Rotherhithe-Canary Wharf Crossing Forecast Demand Analysis

28/06/2017

Contents

EVERY JOURNEY MATTERS

1. Introduction

This note describes the latest analysis and modelling work undertaken to assess options for a cycle and pedestrian crossing over the Thames between Rotherhithe and Canary Wharf. It will firstly describe the background to the study including some analysis of the current cycling environment. It will then give a brief description of the tools used to assess the potential impact of the scheme. Finally, it will present the work undertaken and the findings of the analysis.

1.1. Background

Some initial demand analysis was carried out using a bespoke spreadsheet forecasting model, designed to estimate the use of new cycle river crossings using a concept of generalised journey time and accounting for future year demand growth. This analysis predicted that up to 2m cycling trips would use a new fixed link crossing in 2021.

More recently, the first version of the Cycling Network Model for London (Cynemon) base year model, representing 2014, was used to inform understanding of the potential impact of the proposed schemes.

A forecasting methodology has now been developed for Cynemon future year models representing 2021, 2031 and 2041. These models have forecast future year demand and added functionality to model trips switching from other modes to cycling as a result of infrastructure changes, building upon an updated version of the base year model. This note describes the analysis carried out using the Cynemon forecast future year models.

1.2. Objectives and Scope

This note summarises work carried out using Cynemon to predict the impact of various options for pedestrian and cycle river crossings between Rotherhithe and Canary Wharf. This includes forecast growth in cycling trips, rerouting of trips, and trips switching to cycling from other modes as a result of the interventions. Options will be tested in 2021, 2031 and 2041, with sensitivity tests carried out for 2031 only. Some outputs in this report are shown for 2031 AM peak only to avoid repetition.

1.3. The Cynemon Model

Cynemon is a network based cyclist assignment model that has been developed by TfL using Citilabs' CUBE software. This tool is able to estimate cyclist routes, flows and journey times.

As an in-house tool, Cynemon can provide an understanding of patterns of cycling trips across London, how these patterns are likely to change in the future, and how these patterns would be expected to change in response to network changes. Cynemon represents the movements of cyclists between origins and destinations across London and models their choice of route. It can be used to assess the impact of new schemes in terms of re-routeing of existing cyclists and people switching from other modes to cycling as a result of schemes.

There are four aspects to the forecast cycling growth in Cynemon:

- Population/employment growth – derived from GLA forecasts.

- Policy impact – trips switching from other modes to cycling as a result of committed and funded future schemes (previously represented separately in the Cycling Policy Evaluation Tool, a spreadsheet model for predicting cycling mode shift in response to infrastructure).

- Push factors – Elasticity of cycling demand relative to fuel prices, highway journey times, public transport fares and public transport journey times.

- Unexplained growth – A factor capturing unmeasured growth (for example due to ‘safety in numbers’, normalising the image of cycling, etc.). Data is not available to explicitly model these, so the forecast is based on the assumption that these factors continue to contribute the same percentage of cycling growth as they did from 2004 to 2014, based on a backcasting exercise. The model was applied to the period between 2004 and 2014 to estimate the growth due to population/employment growth, policy impact and push factors. This was then compared to the observed growth over the same period. The difference is taken to be the ‘unexplained growth’.

2. Current Cycling Patterns

2.1. Demand

Different sources give varying estimates of the total daily cycling demand into Canary Wharf, as shown in Table 1. The Canary Wharf Travel Survey (CWTS) and Isle of Dogs Cordon Survey are observed data from employee surveys and cycle cordon counts. River Crossings Model (RCM) and Cynemon are modelled data. A comparison of census 2011 data with the CWTS data from that year confirmed a reasonable degree of consistency between the two datasets. There is a significant difference between the two observed data sources. One reason for this is seasonality. Although the data was only collected one month apart, it was in the autumn, when cycling levels drop most rapidly. The methodology is also very different. The higher value comes from a travel survey expanded to population whereas the lower value is an observed cordon count. The cordon survey would be expected to give a better measure for this value but the higher value in the survey data likely reflects some seasonal variation. It is therefore to be expected that Cynemon would be in between the two values, as is the case.

