Title: Ship safety: Small Passenger Ship Bridge Visibility Regulations **IA No:** Click here to enter text. **RPC Reference No:** Click here to enter text. **Lead department or agency:** Maritime and Coastguard Agency **Other departments or agencies:** Department for Transport	**Impact Assessment (IA)** **Date:** 28/09/2017 **Stage:** Fast Track **Source of intervention:** Domestic **Type of measure:** Secondary legislation **Contact for enquiries:** Joanna Dormon
Summary: Intervention and Options	**RPC Opinion:** Not Applicable

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**			
-£2.21m	-£2.21m			

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

The Merchant Shipping (Bridge Visibility) (Small Passenger Ships) Regulations 2005 ("2005 regulations"), implement the recommendations of the Marine Accident Investigation Branch in relation to bridge visibility on passenger ships, set out in their report into the loss of the Marchioness. However, in the 2005 regulations, there is:

- A regulatory gap that exists for vessels with a registered length of between 45m and 55m; and
- A perceived lack of clarity within the definition of enclosed passenger deck and the use of visual aids when determining sight lines.

Government intervention to address these regulatory gaps is necessary to ensure the policy intention of the 2005 regulations is maintained, and the safety of small passenger ships is of an acceptable standard.

What are the policy objectives and the intended effects?

The policy objectives are:

1) To ensure that safety standards on small passenger ships are maintained to an acceptable level; and
2) To ensure there is a level playing field in terms of regulatory arrangements for passenger ships of different sizes, where the risks are similar.

The intended effects are:

1) To remove the regulatory gap which exists for vessels with a length of 45m – 55m;
2) To clarify the definition of an enclosed passenger deck; and
3) To clarify the rules on the use of visual aids when determining sight lines.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

One policy option has been considered in detail in this impact assessment (in addition to doing nothing):

Option 1 – Revising the 2005 regulations, by:

1) Extending their scope to vessels between 45m and 55m in length;
2) Clarifying the definition of an enclosed passenger deck; and
3) Clarifying rules on the use of visual aids when determining sight lines.

During the consultation, the Maritime and Coastguard Agency (MCA) received representations from the firm primarily affected by the regulations, to consider other non-regulatory means of maintaining safety. This has been considered further, but been deemed inappropriate for the safety risks at hand – this is detailed further in this impact assessment

Will the policy be reviewed? It will be reviewed. If applicable, set review date: September/2022

Does implementation go beyond minimum EU requirements?		N/A		
Are any of these organisations in scope?	**Micro** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded:** N/A	**Non-traded:** N/A	

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible SELECT SIGNATORY: _____ **Date :** Enter a date

Summary: Analysis & Evidence

Policy Option 1

Description: **Address gaps in Merchant Shipping (Bridge Visibility) (Small Passenger Ships) Regulations**

FULL ECONOMIC ASSESSMENT

Price Base Year: 2017	PV Base Year: 2017	Time Period Years: 10	Net Benefit (Present Value (PV)) (£m)		
			Low: -3.38	**High:** 0	**Best Estimate:** -2.21

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.00		0.00	0.00
High	0.00	0	0.39	3.38
Best Estimate	0.00		0.26	2.21

Description and scale of key monetised costs by 'main affected groups'

The monetised costs of the regulations are likely to affect a single company, with a best estimate of average annual costs of £0.3m. The costs will depend on the company's response to the regulation, with 2 likely outcomes identified by the MCA; removing protective screens or hiring an additional lookout.

In Outcome 1 the costs are the result of the time taken to remove protective screens, lost occupancy due to the lack of shelter from inclement weather and the costs of providing customers with protective materials. Outcome 2 assumes the operator is successful in seeking an exemption from the regulations subject to the condition they hire additional lookouts, entailing additional labour costs and the loss of 1 available seat per trip.

Other key non-monetised costs by 'main affected groups'

There could potentially be a cost of modifying the protective screens to allow them to be easily removed and reattached for transitioning between land and water.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0.00		0.00	**0.00**
High	0.00	0	0.00	**0.00**
Best Estimate	0.00		0.00	**0.00**

Description and scale of key monetised benefits by 'main affected groups'

Given the limitations of the available evidence base, it has not been possible to monetise any of the benefits.

Other key non-monetised benefits by 'main affected groups'

The policy will improve the consistency of regulation concerning visibility and line of sight requirements for passenger vessels with an enclosed passenger deck. This will improve safety by reducing the likelihood of collision. Due to the unpredictability of such events, no attempt has been made to monetise this benefit.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

- Given the limitations of the evidence base, it has not been possible to monetise the benefits and the monetised costs are uncertain. Various scenarios have been modelled to reflect these uncertainties.
- It is assumed that the occupancy per tour is constant throughout the appraisal period.
- The percentage of tours the operator runs at full capacity is assumed to be directly correlated with occupancy and is adjusted from the operator's estimates in their consultation response.
- Exposure to inclement weather is assumed to cause a 9% reduction in occupancy per tour.
- It is assumed blankets need to be replaced after every 10 tours and that 50% of passengers come dressed in preparation for inclement weather and will not require protective materials.
- The overall low estimate is the costs of Outcome 2 using the low occupancy assumption, while the high estimate is the costs of Outcome 1 using the high occupancy assumption.
- The average of the low occupancy scenarios is used to calculate the best estimate as this is considered the most realistic estimate, given it has been calculated using more reliable data.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m: Insert
Costs: 0.231	Benefits: 0.0	Net: 0.231	

