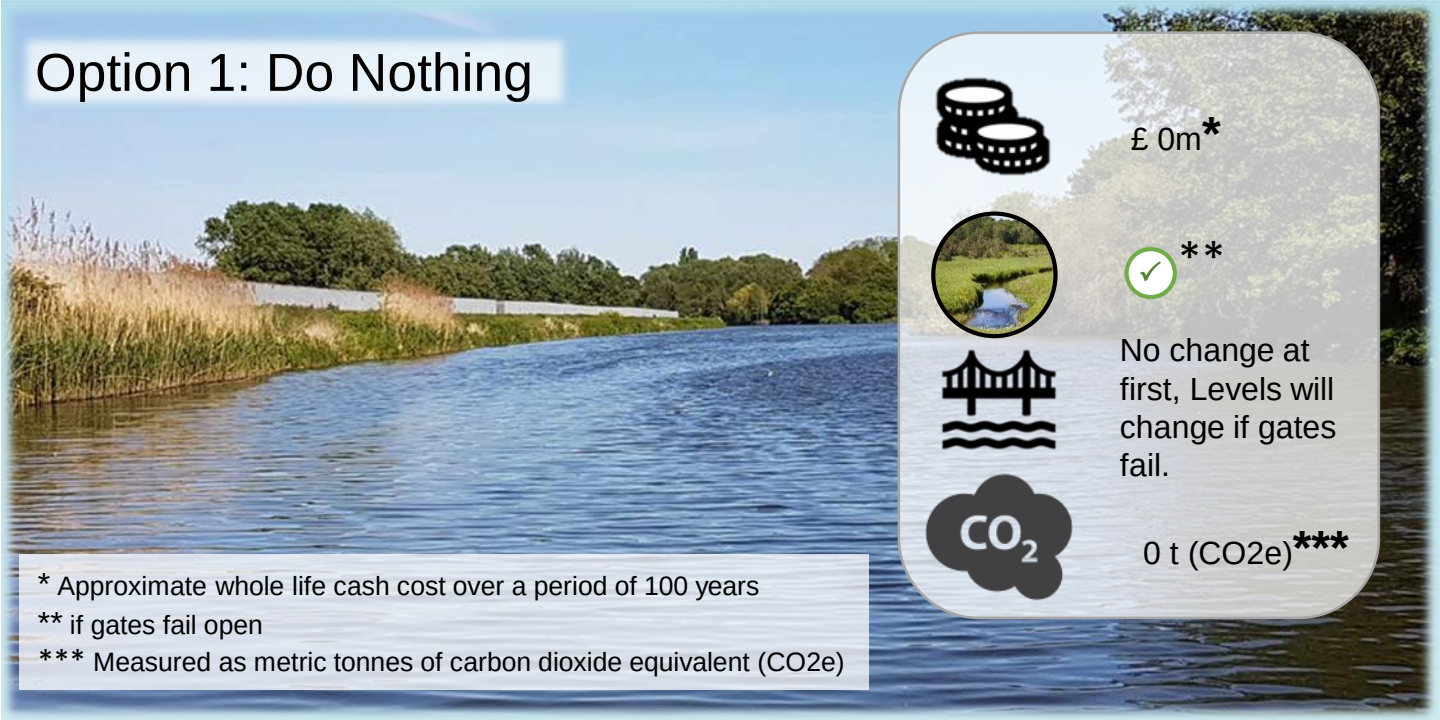
Option 1: Do Nothing



£ 0m*

**

No change at first, Levels will change if gates fail.

