

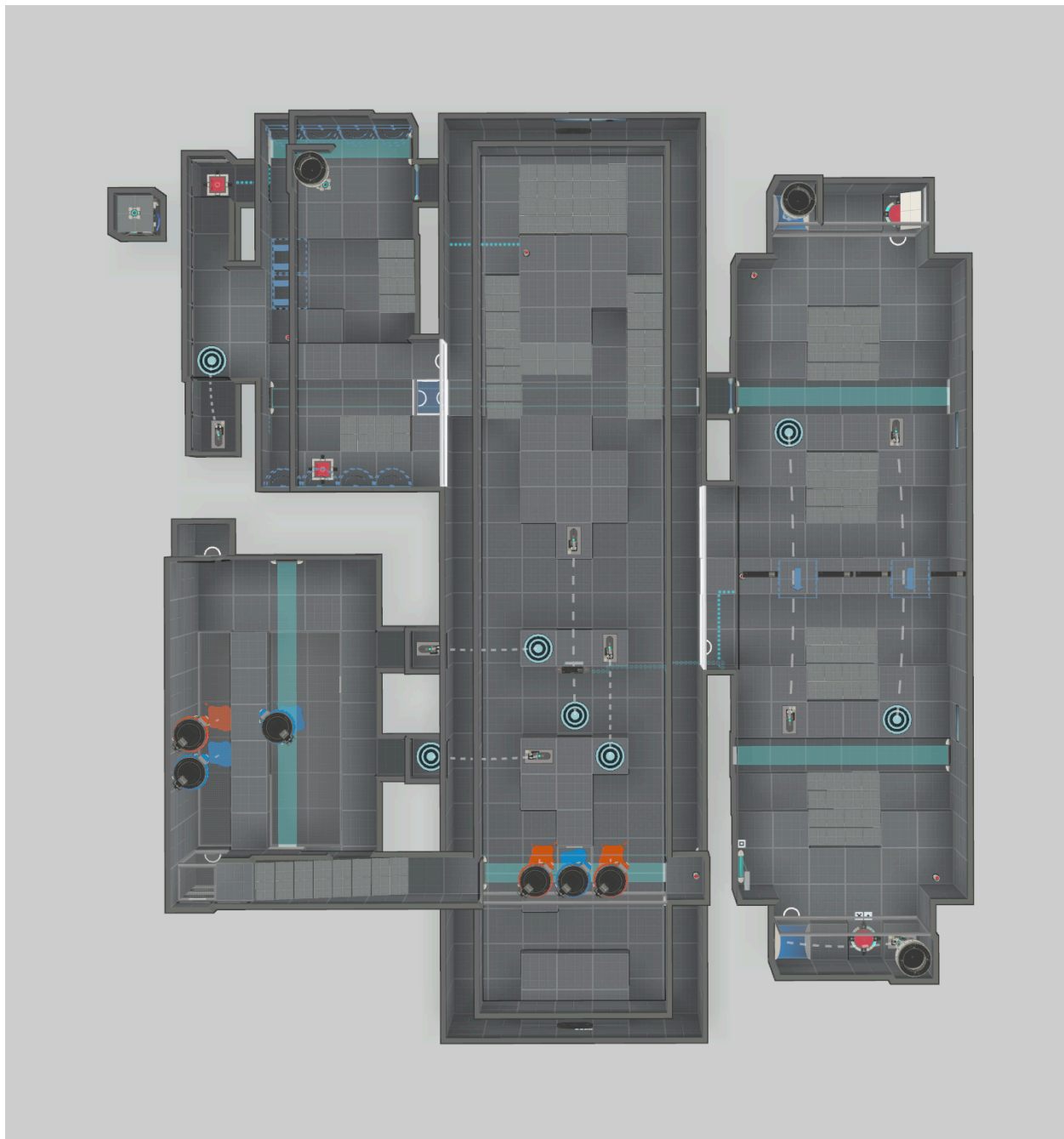
Design of “Causeway”

Portal 2 Level Design Project

By Sebastian Bolatto

Video Link: <https://youtu.be/jO8hVcnSWu0>

Level Map Overview



Level Map Marked With Beats



Main Beats

START



The level starts with the player emerging into a large, open corridor. On climbing the stairs in front of them, the player sees a long bridge, with the open exit door positioned at the very end of it. This bridge is the elevated “Causeway” being referred to in the title, and acts as a weenie for the player to orient themselves around and continually return to.

The player will notice that this causeway is clearly in disrepair, and that in its current state, the player is not able to make it across. Their first obstacle is a gap that is too large to jump over.



