
BUSES
TRANSPORT
FOR LONDON
EVERY JOURNEY MATTERS

Southeast Riverside – Area Review

February 2017

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Introduction

This review examines how the bus network may change in response to development coming forward in the Southeast Riverside area.

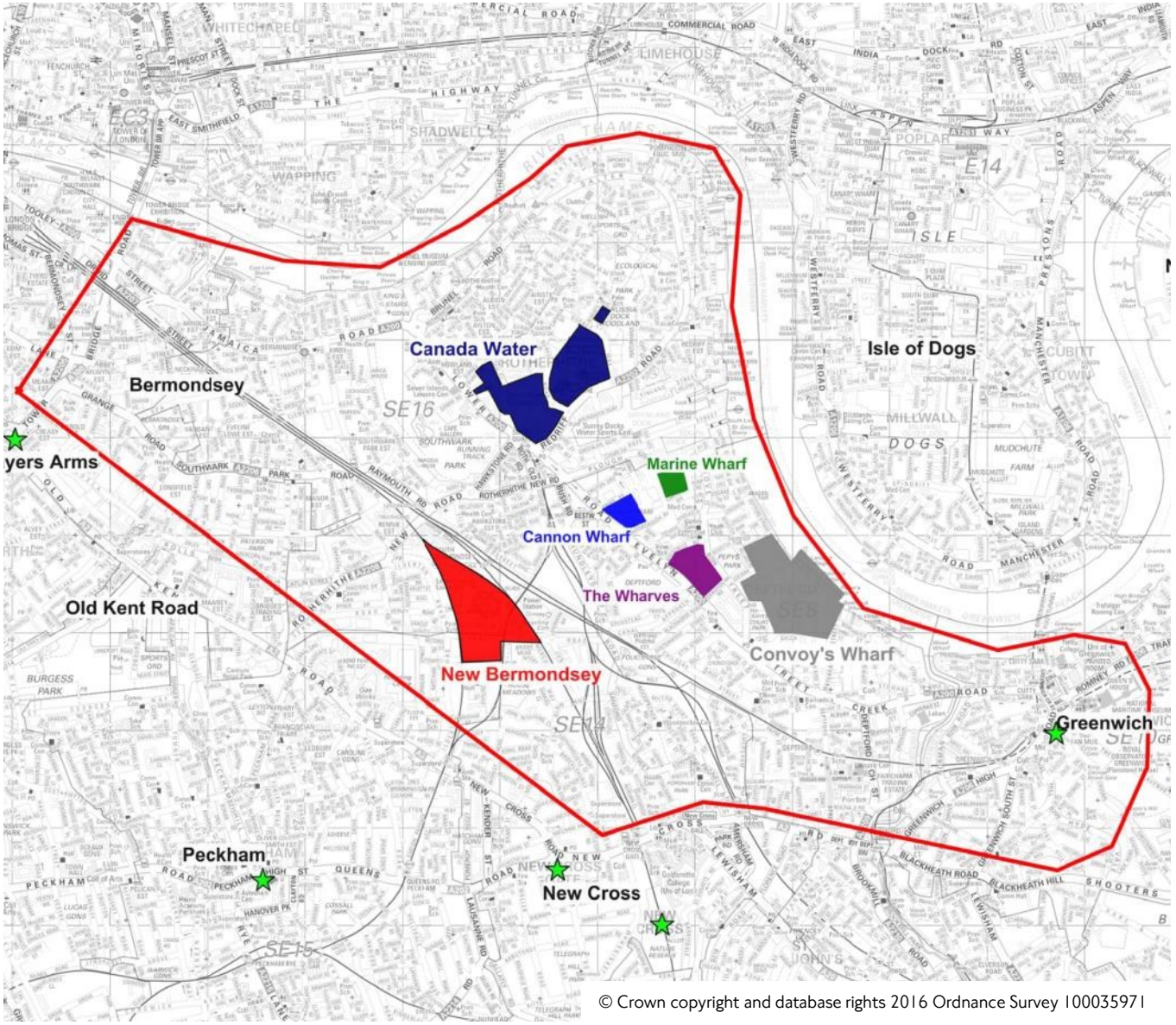
The interventions considered are ideas and not proposals. They are therefore subject to change.

Any definite proposals will require a detailed cost benefit appraisal and be subject to funding availability.

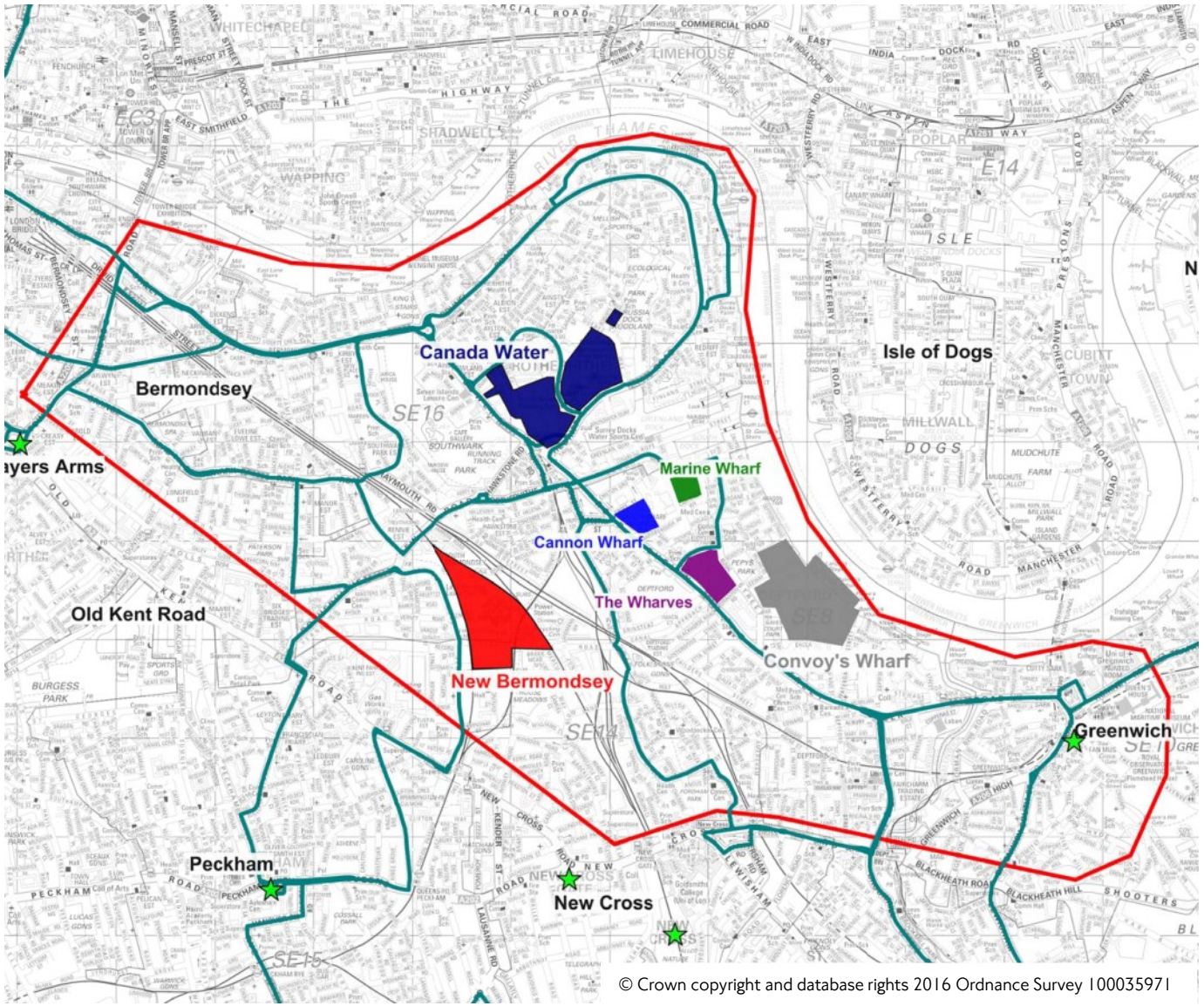
Consultation is always undertaken on service changes which significantly alter a bus route.

Study Area

Study area with major developments



Existing routes serving major development sites



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Existing bus routes: day time

Route	From	To	Busiest point	Buses per hour (peak)
1	Tottenham Court Road	Canada Water	Bricklayers Arms (NB)	7.5
47	Shoreditch	Catford Bus Garage	Deptford (NB)	6
188	North Greenwich	Russell Square	Waterloo (NB)	8
199	Canada Water	Catford Bus Garage	Lewisham High Street (SB)	5
225	Canada Water	Hither Green	Lewisham High Street (SB)	4
381	Waterloo	Peckham	Bermondsey Station (WB)	6
C10	Canada Water	Victoria	Elephant and Castle (EB)	8
P12	Brockley Rise	Surrey Quays	Peckham High Street (NB)	6

BUSES

Existing bus routes: night time

Route	From	To	Buses per hour (peak)
47	Catford Bus Garage	Shoreditch	2
188	North Greenwich	Russell Square	2
N1	Tottenham Court Road	Thamesmead	3 (weekends) 2 (weekdays)
N199	Trafalgar Square	St Mary Cray	3 (weekends) 2 (weekdays)
N381	Trafalgar Square	Peckham	2

Current bus speeds on major corridors

Road	Direction	Scheduled (mph)	Actual (mph)
Jamaica Road	E/B	8.0	7.2
	W/B	7.1	6.4
Rotherhithe New Road	E/B	7.9	6.9
	W/B	7.5	6.6
Evelyn Street	N/B	7.8	6.4
	S/B	9.2	9.2
Rotherhithe Peninsula	Clockwise	8.0	7.2
	Anti-clockwise	9.1	9.5

Source: iBus, September 2016

- Overall, bus speeds are currently in decline.
- Analysis of bus speeds in September 2016 on key corridors in the study area show that they are slower than scheduled. This is mainly due to increased congestion.
- The conclusion from the above table is that passenger journeys are taking longer than scheduled.
- It also means that it is more difficult for buses to keep to timetable, resulting in longer average wait times for passengers at bus stops.
- Longer journeys and less reliable bus services means they opt not to travel or travel by other means. It also means higher operating costs as more buses and drivers are required to maintain the same level of reliability and frequency.
- Longer bus routes, which are subject to severe congestion at numerous points on their route, will become more difficult to operate as traffic conditions deteriorate over time.
- Bus priority schemes on congested roads will deliver high and more reliable bus speeds.

Developments

Canada Water

Borough	Southwark
Estimated construction period	15 years to 2031
Approval status	Planning application not submitted
Construction status	Awaiting planning application
Land use	Mixed: 3,200 residential units 220,000 sq metres office space 25,000 sq metres hotel 53,000 sq metres retail 24,000 sq metres leisure
AM Peak (0800 – 0900) bus journeys from Transport Assessment	
Bus arrivals	855
Bus departures	572

Convoys Wharf

Borough	Lewisham
Estimated construction period	10 years to 2026
Approval status	Outline planning permission granted
Construction status	Enabling works underway
Land use	3,500 residential units (also, office, education, retail, leisure)
AM Peak (0800 – 0900) bus journeys from Transport Assessment	
Bus arrivals	529
Bus departures	521

New Bermondsey

Borough	Lewisham
Estimated construction period	15 years to 2031
Approval status	Planning approval granted
Construction status	Awaiting CPO proceedings
Land use	Mixed: 2,400 residential units and 250,000 sq m of primarily commercial and retail uses
AM Peak (0800 – 0900) bus journeys from Transport Assessment	
Bus arrivals	524
Bus departures	614

Other developments

The Wharves	
Land use	Mixed use: 1,132 residential units (plus office, retail and leisure)
AM peak (0800 – 0900) bus arrivals and departures	Arrivals: 124 Departures: 212
Cannon Wharf	
Land use	Mixed use: 696 residential units (plus office and retail)
AM peak (0800 – 0900) bus arrivals and departures	Arrivals: 59 Departures: 118
Marine Wharf, East and West	
Land use	Mixed use: 715 residential units (plus office and retail)
AM peak (0800 – 0900) bus arrivals and departures	Arrivals: 47 Departures: 105