Table 1: Daily Cycling Demand into Canary Wharf

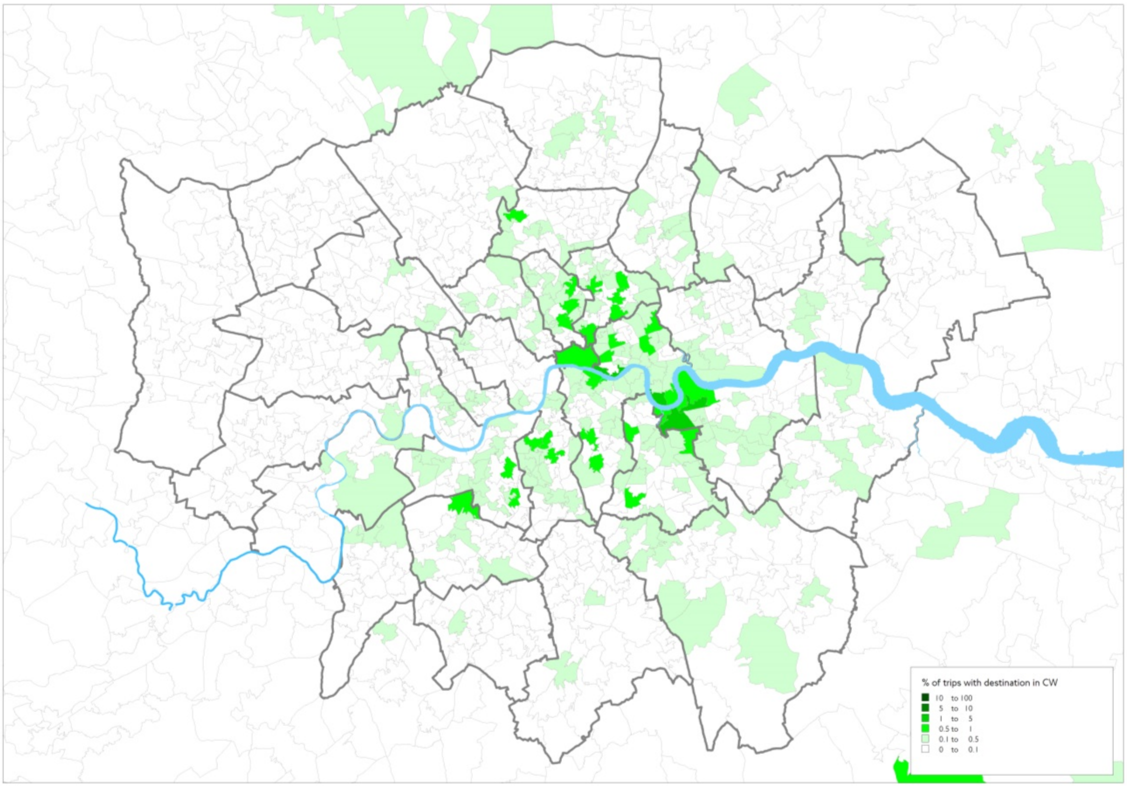
Source	**Demand**	**Year**
Isle of Dogs Cordon Survey (November 2015)	3,470	2015
Canary Wharf Travel Survey (October 2015)	4,900	2015
CYNEMON*	4,063	2014
RCM**	3,381	2013

*Cynemon demand is available for AM peak hour, interpeak average hour and PM peak hour. These have been reformulated to 12 hour daily demand using factors derived from LTDS data

**The River Crossings Model is the bespoke demand forecasting tool used to calculate cross-river walking trips. RCM demand matrices are based on census 2011 journey-to-work data factored up to a 2013 base year

Figure 1 shows the distribution of the origins of cycling trips to the Isle of Dogs in the Canary Wharf Travel Survey data.

Figure 1: Canary Wharf Survey Cycling Origins



The distribution of demand indicates that there is potential for existing cycling trips from south and south-west London to use an enhanced crossing at Rotherhithe, rather than crossing the river in central London and using Cycle Superhighway 3 or continuing to the south and using the Greenwich Foot Tunnel.

2.2. Routeing

Cycle access to and from Canary Wharf from the west, south-west and south is currently restricted to highway links (particularly along Cycle Superhighway 3) and the Greenwich Foot Tunnel. Counts collected on these links vary, with the table below giving an indication of the level of cycling in the AM Peak hour drawn from a number of sources.