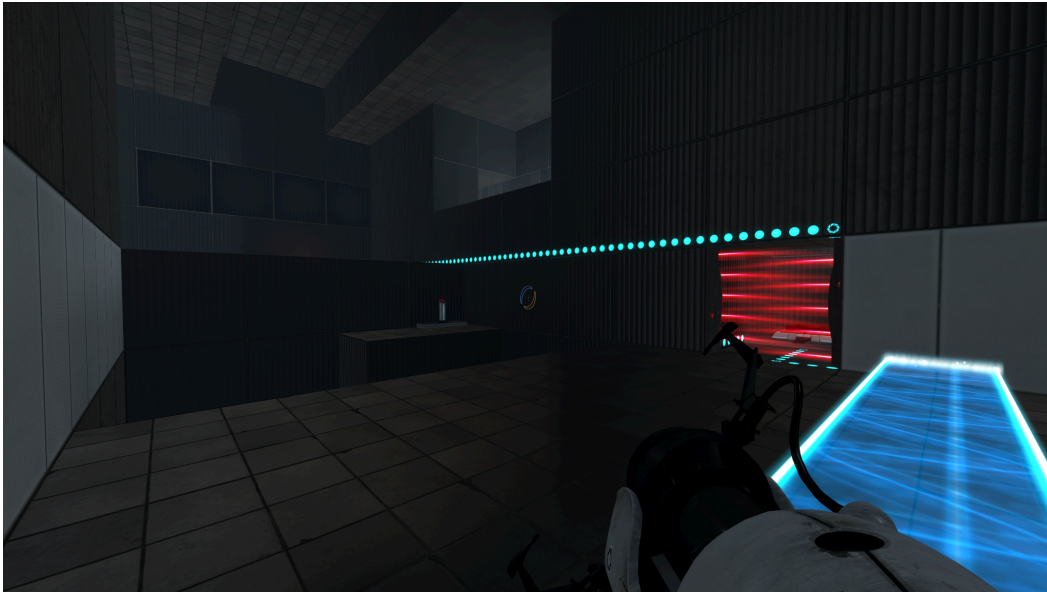
The player will also see a button on the first section of the causeway, which will instantly attract the attention of the player. The orientation of the button, as well as an antline, makes it clear when the player presses the button it deactivates a laser grid blocking access to the first side-room. This attracts the attention of the player, leading them to move into the sideroom, and begin the first major beat of the level, Beat 1.



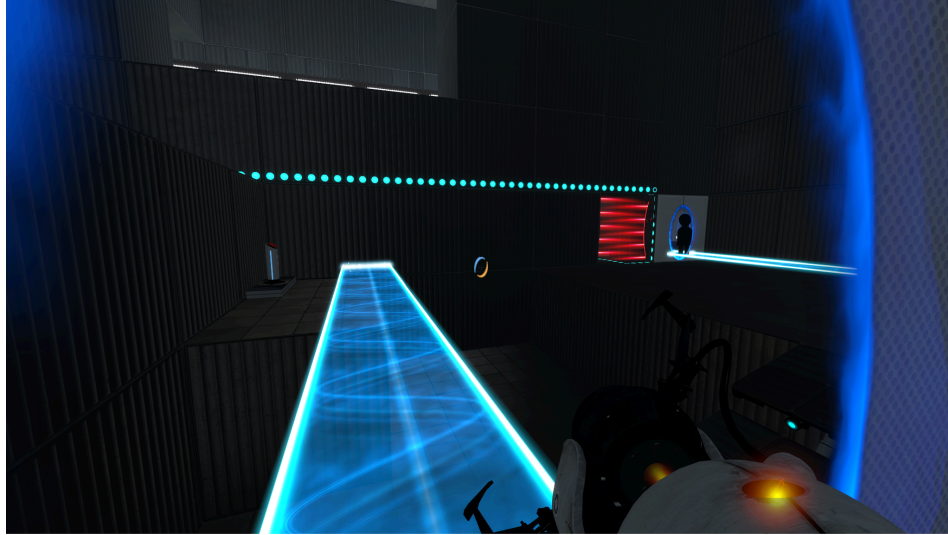
Additional Notes:

- The button was moved to be onto the causeway and facing the laser grid because of feedback. This way, the consequence of the button is obvious (It's very clear that it deactivates the laser grid into the side room) and it also forces the player to climb up the staircase and onto the causeway first, letting them take in the whole environment.
- The area below the bridge used to have water, but I decided against adding dangers like that to a level, since killing the player forces the player to restart the level from the very beginning. This can get frustrating for the player if they have to repeat a lot of the level after getting killed, so the only dangerous elements of the level are the two laser grids in the first section of the level. These laser grids are difficult for the player to kill themselves against, and if they do, then the player does not have to repeat much of the level.
- Each side room has an emancipation grid on its entrance. This is primarily to show that each side room is its own distinct section of the level.

