MAYOR OF LONDON

Long Term Infrastructure Investment Plan for London

Progress Report

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1. Introduction

The Mayor of London has commissioned work to develop a Long Term Infrastructure Investment Plan for London, working with other members of the GLA Group, London Councils and drawing in external expertise where appropriate.

The Mayor's 2020 Vision sets out the critical infrastructure required on the road to 2020 and beyond. The London Plan, which is currently undergoing further alterations, sets out London's needs to 2036. Given the long-term nature of infrastructure planning, the next set of investments needs to be drawn up if London is to sustain and accommodate its growth for the rest of the first half of this century.

The Long Term Infrastructure Investment Plan will set out London's strategic infrastructure requirements to 2050 across the main aspects of infrastructure, namely public transport, roads, energy, water, waste, ICT and partially social infrastructure. Uniquely, it will also provide a bottom up assessment of London's infrastructure requirements and the funding and financing options to pay for them.

It will ensure the infrastructure London needs for continued economic growth is clearly articulated. Our aim is to demonstrate to the Government, Londoners and investors that infrastructure is a key priority and that London has a clear plan to ensure it has the necessary infrastructure to meet the demands of its growing population and remain a leading world city.

This paper sets out the progress to date in developing the first Long Term Infrastructure Investment Plan for London. It discusses the key themes that are emerging across infrastructure types that in our view need to be addressed if London is to effectively plan for and deliver its long term infrastructure requirements. It outlines the steps we will undertake to publish a Long Term Infrastructure Investment Plan for London by the Autumn 2014.

2. Background

The London Finance Commission, which reported to the Mayor in May 2013, made a number of recommendations to improve funding arrangements for London's government, primarily in order to meet the city's growing infrastructure needs. It argued that as data on the investment needs for the city are contained separately in many documents and that costs are often not properly understood, a more comprehensive assessment is required for London. Specifically, it recommended that the Mayor, working with London Councils, the boroughs and the London Enterprise Panel (LEP), should develop and maintain a long-term, high-level capital investment plan for the city. This should set out the costs of strategic investment options and match them to the resources available both now and in a more devolved future.

The Mayor endorsed all of the recommendations of the London Finance Commission and recognised the value in London's metropolitan government playing a more central role in planning for its infrastructure provision. The infrastructure planning process was commissioned in Summer 2013.

The LEP and its infrastructure sub group, the London Infrastructure Group (LIG), provide strategic oversight for the programme. They have been instrumental in setting the scope and approach; and providing guidance on emerging findings.

An External Advisory Group was set up in September 2013 to provide further guidance and expertise. Isabel Dedring, Deputy Mayor for Transport is the Chair of this group, which consists of experts from the private and public sector and academia in infrastructure, urban development, technological change and finance. The terms of reference for the Group and a full list of members are available here[1].

The Group meets at key stages in the project to provide expert input and oversee the development of our proposals.

[1] http://www.london.gov.uk/priorities/business-economy/vision-and-strategy/long-term-infrastructure-investment-plan/infrastructure-advisory-group

3. London at 2050

The Mayor views infrastructure as critical to maintaining and enhancing London's position as a globally competitive city. In his vision 2020 he set out his ambition to make London the best place to work, live, play, study, invest, and do business. Sustainable and resilient, it should retain its unique character and continue to attract people from around the world. World-class infrastructure provision that meets the city's needs forms a critical element of this vision.