0 t (CO2e)***

* Approximate whole life cash cost over a period of 100 years
** if gates fail open
*** Measured as metric tonnes of carbon dioxide equivalent (CO2e)

Option Summary

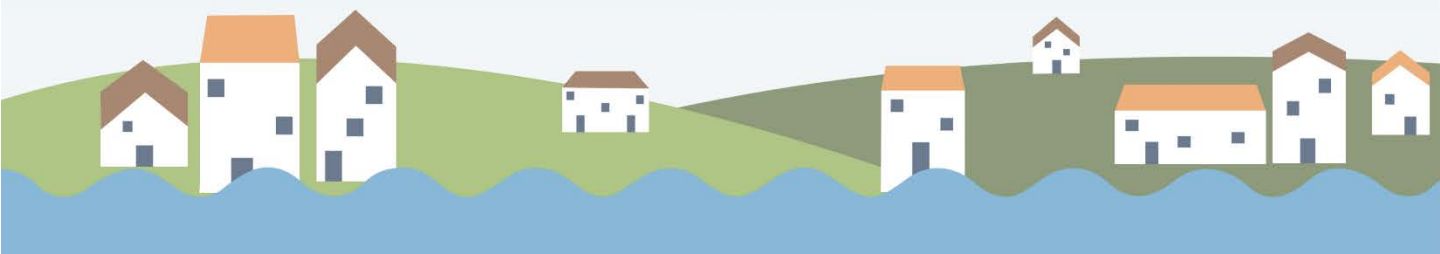
No work or maintenance at any existing structure or along the river channels.

Pros

- No change in visual amenity or recreational use in non flood conditions until the gates fail.

Cons

- Water levels throughout the scheme are difficult to control as gates fail.
- Increased flood risk to over 1200 properties if gates fail in closed position.
- If gates fail in an open position in the future, there is likely to be a loss of water in the side channels including the Old Mole and Imber Court Loop, impacting on habitat and amenity.



Option 2: Do Minimum

£ 118m*

=

No change

20,348 t(CO2e) **

*Approximate whole life cash cost over a period of 100 years

** Measured as metric tonnes of carbon dioxide equivalent (CO2e)

= No change in the environmental impacts on the scheme

Option Summary

There will be reactive maintenance and repairs as structures gradually fail.

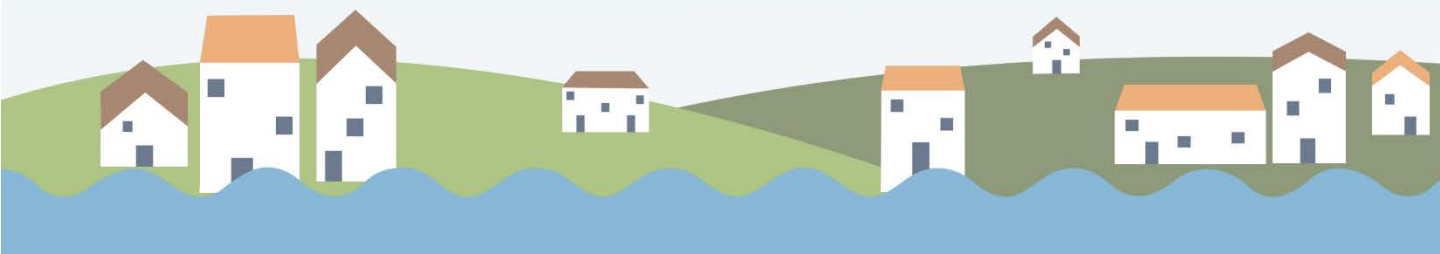
Fish passes to be provided as structures are replaced.

