

DSDA M23 LIVE EXAM – PRE-SEEN MATERIALS

Your role: You are a qualified CIPFA accountant working in the Finance Department of Greater Lexing Council in the country of Trylonia. You have been assigned to a multi-disciplinary team tasked with conducting a review of bus services and then developing a bus services improvement plan for Greater Lexing. Your role is partly advisory, given your knowledge and experience in strategy, but will also involve conducting some of the research.

PRE-SEEN MATERIALS

Assumed date for pre-seen is 7 February 2023.

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Exhibit 1 – Bus services in Greater Lexing: key information

Overview of public transport in Trylonia

Trylonia is a relatively small country in Europe where English is one of the official languages and is widely spoken. The capital city of Trylonia is Bixton and Lexing is one of Trylonia's other large cities, 200 miles south of Bixton. Trylonia is a member of a trading group that includes all Western European countries except the UK.

Trylonia does not have a train network so residents and visitors who need to travel must use public transport (long distance coach services, or local bus services in cities and towns) or private cars. Larger towns have cycle tracks.

Trylonia's Ministry of Transport oversees: the airport in Bixton, which provides international flights only; roads; and public transport. It sets the regulations with which local authorities (regional, city and town councils) must comply regarding the provision and operation of public transport. It also provides some support funding for public transport to local authorities, which finance the balance of public transport costs out of local taxes and fares.

Local authorities in Trylonia must set out policies and objectives for transport in their area and manage their public transport budgets. They are mandated to:

- provide public transport to and from schools and hospitals even if it is not commercially viable to operate these routes so they have to be subsidised;
- administer statutory travel concessions, such as discounted fares for people in specific age groups and those with disabilities;
- consider the needs of older people and people with disabilities when using public transport.

The stakeholders in any public transport system are: the operators of public transport services; passengers who use and ultimately fund them through national taxes, local taxes and the payment of fares. Local authorities have an important role in planning, constructing and maintaining road infrastructure, and ensuring that public transport is provided, so are also stakeholders.

Bus services in Greater Lexing

Greater Lexing comprises the city centre of Lexing and its suburbs, plus small towns and villages in surrounding rural areas. Greater Lexing Council provides an extensive network of bus services for Greater Lexing as part of its strategy to:

- reduce the number of cars in the city, suburbs and towns;
- reduce the need to provide car parking; and
- enable people in the small towns and villages to reach employment and essential services including schools, the university, health centres and hospitals.

The Council is mandated by Trylonia's Ministry of Transport to provide school bus services, plus hospital bus services to and from Lexing General Hospital, for each area of Greater Lexing, including the towns and villages. However, the infrequency of the school and hospital bus services that the Council actually provides is a source of public discontent and complaint.

Under existing Trylonia legislation Greater Lexing Council can choose to:

- provide all bus services itself;
- provide some bus services itself and contract with private operators to provide the remaining bus services following a tender process;
- enter into an enhanced partnership with operators of bus services.

The legislation does not currently allow the Council to enter into a franchising arrangement (see Exhibit 5) for bus services.

Bus operators in Greater Lexing

Currently Greater Lexing's bus services are provided by Lexing Bus, Conway and Fox Bus, who all operate in an enhanced partnership arrangement (see Exhibit 5).

Lexing Bus is operated and staffed by Greater Lexing Council. It is owned 80% by Greater Lexing Council and 20% by a consortium of coach companies.

Conway is a large bus company, registered as a corporation in Trylonia, that operates bus services in cities and towns across Trylonia. Conway has regional divisions whose strategies reflect their relationship with the relevant local authority. In some areas Conway operates independently as a commercial operator (see Exhibit 5), whilst in others it operates under an enhanced partnership, as in Greater Lexing (see Exhibit 5). In Bixton, Conway operates under a franchise arrangement (see Exhibit 5).

Fox Bus is a joint venture between a French company (Abacus Bus SA) and a Trylonia-registered company (Swire Coaches Inc), and is registered as a corporation in Trylonia. Ownership by foreign-owned entities of joint ventures is unusual in Trylonia as opponents argue it distorts markets in Trylonia. Fox Bus currently only operates buses in the Greater Lexing region.