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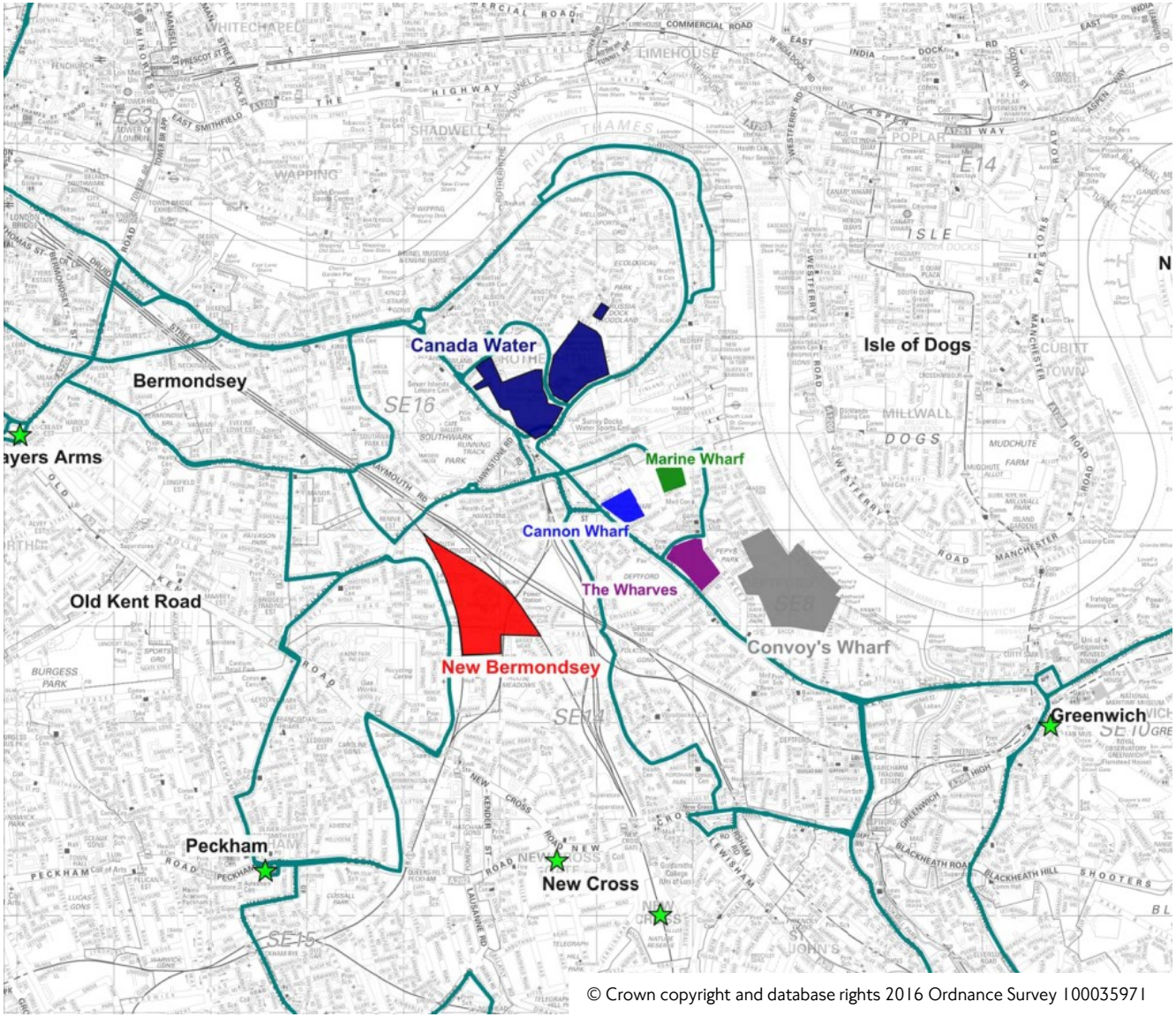
Canada Water – existing links



Routes:

1	7.5 bph
47	6 bph
188	8 bph
199	5 bph
225	4 bph
381	6 bph
C10	8 bph
P12	6 bph

Canada Water is currently well served by bus routes.

Stakeholders have raised issues about reliability, particularly on the Rotherhithe Peninsula.

Routes 188 and 381 are very long and serve areas with high levels of congestion, such as Jamaica Road and Elephant and Castle. This makes them more difficult to operate reliably.

bph: bus per hour

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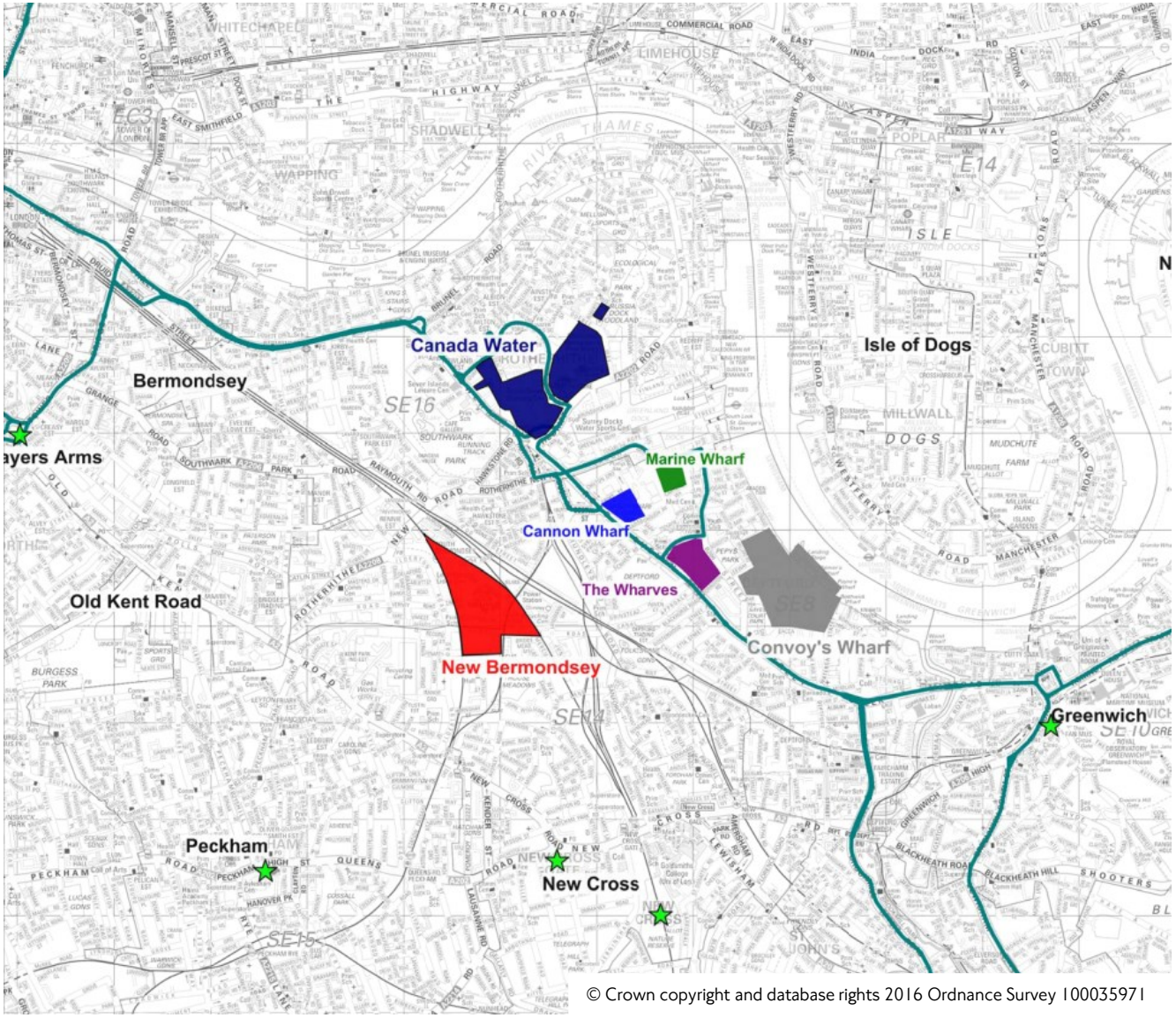
Convoys Wharf – existing links



Routes:

47	6 bph
188	8 bph
199	5 bph

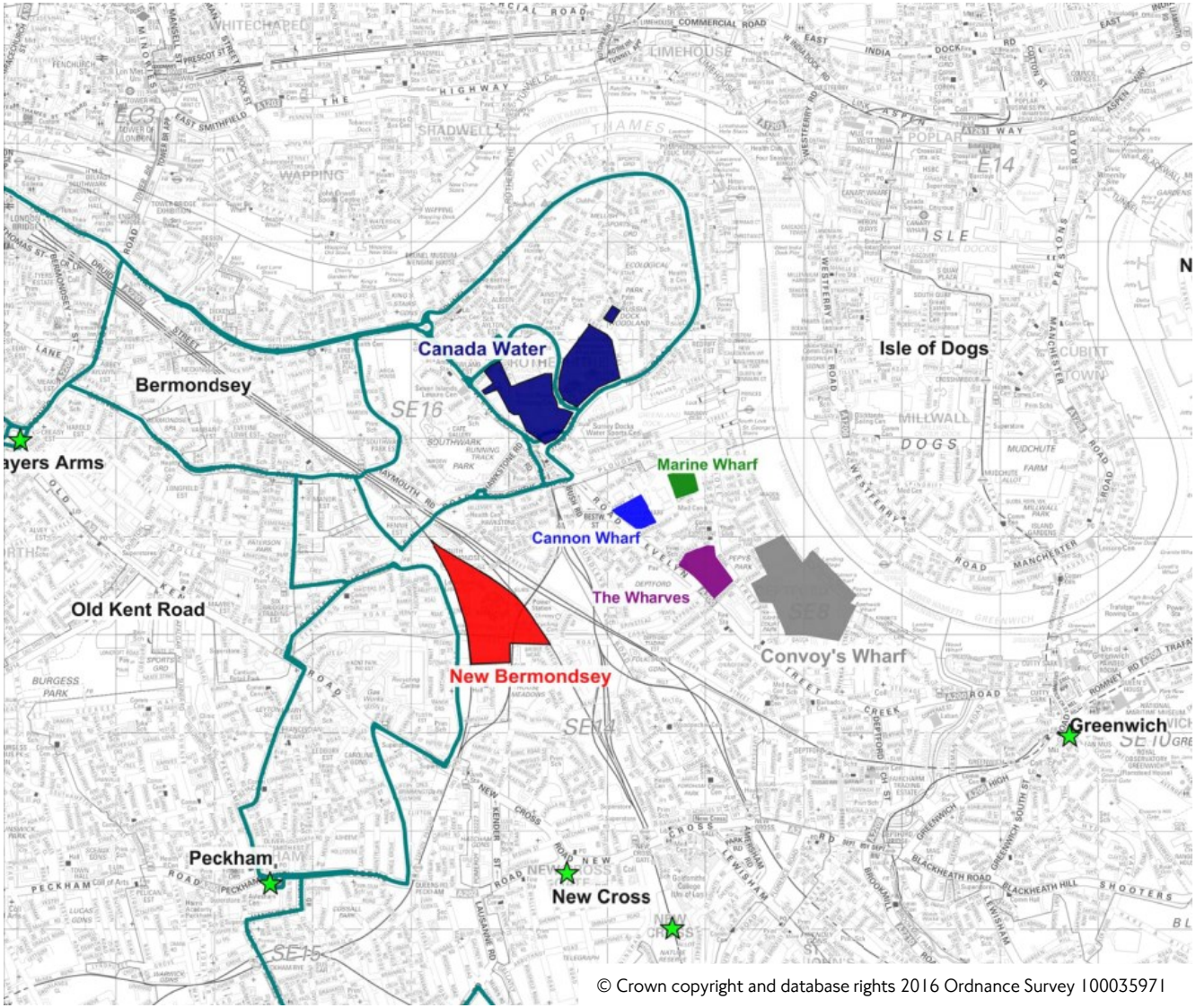
The eastern parts of the site are currently remote from the bus network.

A new road would be constructed through the site, which would enable bus routes to better serve it.

There is good connectivity to Greenwich and the southeast and Canada Water / London Bridge to the northwest.

Rail lines and the current road network make direct bus links to the southwest difficult to achieve.

New Bermondsey – existing links



Routes:

1	7.5 bph
381	6 bph
P12	6 bph

Eastern parts of the site are remote from the bus network. Routes 1 and 381 provide good links for the north of the site only. Route P12 serves the western edge of the site giving links to Peckham, Surrey Quays and Canada Water.

It has been assumed that a new London Overground Station on Surrey Canal Road will be provided for as part of the development.