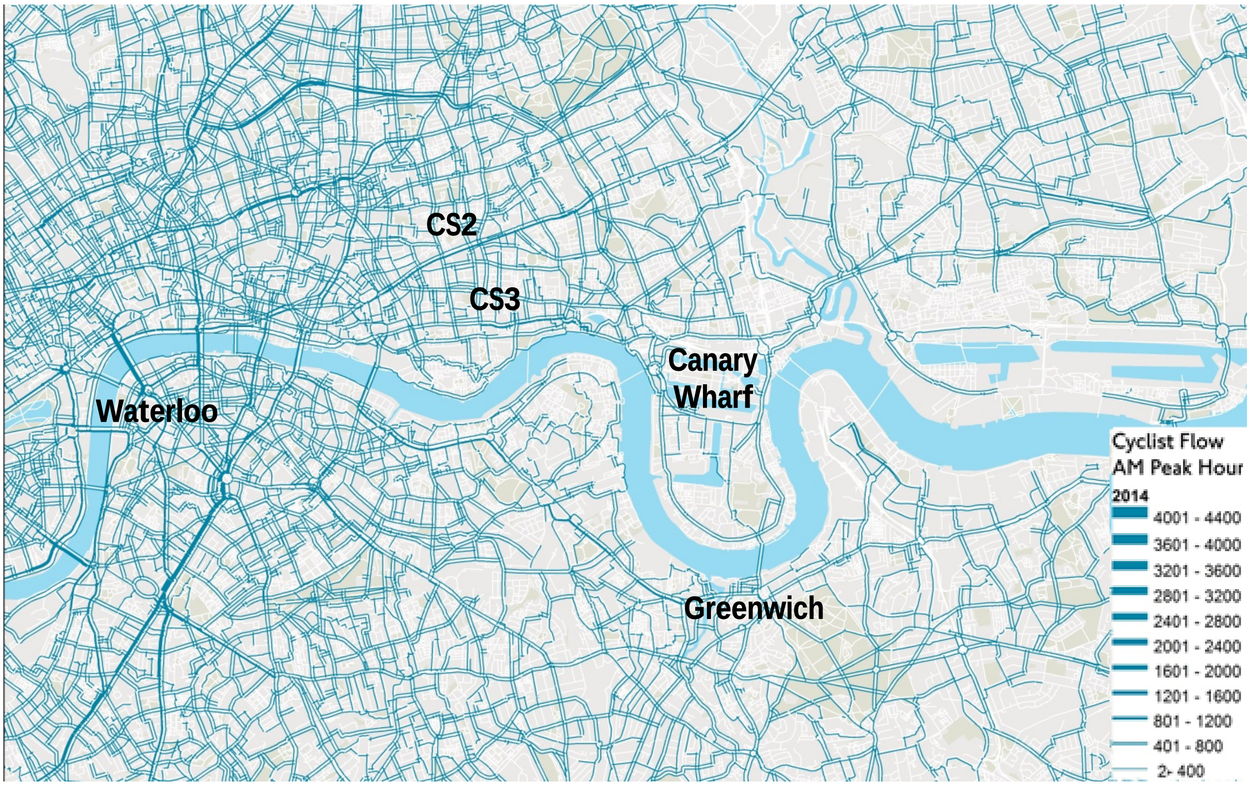
Table 2: AM Peak Cycling Counts

Road	Direction	Count
Greenwich Foot Tunnel	Inbound	279
Greenwich Foot Tunnel	Outbound	32
Narrow Street (Cycle Superhighway 3)	Inbound	363
Narrow Street (Cycle Superhighway 3)	Outbound	213

Although it is not directly marketed as a cycle crossing, cyclists can use the existing Hilton ferry service by paying a fare, but the numbers are small and are not counted separately in the River Bus Origin Destination Survey data.

The table indicates that a reasonable level of cycling takes place on the Greenwich Foot Tunnel with the majority of cyclists using Cycle Superhighway 3 to access the Isle of Dogs and Canary Wharf. This is illustrated in the plot below showing AM Peak cycling flow in Cynemon.

Figure 2: 2014 AM Peak Cynemon Cycling Flows



2.3. Peak Hour Conversion Factors

London-wide factors to convert Cynemon peak hour flows to peak period or daily flows have been derived from the London Travel Demand Survey (LTDS). These are shown in table 3.

Table 3: Peak hour conversion factors

	Factor
AM Peak Hour to AM Peak Period	2.10
IP Average Hour to IP Period	6.00
PM Peak Hour to PM Peak Period	3.25
12 Hour to 24 Hour	1.19

2.4. Gradient

Currently no penalty is applied for the change in altitude required to access the crossing to be consistent with the treatment of alternative crossings in the model. The Cynemon routeing algorithm calculated from observed route choice data does factor in gradient based on the total metres gained or lost across a cyclists' whole route using link end spot heights only (in metres per 100m). The impedance factors equate to 0.22 for commuters, 0.24 for other journey purposes, and 2.31 for Cycle Hire. These parameters can inform further analysis of the relative preference for ramps or lifts at different heights. It should be noted, however, that for a given height of the crossing the Cynemon parameters look at the total distance gained/lost and cannot assess preference for shorter and steeper ramps versus longer ramps with less gradient.

3. Forecast Cycling Patterns

Forecast cycling flows in 2031 are shown in figure 3, and the change relative to 2014 is shown in figure 4.

