

# Preliminary Economic & Technical Assessment Memorandum of Findings

Dover Cable Car Project  
for the Dover District Council



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SCJ ALLIANCE  
CONSULTING SERVICES

## 2. PRELIMINARY TECHNICAL ASSESSMENT

The purpose of the technical assessment was to define a preferred cable car system alignment and validate the technical feasibility of the cable car concept. Additional system planning and design will be required in later project phases, but the goal of this phase was to identify any knowable fatal flaws or significant challenges with the implementation of a cable car system.

**Note: All station and tower locations and depictions are simply for discussion and not intended to depict final decisions. All stakeholders must be engaged and additional studies are required to validate these concepts.**

### 2.1 CABLE CAR ROUTES

Following the stakeholder engagement phase, SCJ defined the following goals of the cable car system that guided the route planning process:

- Provide an additional standalone attraction in Dover creating a stronger draw for cruise passengers.
- Drive visitation to the Dover Castle and amplify the cable car ridership with Castle visitors.
- Drive visitation to the Dover Town Centre.
- Reduce the demand for parking at the Dover Castle.

The basic planning criteria used to create the routes are as follows:

- Alignments must follow a straight line.
- Intermediate stations add significant complexity and cost. Intermediate stations should be avoided.
- Alignments traveling over private property or existing structures should be avoided due to implementation challenges and fire risk.
- Visual impacts to existing properties and structures should be minimized.

#### 2.1.1 Route Alternative Definition

SCJ reviewed a number of cable car alignments that were produced in previous studies, including the 2009 Business Case study and the 2017 Dover Waterfront Masterplan study. SCJ found that while some of the concepts achieved many of the above goals, the concepts have technical challenges that would make implementation difficult. SCJ then conceptualized a number of cable car system alignments for consideration. The route alternatives defined by SCJ can be seen in **Figure 1**.

In each case, the routes roughly extend from the intersection of A20 and York Street to the Dover Castle grounds in the vicinity of the Officer's New Barracks building. The primary difference between the three proposed alternatives is the lower terminal (station) location. All three alternatives functionally land at the same location on the Castle grounds.