All three bus operators in Greater Lexing share:

- a large central depot, provided by Greater Lexing Council, where maintenance and cleaning services are carried out by third-party providers. The depot's operations are financed by revenues from the sale of season tickets to passengers and pro-rated funding from all three bus operators;
- a large central bus station in Lexing which is financed and managed by Greater Lexing Council.

Some bus routes in Greater Lexing are serviced by just one of the three bus operators. Other routes are serviced by two or even all three of the operators. Each operator runs buses that are branded with their own name. Timetabling for each bus route is performed centrally by Greater Lexing Council's Transport Department. Although bus operators set their own fares, there is a limit or 'cap' on fares which is determined by the Council.

Each bus operator retains all the fares that they collect. Passengers can only buy one-way fares on the buses, paying in cash. Alternatively they can use a season ticket, which Greater Lexing Council sells at kiosks. Passengers can use the season tickets on all bus services, regardless of operator, for unlimited journeys during a set period of time such as a week or a month. The monies from season ticket sales go towards the cost of maintaining the central depot.

Greater Lexing Council wants to exercise more control over the provision of bus services whilst Conway and Fox Bus want more freedom over fares, routes and timetabling. In addition, Conway have constantly complained that buses in Greater Lexing take cash and season tickets only, as this is not their experience in other towns in Trylonia where the use of digital technologies is more commonplace.

The buses operated by Lexing Bus, Conway and Fox Bus are a mix of diesel, hybrid and all-electric buses. They are mid-size, single deck buses which are mostly sourced from the UK, France and Germany. A limited number of buses are manufactured in Bretingham, an industrial region north of Bixton, but these are small buses which are only used on some of the circular routes operated in Bixton; they do not currently operate in Greater Lexing.

Data

The following data is the total for all three bus operators combined in Greater Lexing:

Number of routes operated	120
Number of bus stops	1,457
Number of drivers	465
Number of driver vacancies	45
Fleet size	350 buses

Year	Total passenger journeys (one-way trips)
2019	19,220,784
2020	17,652,935
2021	18,189,653
2022	19,034,567

The dip in 2020 and 2021 was due to the pandemic which saw lockdowns and people working from home, not going out to socialise etc. Journeys have yet to return to pre-pandemic levels as many people have continued to work from home for some or all of the working week.

Operator	Share of bus services in Greater Lexing
Lexing Bus	60%
Conway	30%
Fox Bus	10%

Current concerns

Shortage of bus drivers

All three operators are experiencing difficulties in hiring qualified bus drivers. The time required to train bus drivers is lengthy so while operators, especially Lexing Bus and Conway, are actively recruiting, it is months before a trainee driver is qualified. The operators have made limited use of an agency to supply qualified bus drivers. The agency often supplies drivers from other parts of the world who do not know the local area, landmarks or culture, and who are not proficient in either the local language spoken in Greater Lexing or in English. The drivers are often recruited from lower wage countries, so they accept a lower wage than local drivers when they are recruited to work in Trylonia. It is likely that using this agency is the only solution to the current shortage of drivers.

Outdated operations

Greater Lexing Council is concerned that operations in Greater Lexing are outdated in that:

- the buses only accept cash or season tickets as payment for journeys;

- buses and bus stops are not equipped with WiFi;
- there is no CCTV in buses so drivers feel vulnerable driving at night, especially as they hold cash on the bus;
- passengers are unable to plan their journeys effectively as they do not have the information they need about routes, congestion on the buses, cancellations etc;
- limited use is made of process automation to make operations more efficient.

The Council's concern about this is one of the reasons for the review of bus services as a basis for developing a bus services improvement plan.

Exhibit 2 – Organisations involved in provision of bus services in Greater Lexing

Trylonia’s Ministry of Transport

Transport Minister – Rishi Jameson

Greater Lexing Council

CEO – Adelaide Unkrig

Director, Greater Lexing Transport Department – Jeff Robbins

Conway Inc

Managing Director – Chris Hammick

Area Manager, Greater Lexing – Natuk Bozbag

Fox Bus

CEO– Johanna Kernow

General Manager– Jules Leblanc

Exhibit 3 – Extracts from minutes of a meeting to agree tasks for the team formulating a bus services improvement plan for Greater Lexing – 8 December 2022

Greater Lexing Council's Transport Department proposed a review of bus services in September 2022 as the basis for formulating a bus services improvement plan for Greater Lexing.