Figure 3: 2031 AM Peak Cynemon Cycling Flows

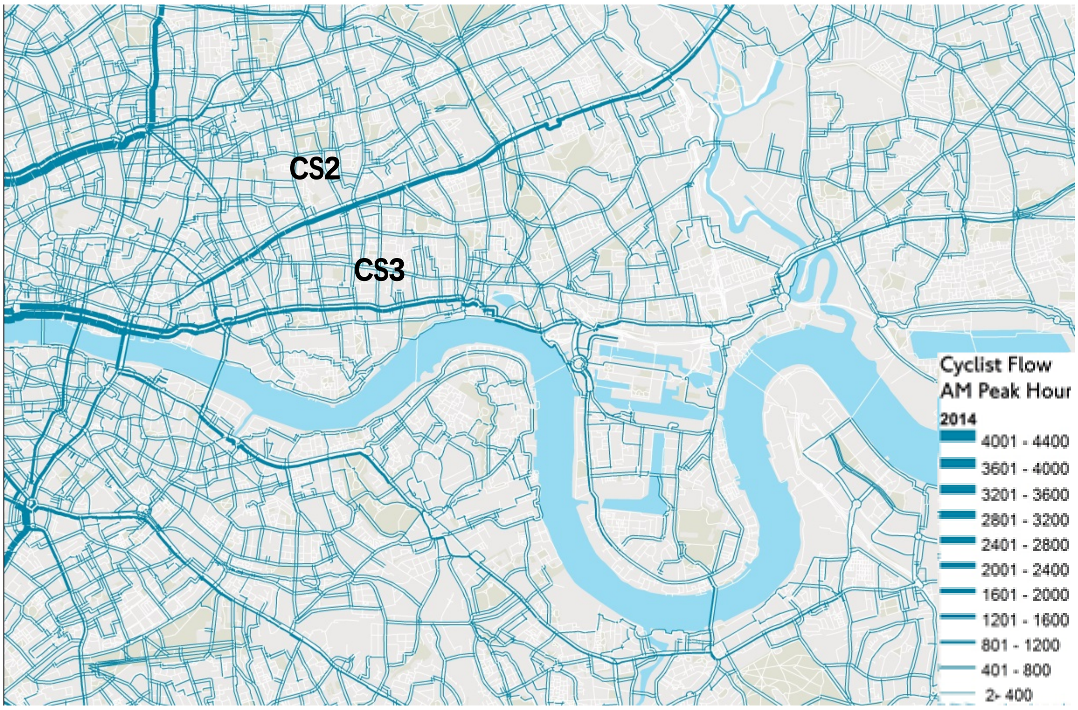
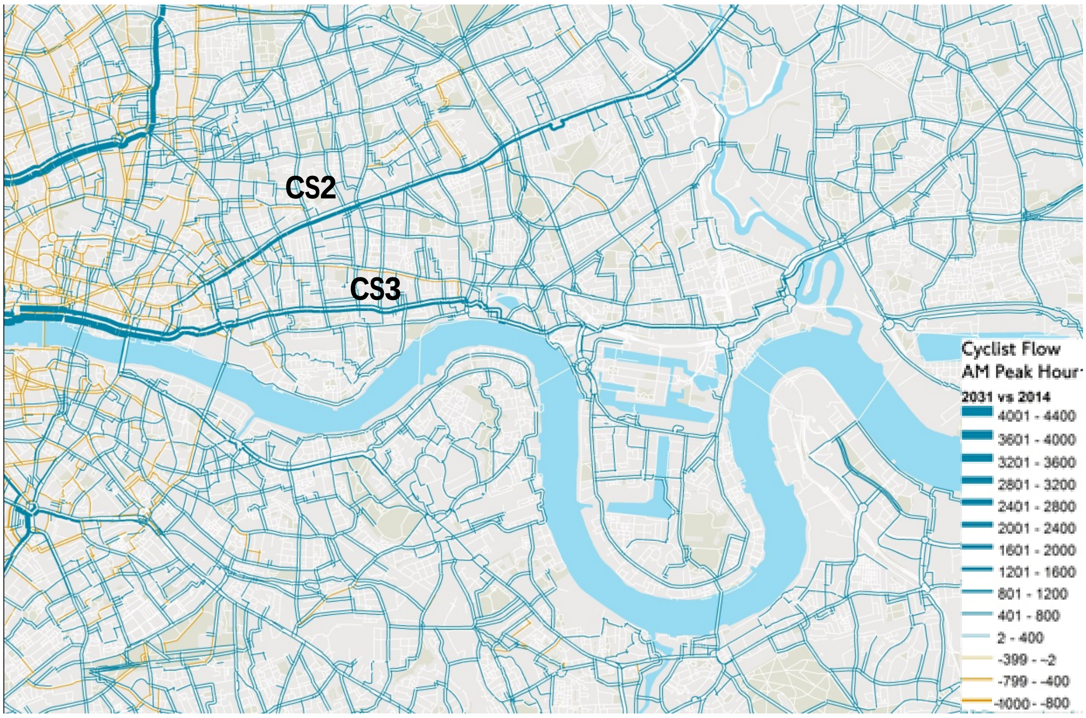


Figure 4: 2031 vs 2014 AM Peak Cynemon Cycling Flow Change



On the section of CS3 on Narrow Street, immediately west of the Isle of Dogs, AM peak hour cycling flow is forecast to be almost three times higher in 2031 than in 2014. This is largely due to the introduction of the East-West Cycle Superhighway which connects to it further west. Similar growth is also forecast on CS2 (upgraded post-2014). Other flows in the area are forecast to increase to a lesser extent.

4. Test Scenarios

Three core scenarios have been tested:

- New fixed link crossing (bridge or tunnel)
- Enhanced Ferry- Free at the location of the Docklands Doubletree Ferry
- Enhanced Ferry- TfL fare at the location of the Docklands Doubletree Ferry with an integrated Oyster and Travelcard fare

Additional sensitivity tests were also carried out, as described in section 4.4.

