

Activity Brief Sheets

New Tram for Derby

Introduction

This activity is designed with the idea to promote critical thinking, basics of design, engineering and innovation. This will in turn encourage teamwork and leadership from all those involved. A hands-on and fun activity to do, providing some introduction and insights to some areas of the railway industry.

Derby City Council has plans to improve and develop its city public transport system in line with the Midlands Engine for Growth strategy. Derby City Council has requested a scoping study of a new inner city guided tramway which would have the aim of alleviating overcrowding on the city's road systems. They would like the system to run on existing road ways and to popular city locations, a selection of which are shown on the city tourist map.

Derby City Council contracted a team of designers, engineers, transport planners and land surveyors, led by a project manager to deliver this project.

Task 1: Introduction

As the consulting and delivery team to Derby City Council, produce a high level cost benefit to the client to describe the benefits of a new tram line over other forms of transport systems. (Why is building a new tram line a good idea?)

Task 2: The Business Case

With the supporting information provided, develop a winning business case for the planning, construction and cost analysis of the new tram line. (Where, What, Why and How much?)

1. Propose which city locations should be served by the rail link
2. Provide an indication of the new route
3. Indicate where the new depot facility will be located
4. Suggest the number of stops and those which should be manned
5. Select an appropriate point at which to cross the river

Task 3: Presentation

In your teams, present your business case to the client.

Task 4: Put it to the test

Build the railway bridge and put it to the test.

1. Using the team of subcontractors the team will build a model of their bridge using a city side team and the suburb side team these two teams will not be able to communicate except through notes
2. One team will build one half of the bridge and the other team the second half.
3. The bridge must meet at mid-span
4. The two build groups will then join their structures and test.

Cost Data

Costs

<i>Route</i>	
Orange	£250k/mile
Blue	Not permitted
White	£100k/mile
Purple	£75k/mile
1cm = 0.05mile	

Facilities

Stop	<100 ppd	£10k
	<500ppd	£20k
	<1000ppd	£30k
	<2000ppd	£50k
Manned office		£40k

Depot

Region D	£2m
Region C&E	£2.5m
Region B&F	£3m

Bridge

		Span
Region C1	£500K	0.27mile
Region C2	£550K	0.20mile
Region D2	£500K	0.29mile
Region D3	£750K	0.35mile
Region E3	£300K	0.20mile
Region E4	£350K	0.25mile
Region F4	£700K	0.32mile

Demand Data

MAP ID	NAME	Passenger Flow /Day	Notes
1	Assembly Rooms	1000	
2	BBC Radio derby	100	
3	Big Screen	550	
4	Bonnie Prince Charlie Statue	300	
5	Brunswick Inn	100	
6	Cinema De Lux	800	
7	Coach PickUp/Drop off	900	
8	Cricket Ground	1000	Season
9	Derby Cathedral	500	
10	Derby Cathedral Centre	2000	
11	Derby dance Centre	25	
12	Derby Evening Telegraph	80	
13	Derby Gaol	65	
14	Derby Museum and Art Gallery	350	
15	Derby Playhouse	350	
16	Eagle Market	1100	
17	Guildhall Theatre	400	
18	Joseph Wright Centre - Derby College	650	
19	Market Hall	800	
20	Pickford's House Museum	100	
21	Police Enquiry Office	75	
22	Police HQ	250	
23	Quad (Arts and food Venue)	1750	
24	Queen's Leisure Centre	500	
25	Railway Station	2500	
26	Royal Crown Derby	190	
27	Silk Mill - Museum of Industry and History	140	