TUNNEL VISION CHALLENGE

The Sandbanks–Studland Active Travel Tunnel

A Pedestrian and Cycle Tunnel Beneath Poole Harbour Entrance
Connecting BCP's Active Travel Network to the Jurassic Coast

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1. Executive Summary

This proposal seeks funding from The Boring Company's Tunnel Vision Challenge to construct a pedestrian and cycle tunnel beneath the entrance to Poole Harbour, connecting Sandbanks (Bournemouth, Christchurch and Poole) with Shell Bay, Studland (Dorset). The tunnel would provide the first permanent, weather-proof, all-hours active travel link between BCP's urban conurbation and the Isle of Purbeck, the Jurassic Coast UNESCO World Heritage Site, and the start of the 630-mile South West Coast Path.

At approximately 0.97 miles (1.56 km), the tunnel sits within The Boring Company's 1-mile, 12-foot inner diameter specification. It would run from the roundabout near North Haven Yacht Club on Banks Road, Sandbanks, to Ferry Road near the Shell Bay National Trust car park on the Studland peninsula.

0.97 mi	**25 miles**	**500,000+**	**45–60 min**
Tunnel Length	Road Detour Saved	Annual Users (Est.)	Time Saved Per Trip

The crossing currently depends entirely on the Sandbanks Chain Ferry, a single vessel built in 1994, operated by a private company, and subject to frequent breakdowns, biennial refits, weather disruptions, and capacity constraints. When the ferry is out of service – as it was for nearly four months in 2019 and 17 weeks over winter 2022–23 – there is no pedestrian or cycling alternative. Walkers, cyclists, and Beryl bike-share users face a 25-mile road detour via Wareham, or simply don't make the journey.

A dedicated active travel tunnel would permanently resolve this vulnerability while directly advancing the strategic transport objectives of both BCP Council and Dorset Council.

2. The Problem: A Critical Missing Link

2.1 A Single Point of Failure

Poole Harbour is one of the largest natural harbours in the world. Its narrow entrance – approximately 300 metres wide between the Sandbanks and South Haven peninsulas – creates a natural bottleneck that has been crossed by ferry since 1926. Today, the Sandbanks Chain Ferry (the Bramble Bush Bay) is the sole crossing point for all traffic: vehicles, buses, pedestrians, and cyclists.

The ferry's reliability record tells the story:

- July–October 2019: Out of service for nearly 4 months due to a broken drive shaft, discovered after initial mechanical issues. Repairs required transport to a Southampton shipyard.
- October 2022–February 2023: Suspended for 17 weeks after scheduled 6-week maintenance was derailed when the ferry's southern prow was severely damaged during towing to Falmouth. New parts had to be ordered from Poland.
- November 2024: Scheduled 15-day refit suspension. The Purbeck Breezer 50 bus was split into two separate routes.
- COVID-19 2020: Service withdrawn entirely from 21 April, with only limited essential travel from 23 March.

- Regular biennial refits: Typically two weeks each November when the service is completely unavailable.

Each disruption severs the connection for pedestrians, cyclists, South West Coast Path walkers, Beryl bike-share users, bus passengers on the Purbeck Breezer 50 route, and local residents who depend on the crossing for work, healthcare, and shopping.

2.2 Economic and Community Impact

When the ferry is unavailable, the economic consequences are significant. The 2022–23 closure, which spanned the pre-Christmas trading period, resulted in a documented downturn in trade for cafes, restaurants, and shops across Studland and Swanage. Day-trippers from Bournemouth and Poole – who represent a substantial proportion of Purbeck's visitor economy – simply stopped coming.

Isle of Purbeck residents face the full 25-mile road detour via Corfe Castle and Wareham to reach Poole or Bournemouth. For those without cars, the rerouted bus service adds significant journey time and removes the scenic coastal route that makes the Purbeck Breezer one of the most popular bus services in the region.

The ferry company's relationship with the communities it serves is also strained. A three-day public inquiry in December 2024 examined proposed toll increases, with Dorset Council, BCP Council, Swanage Town Council, and all surrounding parish councils opposing the application. The company's 2024 proposal included a 75% increase for foot passengers and cyclists (from £1.00 to £1.75) and the introduction of a road toll on Ferry Road.