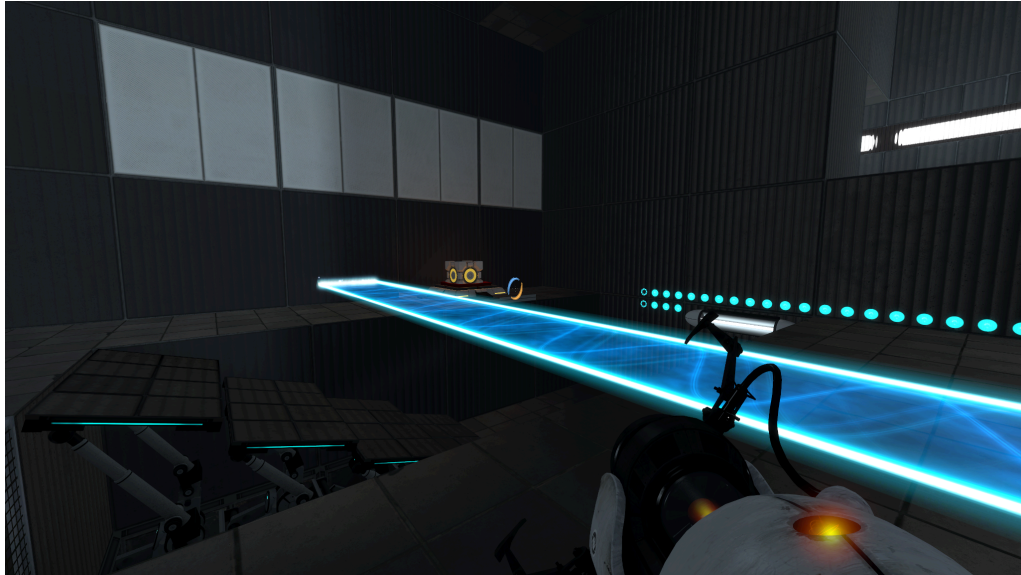
Beat 1



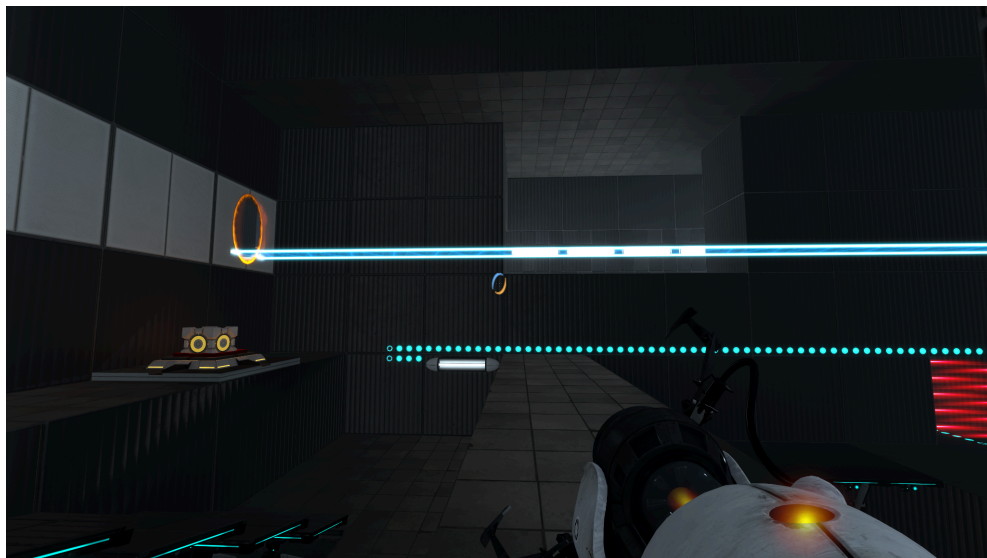
- Upon entering the area for beat 1, the player sees a few things:
 - A button to the left that is currently unreachable. This button acts as a clear first goal.
 - A pressure plate can be seen behind a laser grid in front of them. Players generally identify this as the final goal for this section, but they are not sure how to activate the button just yet.
 - There is a wall with portable surfaces to their left.
 - There is a hard light bridge to their right, which is being emitted straight into a portable surface.
- The first puzzle in this section acts as a simple introduction to the hard light bridge mechanic. It is obvious that the player needs to place a portal in front of the hard light emitter, and that they need to place the other portal on one of the portable surfaces to their left. This creates a bridge that they can walk over through the portal, and reach the first button with.