Bright Consulting, a local firm, was mandated to conduct an initial survey to capture public views on current bus services: the network, service frequency, service start/finish times, service quality and fares. This survey, which has now been completed (see Exhibit 4), provides both statistical and qualitative data on the community's views about bus services now and into the future

The Council has now formed a multi-disciplinary team comprising staff from the Transport, Finance and Digital Technologies/IT departments at Greater Lexing Council.

This meeting agreed that the tasks of the team shall be:

- Interpret the results of the survey of the local population (see Exhibit 4) once they have been analysed by Bright Consulting, to assess whether bus services are meeting the needs and expectations of the community.
- Analyse routes and usage data held by the Council's Transport Department.
- Conduct further research as required.
- Identify and assess current trends and possible innovations in the provision of bus services in Greater Lexing.
- Determine how the provision of bus services will benefit from developments in digital technologies and make appropriate recommendations.
- Determine whether the current operating model (an enhanced partnership arrangement) is the most efficient and effective way of providing bus services in Greater Lexing.
- Make recommendations for how bus services should be operated in Greater Lexing and how processes could be made more efficient.
- Develop a bus services improvement plan for the Greater Lexing area.

Exhibit 4 - Feedback from the consultation on bus services in Greater Lexing

Bright Consulting's survey of Greater Lexing's population indicated that the public had the following concerns with respect to bus services:

- More bus routes
- More frequent buses along busy routes
- Use of smaller buses on a circular route through Lexing city centre with five-minute frequency
- Earlier start times in the mornings including weekends to accommodate people going to work
- More night buses, especially from the hospital and entertainment area
- More affordable bus fares with concessions for under 18s, over 60s and the unemployed
- Ability to buy return fares on the bus
- Integration of ticketing and payment between the three bus operators
- Payment systems that include pre-paid cards, credit/debit cards, smart devices and cash
- Parity of fares across the three bus operators
- Price capping for people making several journeys each day
- Hop on-hop off flat rate fares that are valid for two hours
- More shelters at bus stops given unpredictable weather at certain times of the year
- Real-time information at bus stops on buses due
- Onboard travel information – route, stops, where the bus currently is, key organisations along the route (e.g., museums, hospital, university etc)
- Easy access to information for bus users, ideally via an app
- On-demand services along certain routes (Demand Responsive Transport (DRT)) – for example from the bus station to and from the university, hospital and biggest shopping centre in Lexing
- Improved accessibility for wheelchair users and buggies
- More electric buses
- Zero carbon buses
- More bus priority lanes to improve punctuality

The consultation also gathered information from organisations in Greater Lexing in the following sectors: health, education, social care and tourism.

Bus drivers were also surveyed. They were vocal in wanting fare payments to be by card and not cash, and to have in-bus information systems and CCTV surveillance.

Exhibit 5 – Models for operating bus services in Trylonia

Bus services in Trylonia are governed by the Transport Act 1995, which introduced deregulation of the bus services market so there can be commercial services, subsidised services, and/or enhanced partnerships.

Deregulation: commercial bus services

The Act permits any bus operator to run a commercial bus service, if they register it with Trylonia's Ministry of Transport and give the required amount of notice. The operator sets the timetable, the route or routes the bus will follow and the fares to be charged. They can also change the bus service, or stop operating it, if they give the required amount of notice. The operating costs of any commercial bus service must be covered by fare revenue and other entitlements such as government subsidies, grants etc.

There is no external control over commercial bus services. Neither the Ministry of Transport nor the local authority concerned have any powers to make a bus operator change the route, timetable or fares of a commercial bus service. There is no requirement for a bus operator to consult with the public on changes to a commercial bus service. Conversely there is no protection for a bus operating a commercial service since there is nothing to prevent another bus operator from giving the required period of notice then operating a commercial bus service in direct competition on a route. The competitor is free to charge different fares, have a slightly different (or the same) route, or use different size buses. The only requirement is that notice must be given to the Ministry of Transport with details of the timetable and route.

