

Water Cannon - Operational Requirement

<i>Document Name</i>	Water Cannon – Operational Requirement
<i>File Name</i>	140320 Water Cannon Operational Requirement - Part 2 v3.1 Redacted v3.0
<i>Author</i>	National Public Order and Public Safety Working Group
<i>Project</i>	National Water Cannon Project
<i>Version</i>	3.0
<i>Date</i>	24.01.14

<i>Authorisation (Signature &amp; Date)</i>	<b>CC Justine Curran</b> National Policing Lead for the Public Order & Public Safety Working Group (Humberside Police)	<b>Signature</b>	<b>Date</b>
---	--	------------------	-------------

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

### Change control

Version	Date	Record of change	Authority	Evidence of approval
1.1	30/05/13	Initial Draft – for Project Review		
1.2	11/06/13	<redacted>		
1.3	18/06/13	Further amendments by project team		
2.0	19/07/13	Amendments by project team based on visits to Longmore and Germany		
2.1	06/08/13	Approved by National Policing Lead for Public Order and Public Safety	CC Learmonth	Email
3.0	24.01.13	Proposed change to document restriction level for submission to Home Secretary. Previous restriction related to project sensitivities and not document content. Minor wording changes made.	CC Curran	Email audit trail
3.1	04.02.14	Minor amendments made based on feedback from National Policing Lead for Public Order and Public Safety	CC Curran	Email audit trail

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

## Water Cannon - Operational Requirement

Unique ID	Operational Requirement	Priority	Rationale
	<b>1. General Requirements for all Operational Scenarios</b>		
WC-OR-1.1	The less lethal options shall be able to be operated in all UK weather conditions. Weather conditions defined as precipitation, temperature range from -10 to +30 degrees centigrade	Essential	Impossible to predict when and where serious disorder might occur.
WC-OR-1.2	The less lethal options shall not adversely affect the users during deployment.	Essential	Users will be required to remain in control of option and cannot be easily substituted.
WC-OR-1.3	The less lethal options shall be able to be operated in all lighting conditions.	Essential	Impossible to predict when and where serious disorder might occur.
WC-OR-1.4	The less lethal options shall be deployable against a moving target.	Highly Desirable	Crowds / individuals involved in public disorder incidents can be both static and mobile.
WC-OR-1.5	The less lethal options shall be effective against the maximum proportion of the population taking account of both permanent and transitory differences.	Essential	Impossible to predict subjects that option might be deployed against.
WC-OR-1.6	The less lethal options shall be transportable to a scene	Essential	
	<b>2. Interoperability Requirements</b>		
WC-OR-2.1	<redacted>	Essential	<redacted>.

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-2.2	The less lethal options shall not affect the effective operation of other less lethal weaponry or conventional police firearms.	Essential	Firearms tactics have been designed to be deployed within the public order arena alongside less lethal technologies.
WC-OR-2.3	The less lethal options shall not affect the effective operation of police personal protective equipment.	Highly Desirable	Risk of injury to officers should PPE be compromised – can be mitigated by management of risk
WC-OR-2.4	The less lethal options shall not affect the effective operation of police evidence gathering tools. These to be defined?	Essential	Evidence gathering equipment routinely deployed in public order incidents and will assist with capturing evidence to support the use of water cannon.
WC-OR-2.5	The less lethal options shall not affect the effective operation of police vehicles.	Essential	Vehicle tactics form part of the national police public order training curriculum
WC-OR-2.6	The less lethal options shall not affect the effective operation of police CBRN protective equipment.	Desirable	Whilst deployment within a CBRN environment is unlikely it is not beyond possibility.
WC-OR-2.7	The less lethal options shall not affect the effective operation of the local area infrastructure. This includes the mobile phone network	Desirable	Some infrastructure restrictions are inevitable (e.g. highways) due to likely size of vehicle to which option is mounted. Unlikely to affect mobile phone networks.
WC-OR-2.8	The less lethal options shall be safe to be deployed near to police animals.	Essential	Police horse and dog tactics have been designed to be deployed within the public order arena alongside less lethal technologies.
	<b>3. Operational Scenario – Distraction/ Dissuasion Effect on Individual</b>		
	Accuracy		