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Impact of developments on bus network capacity

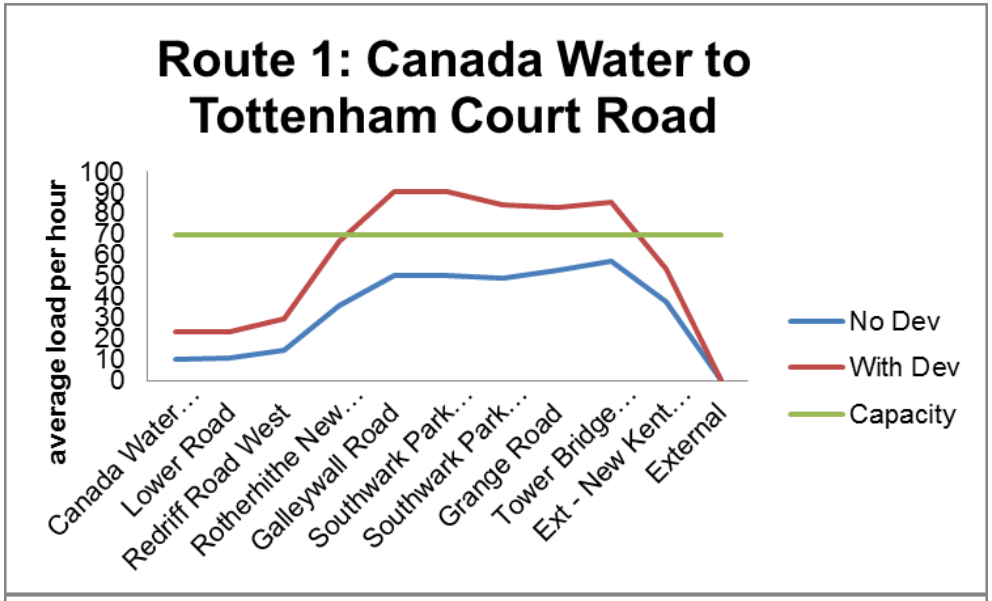
Modelling approach

- The following approach was undertaken to model the impact of the developments on the local bus network.
- Divide the study area into zones, which are sections of road and groups of bus stops with one or more bus routes using them.
- Identify current bus demand and travel patterns for the AM peak hour using oyster card data.
- Identify AM peak hour trip generation from the new developments taken from the Transport Assessments.
- Distribute those development trips by direction and assign to a corridor based on existing trip patterns.
- Combine current and development demand and compare with current capacity to identify where crowding will become a risk assuming no change to the current network.
- The outputs of this modelling enable demand levels to be quantified, providing clarity on broad levels of service required at key locations. Demand from developments will materialise in phases as and when they are completed and occupied. Other factors beyond the developments summarised will influence future demand, e.g. fares, journey speeds, quality of service etc.
- The interventions identified in this analysis are ideas only. Detailed evaluation will take place prior to any firm proposals. Such evaluations will take account of conditions at that time thus enabling better estimations. Nevertheless, providing a general way forward helps to inform planning work, especially where timescales are longer and bus infrastructure within the developments needs to be secured.

Additional Trips: AM peak (0800 – 0900)

Development trips – assigned by route		
Route	Boardings	Alightings
1	498	409
47	364	361
188	334	384
199	498	419
225	10	39
381	259	263
C10	104	137
P12	88	137
Total	2155	2149

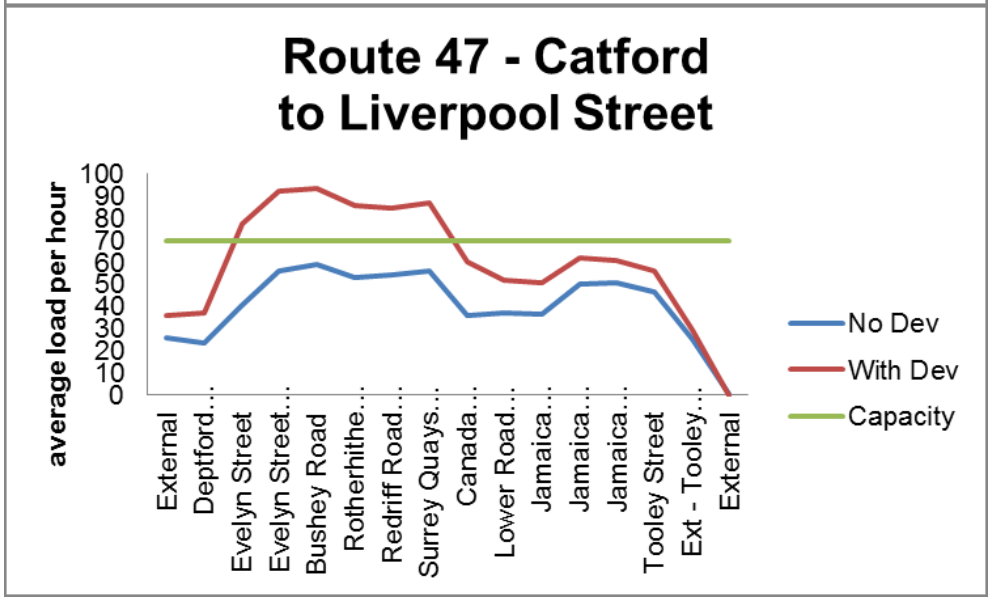
Route impacts with no intervention (1)



Route 1: the busiest point is currently Bricklayers Arms towards Tottenham Court Road in the morning peak.

The graph shows that demand from developments creates a new busiest point at Rotherhithe Road departing Canada Water, and causes crowding.

An additional 3 bph will be required to match capacity with demand.



Route 47: the busiest point is currently Deptford in the morning peak towards Bellingham.

The graph shows that demand from developments creates a new busiest point at Evelyn Street towards Liverpool Street and causes crowding on services coming into Canada Water.

An additional 3 bph will be required to match capacity with demand.

Note, the graphs are focussed on the Rotherhithe area between 0800-0900, rather than demand on the whole route across the day.

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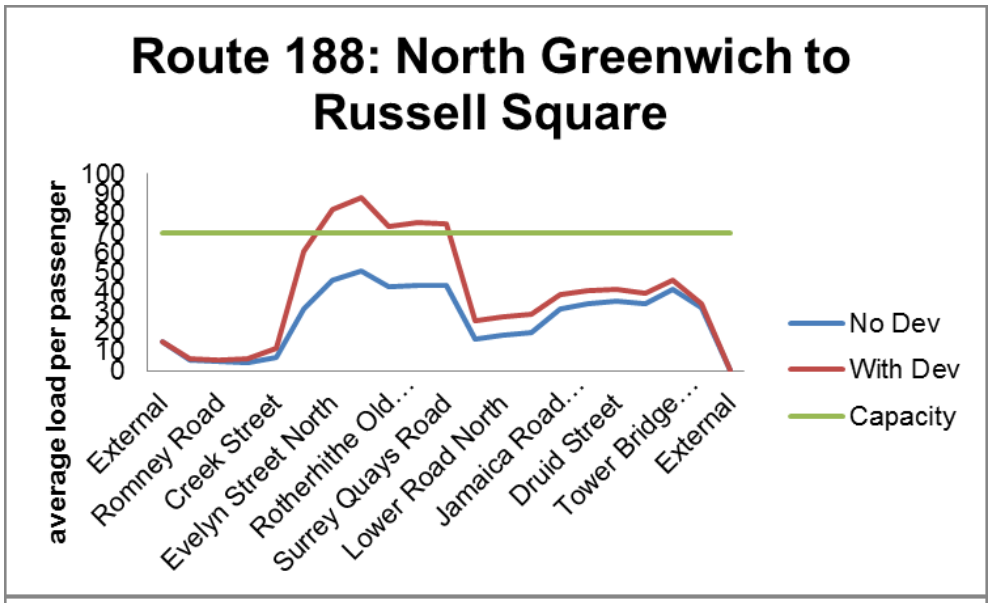
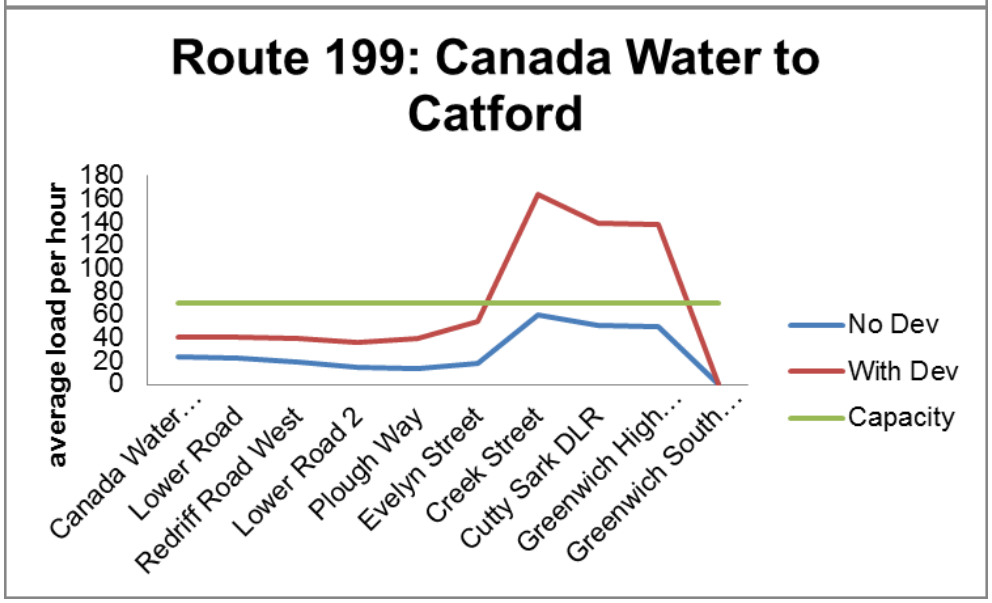
Route impacts with no intervention (2)



Route 188: the busiest point is currently Waterloo Station towards Russell Square in the morning peak.

The graph shows that demand from developments creates a new busiest point at Evelyn Street North near Canada Water, and causes crowding.

An additional 2 bph will be required to match capacity with demand.



Route 199: the busiest point is currently Surrey Quays towards Canada Water in the morning peak.

The graph shows that demand from developments creates a new busiest point at Creek Street near Convoys Wharf , and causes crowding.

An additional 5 bph will be required to match capacity with demand.

Note, the graphs are focussed on the Rotherhithe area between 0800-0900, rather than demand on the whole route across the day.

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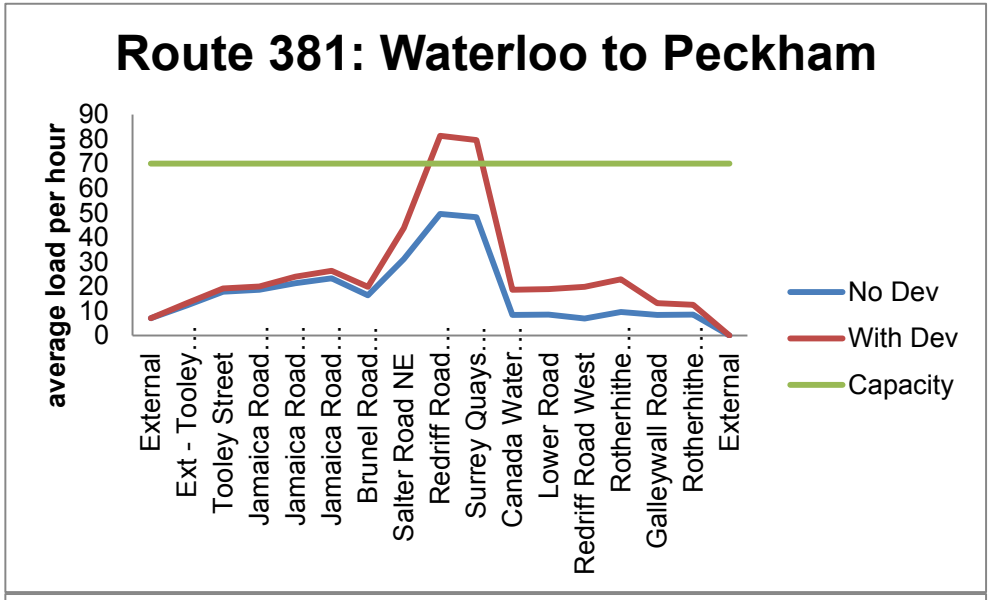
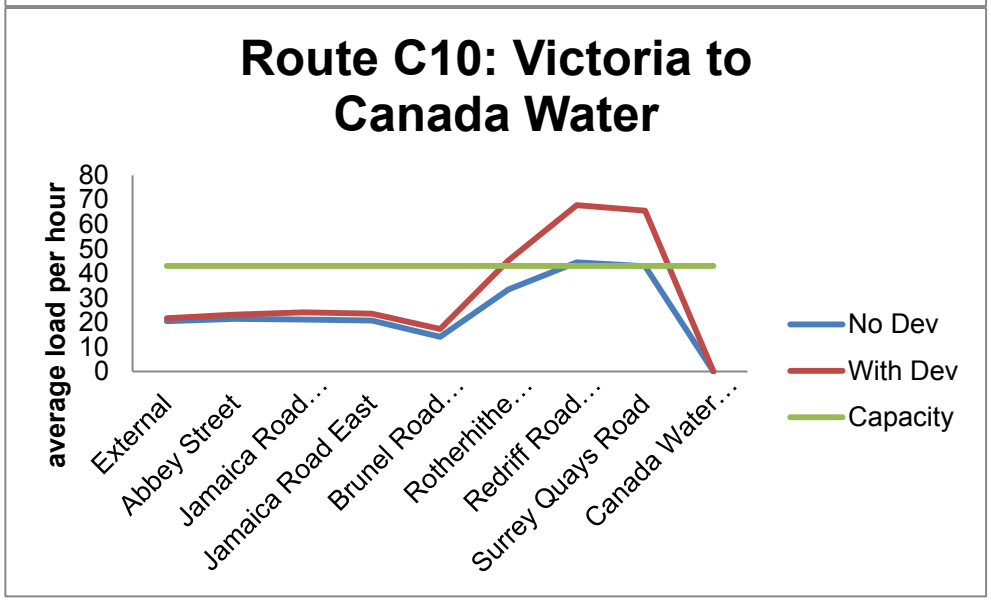
Route impacts with no intervention (3)



Route 381: the busiest point is currently Bermondsey Station towards Waterloo in the morning peak.