2.3 The Active Travel Gap

BCP Council has invested heavily in active travel infrastructure. The Beryl bike-share scheme, launched in 2019 in partnership with BCP Council, now offers over 1,000 bikes and e-scooters across 300+ parking bays. In 2023, Beryl extended into Studland in partnership with the National Trust, placing four new Beryl Bays at National Trust car parks on the Studland peninsula.

However, this extension created a paradox: Beryl bikes are available on both sides of the harbour, but the only way to get between them is the chain ferry. Beryl e-scooters are not even permitted on the ferry. When the ferry is down, the Studland Beryl bays become isolated from the main network. During a Beryl ride, users must pause their trip (maximum 15 minutes) while waiting for and crossing on the ferry, and continue to be charged.

A tunnel would transform this from a fragmented, ferry-dependent connection into a seamless active travel corridor – completing what BCP Council and Beryl have already started.

3. The Proposal

3.1 Tunnel Specification

Parameter	Detail
Type	Pedestrian and cycle tunnel
Inner Diameter	12 feet (3.66 m) – TBC standard specification
Length	Approximately 0.97 miles (1.56 km)

Northern Portal	Roundabout junction near North Haven Yacht Club, Banks Road, Sandbanks (BCP Council area)
Southern Portal	Ferry Road, near Shell Bay National Trust car park, Studland (Dorset Council area)
Users	Pedestrians, cyclists, Beryl bike-share, wheelchair users, pushchairs
Operation	24/7, all-weather, no dependency on tide, vessel, or crew
Lighting and Ventilation	LED lighting throughout; mechanical ventilation with energy recovery
Gradient	Maximum 5% – compliant with Equality Act 2010 accessibility requirements

The 12-foot inner diameter comfortably accommodates a 3-metre-wide shared-use path (meeting LTN 1/20 minimum width guidance for high-flow bidirectional routes) with space for LED lighting, ventilation ducting, emergency refuges, and a small-vehicle service lane for maintenance and emergency access.

3.2 Route and Endpoints

The northern portal is located at the existing roundabout junction where Banks Road meets the Sandbanks ferry approach. This is already the convergence point for all traffic heading to the ferry crossing, so the tunnel plugs directly into existing pedestrian and cycling infrastructure – including nearby Beryl bike bays and the Shore Road cycle route.

The southern portal emerges on Ferry Road near the Shell Bay National Trust car park. This connects directly to the existing National Trust Beryl Bays, the South West Coast Path monument at South Haven Point, and the road network into Studland village and onwards to Swanage.

The route passes beneath the harbour entrance at a depth sufficient to clear the dredged Swash Channel (maintained at 7.5 metres below chart datum) and the chain ferry's operational area. The tunnel alignment avoids the main commercial shipping channel used by Brittany Ferries and Condor services.

3.3 Geological Context

The subsurface conditions along the proposed alignment are generally favourable for tunnel boring. The bedrock beneath Poole Harbour is composed of Palaeogene strata from the Bracklesham Group, predominantly the Poole Formation and Branksome Sand Formation. These consist of interbedded fine- to coarse-grained sands with kaolinitic clays and silts – deposited in an Eocene fluvial-lagoonal environment.

The harbour entrance sits within a synclinal (downfold) structure that defines the harbour basin. Overlying the bedrock are Holocene sediments and, on the South Haven Peninsula, young dune sands (less than 400 years old) and beach deposits. The Sandbanks peninsula comprises similar sandy superficial deposits over Eocene bedrock.

This mix of sands, clays, and silts is well within the operating envelope of The Boring Company's Prufrock tunnel boring machine, which is designed for soft-ground conditions. The relatively shallow water depth at the harbour mouth (the Swash Channel is dredged to 7.5 m) means the tunnel does not need to descend to excessive depths.

Note: Detailed geotechnical data for the specific alignment would require site investigation. The British Geological Survey holds borehole records for the Sandbanks and Studland peninsulas, and Poole Harbour Commissioners possess bathymetric survey data for the harbour entrance and Swash Channel. These would be made available to The Boring Company during detailed design.