Commercial bus services tend to result in an unco-ordinated network with a confusing array of ticketing options. Inevitably bus operators focus on running commercial services on the most profitable routes, leaving local authorities to subsidise operators to run services on routes that are socially necessary but not commercially viable.

The majority of bus services in Trylonia are commercial bus services run by various bus operators. The only bus operator with commercial bus services across the whole of Trylonia is Conway.

Deregulation: subsidised bus services

Some 35% of bus services in Trylonia are subsidised services which are financially supported by the local authority of the area in which they operate. Subsidised services typically arise where no bus operator wants to run a commercial service for a bus service that is mandated or socially needed.

To set up a specific subsidised bus service, the local authority puts the contract to run it out to tender using a procurement process which specifies the timetable, route, fares and degree of subsidy payable to the successful bidder. As a subsidised bus service is operated under contract, the local authority retains control of the timetable, route and fares. It also monitors compliance and performance. A local authority can terminate the contract if the bus operator is not fulfilling it to the required standard.

Subsidised services must be registered with the Ministry of Transport in the same way as commercial services. They should appear to the passenger to be the same as any other bus service and to be part of the overall bus network.

The Transport Act 1995 restricts local authorities so that they can only subsidise a bus service which fills a gap in what is provided by commercial bus services: the bus services that a local authority subsidises must not distort the local commercial bus market.

Deregulation: enhanced partnerships

Some local authorities in Trylonia operate bus services by forming an enhanced partnership with bus operators. This is an agreement between the local authority and the bus operator(s) to work together to provide bus services in the area. However, it does not give the local authority any powers over commercial bus services: the local authority has formal responsibility to form the partnership but the partnership can only proceed if it has the support and input of the bus operators. This is the model currently operating in Greater Lexing.

For an enhanced partnership between the local authority and bus operators to operate effectively, strong relationships must exist between all parties in order to ensure that each fully understands and commits to the conditions of the partnership.

Regulated bus services: franchising

Under bus franchising, there is no deregulated bus market in an area so none of the deregulated models apply. All bus services are regulated and bus operators only provide bus services under contract to the relevant local authority.

Bus franchising is used extensively across Europe, including in the second largest West European city, London, where Transport for London (TfL) uses franchising as part of how it operates an integrated network of multiple forms of public transport. Currently Bixton is the only town in Trylonia which is authorised to operate bus services using a franchising model.

Franchising offers a range of significant advantages that are impossible under deregulated models such as: integrated ticketing; network planning; cross-subsidy across bus services and other modes of transport; and unified marketing. Franchising thus brings together the strengths of commercial operators (efficient service delivery) with the advantages of having a co-ordinated and planned public transport network.

From the perspective of passengers, franchising offers: simple, unified and integrated ticketing under one transport brand; consistent standards of service, including vehicle, driver and customer care standards; one accountable body (e.g. TfL) which acts as a single point of contact; integrated real-time information.

Exhibit 6 – Exchange of emails regarding bus services and digital technologies

Email from: Jeff Robbins, Director, Greater Lexing Transport Department

To: Jamie Smithson, Head of Public Transport at Greater Bixton Council

Date: 28 January 2023

Hi Jamie,

It was a pleasure meeting you at the conference in Bryland on futureproofing public transport services last week. I hope you made your flight back to Bixton given the problem with the airport bus service – ironic, since we were exploring how to use technology to avoid such incidents!

As agreed, I'm sharing some information with you about digitalisation and bus services in Greater Lexing.

As far as bus maintenance is concerned the technology is there but we're not making use of it as yet. I guess in time there'll be a strong push to do so. Things like predictive maintenance would enable us to monitor buses remotely rather than solely relying on physical maintenance inspections. The Internet of Things (IoT) would also be beneficial - things like sensors in vehicles which help to predict failures in mechanical/electrical parts

We have been looking at peer to peer connectivity whereby sensors and the internet enable devices, such as buses and traffic lights, to connect with each other.

We're making some use of process automation in our back office operations and customer service but we're not really harnessing the power of robotics etc.