Pros

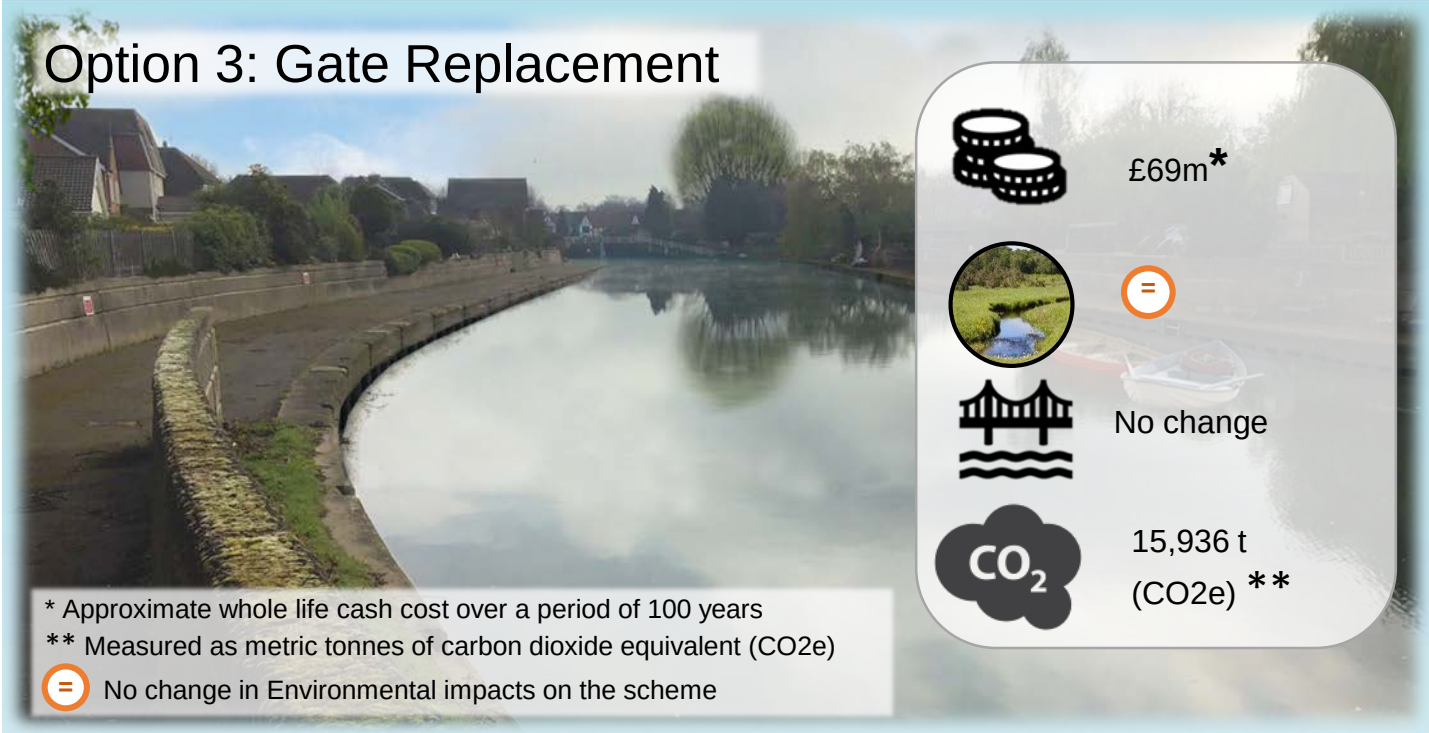
- Current standard of flood protection levels will be maintained.
- No change to visual amenity or recreational use.
- When gates are replaced, fish passage solutions will be built to allow most species to bypass these barriers.

Cons

- Limited opportunity to reduce spend on reactive maintenance.
- Reactive maintenance results in multiple disruptions to the river and for local residents.
- Habitats and wildlife will remain as they are, with no ability to improve them, or reduce floating pennywort.



Option 3: Gate Replacement



£69m*

=

No change

15,936 t (CO2e) **

* Approximate whole life cash cost over a period of 100 years
** Measured as metric tonnes of carbon dioxide equivalent (CO2e)
= No change in Environmental impacts on the scheme

Option Summary

Molember: Replace 3 of the 4 gates with a fixed crest weir and replace the remaining gate with a new gate. Automate operation of the new gate.
Island Barn: Replace all gates with new gates and automate operation.
Viaduct: On one side install a small fixed crest weir and fish pass. Replace all gates with new gates and automate operation (no change in upstream water level).
Zenith & Wilderness: Remove existing gates, electrical equipment and Zenith walkway. Install new rock ramp fish pass on the existing structure.
Royal Mills: Replace existing gate with a fixed crest weir at the same level and consider potential for installation of a fish pass.
Flood Channel: Repair channel banks.