Evidence Base

1 Rationale for Intervention

1.1 Background into 2005 Bridge Visibility Regulations

The Merchant Shipping (Bridge Visibility) (Small Passenger Ships) Regulations ("2005 regulations") came as a direct result of the recommendations from the Marine Accident Investigation Branch (MAIB) investigation into the MARCHIONESS/BOWBELLE disaster in 1989.

1.1.1 Extract of findings:

> *18.1 The loss of the lives of the skipper and 50 passengers from the MARCHIONESS was the direct result of her foundering, and her foundering was a direct result of collision with mv BOWBELLE.*
>
> *18.3 The collision occurred because neither vessel observed the other until too late. The salient point which stands out from the evidence is that no one in either vessel was aware of the other's presence until very shortly before the collision. No one on the bridge of the BOWBELLE was aware of the MARCHIONESS until the collision occurred.*
>
> *The immediate cause of the casualty was therefore failure of the look-out in each vessel.*
>
> *18.4 The principal contributory factors were that:-*
>
> *Visibility from the wheelhouse of each vessel was seriously restricted;*
>
> *…..*
>
> *18.7 In each vessel, the restricted visibility was caused by the position and design of the wheelhouse, and stemmed from inadequate consideration of the needs of the navigator, at the design stage in BOWBELLE, and at the time of conversion in MARCHIONESS.*

1.1.2 Recommendations:

> *4 * The existing guide-lines on navigation bridge visibility for sea-going ships should be enforced if necessary by Regulations. While in the long term the aim should be to develop requirements which apply internationally, action in respect of United Kingdom ships should not await international agreement: provided that the requirements are set out clearly so that they can be taken into account at the design stage, they should not penalise domestic owners (The Department).*
>
> ** 5 Regulations should be introduced requiring minimum standards of visibility from the steering position of passenger launches. (The Department)*

1.2 Background to proposed regulations

This intervention covers proposed changes to the small passenger ship bridge visibility requirements, which are currently implemented via Merchant Shipping (Bridge Visibility) (Small Passenger Ships) Regulations 2005 ("2005 regulations"). These changes are necessary to address:

- A regulatory gap that exists for vessels with a registered length of 45m or more.
- A perceived lack of clarity within the definition of enclosed passenger deck and the use of visual aids when determining sight lines.

The existing 2005 regulations implement the recommendations of the Marine Accident Investigation Branch in relation to bridge visibility on passenger ships, set out in their report into the loss of the Marchioness.

The proposed regulations will revoke and replace the 2005 regulations in order to address several issues as described in more detail below:

The 2005 regulations made provision for bridge visibility for passenger ships of under 45 metres registered length; the proposed regulations extend that scope to passenger ships of under 55 metres length overall. The proposed regulations will thus address an inadvertent regulatory gap that has arisen following changes to the international requirements.

The proposed regulations also amend the concept of “enclosed passenger deck”, so that relevant sight lines are not permitted to pass through any deck space where side or end screens can be can be fitted, either to the deck or any other part of the ship. This goes further to clarify that lines of sight for all round visibility must be direct. This amendment is required to address a perceived lack of clarity resulting from a change to the definition between revisions of earlier Bridge Visibility Regulations.

2 Policy options considered

The MCA have been advised that a legal challenge to the regulations could potentially succeed and that in order to ensure the correct and understood application it would be necessary to clarify the definition of enclosed passenger space in the statutory instrument (SI) as well as the acceptable usage of visual aids.

The consequences of doing nothing are that the existing regulations would remain in place, perpetuating the perceived lack of clarity and regulatory gap. This would mean that the application of the current Regulations would remain open to challenge by any operator of a vessel under the Regulations.

Such a challenge would mean that a space or passenger deck fitted with (flexible) screens without an attachment directly to the deck (e.g. to the top of a bulwark or rail), instead of fixed windows, could be deemed not to qualify as an enclosed deck, even though the visibility is no better, and in most cases, is expected to be far worse, than that provided by a fixed window. Such an interpretation undermines intent and purpose of the regulations, which have been applied and complied with consistently by other operators of small passenger vessels since 1992.

Furthermore, a non-regulatory approach would not address the regulatory gap for vessels between 45m registered length and 55m length overall and these vessels would continue to have no enforceable regulations pertaining to bridge visibility. This would leave a safety gap and also mean an unequal playing field for vessels of alternate sizes.