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-3.1	Less lethal option is able to provide a graduated response in terms of output (ranging from drenching to focussed / targeted jet up to a maximum pressure output level similar to the current PSNI model)	Essential	Graduated response enables a wider range of tactics and levels of force to be deployed.
	Range		
WC-OR-3.2	Deployable from close proximity to a range of up to <redacted>	Essential	One key role of water cannon is to maintain distance between subjects and police / premises.
	Immediacy		
WC-OR-3.3	The less lethal option's primary/secondary effects on the individual shall be apparent within 30 seconds of use	Essential	Primary effect – kinetic effect of being hit by water jet Secondary effect – effect of being soaked by water jet
	Effect		
WC-OR-3.4	The primary effect will be enough to alert the individual to the fact they are not complying with a police instruction and will be temporary, subsiding in at least 15 minutes.	Essential	This relates to the kinetic effect (primary effect) of being subjected to spray of water from the WC, and NOT the resulting wetness (secondary effect).
	After-effects		
WC-OR-3.5	The after-effects on the individual from the use of the less lethal option shall not require any specialist or interventional care.	Essential	
	<b>4. Operational Scenario – Distraction/Dissuasion Effect on Group</b>		
	Accuracy		
WC-OR-4.1	Where the effect of the option on the subject is low impact the device shall be accurate to within <redacted> of the target group.	Essential	Graduated response enables a wider range of tactics and levels of force to be deployed.

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
	Range		
WC-OR-4.2	Deployable from close proximity to a range of up to <redacted>.	Essential	One key role of water cannon is to maintain distance between subjects and police / premises.
	Immediacy		
WC-OR-4.3	The less lethal option's primary/secondary effects on the individual shall be apparent within 30 seconds of use	Essential	Primary effect – kinetic effect of being hit by water jet Secondary effect – effect of being soaked by water jet
	Effect		
WC-OR-4.4	The primary effect will be enough to alert the individuals to the fact they are not complying with a police instruction and will be temporary, subsiding in at least 15 minutes.	Essential	This relates to the kinetic effect (primary effect) of being subjected to spray of water from the WC, and NOT the resulting wetness (secondary effect).
	After-effects		
WC-OR-4.5	The after-effects on the individual from the use of the less lethal option shall not require any specialist or interventional care.	Essential	
	<b>5. Operational Scenario – Disorientation Effect on Individual</b>		
	Accuracy		
WC-OR-5.1	Where the primary effect of the option on the subject is medium impact (low probability of injury, medium to high probability of discomfort) the device shall be accurate to within <redacted> of the individual.	Essential	
	Range		

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-5.2	Deployable from close proximity to a range of up to <redacted>	Essential	One key role of water cannon is to maintain distance between subjects and police / premises.
	Immediacy		
WC-OR-5.3	The primary effect of the less lethal option will be felt within 10 seconds of use.	Essential	Primary effect – kinetic effect of being hit by water jet
	Effect		
WC-OR-5.4	The primary effect will be enough to alert the individual to the fact they are not complying with a police instruction and will be temporarily disorienting; the effect will subside in at least 15 minutes.	Essential	This relates to the kinetic effect (primary effect) of being subjected to spray of water from the WC, and NOT the resulting wetness (secondary effect).
	After-effects		
WC-OR-5.5	The after-effects on the individual from the use of the less lethal option shall not require any specialist care.	Essential	
	<b>6. Specific Operating Requirements</b>		
WC-OR-6.1	Capable of a minimum of 5 crew members, including proper seating and restraint for all persons carried.	Essential	Experience suggests crew of 5 required to perform all roles within vehicle (1 x driver, 2x cannon operator, 1 commander, 1 x observer)
WC-OR-6.2	Able to refill from hydrant and open water source (desirable within <redacted> from open sources).	Desirable	Deployment environment will be varied and cannon may need refilling during deployment
WC-OR-6.3	The water storage, associated pipe work, pump and monitors shall be resistant to the effects of salt water	Desirable	To enable the refilling from sea
WC-OR-6.4	Able to operate over a standard PSU carrier	Desirable	Current public order tactics involve typically high-roof style carrier vehicles

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-6.5	Ability to supplement water output with additional substances should they be required in the future e.g. Smart Water, fire fighting foam, dyes.	Desirable	To enable wider use of vehicle and to enable use of new technologies when available
WC-OR-6.6	Capability to remove burning barricades / obstructions	Highly desirable	To enable water cannon police and other emergency services to move beyond obstructions
WC-OR-6.7	Capability to communicate with people at a distance	Essential	To enable warnings and instructions to be passed to public. Supports 'no surprises' ethos of public order policing. Also to enable deployment as public safety vehicle.
WC-OR-6.8	Public address system with microphone and pre-recorded message capability	Essential	To enable warnings and instructions to be passed to public. Supports 'no surprises' ethos of public order policing. Also to enable deployment as public safety vehicle.
WC-OR-6.9	Audible warning to indicate to staff when vehicle is moving.	Essential	For the safety of officers and other members of the public in the vicinity of the vehicle.
WC-OR-6.10	Dot matrix style communications system or ability to connect external system and determine messages displayed.	Desirable	To enable warnings and instructions to be passed to public. Supports 'no surprises' ethos of public order policing. Also to enable deployment as public safety vehicle.
WC-OR-6.11	Recording system to record use and output pressures as a minimum. Capable of ambient internal recording and electronic recording of decision logs	Essential  Desirable	Audit trail to support use of force and decision making. Capability of ambient recording and recording decision logs would be desirable.



WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-6.12	Capable of recording external images and sound around 360 degree arc. Independent cameras to record water jet activity (synchronised to water jets). Images to be solid state recorded and removable to meet national evidence gathering standards. All lighting conditions.	Essential	Audit trail to support use of force and decision making. To enable gathering of evidence to support prosecutions and other investigative processes.
WC-OR-6.13	Camera that will include all lighting conditions capability and meet national evidence gathering standards and can be positioned at a minimum of 2m above roof of vehicle	Desirable	Audit trail to support use of force and decision making. To enable gathering of evidence to support prosecutions and other investigative processes.
WC-OR-6.14	Spotlights 360 degree arc	Desirable	To facilitate deployment. Also to enable deployment as public safety vehicle.
WC-OR-6.15	Ability to send real-time imagery during deployment	Desirable	To provide real-time intelligence and assist with command decisions.
WC-OR-6.16	Ability to regulate temperature of water stored above 4°C	Essential	The flow dynamics of water can change at temperatures below 4°C
WC-OR-6.17	Any monitoring / targeting system to be real-time with no delays. Range finding equipment required.	Essential Desirable	Minimise the number of judgment issues arising from its use
WC-OR-6.18	Basic fire fighting capability	Essential	Deployment in public order arena may require cannon to be able to deal with fires.
WC-OR-6.19	Intercom from rear of vehicle to cab	Essential	To facilitate comms. between the ground commander and the crew.
	<b>7. Vehicle Security Requirements</b>		
WC-OR-7.1	Security - doors to be able to be secured from inside vehicle. <redacted>	Essential	Essential for protection of crew and vehicle
WC-OR-7.2	Protected to public order standards (i.e. capable of sustaining missile attack from bricks, bottles, petrol bombs etc )	Essential	Essential for protection of crew and vehicle
WC-OR-7.3	Suitable wheel protection	Essential	Essential for protection of crew and vehicle

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-7.4	<redacted>	<redacted>	<redacted>
WC-OR-7.5	<redacted>	<redacted>	. <redacted>
WC-OR-7.6	Ability to regulate temperature in vehicle	Essential	Impossible to predict when and where serious disorder might occur. To cater for crew welfare and effective operation of water cannon
WC-OR-7.7	Ability to keep essential areas of vehicle clear during deployment and to extinguish flammable liquids burning on the vehicle.	Essential	To enable effective operation of vehicle and to protect crew.
<b>8. General Vehicle Requirements</b>			
WC-OR-8.1	Transportable to a scene and capable of operating across a variety of surfaces	Essential	To enable effective deployment in a range on environments
WC-OR-8.2	Capable of driving to UK HGV speed limits when fully laden	Essential	To enable prompt and responsive deployment and withdrawal
WC-OR-8.3	Ability to undertake journeys in the region of 200 miles (unladen) under normal motorway driving conditions	Essential	To reduce logistics of mutual aid deployments and to enable prompt deployment.
WC-OR-8.4	Right hand drive and road legal for use in the United Kingdom	Essential	To comply with legislation and to increase familiarity for drivers and consequently safety for members of the public including other road users
WC-OR-8.5	Manoeuvrability similar to typical urban fire engine	Essential	To enable effective deployment in a range of environments
WC-OR-8.6	Publicly acceptable appearance. Clearly identifiable as a police asset as a water cannon.	Desirable	To increase acceptability of vehicle to the public and to ensure vehicle is easily identified
WC-OR-8.7	Equipped with blue lights, sirens and rear guard lighting to national standards	Essential	To ensure the safety of the crew and members of the public
WC-OR-8.8	Anti lime scale protection on screens or all screens accessible for cleaning	Essential	Minimise judgment issues and comply with road traffic law

WC Operational Requirement	NOT PROTECTIVELY MARKED	
----------------------------	-------------------------	--

Unique ID	Operational Requirement	Priority	Rationale
WC-OR-8.9	Minimal user maintenance during pre-deployment and deployment phases and appropriate service schedule	Essential	To increase effectiveness during operational deployment, to reduce costs and prevent excessive unavailability
WC-OR-8.10	Separate power supply for pumps	Essential	To prevent vehicle becoming isolated / stranded due to breakdown
WC-OR-8.11	Concealable towing points	Essential	The water cannon must have concealable connection points to enable the vehicle to be towed on both the front and rear of the vehicle