4.1. New Fixed Link Crossing

This scenario considers a pedestrian and cyclist bridge or tunnel with the alignment shown in figure 5. The model simply represents the location of the link and the type of provision for cyclists, so it does not differentiate between a bridge and a tunnel. It is assumed that cyclists are able to access the crossing without dismounting, with assumed cycling ramp lengths of 356m on the western ramp and 355m on the eastern ramp. The crossing is assumed to have a dedicated cycle lane on the ramps and on the span itself. No penalty is applied for the change in altitude required to access the crossing.

Figure 5: Modelled Alignment of New Fixed Link Crossing for Cyclists

4.2. Free Ferry

This scenario considers demand for a ferry in the location of the existing Docklands Doubletree Ferry, with a crossing time of three minutes, headway of five minutes, and no fare.

Two tests were carried out for this option. The first applied a cost for the actual waiting time. The second weighted the waiting time cost by a factor of 2.5, based on the value used for waiting time in public transport modelling.

4.3. TfL fare Ferry

This scenario is identical to the Free Ferry scenario, except for an integrated Oyster and Travelcard fare applied to the ferry.

Two tests were carried out for this option. The first applied a cost for the actual waiting time. The second weighted the waiting time cost by a factor of 2.5, based on the value used for waiting time in public transport modelling.

4.4. Sensitivity Tests

Five sensitivity tests were carried out for the 2031 forecast:

- New Fixed Link Crossing plus CS4 and a segregated and signed cycle route from the A2 to the southern end of the crossing, via the A2208 and B205.
- New Fixed Link Crossing - TfL fare. Identical to the New Fixed Link Crossing but with a fare of £1.45 applied.
- Opening Bridge. Identical to the New Fixed Link Crossing but with a penalty applied to reflect the bridge opening to allow river traffic to pass. It is assumed the bridge would open for 10 minutes three times a day. This penalty has been applied following priority outputs from the East London River Crossing Research, Systra, 2017. This penalty is subject to change following receipt of the full outputs.

5. Analysis of Proposed Scheme Impacts

The scenarios were tested using Cynemon to analyse the expected number of cyclists using the crossings and the benefit derived by those users. Forecast models were used for 2021, 2031 and 2041, reflecting the impact of committed and funded schemes as of January 2017.

5.1. Number of Cyclists

The number of cycle stages per day expected to use each of the options is shown in table 4.

Table 4: Daily Cycle Stages Expected to Use Each Option

	New Fixed Link Crossing	**Free Ferry (unweighted / weighted waiting time)**	**TfL Fare Ferry (unweighted / weighted waiting time)**	**New Fixed Link Crossing & Approach Route**	**New Fixed Link Crossing- TfL Fare**	**Opening Bridge**
2021	2238	760 / 270	93 / 33			
2031	2834	1001 / 370	131 / 48	3823	347	1275
2041	3200	1148 / 433	157 / 59			

The results suggest that a new fixed link crossing would attract significantly more cyclists than a ferry, due to the waiting time and crossing time when using the ferry. Results for the ferry options suggest that imposing a fare would severely reduce demand. The TfL fare ferry is forecast to attract 12-14% of the demand that a free ferry would attract.

Table 4 includes both cyclists who would reroute to use the crossing and trips expected to switch from other modes to cycling as a result of the crossing. Table 5 shows only the trips expected to switch from other modes to cycling as a result of the crossing. This is forecast using an incremental logit model, taking into account whole route costs and the ratio of cycled trips to "potentially cycleable trips". The potentially cycleable trips are derived from analysis of London Travel Demand Survey (LTDS) data.

Table 5: Daily Cycle Stages Expected to Switch from Other Modes

	New Fixed Link Crossing	**Free Ferry (unweighted / weighted waiting time)**	**TfL Fare Ferry (unweighted / weighted waiting time)**	**New Fixed Link Crossing & Approach Route**	**New Fixed Link Crossing- TfL Fare**	**Opening Bridge**
2021	1250	453 / 184	57 / 17			
2031	1569	574 / 233	72 / 22	2193	205	737
2041	1711	630 / 258	80 / 24			