3 Consultation

A twelve week consultation was held on the draft amendment of the Regulations between 8 November 2016 and 7 February 2017. Two responses were received by the close of the consultation. One was a short endorsement from a non-operator stakeholder, the other was a detailed document opposing the changes from the single operator known to be affected by them. The opposition to the amendments included an estimate from the operator about the cost of the amendments that differed significantly from the initial figure in the RTA (which was made available as part of the consultation). As a result of the significant differences in both the viewpoint and costs between MCA and the operator it was decided that no response would be made to their points until a full impact assessment was undertaken and the likely costs determined. It is intended to hold a short consultation on this impact assessment and to release the response to the points raised in consultation in parallel with this.

4 Monetised costs and benefits of policy options

4.1 Introduction

This IA assesses the additional costs and benefits of the proposed Regulations (Option 1) compared to the “Do Nothing” scenario; the “Do Nothing” scenario represents what would happen if the Government does not take any action. In line with the Better Regulation Framework Manual, a 10 year appraisal period has been used in this IA. The 10 years in the appraisal period are referred to as Year 1 to Year 10 below.

For the purposes of this IA, the additional costs and benefits of the proposed Regulations (Option 1) during the appraisal period have been monetised to the extent that is possible. Given the limitations of the available evidence base, it has not been possible to monetise some of the costs and benefits of the proposed Regulations (Option 1) that have been identified. Where it has not been possible to monetise a cost or benefit, a full qualitative description of the impact has been provided.

The regulation would have primarily affected one company who operated tours of London with a fleet of 9 amphibious vessels. They were the only company operating vessels in the UK which would be affected by the proposed Regulations (Option 1) as their vessels are fitted with flexible screens and therefore do not currently meet the requirements of bridge visibility and line of sight that would be imposed. This means the effects on business of the regulation are likely to only affect the operation of this particular company.

However, as of September 2017, this company has ceased trading for reasons unrelated to this regulation. We do not know when or if the firm will resume trading in future. Therefore, in our low estimate, we assume the firm will not trade throughout the 10 year appraisal period. In our central and high estimates, we assume the firm will resume trading by the time the regulation is implemented.

The specific costs and benefits incurred depend on the action taken by the company in response to the regulation. The two most probable outcomes are: Outcome 1 – the company complies with the regulation in its entirety without seeking a regulatory exemption, meaning the plastic screens on the vessels need to be removed for operation on water to provide a clear line of sight from the bridge; and Outcome 2 – the company satisfies the conditions to be granted an exemption from the regulation on the condition that an additional dedicated aft lookout is present on each voyage, allowing the passenger compartment to be enclosed by screens if desired. No other outcomes were identified that would allow the operator to continue to run its current operations in a legal manner. Option 1 is used as the High estimate and Option 2 is used as the Central estimate.

4.2 One-off monetised costs to business

There are no significant one-off costs to business that would emerge as a result of the proposed Regulations (Option 1) that can be monetised.

4.3 Ongoing monetised costs

4.3.1 Costs of Outcome 1 (Policy High scenario)

Outcome 1 is the event that the regulation is enforced upon the operator without them seeking a regulatory exemption. This would mean the operator would need to remove the screens for operation on water, providing a clear line of sight from the bridge. As the vessels in question also operate on land, for which the operator is likely to want to have the screens in place, the screens would not be removed permanently, and removal and reinstallation would need to take place each time the vessels transfer between land and water.

The primary costs of this outcome are the loss of revenue from passengers who are deterred from the operator's services by the increased level of exposure to inclement weather, the cost of providing customers with protective materials in such weather, and the costs of removing and reattaching the screens.

4.3.1.1 Loss of occupancy costs

The loss in occupancy was calculated by estimating the occupancy per tour and subsequently applying a constant percentage reduction to these estimates. This reduction was applied to each tour across Y1-Y10 to estimate the total number of passengers lost, given the expected volume of tours. The cost of losing one passenger on a single tour was costed at the average ticket price of the operator's tours.

The estimate for occupancy was formulated using figures provided by the operator for revenue, the average ticket price, and the number of tours run. In 2016, 6,565 tours were run, the average ticket price was £21.50 and the operator's revenue was approximately £2,300,000. Using these figures the estimate for occupancy is 16.3 passengers per tour. This was calculated using the formula: occupancy = revenue / (number of tours x average ticket price).

As a sensitivity test, the figure of 26 passengers per tour provided by the operator was also used. However, given the aforementioned other figures they provided, this level of occupancy appears unfeasibly high.

In all scenarios occupancy is assumed to be constant across Y1-Y10. The number of tours is taken from the operator's own modelling of future operations, and increases from 9,339 in Y1 to a maximum of 11,406 annually in Y3, and is assumed constant from then on as the company is operating at full capacity.

The estimated loss of occupancy in inclement weather conditions is based on the consultation response in which the operator estimated that occupancy would fall by 9% as a result of having to remove the screens on their vessels and exposing customers to the weather. This was based on their passenger records which showed such a decrease between 2013 and 2014 when a similar restriction to the proposed Regulations (Option 1) was enforced by the MCA. However, the months they provided data for in 2014 (June to September) were the months immediately after the company resumed operating tours following a fire on board one of their vessels in 2013. It seems likely the 9% reduction in occupancy may overestimate the impact of the MCA intervention, as some customers may have been put off by the recent fire on board. Without the means to estimate this more accurately, the 9% reduction was used.