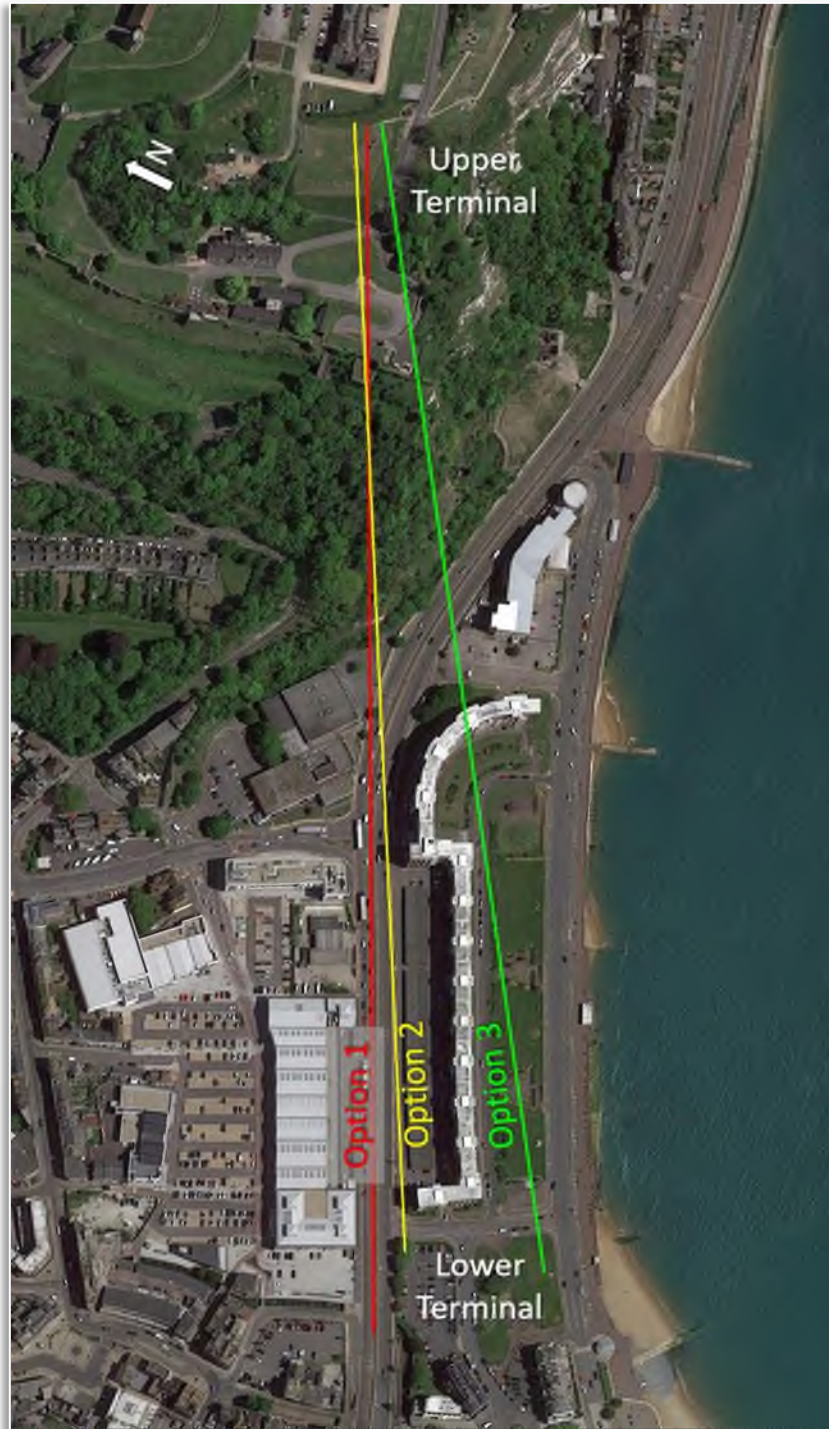


Figure 1 – Cable Car Route Alternatives — Credit: Google Earth

The following describes the thought process used in the selection of the three routes, lower terminal locations, and the upper terminal location:

- Option 1: This alternative was selected as it mostly avoids travel over private property. The Dover Leisure Center property is minimally impacted by the cable car system traveling over the property corner.



Figure 2 – Leisure Center Property — Credit: Google Earth

There are a number of advantages of the cable car system infrastructure residing in the public right-of-way and the cable car system right-of-way (air rights) being primarily situated above publicly owned land:

- Reduced political risk
- More efficient permitting process
- Long-term control of spaces below cable car

The Option 1 alignment requires the lower terminal to be placed above the A20 roadway. It is not uncommon for cable car stations to be situated above public roadways. This situation is proposed for the lower terminal location and is discussed further throughout in this document.



Figure 3 – Option 1 Lower Terminal — Credit: Google Earth

Option 2: This alternative was selected as it mostly avoids travel over private property and it allows for the lower terminal to be placed in the parking lot south of the A20. The Dover Leisure Center property is minimally impacted by the cable car system traveling over the property corner.



Figure 4 – Leisure Center Property — Credit: Google Earth

The Option 2 alignment allows lower terminal to be placed adjacent to the A20 roadway in an existing parking area. The disadvantage of this option's lower terminal placement is the result that the cable car alignment passes over the housing complex property and much closer to the housing complex building just upline of the lower terminal location.



Figure 5 – Option 2 Lower Terminal — Credit: Google Earth

**Option 3:** This alternative was selected because it approximately begins and ends in the same locations as Options 1 and 2, but avoids travel over the A20 other than for a short segment northeast of the housing complex. This option also avoids passing over the Leisure Center Property, but travels over the housing complex for a significant distance and over a portion of the housing complex building.



**Figure 6 – Housing Complex — Credit: Google Earth**

The Option 2 alignment allows lower terminal to be placed in the park between the roadways of Camden Crescent and Marine Parade.



**Figure 7 – Option 3 Lower Terminal — Credit: Google Earth**

**Upper Terminal:** The upper terminal location was selected primarily for its ability to keep the alignments within public right-of-way and to prevent the cable car right-of-way from passing over additional properties or structures. It is understood that the upper terminal location lands passengers approximately 250 meters from the Castle entrance, but without an additional cable car segment and an additional cable car station, it was not possible to place the upper terminal station significantly closer to the Castle without introducing many of the disadvantages discussed above.