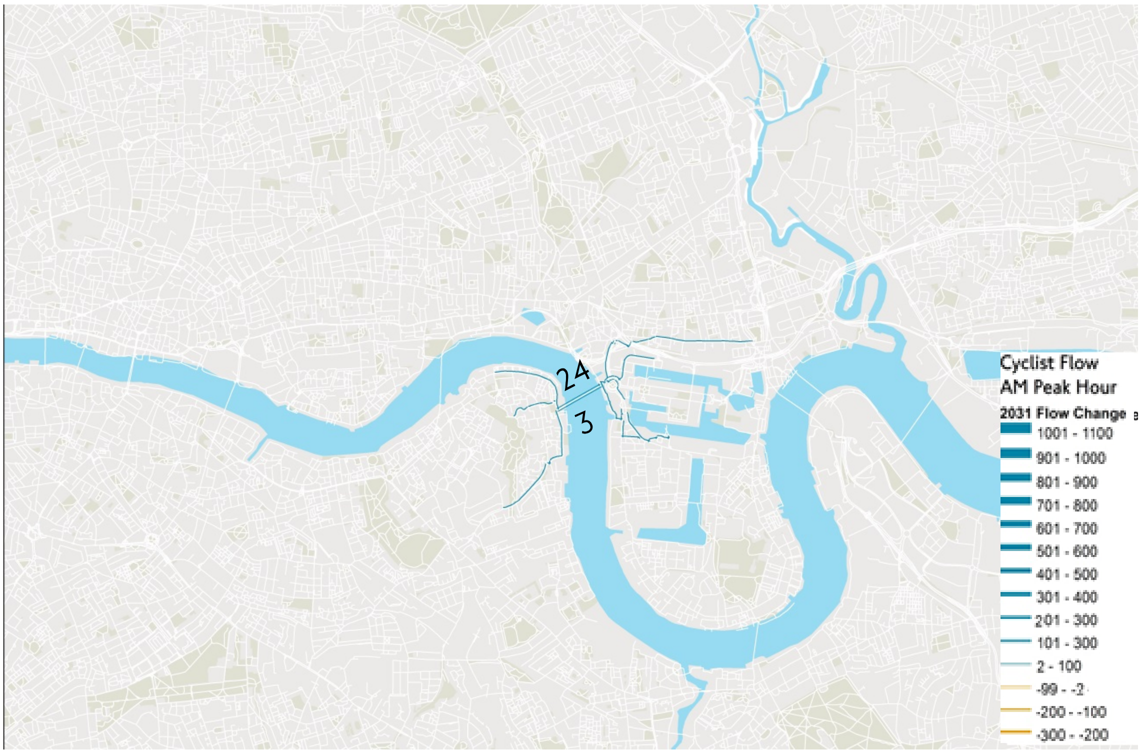
5.2. Flow Change

The expected flow change as a result of each of the three core options is shown in figures 6, 7 and 8, for the AM peak hour in 2031.

Figure 6: Expected Flow Change in Response to a New Fixed Link Crossing (2031 AM Peak Hour)

Figure 7: Expected Flow Change in Response to a Free Ferry (unweighted waiting time) (2031 AM Peak Hour)

Figure 8: Expected Flow Change in Response to a TfL Fare Ferry (unweighted waiting time) (2031 AM Peak Hour)



The modelling suggests that a new fixed link crossing would attract trips from a wider area, causing significant rerouting. For example, figure 6 shows trips rerouting from as far as CS2. Trips are shown to divert primarily from Greenwich Foot Tunnel and Tower Bridge, with smaller numbers of trips diverting from London Bridge and Southwark Bridge. Some trips from the south east of London travelling to central London use the bridge and CS3/CS-EW rather than travelling south of the river before crossing one of the central London bridges.

The results suggest that a free ferry would still attract trips from a relatively wide area but in smaller numbers, with a similar mix of people accessing Canary Wharf and people accessing central London via CS3/CS-EW.

A TfL Fare ferry would only be expected to attract local trips from Rotherhithe to Canary Wharf.

5.3. Impact on Other River Crossings

The table below shows the impact of the three core options on river crossing flows in the vicinity of the scheme. For all three options similar numbers of trips are abstracted from both Tower Bridge and Greenwich Foot Tunnel.

Table 5: River Crossing Flows with and without Proposed Scheme

Crossing	Number of Cyclists in Reference Case (2031 AM Peak Hour)	Number of Cyclists With New Fixed Link Crossing (2031 AM Peak Hour)	Number of Cyclists With Free Ferry (2031 AM Peak Hour) (unweighted / weighted waiting time)	Number of Cyclists with TfL Fare Ferry (2031 AM Peak Hour) (unweighted / weighted waiting time)
Tower Bridge	1024	942 (8% decrease)	988 / 1010 (4%/1% decrease)	1019 / 1022 (0% decrease)
Greenwich Foot Tunnel	654	557 (15% decrease)	628 / 643 (4%/2% decrease)	649 / 652 (1%/0% decrease)
New Crossing	0	472	173 / 66	27 / 11

6. Potential Impact of Greenwich Foot Tunnel Capacity Restraint

This analysis has shown that the Rotherhithe-Canary Wharf Crossing would be unlikely to encourage cyclists from the south east to reroute their trips, due to convenience of Greenwich Foot Tunnel. However, the capacity of Greenwich Foot Tunnel for cyclists is limited due to capacity constraints on the lifts and steps, meaning that in the future some cyclists may have to take alternative routes during peak times.