Given the estimates for occupancy, an average 9% reduction in passengers would result in a loss of 1.47 passengers per tour in the high scenario, and 2.34 in a 'maximum' cost sensitivity. Under the assumption of constant ticket prices this implies average annual costs between £351,906 and £561,495. These figures were calculated using the operator's provided figures for ticket prices and the number of tours.

Standard assumed occupancy loss per trip (High scenario)	1.47
Maximum cost sensitivity occupancy loss per trip	2.34
Average ticket price (£)	£21.50

FY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	10
Number of trips	9,339	11,020	11,406	11,406	11,406	11,406	11,406	11,406	11,406	11,406
High scenario passenger loss	13,696	16,161	16,727	16,727	16,727	16,727	16,727	16,727	16,727	16,727
High scenario costs (£)	294,467	347,470	359,641	359,641	359,641	359,641	359,641	359,641	359,641	359,641
Max cost sensitivity passenger loss	21,853	25,787	26,690	26,690	26,690	26,690	26,690	26,690	26,690	26,690
Max cost sensitivity costs (£)	469,845	554,416	573,836	573,836	573,836	573,836	573,836	573,836	573,836	573,836

Figure 1 Estimated costs due to reduced occupancy in inclement weather

We have assumed the lost revenue for the company is equal to the lost profits as the costs are fixed for a single boat journey. It should be noted that the loss in revenue for this firm will be mostly offset by spending elsewhere in the economy as the passengers who choose not to travel will spend their money elsewhere. This would be an indirect impact and has not been monetised given the difficulties in calculating it without conducting primary research.

4.3.1.2 Cost of protective materials

The operator stated in their consultation response that protective materials would need to be provided for customers in bad weather, should they take the option of removing the screens while on the water. This would entail disposable ponchos in rainy weather, and blankets during especially cold or frosty weather. Data from the Met Office for London shows that annually 29.86% of days are affected by rain and 7.84% by frost. We have no data to indicate that more tours take place on good weather days, and therefore assumed that an equivalent proportion of tours will be affected. From online marketplaces *Promoponchos* and *Discount Wholesale*: ponchos are costed at £0.49 per unit, and blankets at £2.25 per unit.

Given that the estimated occupancy loss calculated above is down to inclement weather, it is assumed that all of this occupancy loss would only occur on days of rain or frost. Such days combined make up 138 days annually, or 37.8% of total days, although this may be an overestimate as we have not accounted for double counting of days of rain and frost. Therefore the 9% occupancy loss across all tours is broken down into no loss on relatively warm and dry days, and a 23.8% loss on days of inclement weather (9% / 37.8%).

Occupancy on bad weather days would be therefore be 12.4 passengers per tour in the high scenario and 20.0 in the maximum cost scenario. That occupancy may be lower in such weather anyway is not accounted for, although the slight exaggeration of assuming that occupancy would only be lower on days of bad weather should offset this. Therefore these are the occupancy figures used in calculating the costs of protective materials.

The ponchos are disposable and so a new one would be required for each individual customer. It is assumed that the blankets would be able to be reused on several tours, but would need to be occasionally

replaced. The frequency of their replacement cannot be estimated with great accuracy but was assumed in the analysis to be after every 10 uses.

Some customers would come dressed in anticipation of the inclement weather and would not require ponchos or blankets. This is another area that cannot be estimated with great accuracy despite being an important factor. For simplicity it has been assumed that 50% of passengers would be fully prepared for the weather and so would not need to be provided with the necessary materials.

Using the above estimates and assumptions the average annual cost of supplying ponchos is £10,176 in the high scenario and £16,236 in the max cost scenario. The average annual cost of supplying blankets is £1,222 in the high scenario and £1,949 in the max cost scenario. The total average annual cost of supplying protective materials is £11,397 under the standard occupancy assumption and £18,185 under the max cost occupancy assumption.

Cost per poncho (£)	0.49
Tours affected (%)	30.0

FY	1	2	3	4	5	6	7	8	9	10
Number of trips	9,339	11,020	11,406	11,406	11,406	11,406	11,406	11,406	11,406	11,406
Number of trips affected	2,799	3,303	3,419	3,419	3,419	3,419	3,419	3,419	3,419	3,419
High scenario (£)	8,515	10,047	10,399	10,399	10,399	10,399	10,399	10,399	10,399	10,399
Max cost sensitivity (£)	13,586	16,032	16,593	16,593	16,593	16,593	16,593	16,593	16,593	16,593

Figure 2 Estimated costs of purchasing ponchos to provide protection on rainy days

Cost per blanket (£)	2.25
Tours affected (%)	7.8

FY	1	2	3	4	5	6	7	8	9	10
Number of trips	9,339	11,020	11,406	11,406	11,406	11,406	11,406	11,406	11,406	11,406
Number of trips affected	732	863	894	894	894	894	894	894	894	894
High scenario (£)	1,022	1,206	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248
Max cost sensitivity (£)	1,631	1,924	1,992	1,992	1,992	1,992	1,992	1,992	1,992	1,992

Figure 3 Estimated costs of purchasing blankets to provide protection on frosty days

4.3.1.3 Cost of screen removal

In order to comply with the proposed Regulations, the protective screens attached to the vessels will need to be removed in order to provide a clear line of sight from the bridge. However, this will mean the screens would be unavailable for road use and so the screens would need to be reattached whenever the vessel needs to return to the road.