As to our services for passengers, I think there's more we can do and we've had repeated requests for change from customers. We've been hesitant to date though, mostly because we operate bus services under an enhanced partnership arrangement and not all parties want to digitalise, but also there is resistance among some council members to make changes.

It would be useful to have some insights on what you're doing, or considering doing, in Bixton and how it's working for you - if you're still happy to share of course.

Best,

Jeff

Email from: Jamie Smithson, Head of Public Transport at Greater Bixton Council.

To: Jeff Robbins, Director, Greater Lexing Transport Department

Date: 3 February 2023

Thanks for your email Jeff.

We're not using digital technologies in bus maintenance, but as newer types of buses are acquired we will probably be pushed into doing this. As regards peer to peer connectivity, we're not looking at that at the moment.

We have been doing some research into options for digitalising bus services. I've set out some information below for you.

In terms of operating bus services:

- Co-operative Intelligent Transport Systems (C-ITS) use wireless technology to enable real-time vehicle-to-vehicle and vehicle-to-infrastructure communication. This can help with optimising services and ensuring that traffic congestion doesn't result in three buses arriving at once!
- Artificial Intelligence (AI) has countless applications such as improved timetabling, deployment of charging stations for electric buses etc.
- Real-time tracking/location data provides information about the location and punctuality of the bus which can be fed to the next bus stops and to apps on people's mobile phones
- Occupancy data of buses at specific times of day on each route enables trends to be identified so bus services can be optimised.
- A comprehensive analysis of in-bus crowd statuses, person trips, bus operation, modelling and simulation of route networks can generate optimal bus schedules, routes and timetables, and evaluate results on Key Performance Indicators (KPI) before deployment in real settings. This ensures the highest success rate of modifications to services and maximises benefits to bus operators and passengers alike.
- Digital data assists fleet management to co-ordinate maintenance work on buses and provide optimal vehicle dispatching so that each bus deployed serves passengers in the best possible way.
- Data helps to optimise drivers' driving techniques to save fuel – often referred to as eco-driving. This also helps to provide a more pleasant driving experience – no more excessive use of braking, for example. (An example of this in action is Swedish operator Nobina which is reducing fuel consumption by up to 12%. The Finnish operator, Onnibus, estimates its potential savings as 275,000 litres of fuel annually.)
- Dynamic pricing is based on variables such as time of day, road congestion, speed, occupancy, fuel efficiency and carbon emissions of the bus.

As far as serving passengers is concerned:

- Digitalisation of bus services ensures the shortest travel routes, least waiting time, and less in-bus congestion for passengers. Passengers feel more in control of their journeys as they can make informed choices.
- Journey planning and ticketing through a phone app enables people to plan their journeys.
- Buying a ticket in electronic form, typically with a dynamic QR code, can be helpful but more and more passengers like to have contactless payment by card or smartphone. Tap and go is increasingly requested when we do surveys of passenger requirements.
- Networked CCTV surveillance offers passengers more security in the vehicle and at bus stops
- Passenger Wi-Fi in buses and at bus stops enables the traveling public to keep in touch with emails, do internet searches, use bus planning apps etc. However, given that more and more people have smartphones with mobile data, Wi-Fi is not asked for so often.
- Transport for London (TfL) is experimenting with solar-powered, e-paper displays at selected bus stops. The e-paper display provides real-time information on arrival times as well as traditional route information and general timetables.
- In-bus travel information - route, stops, where the bus currently is, key organisations along the route (e.g. museums, hospital, university etc) is helpful when people are traveling to a new

destination and are unsure when to disembark the bus. This is particularly useful on crowded buses when people can't reach the driver or where they are tourists and don't speak the local language.

- Demand Responsive Transport (DRT) provides services on-demand for passengers using fleets of smaller buses that are scheduled to pick up and drop off people at locations chosen via websites or apps. Algorithms design the most efficient routing, providing potential passengers with estimated times of arrival. This service is offered in Malta for an additional fee – worth checking out.

I hope some of this is useful for you. Let me know if you ever want to discuss further – I'm a big believer in sharing best practice!

Cheers,

Jamie