The graph shows that demand from developments creates a new busiest point at Redriff Road on the approach to Canada Water, causing congestion.

An additional 1 bph will be required to match capacity with demand.



Route C10: the busiest point is currently Surrey Quays Station towards Canada Water in the morning peak.

The graph shows that demand from developments increases demand at Canada Water, which causes congestion.

An additional 4 bph will be required to match capacity with demand.

Note, the graphs are focussed on the Rotherhithe area between 0800-0900, rather than demand on the whole route across the day.

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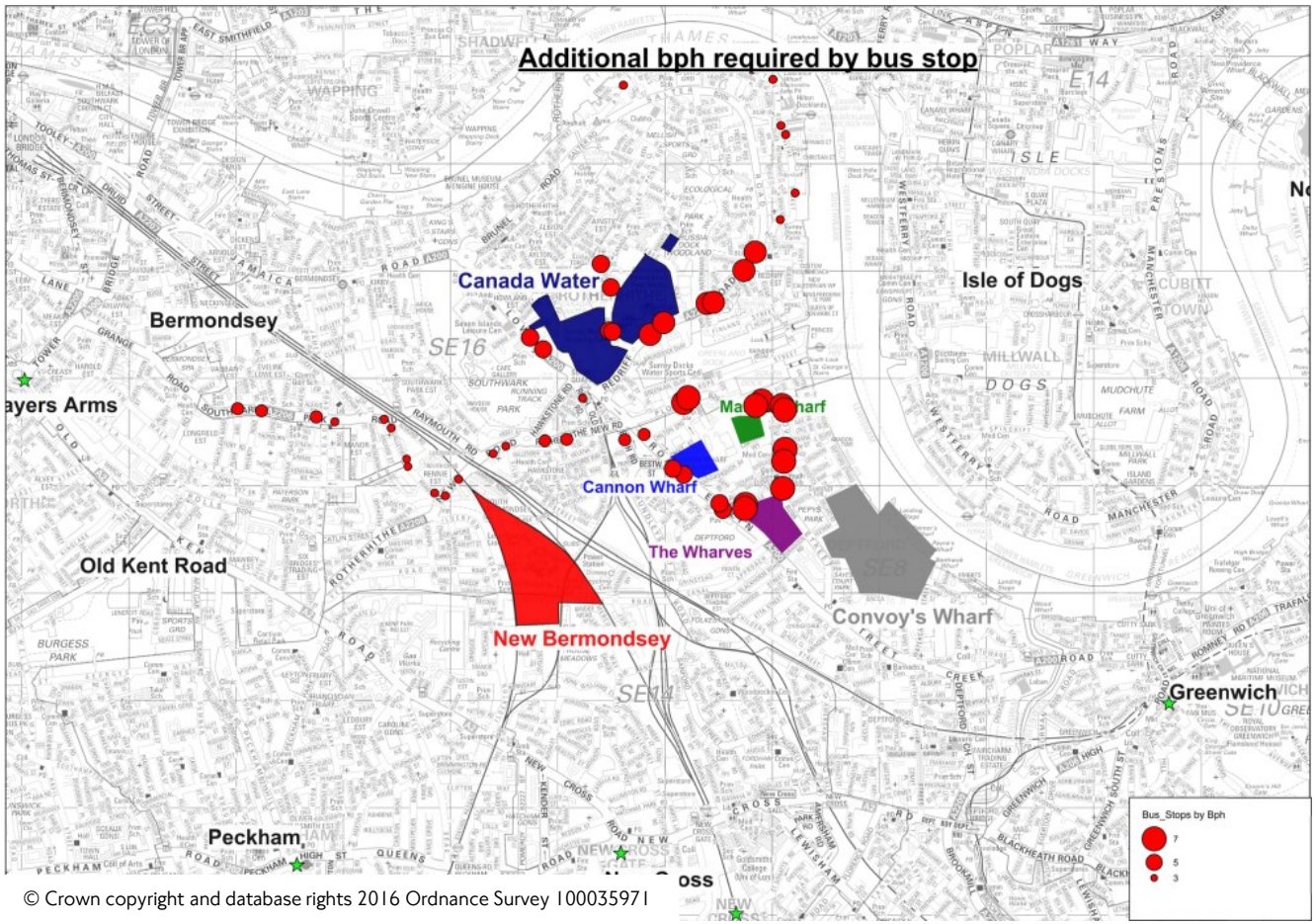
Impacts on capacity



Red dots show stops where extra capacity (measured in bph) is required as a result of additional demand from new developments. This is based on existing routes. Although we have put demand onto route 199 for modelling purposes, this is a network-based study looking at demand on corridors rather than specific routes. Congestion on route 199 on Plough Way / Grove Street around Marine Wharf can be included as part of corridor on Evelyn Street next to Cannon Wharf as passengers are able to walk to the main road for a more frequent service

The map shows how demand generated by the new developments is likely to cause crowding on the corridors approach Surrey Quays and Canada Water, for example on Redriff Road.

Issues and objectives

Issues / objectives (1)

Issue – reliability: there are a number of long routes in the study area. Traffic speeds have declined leading to worsened reliability and increased operating costs. Stakeholders have identified routes 381 and C10 on the Rotherhithe Peninsula as a particular concern.

Objective: consider how routes can be redesigned to make them more resilient to congestion and therefore more reliable.

Issue – capacity: Major new development is planned. Once complete the forecast impact is that demand will exceed current capacity at a number of key locations. In terms of risk additional capacity is expected to be required:

High Risk:	Salter Road / Redriff Road, Plough Way / Grove Street, Evelyn Street / Lower Road.
Medium Risk:	Rotherhithe New Road, Rotherhithe Street, Southwark Park Road.

Objective: to provide sufficient capacity at locations where congestion is predicted to occur.

Issues / objectives (2)

Issue - accessibility – Convoys Wharf: parts of Convoys Wharf are more than 400m from the bus network.

Objective: utilise the proposed new road within Convoys Wharf to better serve the site.

Issue - accessibility – New Bermondsey: Parts of New Bermondsey are more than 400m from the bus network. Route P12 serves the western parts of the site and routes 1 and 381 the northwestern edge. To the east, route 225 is more than 400m away.

Objective: Enhance bus access to New Bermondsey, especially from Surrey Canal Road.

Issue - connectivity: New Bermondsey has limited connectivity with other destinations. Convoys Wharf connectivity is NW – SE with no direct links south or southwest. Canada Water has very good connectivity but the enhancement to the retail, commercial and leisure offer (as well as the transport hub) means additional connectivity will be attractive.

Objective (connectivity): Consider improved connectivity to / from developments.

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Potential interventions

Response to future impact of developments

Enhance existing services:

Capacity only response

- Simple frequency increases in response to capacity concerns.
- No increase in connectivity to the developments.
- Retains existing links.

Restructure the network:

Network restructuring response

- Increase frequencies where appropriate.
- Consider restructuring existing routes to better match future demand with capacity.
- Examine case for new links to increase connectivity.
- There will be some broken trips.

Capacity only response – impact on PVR(*)

Route	Principal developments affecting the route	Additional bph needed on route for sufficient capacity	Additional PVR needed to deliver capacity increase
1	New Bermondsey	5	10
47	Canada Water / Convoys Wharf	3	11
188	Canada Water / Convoys Wharf	2	7
199	Convoys Wharf	5	11
225	Canada Water	0	0
381	Canada Water	1	3
C10	Canada Water	4	10
P12	New Bermondsey	0	0
Total		**24**	**52**

** - Peak Vehicle Requirement (PVR) is the number of buses required to reliably operate a route at its peak frequency. Each bus costs approximately £250,000 per annum.*

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Network restructuring response – impact on PVR

Route	Change	Total additional PVR
1	Increase frequency to 9 bph	3
188	Restructure to curtail at Elephant and Castle	-5
199	Divert via Convoys Wharf and increase frequency to 6 bph	2
381	Restructure from Peckham to Rotherhithe	-5
415	Extend from to New Bermondsey from Old Kent Road	3
New Route A	Rotherhithe to Lewisham (5 bph)	11
New Route B	New Bermondsey to Aldwych (5ph)	9
New Route C	Greenwich to London Bridge (7.5 bph)	12
Total		**30**

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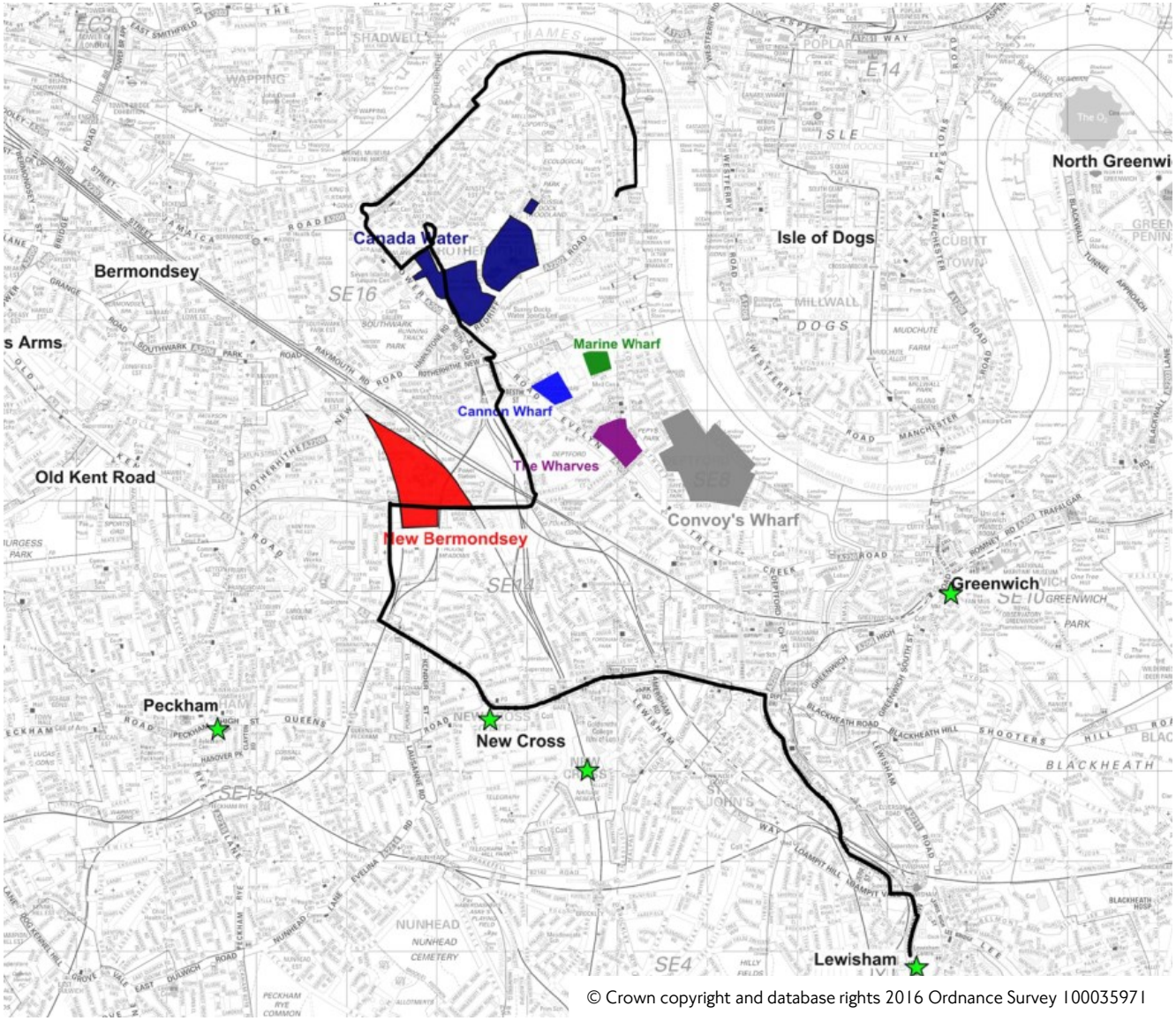
New route – A



Connects Rotherhithe, Canada Water, New Bermondsey, New Cross and Lewisham.

5 bph. Estimated PVR: 11 (£2.75m).

Low bridges limit buses to be single deck.

Addresses capacity and reliability on Rotherhithe Peninsula.

Directly serves New Bermondsey improving accessibility.

Connects Canada Water with New Bermondsey, and then onto New Cross and Lewisham.

There is potential extend to Grove Park in a future phase.

Provision of bus infrastructure will need to be investigated and secured.