Under current operations, the crew already take time to prepare the vessel before entering the water; the vessel does not just drive in directly from the road. The removal of screens could add some additional time to this procedure. Although there is no evidence to estimate how long such a procedure could take, we have assumed 5 minutes to remove or attach all the screens on the vessel, totalling ten minutes per journey.

The cost of the ten minutes per journey is assumed to be the opportunity cost of the crew's time, which is based on their hourly wage. The median gross hourly wage in the water transport sector according to the Annual Survey of Hours and Earnings is £13.79 in 2017 prices, meaning a cost per trip of £2.79, once non-wage labour costs have been included. These costs do not vary based on the occupancy scenario used, therefore over the ten year period, this has an average annual cost of £31,096.

Median gross hourly wage in the water transport sector (£; 2017)	13.79
Hours per trip to remove / attach screens	0.17
Total cost per trip	2.79

FY	1	2	3	4	5	6	7	8	9	10
Number of trips	9,339	11,020	11,406	11,406	11,406	11,406	11,406	11,406	11,406	11,406
Cost of screen removal (£)	26,021	30,704	31,780	31,780	31,780	31,780	31,780	31,780	31,780	31,780

Figure 4 Estimated costs of removing and reattaching protective screens

4.3.1.4 Total Outcome 1 costs

Under the assumption of constant prices the undiscounted average annual cost of Outcome 1 across the appraisal period is £390,400 in the standard occupancy scenario and £610,777 in the maximum cost occupancy scenario.

FY	1	2	3	4	5	6	7	8	9	10
Occupancy loss costs high scenario (£)	294,467	347,470	359,641	359,641	359,641	359,641	359,641	359,641	359,641	359,641
Occupancy loss costs max sensitivity (£)	469,845	554,416	573,836	573,836	573,836	573,836	573,836	573,836	573,836	573,836
Protective materials costs high scenario (£)	9,537	11,254	11,648	11,648	11,648	11,648	11,648	11,648	11,648	11,648
Protective materials costs max sensitivity (£)	15,217	17,956	18,585	18,585	18,585	18,585	18,585	18,585	18,585	18,585
Cost of screen removal (£)	26,021	30,704	31,780	31,780	31,780	31,780	31,780	31,780	31,780	31,780
Total costs high scenario (£)	**330,024**	**389,428**	**403,069**	**403,069**	**403,069**	**403,069**	**403,069**	**403,069**	**403,069**	**403,069**
Total costs max cost sensitivity (£)	511,083	603,077	624,201	624,201	624,201	624,201	624,201	624,201	624,201	624,201

Figure 5 Estimated overall costs of outcome 1

4.3.2 Costs of Outcome 2 (Central Scenario)

Outcome 2 is subject to the operator satisfying the conditions for the granting of an exemption from the proposed Regulations (Option 1), with the condition that an additional lookout is present on each tour.

This should provide similar benefits to visibility and line of sight to the full imposition of the regulations. This outcome would require the hiring of additional staff by the operator and the loss of one seat of passenger capacity on each tour. There is no clear reason why Outcome 2 would cause an additional loss of occupancy on each tour, as the screens would remain as they are, and therefore the assumptions from Outcome 1 about the effects of inclement weather on occupancy are not relevant in this case as the passengers are able to remain sheltered due to the screens being down if the weather is inclement.

4.3.2.1 Extra staff costs

To satisfy the requirements of Outcome 2, the operator has stated that 4 additional full time crew members, trained as lookouts, would have to be hired by the operator. The operator also added that 3 additional part-time workers would also need to be hired during high season to meet the increased demand. This season is assumed to last 22 weeks between April and August. These assumptions came from the consultation provided by the operator and can be reasonably considered to be correct. Although the operator operates 9 vehicles, they are not all in use concurrently, therefore each vehicle will not require additional crew.

Using data from the ONS Annual Survey of Hours and Earnings for the Water Transport sector, for 7 day a week operation the 4 employees would be paid £13.79 per hour after adjustment into 2017 prices. The same survey shows that full time employees in this sector work on average 37.5 hours per week, while part time employees work on average 20 hours per week. The part time workers are assumed to receive the same hourly wage as their full-time counterparts.

It is estimated the wage costs of employing the additional full time workers would be £107,588 in the first year. The annual wage costs of hiring 3 part time workers in high season is estimated at £18,207. To cover non-wage costs of the new employees such as National Insurance, admin, uniform and training costs, wage costs are uplifted by 21.2%, or £26,669 annually. This gives a total annual cost of hiring new employees of £152,463. This is uplifted over the appraisal period in line with the forecast growth in tours as estimated by the operator in their consultation response. Of the estimates of the costs of both outcomes, the estimates for the costs of additional workers are the ones that carry the least uncertainty as to their accuracy.