- Pressing the first button drops a cube in the area next to the hard light bridge emitter, and flips the panels above the hard light bridge to become portable.
 - The button was changed to drop the cube in the area next to the hard light bridge emitter after feedback, because having it drop in the area next to the hard light bridge is more obvious and visible to the player. Previously, it was dropping from directly above where the button is located, which was surprisingly easy to miss as the players would generally turn to look at the noise of the panels above the hard light bridge flipping. Now, the players will also see the cube drop as they turn their attention towards the noise.
 - Another change I made was to make it so that this button could be pressed again to reset the cube. Previously, it was pressed down infinitely after the player pressed it the first time, but this was a problem as if the player threw the cube through the laser grid in the level, the player would be soft-locked and unable to complete the level. I did a neat trick where I had the button also drop a cube onto a pressure plate in an unreachable side-area outside of the level, so that the panels would be left permanently flipped after the first press of the panel while pressing the button would only cause the cube to reset.
- The next part of the puzzle requires them to place a portal on one of the revealed panels and walk on the hard light bridge again, which shows the player how the elevation of the hard light bridge can be changed by the player's portal placement and helps to reinforce the hard light bridge mechanic. The player must use this new bridge to take the dropped cube to a slightly elevated area, and place it on a pressure plate that is present in that elevated area.
 - In this elevated area, the player is also able to see the hard light emitter that is activated by the button behind the laser grid they saw earlier, which shows them how achieving the final goal in this area will help them get across the bridge.



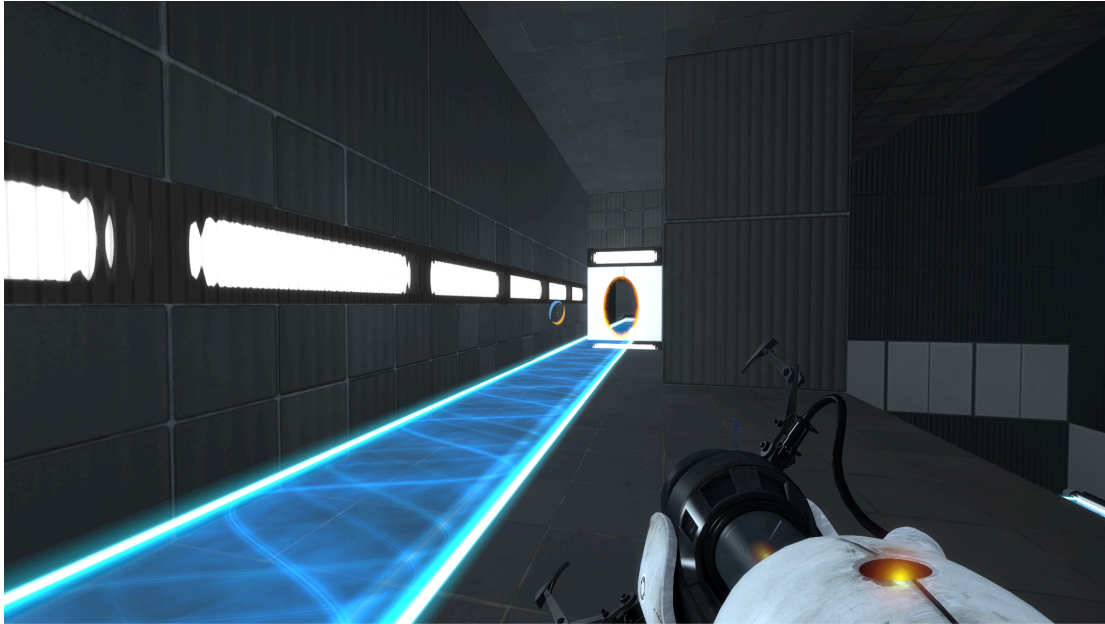
- Placing the cube on the pressure plate on the slightly elevated area flips a few more panels above that pressure plate, revealing the last step the player must take to reach the topmost elevated area. The player must once more pass through their portal to walk across the hard light bridge at a higher elevation, reinforcing the hard light's interaction with the player's portals.
 - The topmost elevated area uses light to attract the player's attention, making it clear to the player that part of their goal is to reach this topmost elevated area.