**Figure 8 – Upper Terminal Location — Credit: Google Earth**

### 2.1.2 Route Assessment

Following the definition of the above alignment alternatives, each route was discussed with the key stakeholders and evaluated by SCJ. The following matrix lists important advantages and challenges of each option:

Table 1 – Route Alternative Assessment			
Alternative	Advantages	Challenges	Mitigations to Challenges
Option 1	<ul style="list-style-type: none"> <li>- Primarily resides in public right-of-way</li> <li>- Lower terminal station can incorporate pedestrian bridge</li> <li>- Upper terminal location has little impact on Castle grounds</li> <li>- Does not travel over any structures</li> </ul>	<ul style="list-style-type: none"> <li>- Crosses over Leisure Center property corner</li> <li>- Lower terminal may not be allowed to be placed over A20 roadway</li> <li>- Lower terminal will be more costly due to placement above A20</li> <li>- Upper terminal location is 250 m from Castle</li> </ul>	<ul style="list-style-type: none"> <li>- The development of the leisure center property can be constrained to prevent structures in cable car right-of-way</li> <li>- It is understood that this is feasible</li> <li>- This configuration would provide a pedestrian bridge over the A20</li> <li>- Redevelopment of the O.N.B can create an attraction and offset distance to Castle</li> </ul>



Figure 9 – Alignment Option 1 — Credit: Google Earth

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Table 1 – Route Alternative Assessment (cont.)			
Alternative	Advantages	Challenges	Mitigations to Challenges
Option 2	<ul style="list-style-type: none"> <li>- Primarily resides in public right-of-way</li> <li>- Constructability of lower terminal is less challenging than in Option 1</li> <li>- Upper terminal location has little impact on Castle grounds</li> <li>- Does not travel over any structures</li> </ul>	<ul style="list-style-type: none"> <li>- Crosses over Leisure Center property corner</li> <li>- Lower terminal will need to be elevated (more expensive) to provide clearance over Wellesley Rd and to avoid impact to parking lot.</li> <li>- Upper terminal location is 250 m from Castle</li> <li>- Passes in close proximity to housing complex</li> <li>- Travels over housing complex property</li> <li>- Would not provide a pedestrian bridge over the A20.</li> </ul>	<ul style="list-style-type: none"> <li>- The development of the leisure center property can be constrained to prevent structures in cable car right-of-way</li> <li>- Preservation of parking is likely beneficial enough to offset added cost</li> <li>- Redevelopment of the O.N.B can create an attraction and offset distance to Castle</li> <li>- Height of cable cars can reduce visibility from complex</li> <li>- Required negotiations (risk)</li> <li>- Costs TBD</li> </ul>



Figure 10 – Alignment Option 2 — Credit: Google Earth

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Table 1 – Route Alternative Assessment (cont.)			
Alternative	Advantages	Challenges	Mitigations to Challenges
Option 3	<ul style="list-style-type: none"> <li>- Lower terminal could be constructed at grade (reduced cost)</li> <li>- Construction of lower terminal and towers could be less challenging than Options 1 and 2</li> <li>- Upper terminal location has little impact on Castle grounds</li> </ul>	<ul style="list-style-type: none"> <li>- Travels over housing complex structure (fire risk)</li> <li>- Travels over housing complex property</li> <li>- Would not provide a pedestrian bridge over the A20.</li> <li>- Upper terminal location is 250 m from Castle</li> </ul>	<ul style="list-style-type: none"> <li>- Housing complex may require fire protection upgrades and/or monitoring (added expense)</li> <li>- Required negotiations (risk)</li> <li>- Costs TBD</li> <li>- Redevelopment of the O.N.B can create an attraction and offset distance to Castle</li> </ul>



Figure 11 – Alignment Option 2 — Credit: Google Earth

### 2.1.3 Selection of Preferred Alternative

After discussions with key stakeholders and an assessment of the advantages, challenges and mitigation technique for each challenge, it was determined that Option 1's challenges can be reasonably mitigated and its lower terminal's ability to also serve as a pedestrian bridge has significant benefits. For these reasons, Option 1 was selected for further study. Option 2 is considered the runner-up as it has similar advantages and challenges, but lacks the benefit of the easy inclusion of a pedestrian bridge. Option 3's risks associated with traveling over the housing complex were determined to be too significant and too undefined at this stage to carry this alternative forward.

**The remainder of this memorandum is specific to Option 1.**

Extract