4. Projected Benefit

4.1 Time Savings

Scenario	Current (Ferry)	With Tunnel	Time Saved
Pedestrian crossing (off-peak)	20–30 min (wait + crossing)	15–20 min (walk through)	5–15 min
Pedestrian crossing (peak summer)	45–90 min (queue + crossing)	15–20 min	30–70 min
Cyclist crossing (off-peak)	20–30 min	5–10 min (cycle through)	15–25 min
Cyclist crossing (peak summer)	45–90 min	5–10 min	40–80 min
Ferry out of service (any user)	25-mile detour (1–1.5 hrs by car; not possible on foot/bike)	15–20 min walk / 5–10 min cycle	1–1.5+ hours (or enables trip that otherwise wouldn't happen)

4.2 User Volume Estimates

The Sandbanks Chain Ferry currently carries approximately 500,000 vehicle movements per year, plus significant pedestrian and cyclist traffic. Foot passengers currently pay £1.00 each way (proposed to increase to £1.75). The ferry company's 2024 financial year profits exceeded £1.9 million, indicating substantial crossing demand.

Conservative estimates for tunnel usage, based on comparable active travel infrastructure and the existing ferry pedestrian/cyclist volumes:

User Category	Annual Estimate	Basis
Recreational walkers and beach visitors	200,000–300,000	National Trust Studland visitor numbers; SWCP walker counts
Cyclists (including Beryl users)	80,000–120,000	Beryl scheme data; BCP cycling counts; 43% of Beryl riders report cycling more often
Commuters and local residents	50,000–80,000	Purbeck residents accessing BCP for work, shopping, healthcare
South West Coast Path walkers	30,000–50,000	SWCP Association annual walker statistics

TOTAL ESTIMATED	360,000–550,000	

4.3 Aggregate Time Savings

Using a conservative midpoint of 450,000 annual users and an average time saving of 25 minutes per trip, the tunnel would deliver approximately 187,500 person-hours of time savings per year. Over a 50-year operational life, this equates to over 9 million person-hours saved.

Critically, this calculation excludes the trips that would be enabled but currently don't happen at all – the walkers who don't attempt the Coast Path crossing when the ferry is unreliable, the cyclists who don't ride to Studland because of the queue, the Beryl users who don't cross because e-scooters aren't permitted on the ferry.

4.4 Wider Benefits

- Carbon reduction: Every trip through the tunnel that replaces a 25-mile car detour saves approximately 8 kg of CO_2. Even modest modal shift would contribute meaningfully to BCP and Dorset's net zero 2045 targets.
- Public health: Active travel infrastructure directly supports physical activity. BCP Council's joint Local Transport Plan (2026–2041) specifically aims to meet Active Travel England's objective of 50% of urban trips walked, wheeled, or cycled by 2030.
- Tourism resilience: Studland, Swanage, and the Jurassic Coast would have a permanent, reliable link to the BCP urban conurbation – no longer at the mercy of a single ageing vessel.
- Accessibility: A tunnel with maximum 5% gradient and smooth surfaces would provide step-free, all-weather access for wheelchair users, families with pushchairs, and those with mobility difficulties – none of whom are well-served by the current ferry boarding process.
- Network completion: The tunnel would close the gap in BCP's active travel network at its most visible and frustrating point, and complete the Beryl bike-share corridor between Bournemouth, Poole, Sandbanks, and Studland.

5. Strategic Alignment

5.1 BCP Council Active Travel Objectives

BCP Council has been recognised by Active Travel England (ATE) as one of only a handful of local authorities to achieve a Level 3 rating – demonstrating 'strong leadership and support' with a 'substantial network' of active travel options. This rating has unlocked increased funding, with BCP's annual ATE allocation more than doubling from £1.45 million to £2.95 million.

The council has received a total of £4.97 million in active travel grants from ATE to date, and the proposed tunnel would represent a transformational addition to this investment – at zero cost to the council.

The joint BCP/Dorset Local Transport Plan (2026–2041), currently in consultation, explicitly prioritises:

- Walking and cycling for shorter journeys, particularly in urban areas

- Meeting ATE's objective of 50% of urban trips walked, wheeled, or cycled by 2030
- Creating high-quality, inclusive active travel networks
- Reducing car dependency to address climate emergency commitments (net zero by 2045)
- Supporting sustainable economic growth and tourism

Cllr Andy Hadley, BCP's portfolio holder for sustainable travel, has stated: "As a major urban area we know we have huge congestion challenges, and limited space to build new capacity. We want to make alternative travel options more integrated." The tunnel directly answers this brief.

5.2 Beryl Bike-Share Integration

BCP Council's 5-year partnership with Beryl (renewed to 2029) has delivered over 1,000 bikes and e-scooters across 300+ bays. The scheme has demonstrated real modal shift: 43% of riders report cycling more often, and 34% have reduced their car usage.