Pros

- No change in visual amenity or recreational use.
- Current standard of flood risk protection is maintained, scheme resilient against climate change
- Fish passage solutions at selected structures will enable most species to bypass these barriers.

Cons

- Gates that are replaced as part of this option would need replacing again in 30 years.
- Ongoing maintenance is required to ensure gates remain operational.
- Habitats and wildlife will remain as they are, with no ability to improve them, or reduce floating pennywort.

Please visit this link to view the option presentation https://youtu.be/tNKHV0xy5Ew

Option 4: Molember Gates replaced with fixed crest weirs

£67m*

=

No change at Island Barn/Viaduct
Drop in level upstream of Molember

CO_2 14,765 t (CO2e)**

* Approximate whole life cash cost over a period of 100 years

** Measured as metric tonnes of carbon dioxide equivalent (CO2e)

= No change in environmental impacts on the scheme

Option Summary

Molember: Replace all gates with a fixed crest weir (fall in upstream water level).

Island Barn: Replace all gates with new gates and automate operation.

Viaduct: On one side install a small fixed crest weir and fish pass. Replace all gates with new gates and automate operation (no change in upstream water level).

Zenith & Wilderness: Remove existing gates, electrical equipment and Zenith walkway. Install new rock ramp fish passes on the existing structures.

Royal Mills: Replace existing gate with a fixed crest weir at the same level and consider potential for installation of a fish pass.

Flood Channel: Repair channel banks.

Pros

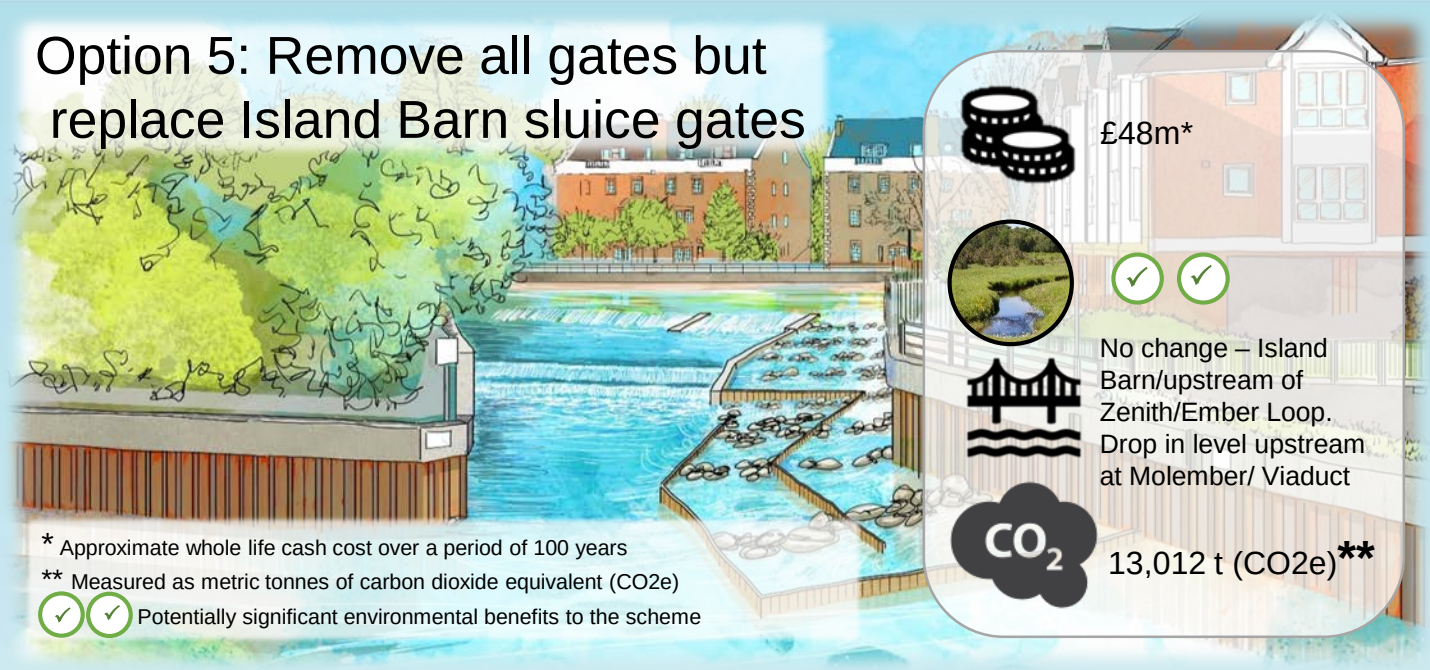
- No change in visual amenity or recreation use upstream of Island Barn.
- Current standard of flood risk protection is maintained, scheme resilient against climate change
- Fish passage solutions at selected structures will enable most species to bypass these barriers.