Analysis was carried out to investigate the potential impact of Greenwich Foot Tunnel reaching capacity. If some cyclists were no longer able to use Greenwich Foot Tunnel, table 6 shows the percentage of those rerouted cyclists who would use each of the other crossings (essentially the 'second preference' for each of the cyclists using Greenwich). This focusses on northbound demand in the AM peak hour and southbound demand in the PM peak hour in 2031.

Table 6: Cyclist rerouting if Greenwich Foot Tunnel is at maximum capacity

River Crossing	**Cyclist Rerouting (%) New Fixed Link Crossing**	
	AM Northbound	PM Southbound
Woolwich Foot Tunnel	6%	8%
Tower Bridge	18%	18%
London Bridge	1%	4%
New Crossing	75%	69%

7. Benefit Calculations

There are two measures of benefit that can be derived from the Cynemon model. The first is journey time, although journey time benefits for cycling schemes are often low since cyclists will sacrifice journey time in order to use better quality infrastructure. The second is a monetary benefit based on the generalised cost function in Cynemon, which takes into account road type, cycling infrastructure, gradient and traffic, as well as reflecting trip distance.

The benefit of the scheme can be quantified as the difference between the total cost experienced by all users with the scheme and without the scheme. The generalised cost in Cynemon is expressed in metres. This is converted to time using an average cycling speed derived from GPS app data (17.6km/h). This is then converted to monetary cost using the cyclist value of time from TfL's Business Case Development Manual (£9/hour).

The benefits are shown in table 7. For existing cycling trips that reroute to use the scheme, the total changes in journey time and generalised cost have been taken as the benefit. For trips that switch from other modes to cycling in order to use the scheme the rule of a half has been applied to the total benefit.

Table 7: Daily Monetary Benefits of the Scheme

		New Fixed Link Crossing	**Free Ferry (unweighted / weighted waiting time)**	**TfL Fare Ferry (unweighted / weighted waiting time)**
2031	Existing Trips	£570	£189 / £78	£25 / £7
	New Trips	£1,220	£407 / £137	£30 / £6
	Total	£1,790	£596 / £215	£54 / £12

Analysis was also carried out on the benefit to cyclists who have to reroute from Greenwich Foot Tunnel due to capacity restraint (as Greenwich Foot Tunnel is forecast to reach capacity). The results for the New Fixed Link Crossing scenario are shown below.

Table 8: Benefit per Cyclist Unable to Use Greenwich Foot Tunnel Due to Capacity Restraint (2031, New Fixed Link Crossing)

Peak/Direction	**Benefit of New Fixed Link Crossing per Cyclist Unable to Use Greenwich Foot Tunnel**
AM Northbound	£1.05
PM Southbound	£0.95

8. Summary

The analysis carried out here suggests that a new fixed link pedestrian and cycle crossing from Rotherhithe to Canary Wharf would attract a significant number of cyclists, more so than the ferry options considered in this analysis.

A free ferry at the location of the Docklands Doubletree Ferry with increased frequency would be expected to attract between 13% and 35% of the demand that a fixed link crossing would.

Adding a fare to the ferry would drastically reduce demand. The same is true for adding a fare to a fixed link crossing.

If the fixed link crossing were a bridge which opened three times a day for 10 minutes demand would reduce to less than half, although still slightly higher than the free ferry option.

The results also suggested that adding a high quality approach route through Rotherhithe for cyclists to access a fixed link crossing would increase demand for the crossing by approximately 35%.

For all options, a significant proportion of the trips are forecast to be trips that switch to cycling from other modes as a result of the scheme (typically around half of the trips, varying by option, year and time period).

The monetary benefit per user (reflecting ambience benefits and taking into account journey distance) is highest for a fixed link crossing, 67% to 88% lower for a free ferry and 97% to 99% lower for a ferry with a fare.

APPENDIX: Number of Trips – Full Results

Total Trips (by Time Period and Direction)

		Bridge/Tunnel		Free Ferry (unweighted waiting time)		Free Ferry (weighted waiting time)		TfL Fare Ferry (unweighted waiting time)		TfL Fare Ferry (weighted waiting time)		Bridge/Tunnel & Approach Route		TfL Fare Bridge/Tunnel		Opening Bridge	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
2021	AM	347	42	125	13	46	5	19	2	8	1						
	IP	42	27	13	8	4	3	1	1	0	0						
	PM	71	129	28	41	10	13	3	4	1	1						
2031	AM	411	61	152	21	58	9	24	3	10	1	534	92	57	9	191	29
	IP	54	35	18	10	6	4	2	1	0	0	68	50	5	3	22	15
	PM	104	159	43	52	17	18	5	6	2	2	133	233	17	14	51	68
2041	AM	463	71	172	25	66	11	28	4	12	2						
	IP	59	38	20	11	7	4	2	1	1	0						
	PM	123	180	53	60	21	21	7	7	2	3						

Total Trips (Daily)