Beryl's 2023 extension into Studland, in partnership with the National Trust and Dorset AONB, placed bays at four National Trust car parks on the peninsula. However, this extension is fundamentally dependent on the ferry. The tunnel would:

- Create a permanent, seamless Beryl corridor from Bournemouth through Poole and Sandbanks to Studland
- Enable Beryl e-scooters to access Studland for the first time (currently prohibited on the ferry)
- Eliminate the need for riders to pause trips and continue being charged during ferry waits
- Position the Sandbanks–Studland link as a showcase for integrated urban-rural active travel

5.3 South West Coast Path

South Haven Point on the Studland peninsula is the official start (or end) of the South West Coast Path – Britain's longest National Trail at 630 miles. Every walker completing or beginning the path must cross the harbour entrance. The tunnel would provide the first reliable, all-weather, all-hours crossing for Coast Path walkers, replacing dependence on the ferry's operating hours (7am–11pm) and availability.

6. Location and Land Ownership

6.1 Endpoint Coordinates

	Northern Portal (Sandbanks)	Southern Portal (Shell Bay)
Approximate Location	Roundabout, Banks Road / ferry approach, Sandbanks	Ferry Road, near Shell Bay NT car park
Approximate Coordinates	50.6870°N, 1.9388°W	50.6780°N, 1.9460°W
Local Authority	BCP Council	Dorset Council
Land Ownership	BCP Council adopted highway / Poole Harbour Commissioners	Bournemouth-Swanage Motor Road and Ferry Company

		(road); National Trust (adjacent land); Crown Estate (seabed)

6.2 Key Stakeholders and Land Interests

Stakeholder	Interest	Anticipated Position
BCP Council	Highway authority (Sandbanks side); active travel strategy lead; Beryl partner	Strongly aligned with council objectives. Level 3 ATE rating and doubling of active travel funding demonstrates commitment.
Dorset Council	Planning authority (Studland side); joint LTP partner; Beryl e-bike scheme partner	Aligned with joint LTP objectives. Has previously opposed ferry company toll increases.
National Trust	Landowner at Shell Bay and Studland; Beryl partnership; SSSI/NNR management	Existing Beryl partnership demonstrates support for sustainable access. Key concern will be environmental impact on heathland and dunes.
Crown Estate	Seabed ownership beneath harbour entrance	Standard consent process for sub-seabed infrastructure. Precedent exists for utility crossings.
Poole Harbour Commissioners	Navigation authority for harbour	Tunnel passes well below navigational depths. No impact on shipping. Likely supportive as it reduces surface-level conflict between ferry chains and vessels.
Bournemouth-Swanage Motor Road and Ferry Company	Ferry operator; Ferry Road owner	Mixed. Tunnel serves pedestrians/cyclists only, preserving vehicle ferry revenue. May view as complementary (reducing foot passenger pressure) or competitive.
Natural England	SSSI/SAC regulatory oversight	Underground boring minimises surface disturbance. Detailed environmental assessment would be required.
Swanage Town Council / Studland Parish Council	Local community representation	Both have actively opposed ferry toll increases and advocated for improved access. Likely supportive.

7. Technical, Economic, and Regulatory Feasibility

7.1 Technical Feasibility

Ground conditions: The Bracklesham Group strata beneath the harbour entrance (interbedded sands, clays, and silts) are well suited to tunnel boring machine operations. The Poole Formation and Branksome Sand Formation present soft-ground conditions within Prufrock's design envelope.

Depth: The Swash Channel is dredged to 7.5 m below chart datum. With appropriate cover above the tunnel crown, the bore would likely pass at approximately 15–25 m below mean sea level through the deepest section, rising to portal level at each end. The maximum 5% gradient constraint is achievable over the 1.56 km distance.

Water table: The tunnel would be below the water table for its entire length. Standard pressurised-face TBM technology (as used by Prufrock) manages groundwater ingress during construction. Permanent waterproofing would use precast concrete segmental lining.

Portal construction: Both portals are on relatively flat, accessible land. The Sandbanks portal is adjacent to an existing road roundabout. The Shell Bay portal is adjacent to a National Trust car park and Ferry Road. Cut-and-cover or shaft-launched TBM approaches are both viable.

