.

Crimestoppers offered a cash reward for information leading to the conviction of cable theft offenders.

Basic forensic training for rail staff was given by a Scenes of Crime Officer (SOCO) in relation to preservation of the crime scene as quite often they would be the person to establish the point of the crime.

Rail companies deployed formal security guarding to patrol key locations.

A Technical Support Unit (TSU) officer carried out CCTV installations of both overt and covert cameras covering potential risk or repeat offence locations. A sensor device was developed and installed to indicate a cable movement at an exact location. This offered the ability to transmit a message, record images and action a police response to arrest the offender.

A Crime Reduction Officer (CRO) was attached to the operation aimed at providing pro-active and reactive recommendations to the partners. Documented reports provided an audit trail of advice offered and recommendations carried out.

Line side patrols were conducted with Network Rail managers aimed at identifying areas in need of improved security relating to damaged fencing and access points used by offenders. The application of security banding to the ducting lids in hotspot areas target hardened the ducting. Work was undertaken to review all aspects of cable security including offering advice relating to cable marking technology, CCTV, management of depots as well as promoting the need for just in time delivery – same day cable delivery and installation.

CRO briefings were given to staff engaged in cable and track work with an aim of increasing the awareness on how cable theft was affecting the rail industry. The aim was to encourage staff to report all incidents at the time whilst promoting good house keeping. Every staff member was issued with a laminated aid card outlining the need to report incidents and what information maybe asked by the caller taker relating to location and description of suspects or vehicle involved.

Information and cable crime updates were supplied to individual companies who created internal web pages for staff briefing.

Cold case reviews with a SOCO officer, rail manager and Area Intelligence staff not connected with the operation were conducted aimed at identifying if there was any evidence that was missed or previously discounted.

A Self Survey Audit Form for use by rail staff who has had no crime reduction training was introduced to review basic security aspects of cable storage facilities. A simple identification score category highlighted if there was a need for improvement. A CRO would attend upon request to offer professional recommendations.

## Evaluation

### Operational Overview August 2005 - October 2006

	<b>Offences</b>	<b>Incidents</b>	<b>Thefts</b>	<b>Arrests</b>	<b>Intelligence</b>
<b>Oct</b>	108	158	75	33	210
<b>Sept</b>	91	140	63	6	153
<b>Aug</b>	91	124	58	11	138
<b>July</b>	68	105	44	18	94
<b>June</b>	84	148	46	10	77
<b>May</b>	54	73	24	8	34
<b>Apr</b>	39	63	24	12	54
<b>Mar</b>	43	56	31	9	77
<b>Feb</b>	38	69	23	9	75
<b>Jan 2006</b>	34	39	19	16	39
<b>Dec</b>	12	20	9	0	15
<b>Nov</b>	11	19	5	2	10
<b>Oct</b>	11	21	4	5	25
<b>Sep</b>	11	16	9	1	27
<b>Aug 2005</b>	8	16	4	0	6

The problem profile showed a dedicated team needed to be implemented with immediate effect with the application of several policing tactics. The fact that the project has been completed on time is evident that the tactics worked and this is endorsed in the number of arrests during this time. The prevention aspects cannot be measured but it is felt the tactics deployed provided a major reduction to this criminality the rail infrastructure was suffering.

The tactics worked that were put into place and will be the focus of other similar operations around the force in the future. Future burial of line side cable will further target harden the infrastructure but while the price of copper remains high thefts will be prevalent.

The wave of local criminality was directly linked to Globalisation – China's need to import vast quantities of copper to fuel their booming economy.

Concentrated policing patrols of the railway environment around areas undergoing cable lying operations led to the arrest of many offenders and acted as a deterrent to others. Partnership working involving the rail companies and other outside agencies addressed emerging aspects of copper theft when ownership of the property could not be established. Prosecutions ensued for other offences connected with the transportation, storage and disposal methods used by the offenders.

The cable lying project was completed in October 2006 and on time. In this month alone there were 108 cable related offences of which 75 were cable thefts. During the course of the operation 703 cable offences were recorded of which 439 were cable thefts. There were 140 arrests made. Cable crime in the Knottingley area has been greatly reduced. In the month of March 2007 3 cable thefts were recorded.

Custodial sentences removed persistent offenders from the area. Media coverage sent out a message to the community and may have acted as a deterrent to potential offenders.

### **Qualative outcomes**

- Project completed and handed over to the railway on time.
- Established and sustained links with Home Office partners for information sharing
- Established links with rail companies
- CRO now working with rail companies at outset of new rail projects to apply security advice
- Rail companies attending cable tasking meetings
- Best practice methods shared between the force and outside forces relating to cable theft and preventative methods used.
- National Cable Crime Conference hosted at BTP Force Headquarters in January 2007 and opened by the Chief Constable (CC). 120 delegates from Home Office Police Forces, the rail industry, British Telecom and the mobile phone industry attended. The aim was to raise the profile of cable theft and how it is affecting the country, business and crime levels.
- Association of Chief Police Officers (ACPO) working group formed to review Conductive Metal Thefts. First meeting to be held May 2007.
- Process of deep burial of line side cable in worst affected areas to commence in May 2006
- Uplifting of redundant cable now included in railway renewals projects
- Development of cable sheath and conductor marking for the industry

### **Quantative outcomes**

- 703 cable related offences from August 05 to October 06, average 47 per month
- 439 cable thefts recorded over this time span
- 140 arrests made, average 9 per month
- 1067 reported incidents, average 71 per month
- 1034 intelligence reports submitted
- 2 offenders vehicles crushed
- Scrap yard owner currently on bail for POCA offences
- 18 month sentence for youth who cut through live signalling cable
- 2 adults received a 2½ year and a 21month custodial sentence, a third male received a 12mth sentence (suspended) and a 200 hour community service order for conspiracy to handle stolen cable
- Worst affected line was the 3km stretch around Knottingley which suffered 20 offences and 10,000 minutes of train delays
- Nationally - 903 delayed or cancelled trains in the financial year 2006/7
- Forecast costs of cable crime to the national rail industry year end 2007 £10million



**Partners involved**

Network Rail  
Westinghouse  
Northern Rail  
EWS  
Carillion  
Jarvis  
Crimestoppers  
West Yorkshire Police  
South Yorkshire Police  
British Telecommunications  
Environmental Agency  
Environmental Health  
DVLA (Driver and Vehicle Licensing Authority)  
VOSA (Vehicle Operator Standards Agency)  
Crown Prosecution Service

**Section 4: Endorsement by Senior Representative**

*Please insert letter from endorsing representative:*



### **Checklist for Applicants:**

1. Have you read the process and application form guidance?
2. Have you completed all four sections of the application form in full including the endorsement from a senior representative?
3. Have you checked that your entry addresses all aspects of the judging criteria?
4. Have you advised all partner agencies that you are submitting an entry for your project?
5. Have you adhered to the formatting requirements within the guidance?
6. Have you checked whether there are any reasons why your project should **not** be publicised to other police forces, partner agencies and the general public?
7. Have you saved you application form as a PDF attachment and entitled your message 'Entry for Tilley Awards 2007' before emailing it?

Once you are satisfied that you have completed your application form in full please **email it to [Tilleyawards07@homeoffice.gsi.gov.uk](mailto:Tilleyawards07@homeoffice.gsi.gov.uk)**. Two hard copies must also be posted to Alex Blackwell at Home Office, Effective Practice, Support & Communications Team, 6th Floor, Peel Building (SE Quarter), 2 Marsham Street, London, SW1P 4DF.