	Bridge/Tunnel	Free Ferry (unweighted waiting time)	Free Ferry (weighted waiting time)	TfL Fare Ferry (unweighted waiting time)	TfL Fare Ferry (weighted waiting time)	Bridge/Tunnel & Approach Route	TfL Fare Bridge/Tunnel	Opening Bridge
2021	2238	760	270	93	33			
2031	2834	1001	370	131	48	3823	347	1275
2041	3200	1148	433	157	59			

Total Trips Excluding Unexplained Growth (by Time Period and Direction)

		Bridge/Tunnel		Free Ferry (unweighted waiting time)		Free Ferry (weighted waiting time)		TfL Fare Ferry (unweighted waiting time)		TfL Fare Ferry (weighted waiting time)		Bridge/Tunnel & Approach Route		TfL Fare Bridge/Tunnel		Opening Bridge	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
2021	AM	314	32	110	9	39	3	15	1	6	0						
	IP	40	25	12	7	4	2	1	0	0	0						
	PM	62	113	23	34	8	10	2	3	0	1						
2031	AM	366	45	130	13	47	5	18	1	7	0	475	70	45	4	164	19
	IP	51	31	16	9	5	3	1	1	0	0	63	46	4	3	20	13
	PM	90	136	36	43	13	13	3	4	1	1	116	200	12	10	42	55
2041	AM	405	50	145	16	53	6	21	2	8	0						
	IP	55	33	17	9	6	3	1	1	0	0						
	PM	106	150	44	47	16	15	4	5	1	1						

Total Trips Excluding Unexplained Growth (Daily)

	Bridge/Tunnel	Free Ferry (unweighted waiting time)	Free Ferry (weighted waiting time)	TfL Fare Ferry (unweighted waiting time)	TfL Fare Ferry (weighted waiting time)	Bridge/Tunnel & Approach Route	TfL Fare Bridge/Tunnel	Opening Bridge
2021	2002	657	219	68	21			
2031	2483	839	288	90	29	3363	261	1070
2041	2758	943	330	106	35			

Existing & Rerouted Trips (by Time Period and Direction)

		Bridge/Tunnel		Free Ferry (unweighted waiting time)		Free Ferry (weighted waiting time)		TfL Fare Ferry (unweighted waiting time)		TfL Fare Ferry (weighted waiting time)		Bridge/Tunnel & Approach Route		TfL Fare Bridge/Tunnel		Opening Bridge	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
2021	AM	191	15	61	5	15	3	7	1	3	1						
	IP	12	5	3	2	1	1	0	0	0	0						
	PM	24	67	10	19	4	4	1	2	1	1						
2031	AM	229	24	76	10	21	5	10	2	4	1	283	35	22	6	94	13
	IP	16	8	4	3	2	1	1	0	0	0	19	11	2	1	6	4
	PM	37	82	16	25	7	7	3	3	1	1	47	115	6	7	20	32
2041	AM	263	30	89	13	26	7	12	3	6	2						
	IP	18	10	5	3	2	2	1	1	0	0						
	PM	48	97	22	30	9	9	4	4	2	2						

Existing & Rerouted Trips (Daily)

	Bridge/Tunnel	Free Ferry (unweighted waiting time)	Free Ferry (weighted waiting time)	TfL Fare Ferry (unweighted waiting time)	TfL Fare Ferry (weighted waiting time)	Bridge/Tunnel & Approach Route	TfL Fare Bridge/Tunnel	Opening Bridge
2021	987	307	86	36	16			
2031	1265	427	136	59	26	1630	142	538
2041	1489	518	176	76	35			

Mode Switched Trips (by Time Period and Direction)

		Bridge/Tunnel		Free Ferry (unweighted waiting time)		Free Ferry (weighted waiting time)		TfL Fare Ferry (unweighted waiting time)		TfL Fare Ferry (weighted waiting time)		Bridge/Tunnel & Approach Route		TfL Fare Bridge/Tunnel		Opening Bridge	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
2021	AM	155	28	64	8	31	2	12	0	5	0						
	IP	30	22	10	6	4	2	1	0	0	0						
	PM	47	62	18	22	7	9	2	3	0	1						
2031	AM	182	37	76	11	37	3	15	1	6	0	251	57	34	3	96	16
	IP	38	27	13	8	5	2	1	0	0	0	49	40	4	2	16	11
	PM	67	77	27	27	10	11	3	3	1	1	87	117	11	7	32	36
2041	AM	200	40	83	12	40	4	16	1	6	0						
	IP	41	28	14	8	5	2	1	0	0	0						
	PM	76	83	31	29	12	12	3	4	1	1						

Mode Switched Trips (Daily)

	Bridge/Tunnel	Free Ferry (unweighted waiting time)	Free Ferry (weighted waiting time)	TfL Fare Ferry (unweighted waiting time)	TfL Fare Ferry (weighted waiting time)	Bridge/Tunnel & Approach Route	TfL Fare Bridge/Tunnel	Opening Bridge
2021	1250	453	184	57	17			
2031	1569	574	233	72	22	2193	205	737
2041	1711	630	258	80	24			