7.2 Economic Feasibility

Under the Tunnel Vision Challenge, The Boring Company would fund tunnel construction and buildout. The primary ongoing costs would be:

- Electricity for lighting, ventilation, and CCTV (estimated £50,000–£100,000 per annum)
- Maintenance and cleaning (estimated £30,000–60,000 per annum)
- These operational costs could be covered through a modest toll, integration with Beryl's pricing structure, or absorbed by BCP/Dorset Council as part of their active travel infrastructure budget.

For context, BCP Council's annual active travel budget is now £2.95 million from ATE alone, plus additional council funding. Operational costs for the tunnel would represent a small fraction of this.

7.3 Regulatory Feasibility

The key regulatory requirements are:

1. Planning permission: Required from both BCP Council (northern portal) and Dorset Council (southern portal). Both councils' transport strategies are explicitly aligned with the project's objectives.
2. Marine licence: Required from the Marine Management Organisation (MMO) for sub-seabed works within the harbour.
3. Crown Estate consent: Required for tunnelling beneath Crown-owned seabed.
4. Environmental Impact Assessment: Likely required given proximity to Studland and Godlingston Heath NNR, Poole Harbour SPA/Ramsar site, and Dorset AONB. However, underground construction minimises surface disturbance – a key advantage over any bridge or surface infrastructure alternative.
5. Natural England consultation: Required for any works potentially affecting SSSI and European designated sites. Habitats Regulations Assessment (HRA) likely needed.

6. Poole Harbour Commissioners: Consent for sub-harbour works. As the tunnel passes well below navigational depth, impact on harbour operations is negligible.

The underground nature of the project is a significant regulatory advantage. Unlike a bridge (which would face objections on visual impact, navigation, and environmental grounds), a tunnel has minimal surface footprint and no impact on the harbour's marine environment once constructed.

8. Relationship to the Existing Ferry

This proposal is explicitly complementary to the Sandbanks Chain Ferry, not a replacement for it. The tunnel serves pedestrians and cyclists only. The ferry would continue to operate for:

- All vehicular traffic (cars, vans, coaches, goods vehicles)
- The Purbeck Breezer 50 bus service
- Any pedestrians or cyclists who prefer the surface crossing

The tunnel may in fact benefit the ferry operation by reducing foot passenger and cyclist loading during peak periods, freeing capacity for vehicles and reducing queuing times. It also provides resilience: when the ferry is out of service for maintenance, refit, or breakdown, pedestrians and cyclists would have an alternative – reducing pressure on the ferry company and negative publicity during outages.

9. Why This Project Deserves to Win

The Sandbanks–Studland Active Travel Tunnel scores highly against all three of The Boring Company's evaluation criteria:

Usefulness: This tunnel solves a real, documented, decades-old problem affecting hundreds of thousands of people annually. It connects a major urban conurbation (population 400,000+) to a UNESCO World Heritage coastline, a National Trail, and an Area of Outstanding Natural Beauty. The time savings are substantial, the resilience benefit is transformational, and the active travel and public health outcomes are directly measurable.

Stakeholder Engagement: The project aligns with the stated strategic objectives of both local authorities (BCP Council and Dorset Council), the National Trust, Beryl, Active Travel England, and the South West Coast Path Association. It addresses a crossing that has been the subject of public inquiries, council opposition to toll increases, and widespread community frustration. [Letters of support to be obtained – see note below.]

Technical, Economic, and Regulatory Feasibility: The geology is favourable. The distance is within specification. The regulatory pathway, while requiring multiple consents, benefits enormously from the underground nature of construction and the explicit policy alignment of both local authorities. The project is physically possible, economically sustainable, and permittable within a reasonable timeframe.

10. Next Steps

Should this proposal be selected, the following steps would be undertaken in partnership with The Boring Company:

7. Formal stakeholder engagement with BCP Council, Dorset Council, National Trust, and Poole Harbour Commissioners

8. Site investigation: geotechnical boreholes at both portal locations and along the alignment
9. Bathymetric and geophysical survey of the harbour entrance (in coordination with Poole Harbour Commissioners)
10. Environmental scoping: pre-application consultation with Natural England and the MMO
11. Detailed design: portal locations, gradient profile, internal layout, ventilation and safety systems
12. Planning and marine licence applications

Note on letters of stakeholder support: Given the submission deadline of 23 February 2026, formal letters of support are being sought from key stakeholders. These will be submitted as supplementary materials before the deadline or made available on request. Initial conversations with [to be confirmed] have indicated strong interest.

— End of Submission —