



ICE Further Learning Exam Case Study:

Victoria Station Upgrade

Background of the Project

Victoria Underground is one of London's busiest stations, used by over 100 million people every year. Between 07:00 and 10:00 the station can become so crowded that passengers have to wait behind the gates or outside the station for short periods until the platforms clear and the gates can safely be reopened.

The VSU Project is a congestion relief, station modernisation and step free access scheme, principally to the Victoria line areas of the Station. It proposes significant improvements and is a key element of Transport for London's (TfL) Investment programme. The Project will contribute towards the objectives of the Mayor's London Plan and the Transport Strategy. The overarching objective is:

'To increase the capacity of Victoria Underground Station so that it is fit for purpose for handling present and forecast passenger demand, to minimise passenger journey times and improve the quality of access, interchange and ambience and provide step free access routes within the Underground Station'.

The strategic London Plan sets out an economic, environmental, transport and social framework for development. TfL maintains and operates the city's transport infrastructure and is responsible for Transport Strategy implementation. The Transport Strategy includes a Vision Zero action plan aiming to eliminate all deaths and serious injuries on London's transport system. TfL is committed to delivery of Social Value outcomes and sees the VSU Project as an opportunity to create job and supply chain opportunities, to improve the local economy, to minimise environmental impacts and to enhance the public realm. Social Value measures the wider economic, social and environmental effects of organisational actions to maximise the long-term wellbeing of the communities they serve. The United Nations Sustainable Development Goals are, in effect, a social value charter for the planet.

Location

Victoria Underground Station is sited in the City of Westminster within central London. It is one of the City's main transport hubs that includes a National Rail station (Victoria), three Underground lines (Victoria, District & Circle), a bus station and a busy taxi rank. The Victoria Station provides a dedicated link to Gatwick Airport. The Victoria Coach station also lies close by.

Main roads surrounding the station include Victoria Street to the north, Bressenden Place and Allington Street to the north/northeast, Wilton Road to the east and Buckingham Palace

Road to the west. Terminus Place, where Victoria Bus station and the taxi rank are situated, lies partly above the Victoria line ticket hall.

Stakeholders include retailers, food outlets etc along the main roads, within the National Rail station and in the Cardinal Place development (Victoria Street). There are also a number of major TfL, Network Rail and government offices. Residential properties and hotels are located throughout the area.

The VSU Project will provide:

- A new North ticket hall at the junction of Bressenden Place and Victoria Street;
- An enlarged and modernised Victoria Line ticket hall;
- Nine new escalators for new access routes;
- A low-level interchange tunnel connecting North & South (enlarged) ticket hall;
- New lifts - step-free access between street, ticket hall & platform levels;
- New lifts - interchange between Victoria line and District & Circle line platforms;
- Improved access and new lifts between National Rail and Underground stations.

Project Constraints

- The location of the site within a commercially important and busy inner-city area.
- Existing Victoria Line and District & Circle line underground infrastructure.
- Maintaining a safe operational station throughout construction. Existing escalators to platform level, and many of the entrances, have to be retained for at least a large part of the project programme.
- Tunneling & deep excavation at close proximity to public utilities, two major sewers, Victoria Palace Theatre, adjacent highways and listed buildings.
- Maintaining vehicle access and reliability of the high volume of taxi ranks.
- The need to maintain pedestrian access and safety.
- To minimise disruption to local businesses and residents.

Due to budgetary constraints, the station modernisation will take an incremental approach to ambience improvements so that each element can be completed independently, depending on project and business proprieties. These modernisation elements (as opposed to upgrade) will need to be prioritised to fit within available funds. The requirements are therefore broken down into two phases with Phase 1 focussed on congestion relief and Phase 2 ambience improvements.

Before the main work can begin, asbestos is to be removed from the station. The main work shall be planned to ensure that disruption in the area is minimised or mitigated as far as

reasonably practical. This should accord with agreed Environmental Statement limits, and to the requirements of the operator such that Victoria Station and its environs remain operational and public safety is maintained.

Some temporary closures of parts of the Underground station and surrounding roads may be necessary. These shall be planned to minimise stakeholder impacts. All closures shall be discussed and agreed with station management and the appropriate authorities and shall be publicised well in advance along with alternative travel arrangements.

The majority of work will be below ground level, but the new ticket hall shall include new entrances in Bressenden Place and the enlargement of the existing ticket hall will require alteration of the entrances at the front of the National Rail station. The continued operation of Network Rail services and passenger/public circulation shall be ensured around worksites.



Questions:

1. How will the client's vision and objectives influence procurement decisions? Which form of contract is best suited to these objectives? How might this affect supply chain development?
2. The Client's initial budget is based on a Performance Specification and a fixed programme. What else should be considered in developing the final Project Estimate? How can BIM and digital transformation help achieve cost, time and quality targets?
3. A crane servicing an access shaft collapses and falls through the compound fence to block a highway. A pedestrian is injured by flying debris and fuel is spilled. What actions are needed to permit safe working to continue? How should the accident be investigated? How might stakeholders be reassured?
4. How might TfL's economic, social and environmental objectives be translated into a VSU Social Value Charter? Which United Nations Sustainable Development Goals might be accommodated? How would these goals influence project management, design and construction?
5. Who are the key stakeholders and how might their conflicting needs and aspirations be managed? You are the nominated Engineer for the project and the Project Manager asks you to come up with a suitable value engineering plan. How would you go about setting the Process, Objectives and Value Indicators, and then manage implementation of the plan?



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Core purpose

- To develop and qualify professionals engaged in civil engineering
- To exchange knowledge and best practice for the creation of a sustainable and built environment
- To promote our contribution to society worldwide

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