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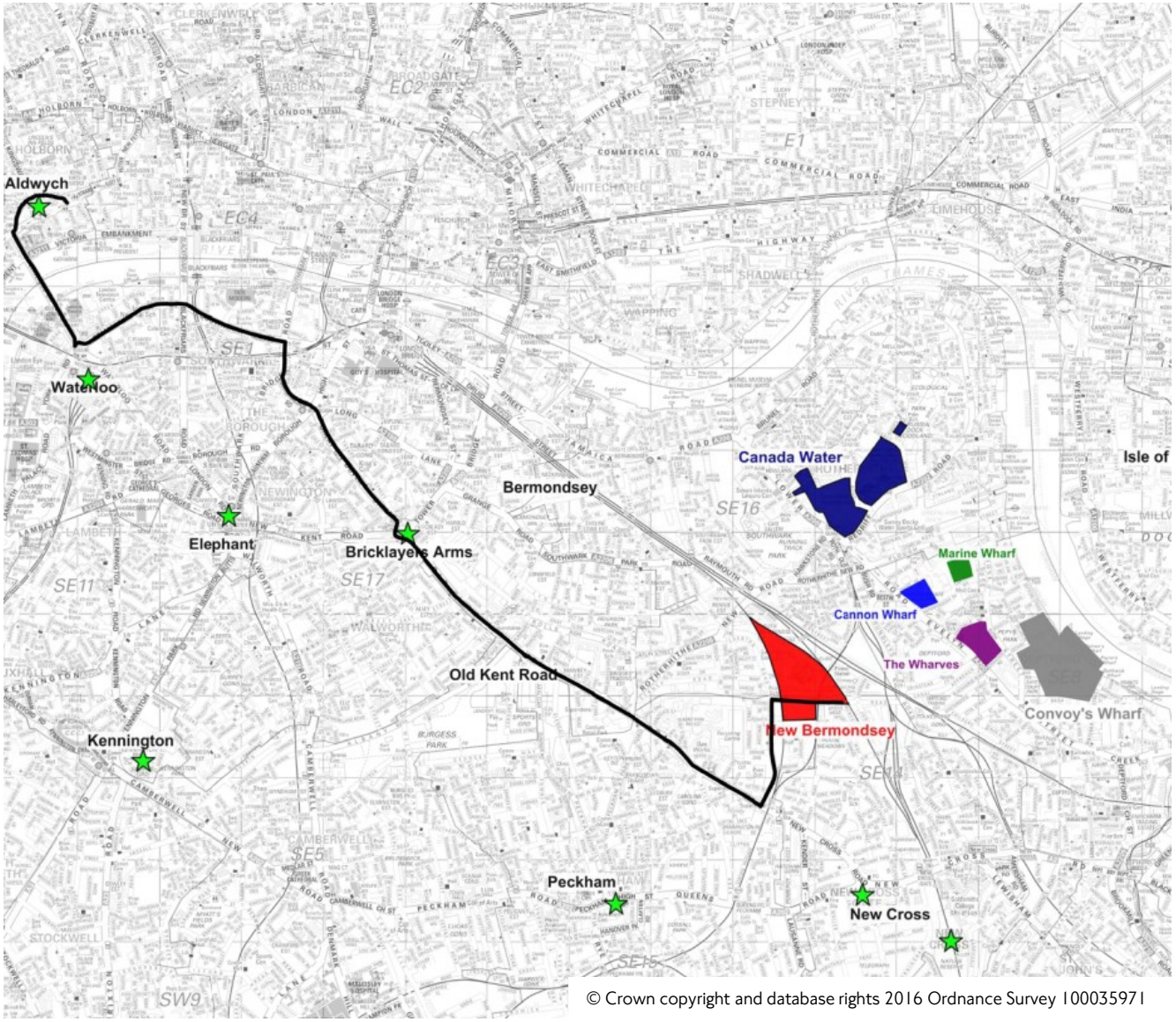
New route - B



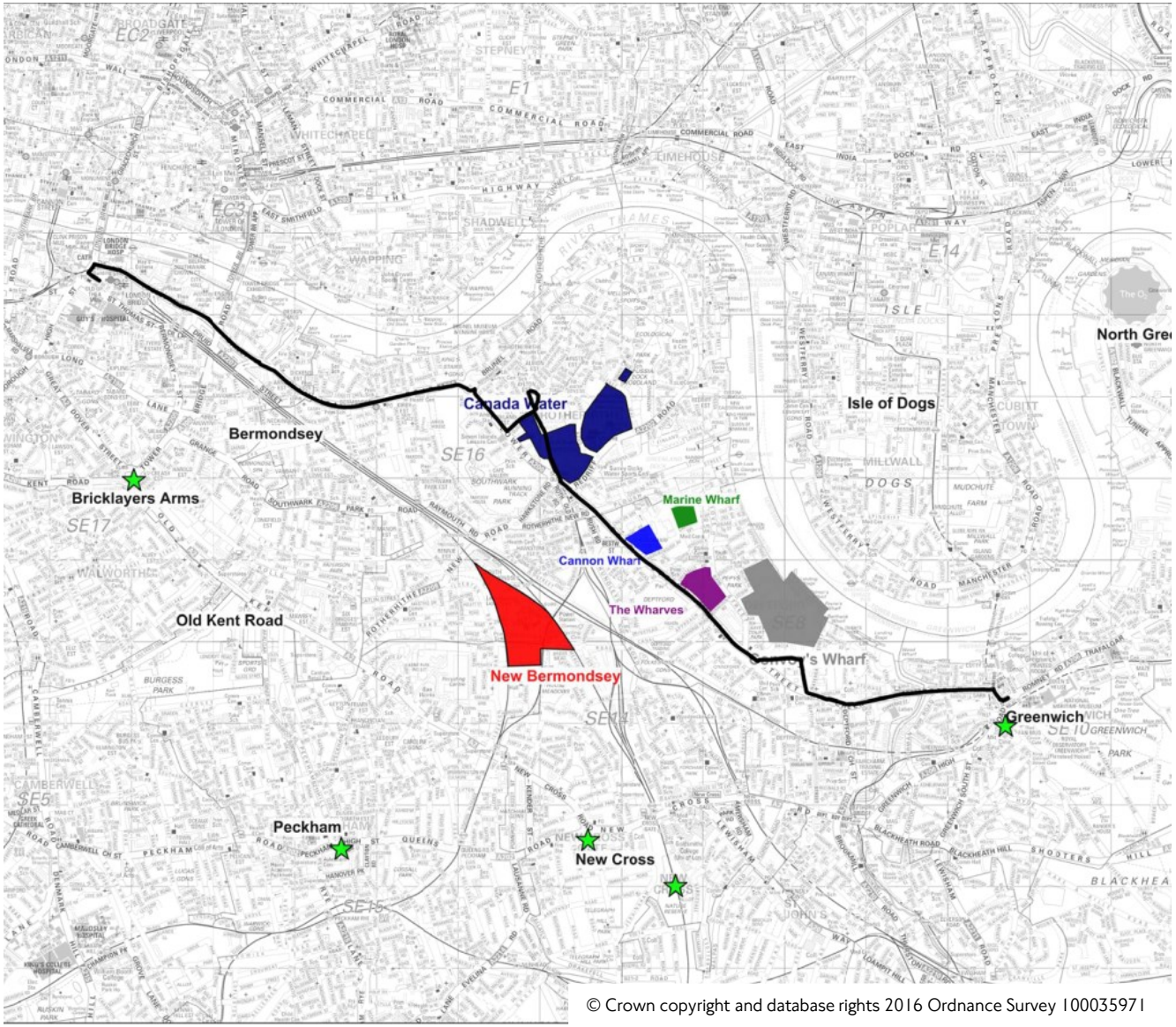
Connects New Bermondsey, Old Kent Road, Waterloo and Aldwych.

5 bph. Estimated PVR: 9 (£1.75m).

Meets the objectives of directly serving New Bermondsey and connecting it with central London and land uses on Old Kent Road.

Stand space would need to be provided by the developer.

New route - C



Connects Greenwich, Convoys Wharf, the other wharf developments, Canada Water, Jamaica Road and London Bridge.

7.5 bph. Estimated PVR: 12 (£2.5m).

Replaces capacity on Jamaica Road lost from restructuring route 381, and at a higher frequency.

This addresses capacity issues on the Evelyn Street / Plough Way corridor.

The route increases frequency on Jamaica Road, even with restructuring of route 381.

Routeing via the new road next to Convoys Wharf brings all of it within 400m of the bus network.

Continues to reinforce the existing SE-NW bus corridor and doesn't create new links to the west. However, demand is likely to be highest on this corridor and road layout means it is difficult to directly access the Old Kent Road.

Provision of bus infrastructure will need to be investigated and secured.

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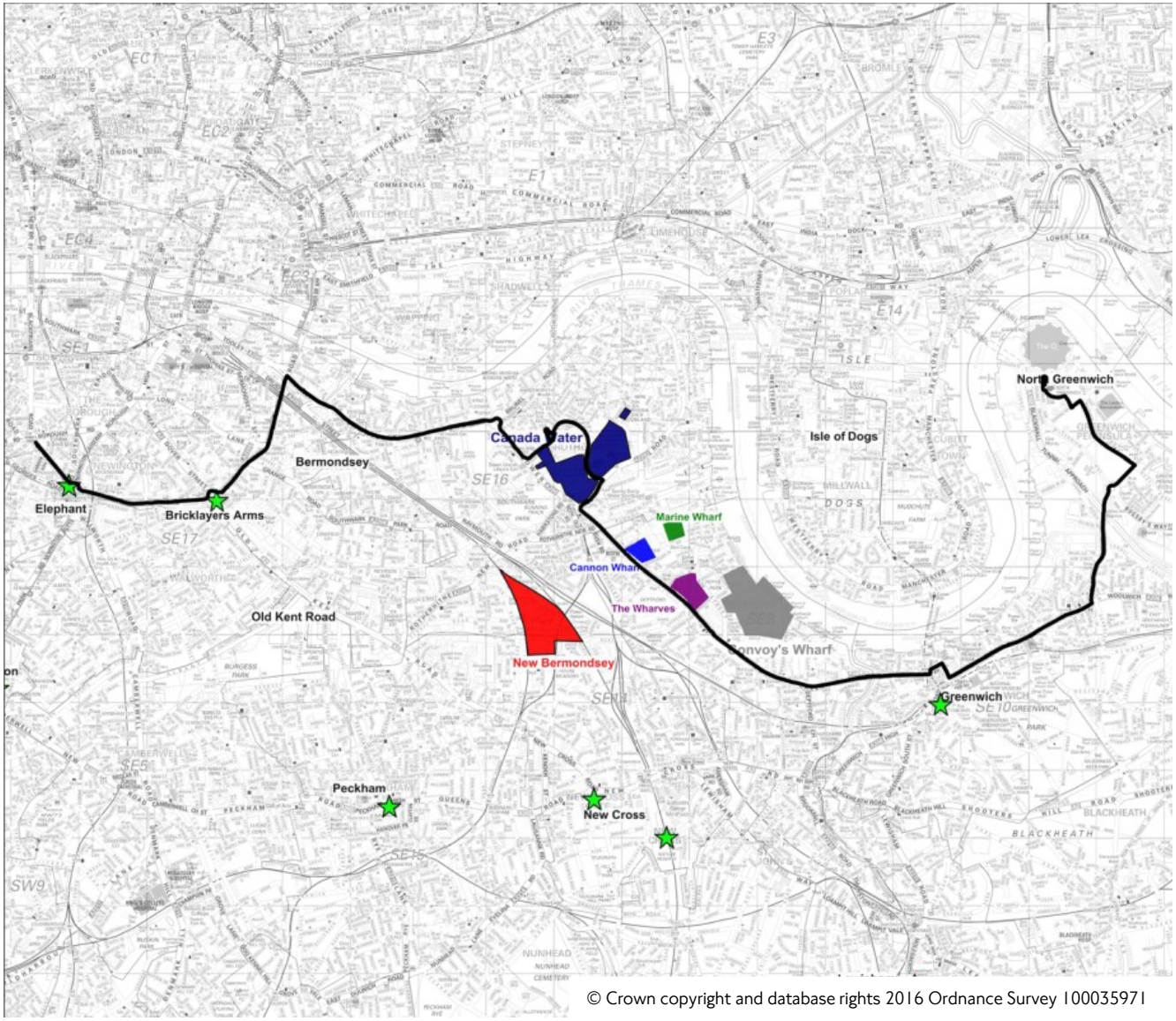
Restructure route 188



Withdraw between Russell Square and Elephant & Castle.

Retain existing frequency.

Saves an estimated 5 PVR (£1.25m).

Continues to link North Greenwich, Canada Water and Elephant Castle and retain capacity on Jamaica Road.

Reduces route length from 10 to 8 miles and cycle time from 195 to 157 minutes. This enables the route to operate more reliably.

Passengers who would want to travel on to into central London can interchange at Elephant and Castle.