Cons

- Reduction in water level between Molember and Island Barn will impact on visual amenity, by exposing some hard engineered structures, and recreational use in this area.
- Gates that are replaced as part of this option would need replacing again in 30 years.
- Habitats and wildlife will remain as they are, with no ability to improve them, or reduce floating pennywort.

Please visit this link to view the option presentation https://youtu.be/ZI_JXHPpHWE

Option 5: Remove all gates but replace Island Barn sluice gates



£48m*

No change – Island Barn/upstream of Zenith/Ember Loop. Drop in level upstream at Molember/ Viaduct

13,012 t (CO2e)**

* Approximate whole life cash cost over a period of 100 years

** Measured as metric tonnes of carbon dioxide equivalent (CO2e)

✓✓ Potentially significant environmental benefits to the scheme

Option Summary

Molember: Remove all gates but leave concrete piers in place.

Viaduct: Remove all gates. Provide rock ramp fish pass. Leave concrete piers and bridge in place.

Royal Mills: Existing gate removed. Channel will become a backwater that flows during higher flow events.

Island Barn: Replace all gates with new gates and automate operation

Zenith & Wilderness: Remove existing gates, electrical equipment and Zenith walkway. Install new rock ramp fish passes on the existing structures.

Flood channel: Repair channel banks. Install berms and groynes to form a low flow channel where required.