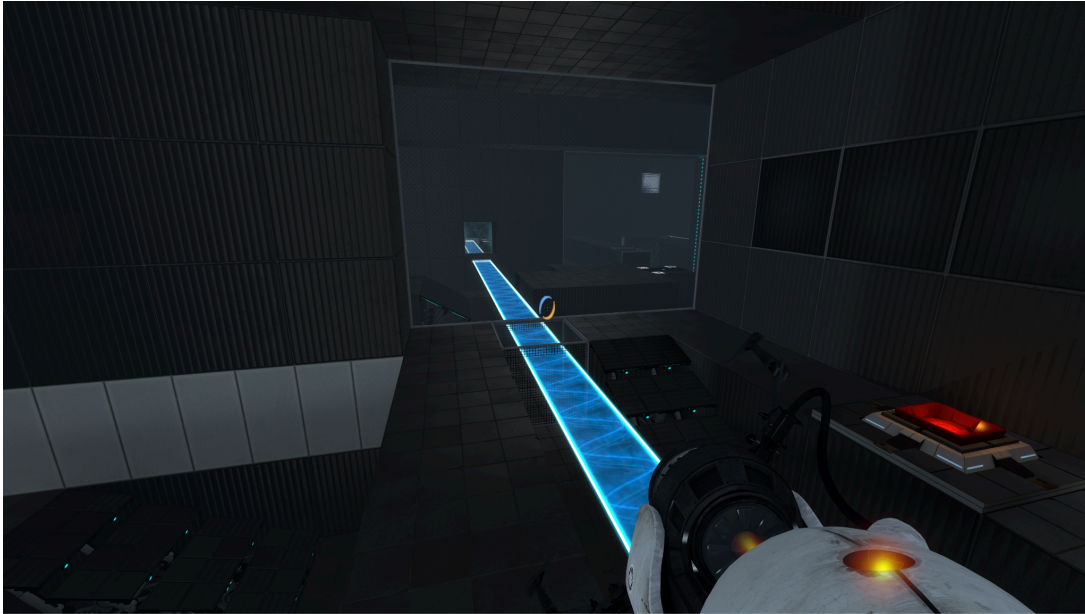
- Once on the topmost elevated area, the player is able to see a portalable surface above a hole that drops directly onto the pressure plate that they were able to see behind the laser grid at the very beginning of this section! The only problem is getting the cube there. This last step of the puzzle requires an extra step of thinking; The player must place their

portal on the portable surface above the hole, drop down onto the slightly elevated area to grab their cube again, and then drop down to the very bottom area to then take their cube through the portal and drop it onto the pressure plate in the hole.

- Next to the pressure place is a small tunnel with a faith plate that launches the player back onto the topmost elevated area, ensuring that they do not get stuck in the hole if they are there without a cube.



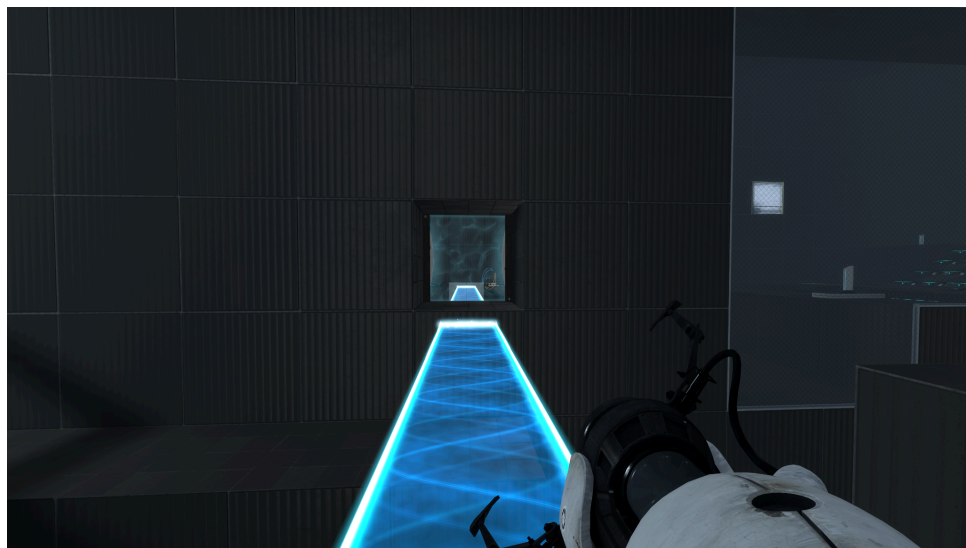
- After activating the pressure plate with the cube, the player will see that the second light bridge has now turned on and forms a bridge that the player can use to get onto the next section of the ruined causeway!
 - The large window looking into the causeway lets the player see what consequences their actions in this side section have on repairing the causeway. The light bridge that they have activated, and their view through the window, also shows the player exactly where they need to go next.



Beat 2



- After activating the light bridge at the end of Beat 1, the player is now able to cross the gap, and get onto a new section of the causeway which has a faith plate. However, using this faith plate sends the player over the next portion of the causeway they need to get onto, and straight into a hole! They need to find a way of stopping themselves while in mid-air, so that they can land on the next portion of the causeway without overshooting it.
- The hard light bridge created at the end of Beat 1 also leads the player into a second side room, this time to their left.
 - The direction of the hard bridge guides the player to where they need to go next, which is through the entrance to Beat 2.



- Upon entering the area for Beat 2, the player sees a few things:
 - To their left is a button next to a caged-off section, which the player is unable to enter but can shoot portals through.
 - Far to their right is a similar caged-off section, containing a different puzzle to the first.
 - To their right, there is also a faith plate that will take them over a divider in the middle of the room and closer to the second caged-off section.
 - The divider in the middle of the room has a solitary button on it, which the player can instantly identify as a primary goal of this section. However, the player cannot currently reach the button, as they have no way of stopping their movement in mid-air to drop onto the divider.