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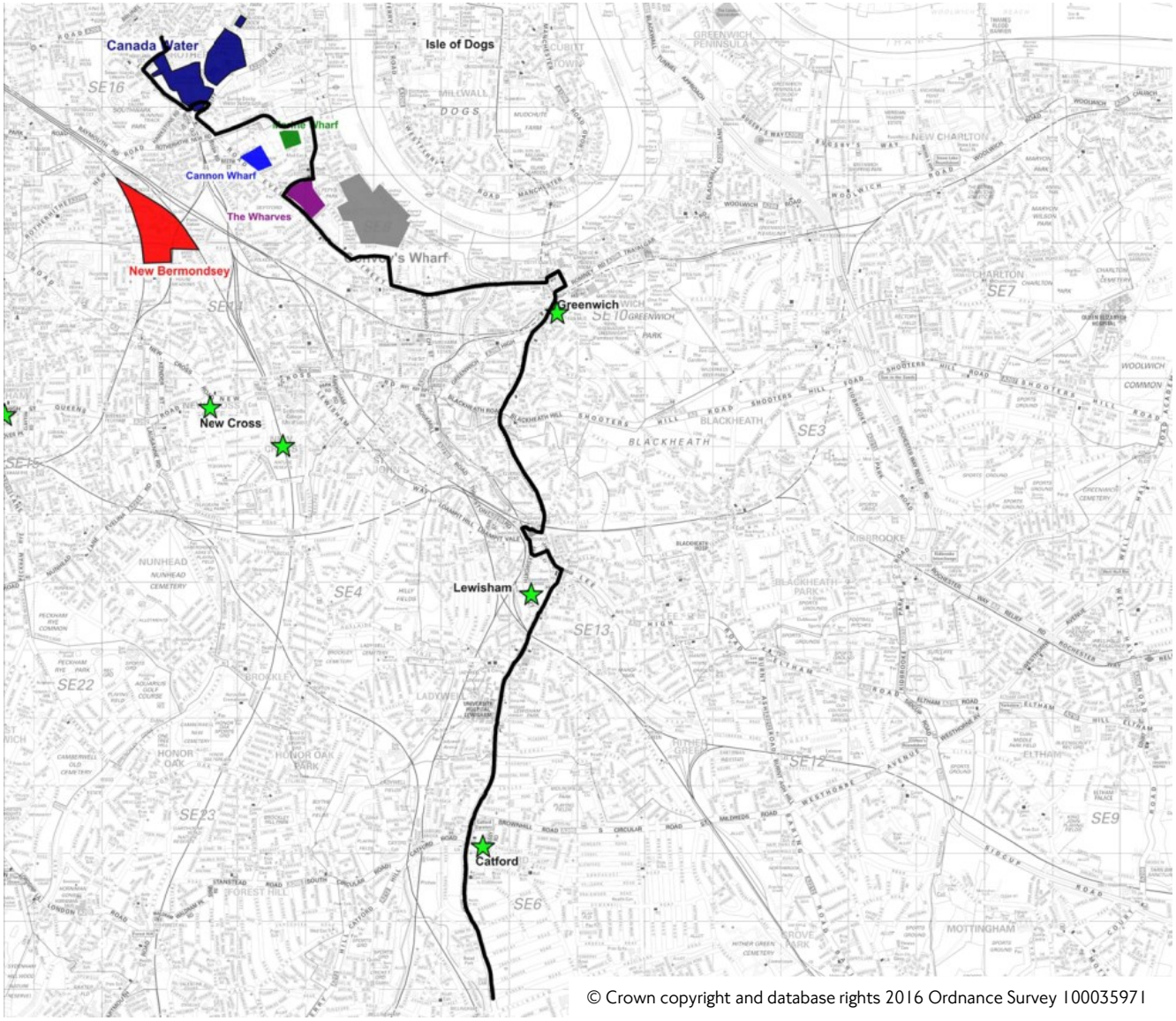
Re-route 199



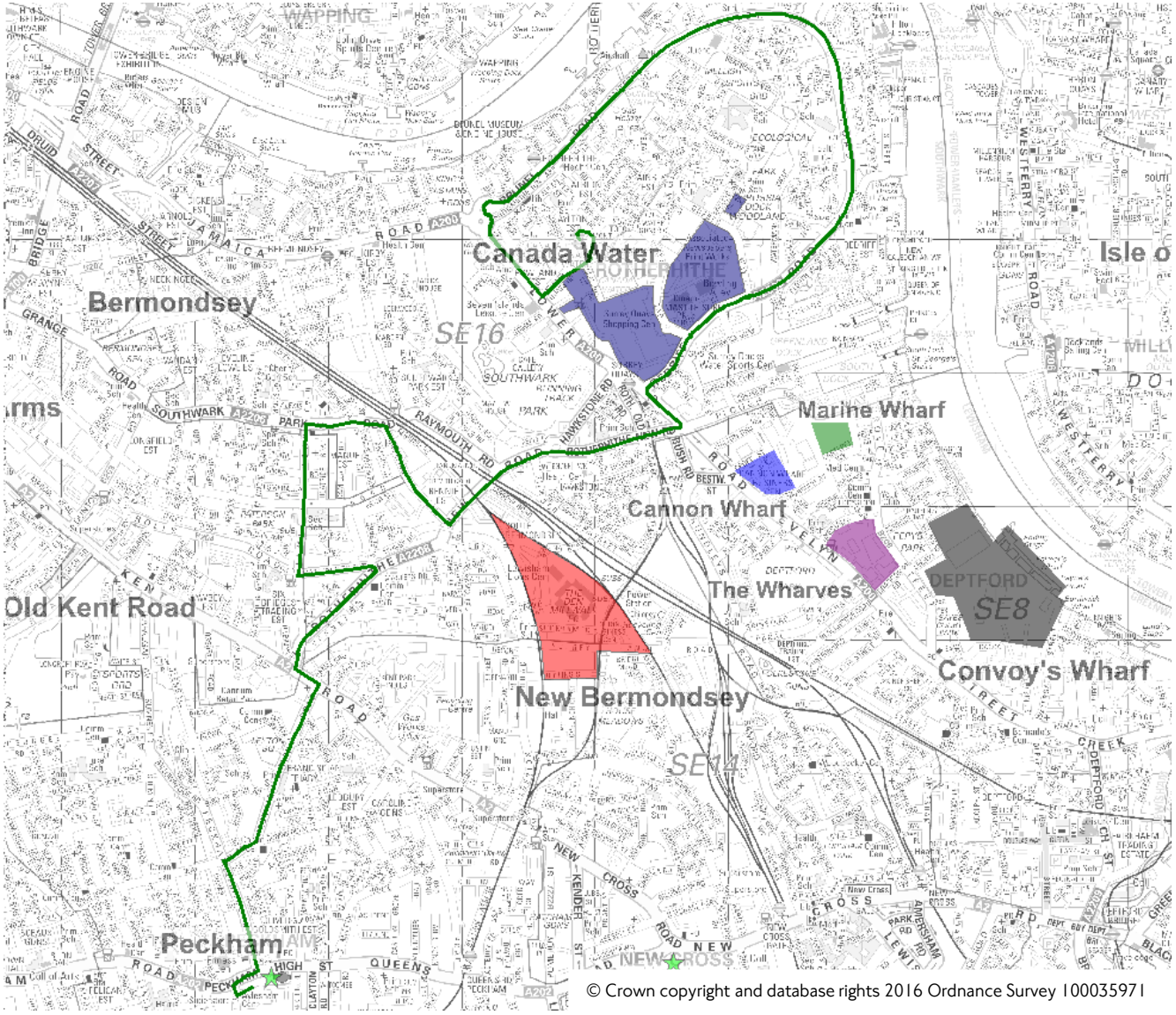
Re-route 199 via the road next to Convoys Wharf (along with new route C).

Increase frequency to 6 bph.

Estimated PVR cost: 2 (£0.5m).

Brings all of Convoys Wharf within 400m of the bus network and addresses capacity on Lower Road / Evelynn Street / Plough Way along with route C.

Restructure route 381



Cut back route 381 to Canada Water from Waterloo.

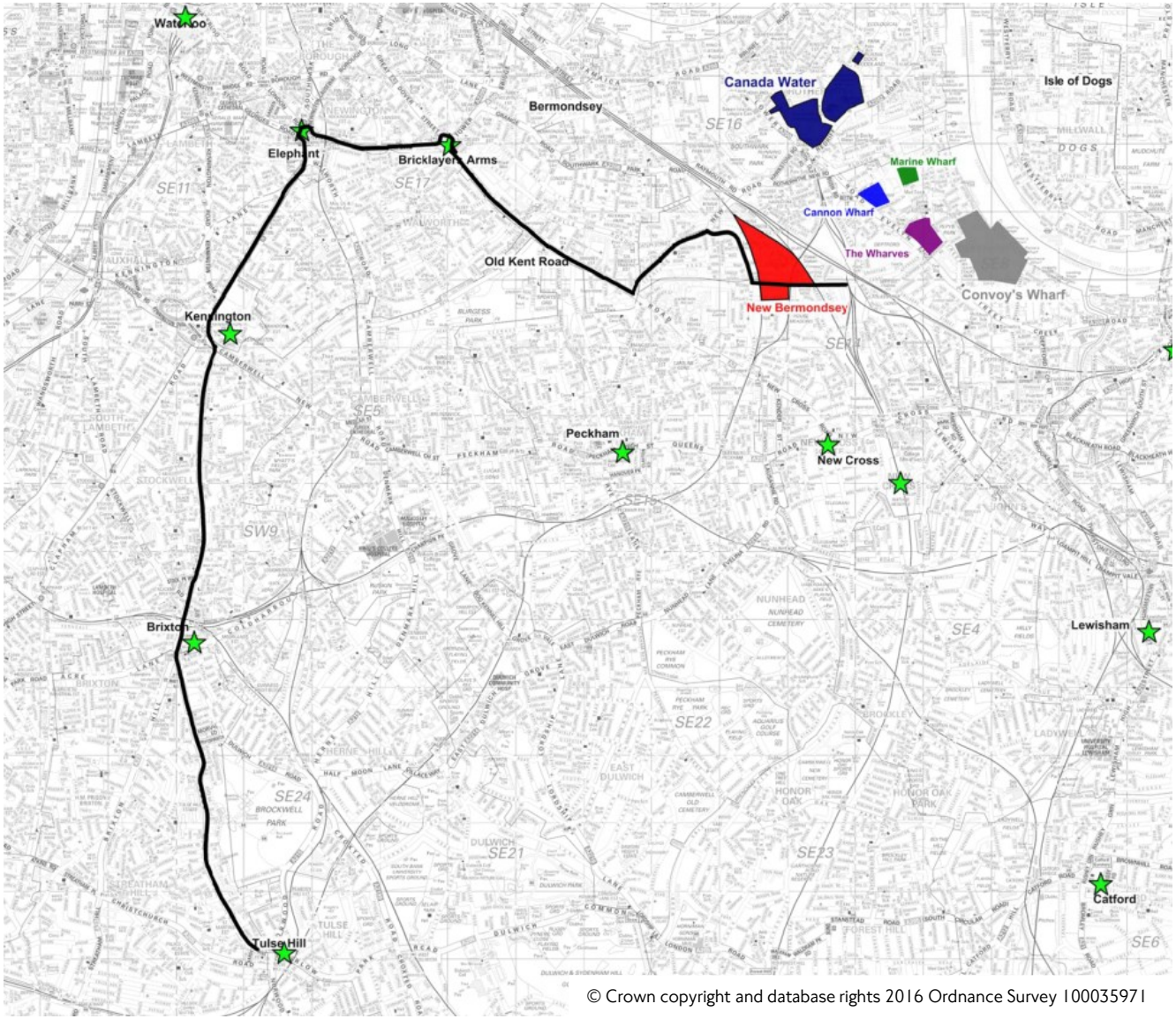
Retain existing frequency.

Saves 5 PVR (£1.25m).

This will enhance reliability for passengers on the Rotherhithe Peninsula, along with new route A and route C10.

Capacity on Jamaica Road provided by routes 47, 188, C10 and new route C.

Extend route 415



Extend route 415 to New Bermondsey.

Retain existing frequency.

Costs 3 PVR (£0.75m).

Provides a direct link from New Bermondsey to Old Kent Road / New Kent Road and Elephant and Castle.

Interchange option from new route A to get to Old Kent Road, indirectly linking Canada Water to Old Kent Road.

As with new route B, requires stand space.

There is a risk that this could make route 415 less reliable, though the extension from Old Kent Road to New Bermondsey is relatively short.

Summary

Summary

Objective : Consider how routes can be redesigned to make them more resilient to congestion on the roads and therefore more reliable.

Proposed solution: We have sought to meet this objective by shortening routes 188 and 381 to make them less susceptible to adverse traffic congestion.

Objective: To provide sufficient capacity at locations where an increase in passenger numbers is predicted to occur.

Proposed solution: Enhance frequency on routes 1 and 199, and introduce a new higher capacity route C, which will increase capacity on Lower Road, Evelyn Street and Jamaica Road.

Objective: Service a road within Convoys Wharf that permits buses to better serve the site.