Median gross hourly wage in the water transport sector (£; 2017)	13.79
Weekly hours worked - full time employee	37.5
Weekly hours worked - part time employee	20

FY	1	2	3	4	5	6	7	8	9	10
Full time worker wage costs (£)	107,588	126,953	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400

Part time worker wage costs (£)	18,207	21,484	22,237	22,237	22,237	22,237	22,237	22,237	22,237	22,237
Non-wage costs (£)	26,669	31,469	32,571	32,571	32,571	32,571	32,571	32,571	32,571	32,571
Total costs (£)	152,463	179,906	186,208	186,208	186,208	186,208	186,208	186,208	186,208	186,208

Figure 6 Estimated costs of hiring additional staff to act as lookouts

4.3.2.2 Lost capacity costs

The extra employee on each voyage would reduce the capacity for passengers on each tour by 1 seat, potentially leading to a loss of revenue. The lower capacity would only cost the operator when the full 30 seats would have otherwise been occupied by paying customers. In their consultation response the operator stated this would be approximately 50% of their tours. This was under the assumption of an occupancy of 26 therefore it is maintained in the maximum cost scenario estimates. Under this assumption 5,383 tours would be affected annually on average.

It is assumed that the percentage of tours at full capacity is correlated with occupancy rates. Therefore the percentage change in occupancy between the high and low estimates is replicated when calculating the equivalent estimates for the percentage of tours at full capacity. This is an approximate decrease of 37.7%, so it follows that 31.3% of tours are run at full capacity. Under both estimates the seat loss would cost the operator £21.50, the average ticket price, on each fully occupied tour operated. Under constant prices the average annual cost of the lost seats is £75,194 in the standard occupancy scenario (which is used as the central estimate) and £119,978 in the maximum cost occupancy scenario.

Standard assumed trips at full occupancy (%) - CENTRAL SCENARIO	31.3
Maximum sensitivity trips at full occupancy (%)	50.0
Average ticket price (£)	£21.50

FY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Number of tours	9,339	11,020	11,406	11,406	11,406	11,406	11,406	11,406	11,406	11,406
Number of tours affected central scenario	2,927	3,453	3,574	3,574	3,574	3,574	3,574	3,574	3,574	3,574
Central scenario costs (£)	62,920	74,246	76,846	76,846	76,846	76,846	76,846	76,846	76,846	76,846
Number of tours affected max cost scenario	4,670	5,510	5,703	5,703	5,703	5,703	5,703	5,703	5,703	5,703
Max cost scenario costs (£)	100,394	118,465	122,615	122,615	122,615	122,615	122,615	122,615	122,615	122,615

Figure 7 Estimated costs of the lost capacity due to additional crew on board

As above, we have assumed the lost revenue for the company is equal to the lost profits as the costs are fixed for a single boat journey. It should be noted that the loss in revenue for this firm will be mostly offset by spending elsewhere in the economy as the passengers who choose not to travel will spend their money elsewhere. This would be an indirect impact and has not been monetised given the difficulties in calculating it without conducting primary research.

4.3.2.3 Total costs of Outcome 2

The total cost in the instance of Outcome 2 is the combined cost of hiring new employees and the lost capacity of the seat they would occupy on tours on which the seat would otherwise be occupied by a paying customer. Under constant prices the estimated average annual cost of Outcome 2 is between £257,397 and £302,181 in the low and high occupancy scenarios respectively.

FY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cost of additional workers (£)	152,463	179,906	186,208	186,208	186,208	186,208	186,208	186,208	186,208	186,208
Lost capacity costs central scenario (£)	62,920	74,246	76,846	76,846	76,846	76,846	76,846	76,846	76,846	76,846
Lost capacity costs max scenario (£)	100,394	118,465	122,615	122,615	122,615	122,615	122,615	122,615	122,615	122,615

Total costs central scenario (£)	**215,384**	**254,152**	**263,054**	**263,054**	**263,054**	**263,054**	**263,054**	**263,054**	**263,054**	**263,054**
Total costs max scenario (£)	252,858	298,371	308,823	308,823	308,823	308,823	308,823	308,823	308,823	308,823

Figure 8 Estimated overall costs of outcome 2

4.3.2.4 Summary of final estimates

The costs of the two outcomes modelled above all arise from the same policy option. Therefore the range of costs for Option 1 will be taken from the range of scenarios modelled across both outcomes. The low scenario in the final monetised estimates is the costs of Outcome 2 under the low occupancy assumption.

The high scenario is the costs of Outcome 1 under the high occupancy assumption, although this result is not considered very likely as the high occupancy assumption appears to be unrealistic. The best estimate is the average of the costs of the low scenarios for Outcome 1 and Outcome 2 as the assumption of occupancy is these scenarios is considered far more realistic.