- The first thing that will attract the player's attention is the button and caged-off puzzle to the player's immediate left. Pressing the button will cause a cube inside of the caged-off area to drop directly into an emancipation grid, destroying it. The player will have to move the cube onto a pressure plate to the side by placing down a sloped hard light bridge, and then moving the portal when the cube slides to a position directly above the pressure plate, having it drop down onto the plate.
 - After feedback, the button for this puzzle was moved to be directly next to the location where the cube would drop, to make it easy for the player to press the button and see the cube drop and get destroyed. This makes it clear to the player both that the button causes the cube to drop, and that their objective in this puzzle is to find a way to have the cube not be destroyed but rather moved onto the pressure plate.
 - After feedback, I also added signage to the pressure plates for both puzzles in this room. The signage helps make it more clear what each pressure plate is triggering.
 - This puzzle serves to reinforce a new aspect of the hard light bridge mechanic. It shows the player that not only will the hard light bridge stop the player, but it will stop non-player objects like cubes as well.



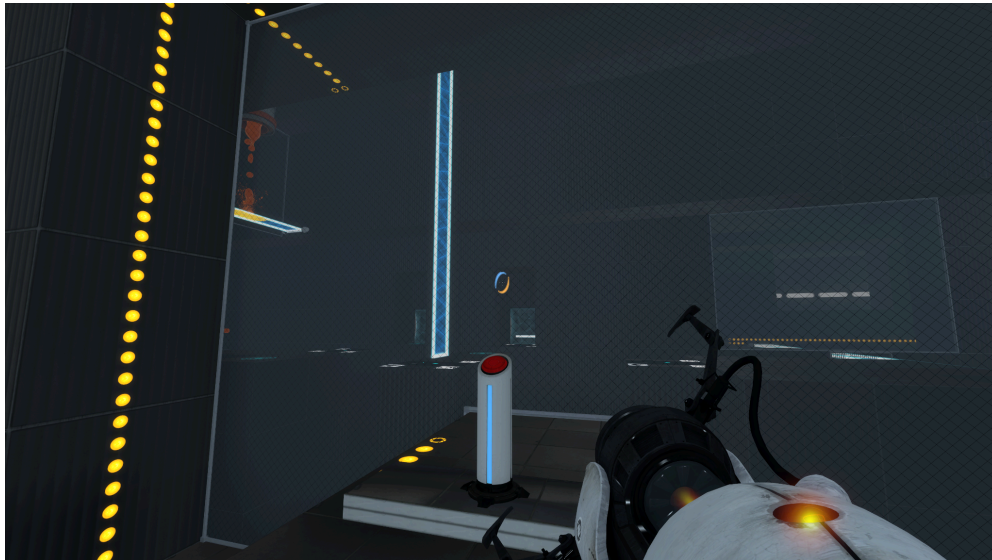
- The pressure plate activates the hard light emitter next to the second caged-off puzzle, which the player needs in order to complete the second puzzle.
- The second caged-off puzzle is set up similarly to the first. Pressing the button will cause a cube to drop onto a faith plate, which launches it over a pressure plate and into an emancipation grid. Here, the player has to use the hard light bridge that they activated in the previous puzzle to place down a vertical bridge. This vertical bridge will stop the cube mid-launch, and have it slide onto the pressure plate below, which activates two flip panels on the ceiling in the middle of the room.



- The final puzzle requires the player to apply what they learned from these caged-off puzzles to themselves. Specifically, that the hard light bridge can be used not just as a bridge, but also as a barrier to stop or redirect an object. The player must now use the flipped panels in the ceiling to create a barrier that will stop them halfway through their launch, and let them land on the divider in the middle of the room.



- On the divider, the player can press the button which will activate a vertical hard light bridge on the main causeway, allowing the player to continue traveling down the causeway.
 - After feedback, I moved the button to be located right in front of the window, to make it obvious to the player that activating the button causes the vertical hard light bridge to appear on the main causeway, as they can see it appear when they press the button.