Proposed solution: New route C and route 199 would directly serve Convoys Wharf (see following maps).

Objective: Provide better bus access to New Bermondsey, especially to the south side (Surrey Canal Road).

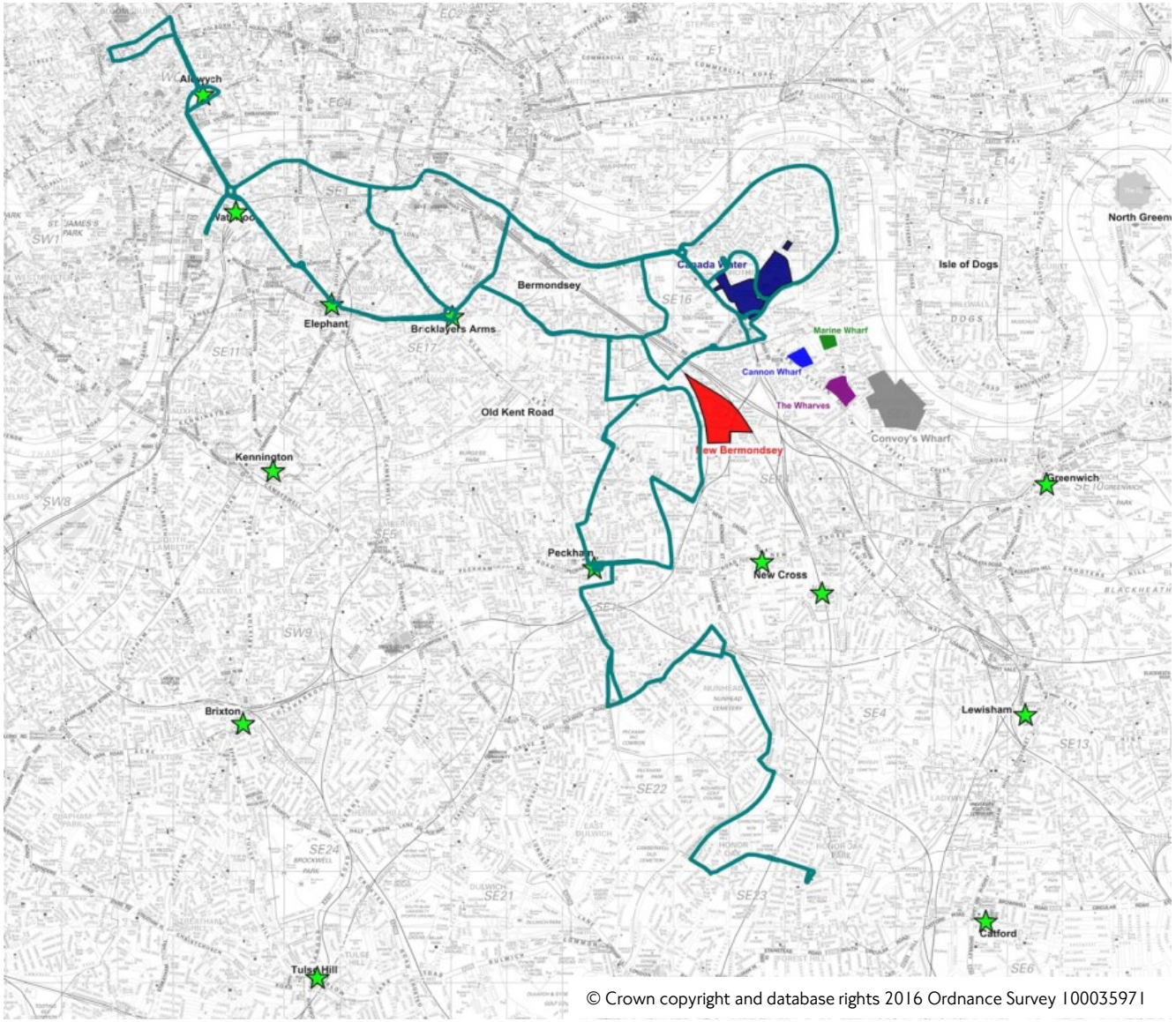
Proposed solution: New routes A and B, plus extended route 415 would directly serve Surrey Canal Road (see following maps).

Objective: Consider improved connectivity to / from developments.

Proposed solution: Extending route 415 connects New Bermondsey with Elephant and Castle and southwest London. New route A links New Bermondsey with Surrey Quays, Canada Water, New Cross and Lewisham. New route B connects to Old Kent Road, Waterloo and Aldwych. Convoys Wharf is fully integrated into the network as it is directly served by new route C and 199, with links to Canada Water, London Bridge and Greenwich (see following maps).

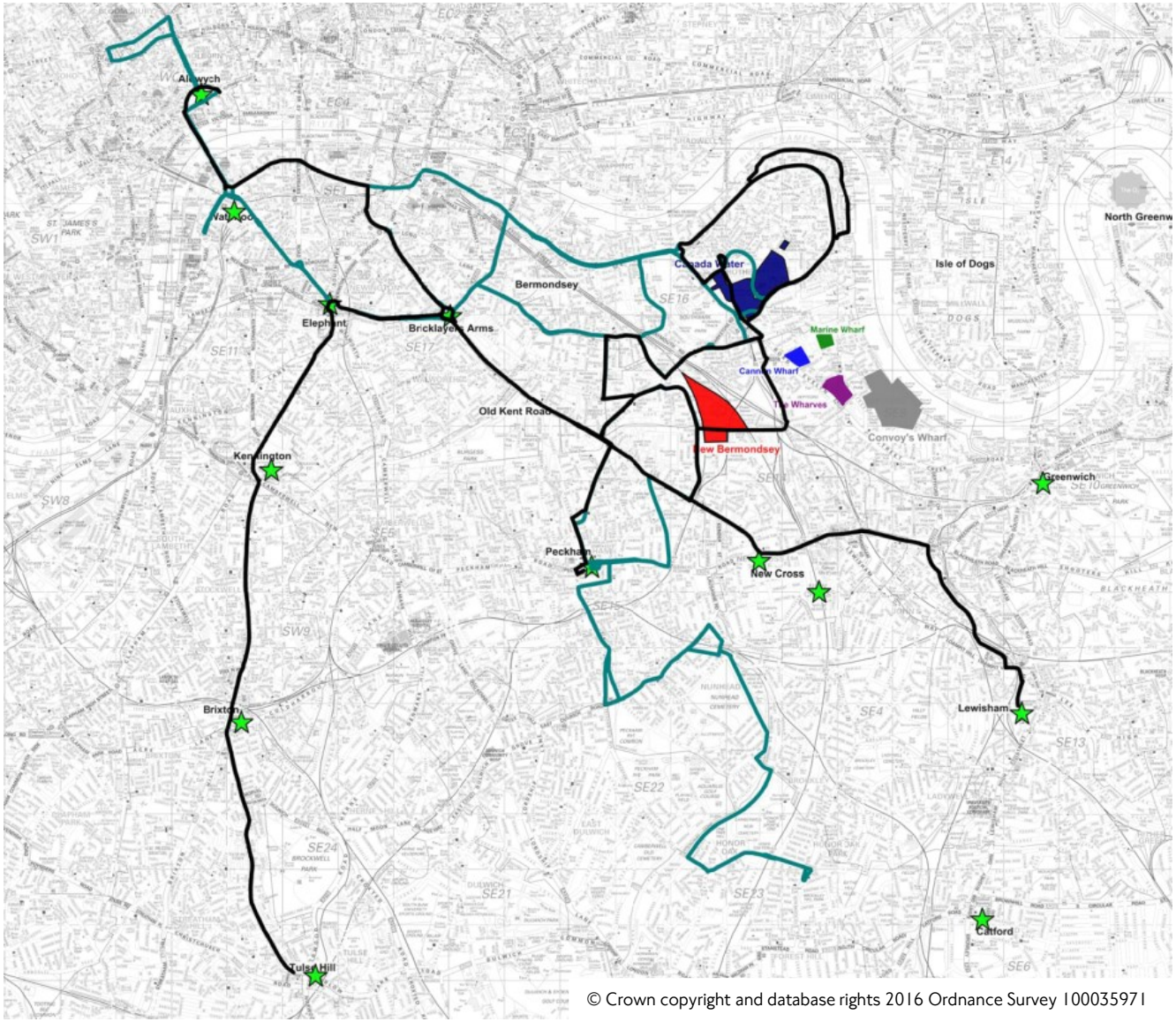
BUSES

New Bermondsey – current network



New Bermondsey poorly connected to the bus network.

New Bermondsey – proposed network

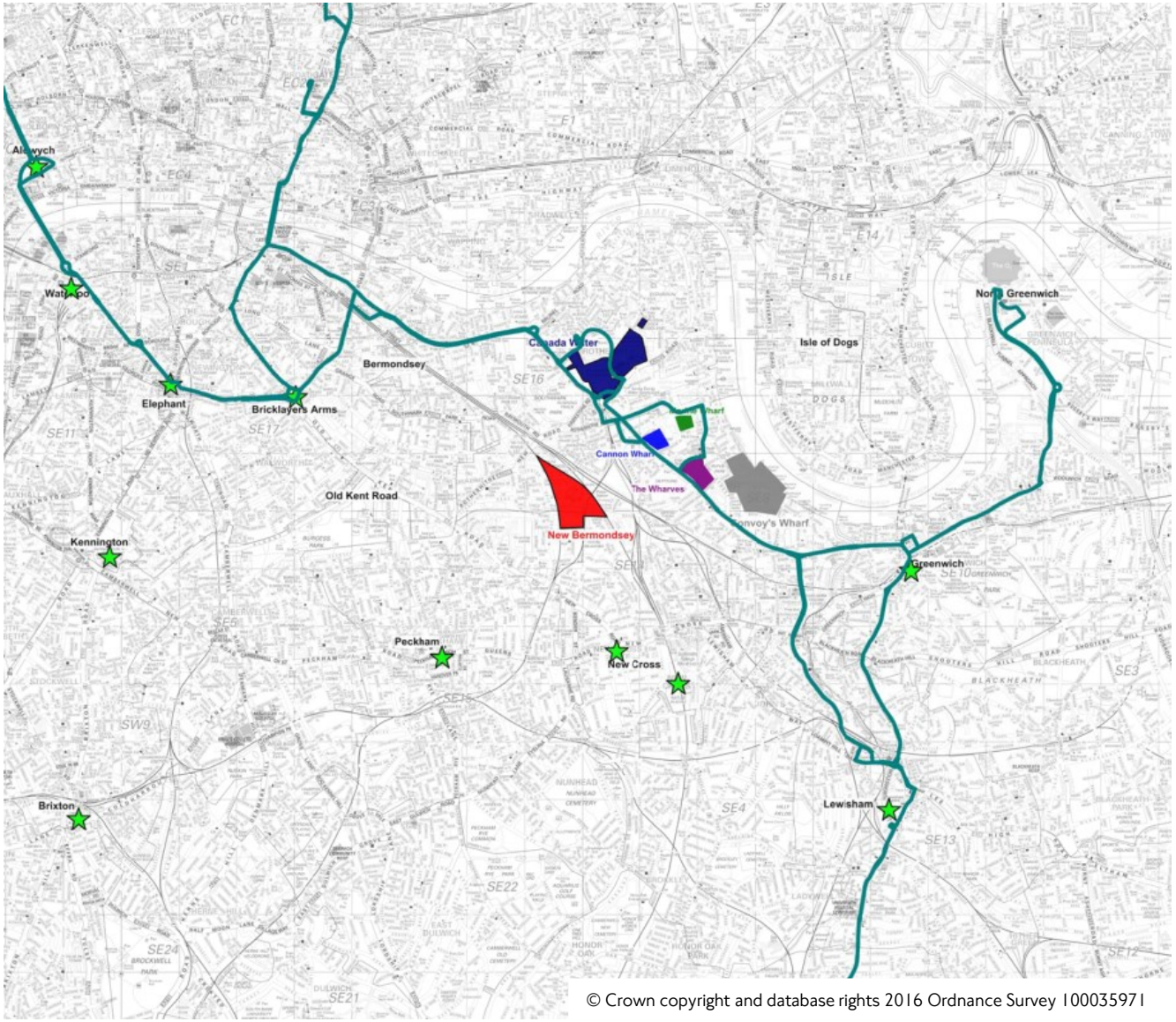


New Bermondsey now additionally served by 3 buses.

New routes A and B, and route 415 provide direct links to:

- Canada Water;
- Surrey Quays;
- New Cross;
- Lewisham;
- Old Kent Road;
- Kennington;
- Brixton;
- Elephant and Castle; and
- Waterloo.

Convoys Wharf – current network



Parts of Convoys Wharf more than 400m from the bus network.

Demand from Convoys Wharf, Canada Water and other developments is expected to require additional capacity on Evelyn Street.