FY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Outcome 1 central scenario costs (£) - POLICY HIGH	330,024	389,428	403,069	403,069	403,069	403,069	403,069	403,069	403,069	403,069
Outcome 1 max scenario costs (£)	511,083	603,077	624,201	624,201	624,201	624,201	624,201	624,201	624,201	624,201
Outcome 2 central scenario costs (£) - POLICY CENTRAL	215,384	254,152	263,054	263,054	263,054	263,054	263,054	263,054	263,054	263,054
Outcome 2 max scenario costs (£)	252,858	298,371	308,823	308,823	308,823	308,823	308,823	308,823	308,823	308,823

Figure 9 Annual monetised costs summary

4.4 Non-monetised costs

4.4.1 Costs of outcome 1

We have assumed, as part of the monetised costs, that the ongoing costs of the process of removing and reattaching the protective screens would be the crew time only. This is because it is not known whether the protective screens in their current form are designed to be easily removed and reattached, upon transition between land and water. There is a chance that a one-off modification would be required to each vessel in order to fix the screens so that they can be quickly removed and reattached. However, we do not have evidence to show whether such modification would be required, nor the potential scale of the cost needed to implement this. Therefore this cost has not been monetised, although it is unlikely to be so large as to make a significant difference to the overall costs of the Regulations.

4.4.2 Familiarisation costs

There is likely to be a minor cost to the operator of familiarising themselves with the regulations, once they come into place. However, given the changes to the regulations are relatively minor, and that the operator was substantially engaged in the initial consultation process and is already aware of the regulatory changes, the burden of familiarisation is likely to be too small to accurately monetise.

4.5 Costs to the MCA

It is not considered that there would be any significant costs to the MCA as a result of the imposition of the proposed Regulations (Option 1). The MCA may be required to carry out additional tasks as part of their regular checks upon the operator to ensure the regulations are being adhered to in full, although this is not expected to add significant burden and is therefore not monetised.

4.6 Benefits

Given the limitations of the available evidence base, it has not been possible to monetise some of the costs and benefits of Option 1.

The principal benefit of the proposed regulations will be to maintain and increase safety by improving bridge visibility reducing the risk of a collision. This benefit has not been monetised as it is not possible to predict the impacts or costs involved in any possible collision, or the change in the likelihood of such a collision as a result of the proposed Regulations (Option 1).

4.7 Key assumptions

Assumption/Scenario	Max	Standard
Occupancy per tour	26.0	16.3
Occupancy loss per tour (Outcome 1)	2.34	1.47
Percentage of tours operated at full capacity	50.0%	31.3%
Occupancy loss per tour percentage (Outcome 1)	9%	
Average ticket price	£21.50	
Time taken to remove and reattach screens (per trip)	10 minutes	
Median hourly wage- water transport sector (2017)	£13.79	
Percentage of passengers needing protective materials	50%	
Number of trips before replacing blankets	10	

Figure 10 Summary of assumptions across scenarios

5 Analytical approach

The intention of these Regulations is to fix the regulatory gaps in the Merchant Shipping (Bridge Visibility) (Small Passenger Ships) Regulations 2005 for vessels with a registered length of between 45m and 55m; and to clarify the definition of an enclosed passenger deck and the use of visual aids when determining sight lines. Evidence on impacts was sought through a public consultation following an initial Regulatory Triage Assessment (RTA).

The response to this consultation from the operator primarily affected by these regulations led DfT and MCA to agree that a full impact assessment was a more appropriate means of assessing the impacts of these Regulations. The evidence submitted both during the consultation and through follow-up discussions with stakeholders is reflected in this impact assessment.

While the costs remain low in absolute terms, the MCA will continue to work within industry to minimise unnecessary impacts, and will review the Regulations within five years.

5.1 Risks and assumptions

Failure to implement the Regulations would mean that the definition of an enclosed passenger deck and the application of the current Regulations would remain open to challenge by any operator of a vessel under the Regulations. This could undermine the intent and purpose of the regulations, which have been applied and complied with consistently by operators of small passenger vessels since 1992.

A non-regulatory approach would also not address the regulatory gap for vessels between 45m registered length and 55m length overall and these vessels would continue to have no enforceable regulations pertaining to bridge visibility. This would leave a safety gap and also mean an unequal playing field for vessels of alternate sizes.

The main assumptions used in the analysis of costs and benefits have been set out in section 4.7, and the analysis uses a range of sensitivities in order to capture the uncertainty around the assumptions.

5.2 Direct costs and benefits to business calculations (following BIT methodology)

The direct costs and impacts have been appraised in section 4. The costs which have been monetised are all direct costs to business. There are no direct benefits to business which have been monetised in this IA.

6 Wider Impacts

6.1 Equalities Assessment

The proposed bridge visibility and line of sight Regulations will affect all UK vessels to which the Regulations apply. The impacts of the Regulations are not going to vary depending on the age, ethnic origin, gender, nationality, race, sexual orientation or disability of any persons involved. These proposals are therefore considered to have no adverse impact as regards to statutory equality duties.

6.2 Competition Assessment

The Regulations will create a “level playing field” among UK vessels with an enclosed passenger deck preventing one business from gaining an advantage over another because of a regulatory inconsistency. Extending the scope of the 2005 Regulations will harmonise regulations for vessels of various lengths which also promotes fair competition.