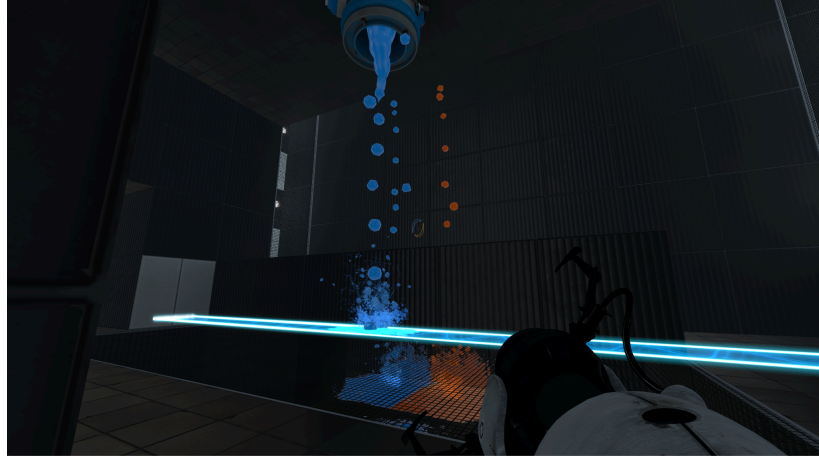


Beat 3

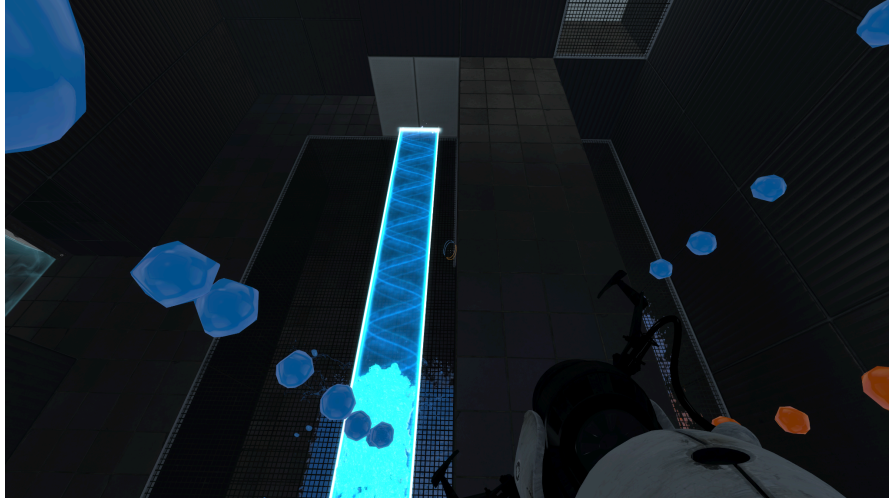
- After activating the vertical hard light bridge at the end of Beat 2, the player is now able to stop themselves mid-launch to land on a piece of the causeway with a faith plate that will launch them to the final broken portion of the causeway. On this last portion of the causeway, there is a large gap stopping the player from reaching the end. Above them is a blue gel dropper, and blue gel would give the player a large enough jump boost to get them to the other side - But the gel dropper is stopped by a hard light bridge, and any gel that is dropped past the sides of the hard light bridge goes through a grate onto the floor below. There is also a faith plate that takes the player to the final side room, Beat 3.
 - A grate was added to this section because I noticed in playtesting that some occasional drops of bounce gel would make it past the hard light bridge, and drop onto the tip of the broken causeway, allowing players to completely bypass the third section. I decided it would also help to reinforce the hard light bridge's mechanics if I placed a grate there, and had a hard light bridge activate to catch the falling gel instead once the hard light bridge above was deactivated.



- Upon entering the side room for Beat 3, the player sees a few things:
 - A light bridge in front of them, which is below a blue gel dropper.
 - A ledge directly in front of the light bridge.
 - An area beyond the ledge with a tall ceiling, that also has a blue gel dropper and orange gel dropper. This area also has walls on either side with alternating portable and non-portable surfaces.