Pros

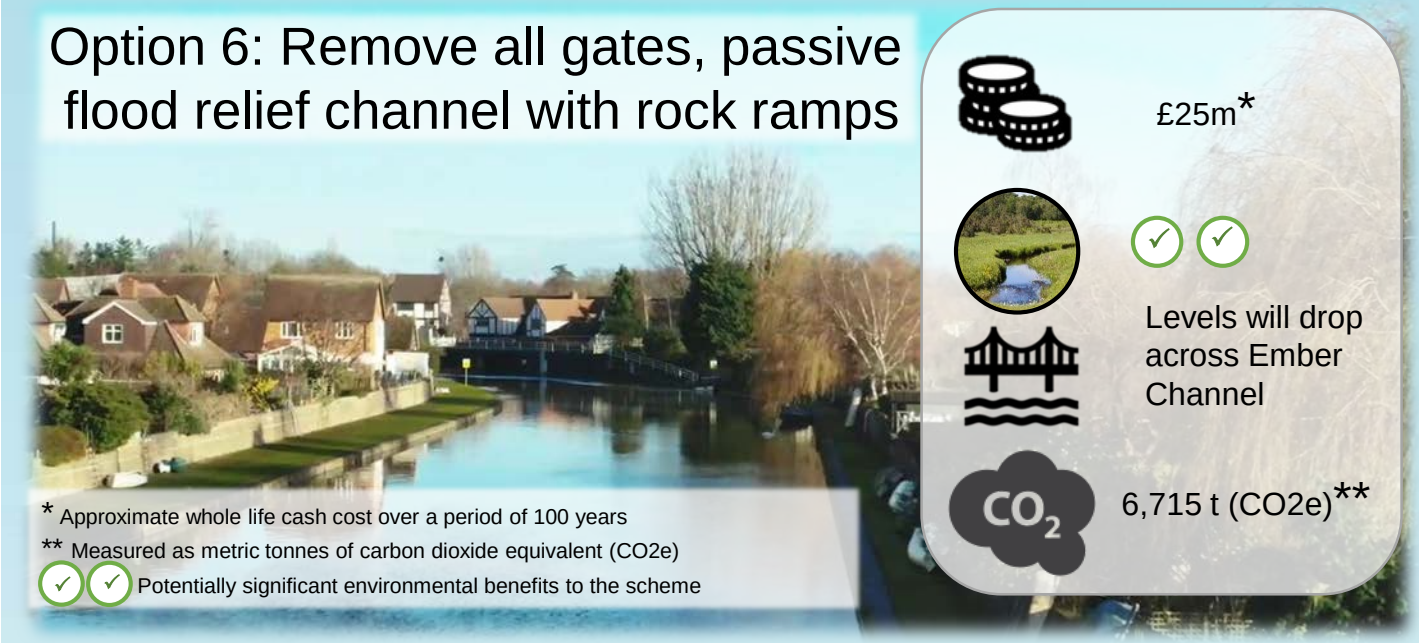
- No change in visual amenity or recreational use around Island Barn, and along River Mole and Ember Loop.
- Reduction in flood risk in severe events and greater resilience against climate change due to less impoundment and greater flow capacity in the river channel.
- Removal of barriers to fish for approximately 13km. The restoration of natural processes, creating more diverse habitats along 6.5 km of river, and the retention of existing features on the Old Mole and Imber Court Loop.

Cons

- Reduction in water level upstream of Molember and Viaduct would impact on visual amenity and recreational use in these areas by exposing some hard engineered structures.
- Gates that are replaced would need replacing again in 30 years.
- Habitats and wildlife between Viaduct and Island Barn will remain the same, with no improvement.

Please visit this link to view the option presentation https://youtu.be/IxffuGdiatg

Option 6: Remove all gates, passive flood relief channel with rock ramps



£25m*

Levels will drop across Ember Channel

6,715 t (CO2e)**

* Approximate whole life cash cost over a period of 100 years

** Measured as metric tonnes of carbon dioxide equivalent (CO2e)

✓✓ Potentially significant environmental benefits to the scheme

Option Summary

Molember: Remove all gates but leave concrete piers in place.

Island Barn & Viaduct: Remove all gates. Leave concrete piers and bridges in place. Provide rock ramp fish pass.

Zenith & Wilderness: Remove existing gates, electrical equipment and Zenith walkway. Install new rock ramp fish pass at Wilderness and investigate potential for fish passage at Zenith. Works carried out to reduce future maintenance.

Royal Mills: Existing gate removed. Channel will have low flows unless there is a higher flow event.

Flood channel: Repair channel banks and install berms and groynes to form a low flow channel where required.

Pros

- Lifespan of 100 years as no gates will need to be replaced.
- Reduction in flood risk in severe events and greater resilience against climate change due to minimal impoundment and greater flow capacity in the river channel.
- Removal of barriers to fish for approximately 13km. The restoration of natural processes, creating more diverse habitats along 9km of river - one of the largest river restoration schemes of its kind in South East England.

Cons

- Reduction in water level will impact on visual amenity, by exposing some hard engineered structures, and recreational use throughout the scheme.
- Changes to access arrangements required in some areas of the river to allow residents to continue to access the river.

Please visit this link to view the option presentation https://youtu.be/WdA0IFzJtcA