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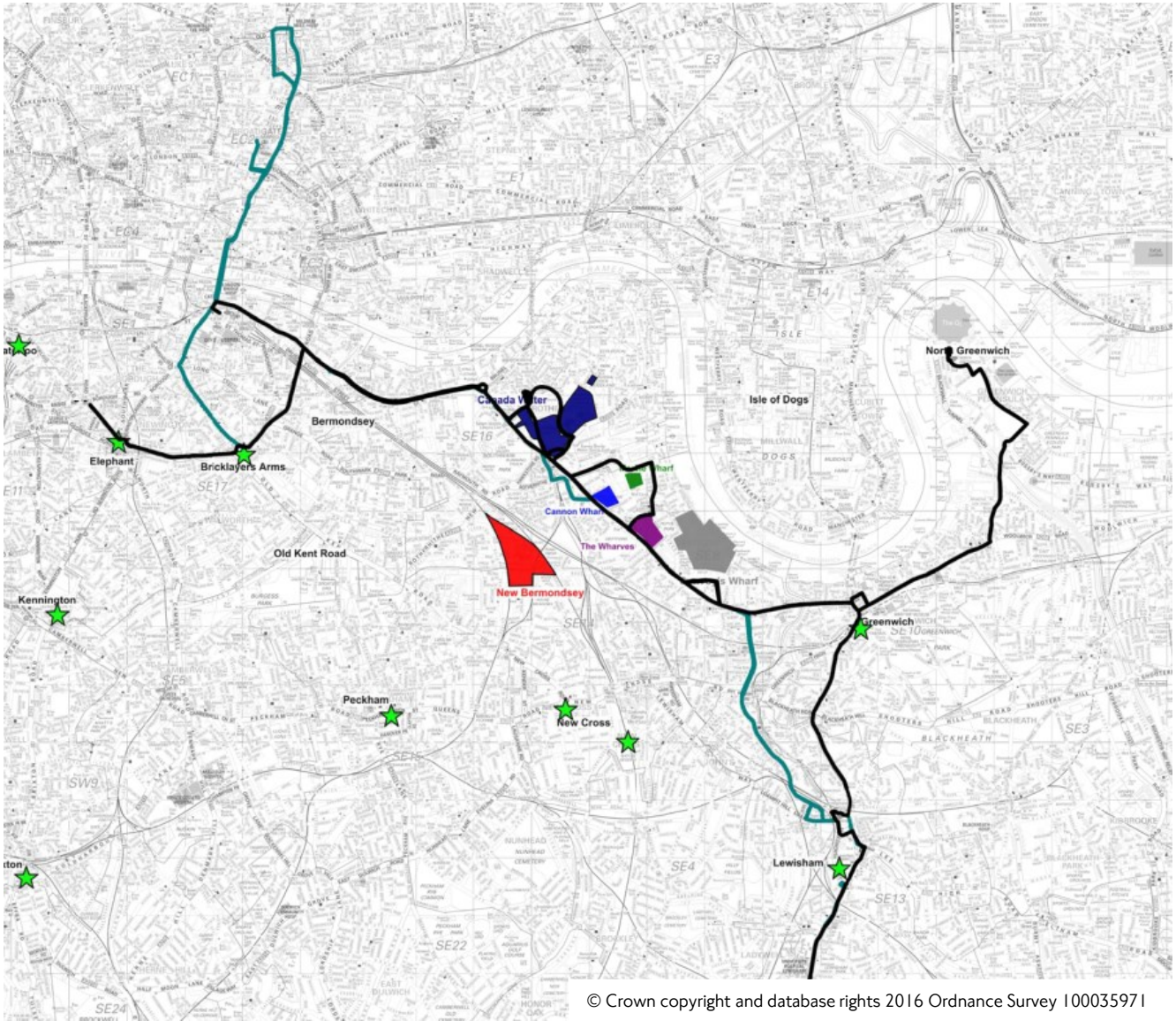
Convoys Wharf – proposed network



Convoys Wharf now within 400m of routes C and 199.

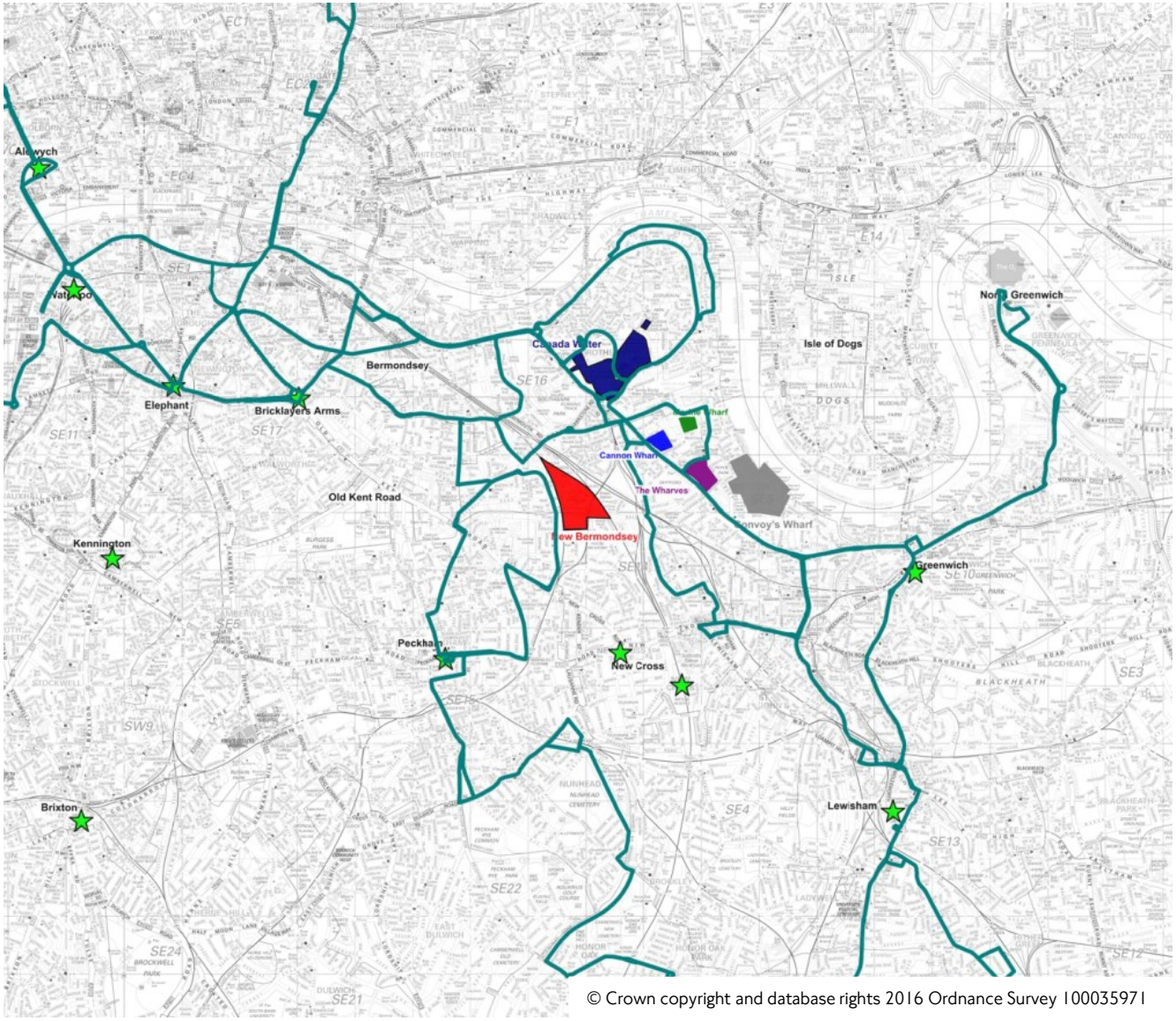
Provides sufficient capacity on Lower Road / Evelyn Street from Convoys Wharf to Canada Water.

Replaces 381 on Jamaica Road.

Links to Canada Water and London Bridge.

BUSES

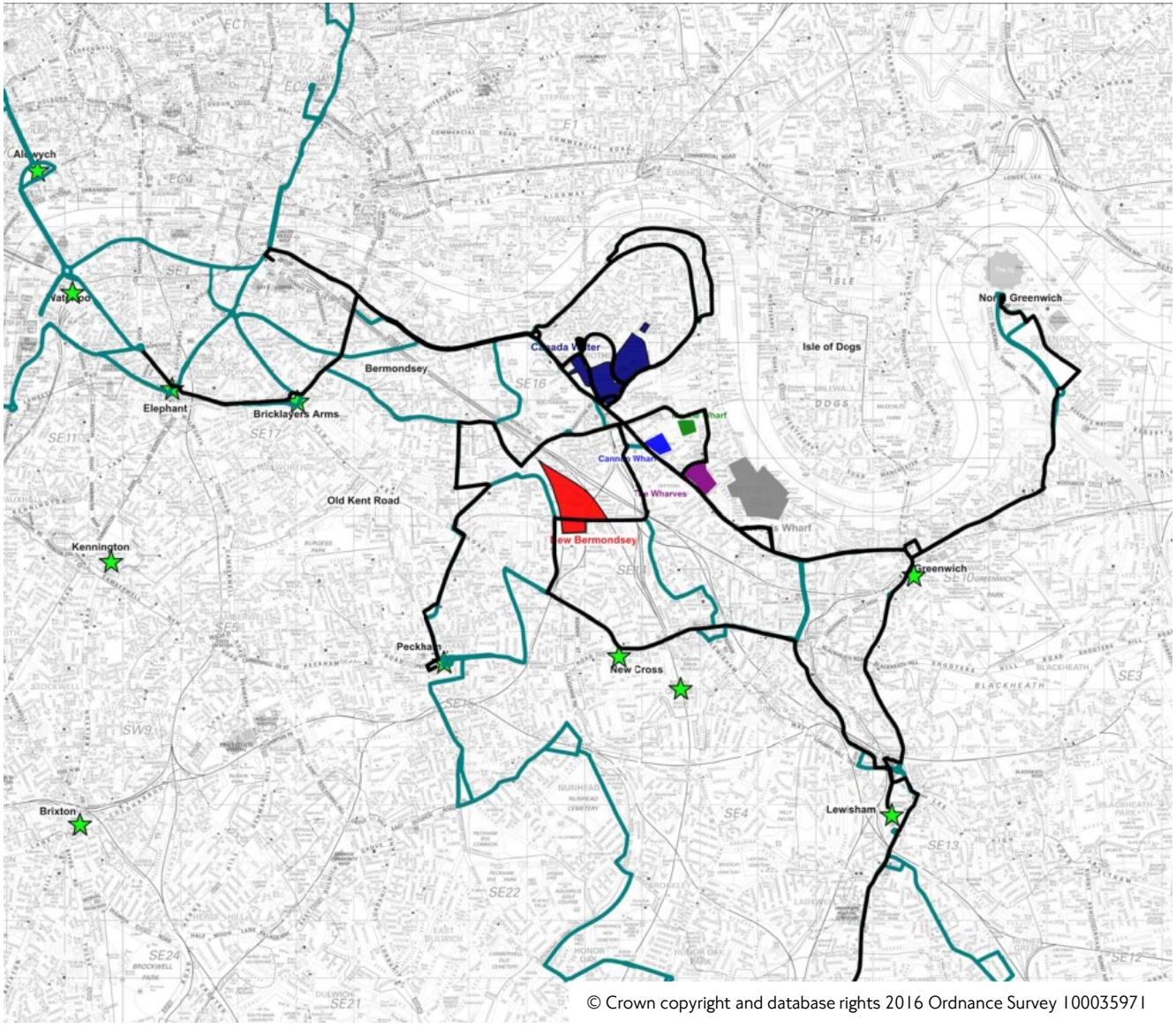
Canada Water – current network



Canada Water is currently well connected by bus routes, however some are unreliable due to their length and decline in speeds.

Demand from development is expected to require additional capacity on the corridor approaching Canada Water and Surrey Quays on Evelyn Street / Lower Road and on Redriff Road on the Rotherhithe Peninsula.

Canada Water – proposed network



New routes: A (5 bph) & C (7.5 bph).

Increases capacity on Lower Road / Evelyn Street.

Links to Convoys Wharf, New Bermondsey, Old Kent Road and Elephant.

New routes A and C and enhanced routes 1 and 199 provide additional capacity on the Rotherhithe Peninsula and Lower Road / Evelyn Street.

New route A and restructured route 381 will give residents a more reliable service on the Rotherhithe Peninsula.

New routes improve connectivity to local destinations including the planned new developments.

BUSES

Way forward

- The ideas put forward in this review are primarily driven by demand generated from new development. Therefore the timescales for change will be greatly influenced by the progress of the construction. Many of the developments are still in their early stages and have completion expectations circa 2031
- In the meantime we will continue to monitor the bus network to ensure issues are responded to as they arise
- Work will continue with developers, Boroughs and stakeholders through the planning and other processes to refine and deliver the approach set out in this note
- When we have greater assurance that a bus service change is required a full evaluation of costs and benefits for that service change will be undertaken. If that results in a definitive proposal consultation will be undertaken as is usual

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