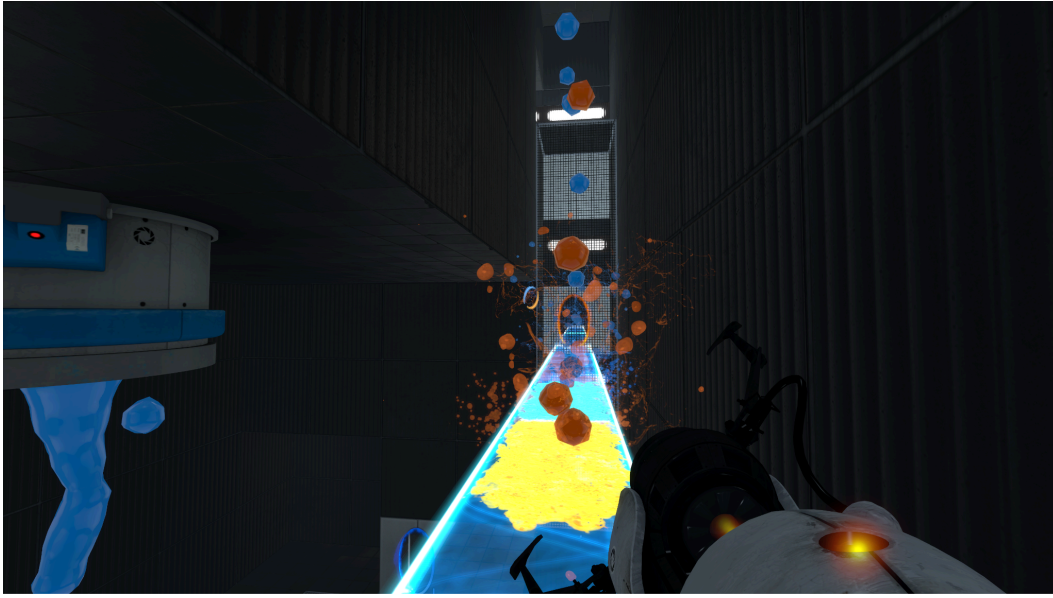


- The first thing that the player will notice is the hard light bridge, with a blue gel dropper dropping blue gel directly onto the bridge. The player will notice that the hard light bridge does in fact stop and gets covered by the blue gel, rather than letting the blue gel pass through the bridge and into the grate below. The player can jump from the blue gel spot on the hard light bridge to get onto the ledge, as the blue gel will give them a jump boost.
 - This step introduces the secondary mechanic of the level; That being the gels. It also shows the player how the gels interact with the primary mechanic of the level, the hard light bridge. It shows the player that gels are stopped by the bridge, and that the bridge does indeed get covered by their effects.
 - Previously, this step had required you to create a portal to project a hard light bridge that would catch the blue gel first, rather than the hard light bridge being there in the first place. However, in feedback, it was clear that people were not aware that gel could interact with hard light bridges in this manner, and would not think of creating a bridge beneath the blue gel. So, I decided to have a hard light bridge activated underneath the blue gel by default, to make this interaction obvious to the player.

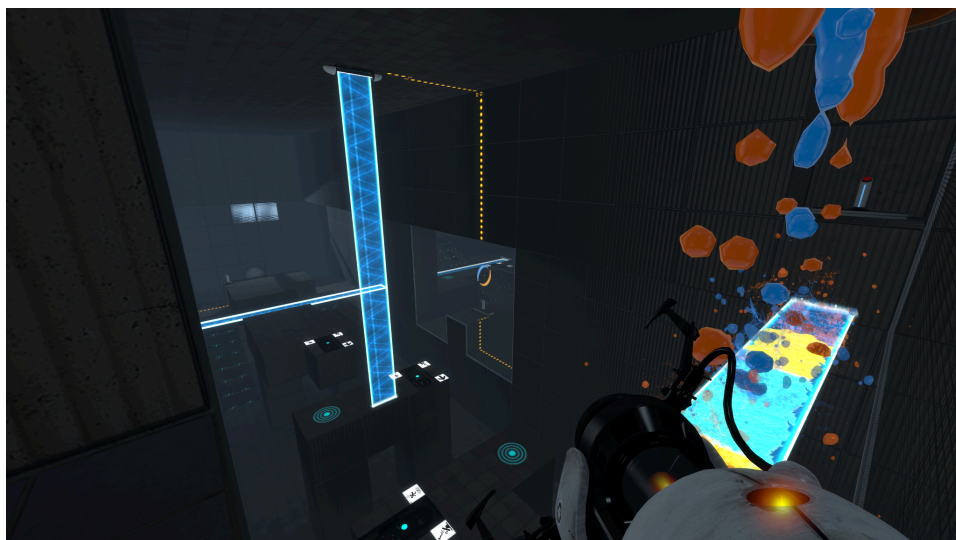


- From the ledge, the player is able to better see into the area with the tall ceiling. They will see that they need to climb to the top of this area in order to continue, but the gels drop into a grate below. In order to continue, the player will have to use their portals to create a hard light bridge that catches these gels, allowing the player to use the gels to jump higher and then move the hard light bridge to be a little higher up below him, allowing him to scale this area and finally arrive at an entrance near the ceiling.
 - This step reinforces the interaction between the hard light bridge and the gels, requiring the player to apply some critical thinking to how they could combine the two mechanics to their advantage in this area.
 - Light coming from the entrance near the ceiling guides the player's eye, showing them where they need to go next.





- From the entrance near the ceiling, the player can continue down the hallway to arrive at an exit into the main causeway area, one that is very high up. From this exit, the player is able to jump onto the hard light bridge that is blocking the gel droppers in the main causeway area, and use the boost from the gels to get to a button located in an alcove across from the player. Pressing this button causes the hard light bridge to deactivate, letting the gels drop onto a different hard light bridge that gets activated further down below that goes over the final broken portion of the causeway.
 - This was made to be a cool moment now that the player has pretty much completed the level, where they would be able to take one final look at the causeway, and the changes they have made to it, from high above before completing the level. The high angle ensures that the player feels they have conquered the level.



- The player can now jump back down to the causeway, and use the blue gel on the new hard light bridge to jump over to the exit, and finish the level.