6.3 Small and Micro Business Assessment

There is no specific exemption for small firms and it is likely that the Regulations will have an impact on small firms. While we don’t have exact data on the size of the current operator affected by these Regulations, their consultation response indicated that they are most likely a small firm. It is therefore reasonable to assume that the majority, if not all, the impacts of these Regulations will be borne by small and micro businesses.

6.4 Environmental Impact Assessment

These Regulations are not expected to have any environmental impacts.

6.5 Health Impact Assessment

These Regulations are not expected to have any adverse health impacts. Reducing the risk of collision due to impaired visibility on waterways also leads to a reduction in the risk of injury or death, although this is a minor change to a very low risk level.

6.6 Human Rights

There are no human rights compatibility issues arising from these regulations.

6.7 Justice System

Enforcement of the Regulations will be through inspection of vessels by MCA surveyors, with the possibility of criminal sanctions for breaches of operator duties. These criminal offences already exist under the current Regulations, so it is unlikely that there will be a significant change in the number of prosecutions.

7 Summary of preferred option and description of implementation plan

As described in section 2, the counterfactual option of no action leads to risks of legal challenge and maintains an existing safety gap. Therefore the preferred option is to implement the proposed Regulations to extend the scope of the 2005 Regulations to vessels between 45m and 55m in length, clarifying the definition of an enclosed passenger deck and clarifying rules on the use of visual aids when determining sight lines.

The regulations will be made as soon as possible. The MCA will continue to work with the industry and will keep the guidance under review to ensure practical implementation.

8 Post implementation review

1. **Review status:** Please classify with an 'x' and provide any explanations below.

	Sunset clause	X	Other review clause		Political commitment		Other reason		No plan to review

Regulations to be reviewed every five years to ensure continued suitability.

2. **Expected review date** (month and year, xx/xx):

		/			Five years from when the Regulations come into force

3. **Rationale for PIR approach:**

Circle the level of evidence and resourcing that will be adopted for this PIR (see Guidance for Conducting PIRs): **low**

Please justify <u>why</u> you propose a low/medium/high evidence approach referring to the PIR guidance. When considering your proposal please note that the approach chosen should be proportionate to the scale of the regulation and that a lack of existing evidence is not a sufficient rationale alone for adopting a low evidence PIR.

The Regulations have been in force in some form since 1992. Most new vessels being built do not rely on the Regulations for their bridge visibility requirements but rather the requirements are an integral part of the code that they must be built to. This means that the number of vessels needing to refer back to these bridge visibility Regulations is low. The Regulations do need to be reviewed from time to time to ensure continued fitness for purpose and also to take account of future technological advances that could, at some stage, alter the need for the prohibition of visual aids. Noting that there will only be a small number of vessels that would ever need to comply with these regulations that do not already do so – for example an existing boat moving from non-tidal to tidal operations – it is suggested that a low evidence approach is proportionate.

As the costs of these regulations are minor, a low evidence approach is appropriate as collecting new data would not be proportionate.

Key Objectives, Research Questions and Evidence collection plans			
Key objectives of the regulation(s)	**Key research questions to measure success of objective**	**Existing evidence/data**	**Any plans to collect primary data to answer questions?**
For ships to be constructed so that the helmsman has all round visibility over a 360° arc without sightlines passing through enclosed passenger spaces	Have the regulations affected the arrangements for visibility on your ships(s)?	Data is available from the following: - Collision statistics for certain specific areas e.g. PLA reports. - Serious collision data for UK as a whole – MAIB - Safety record of individual vessels - Results of targeted ad-hoc inspections when vessels are operating. These data sources reference variable timeframes but generally are based on an annual assessment. Where an ad-hoc inspection has identified a compliance issue this would be dealt with at the time.	a) Primary data will be collected via engagement with stakeholders. This will be achieved via a questionnaire sent to targeted stakeholders, including operators of vessels in scope of the Regulations, harbour authorities and industry bodies. b) It is suggested that the questionnaires would be sent out directly to identified stakeholders and a period of 4 weeks given for response. c) It is not considered proportionate to collect new data as the costs of these Regulations are minor.
	Do you feel the Regulations are implemented effectively?		
	Can you identify any areas where you think the Regulations could be improved?		
	Are you aware of any new technology that you feel should be considered as an acceptable visual aid? For example, advances in autonomous operation?		
	Have there been any unanticipated effects that have occurred as a result of the regulations?		
	Are you able to provide any information about the impact of the bridge visibility Regulations on UK business?		
	When reviewing regulations it is standard practice to assess if these have had a disproportionate impact on businesses with less than 50 employees. Do you think this is an issue of concern for the bridge visibility Regulations? - Yes - No - Not Sure What are the reasons for your answer:		
	What would your recommendations be for the next steps of the regulation? ☐ Keep the regulations as they are ☐ Make changes to the regulations ☐ Remove or replace with something else ☐ Don't know If you have suggested changes, removal or replacement, please could you provide the reasons for your response here:		
	Do you have any other general comments?		