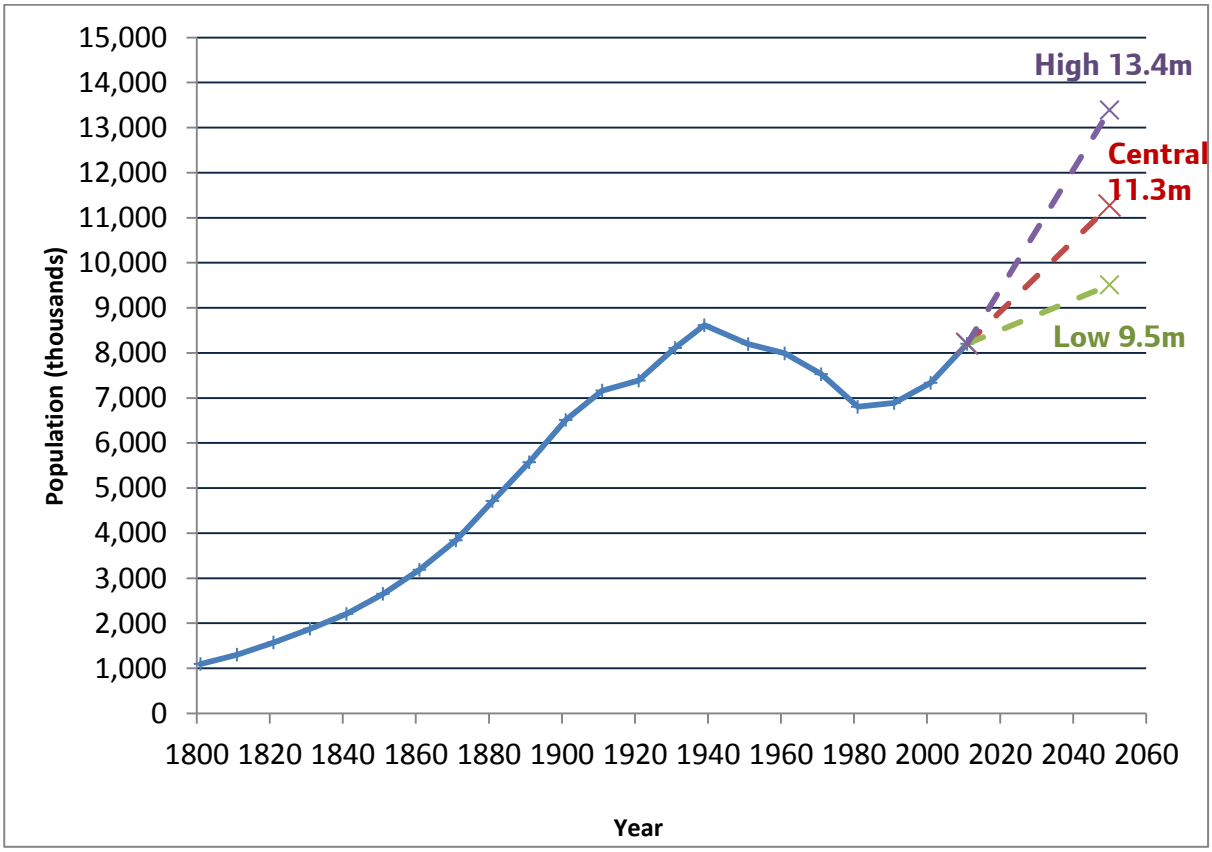
In planning for 2050, a fundamental pre-requisite has been to consider the extent of population growth. The GLA Intelligence Unit have produced projections for London's population and jobs to 2050. Given the very high level of uncertainty around such long term projections they have produced a central estimate along with high and low estimates.

The projections are in line with the trends projected for the Further Alterations of the London Plan (FALP), and assume continued growth across London.

An increasing resident population

In 2011, the last year for which we have official data, London's population stood at 8.22 million. Within a year we expect London will exceed its previous population peak in 1939 of 8.6 million. As can be seen in Figure 1 below, by the 2030s our population is projected to hit 10 million; by 2050 it is projected to increase to 11.3 million. That is an increase of 37 per cent by 2050, with an extra 3.1 million people in the city. This lies within a high estimate of 13.4 million and a low estimate of 9.5 million at 2050.

Figure 1: London's population (actual and projected)



An increasing workforce

Workforce jobs in London (that is, jobs located in London whether or not they are taken by Londoners) are projected to increase to 6.3 million in 2050, from 4.9 million in 2011, an increase of 29 per cent. This equates to a per annum growth rate of 0.65 per cent.

Increasing numbers of visitors

In 2012, there were 15 million international visitors to London. This is forecast to increase to around 21 million by 2022[2].

Impact on infrastructure demand

The impact of growth on infrastructure demand will vary by infrastructure type and will be greatly influenced by the success of demand management strategies.

However, across infrastructure types there is a high risk of demand out-stripping supply. For some sectors, most notably energy, the risks exist in the short run, not just as we near 2050.

[2] Oxford Economics analysis for London and Partners.

TfL estimates that public transport trips could increase by 50-60%, based on projected population growth with a continuing trend in mode shift from car use given increasingly dense patterns of development.

4. Methodology

We have approached the work in stages. The initial phase concentrated on establishing a view of London at 2050 based on the vision and projections for growth articulated above.

A literature review was conducted to see what lessons could be learned from other cities. A number of cities are undertaking long term infrastructure planning, in many cases over a similar time horizon. For example, New York and Tokyo are planning to 2050, with New York going further and starting to look to 2100. In many cases the plans are focused on addressing a particular issue, for example, Auckland's 30 year infrastructure plan concentrates on the infrastructure required to reduce congestion. It appears that London is somewhat unique in looking across infrastructure types, assessing costs and including plans for funding and financing.

For the first stage of our analysis we have assessed London's long term infrastructure requirements against the assumption of continued economic and population growth, based on the central population and employment projections presented above. This has given us a baseline proposition for London's infrastructure requirements and the scale of investment required.

We have taken the view that it is sensible to assume that London's development and new infrastructure requirements will be housing and transport led. Transport enables the unlocking of new growth areas and potential for large scale house building, by linking them to the rest of London. The requirements for other infrastructure types will then be determined by the overall size and density of London and the location of new growth areas.

Starting with our baseline scenario we have attempted to define the systems of infrastructure London requires and the main projects that should be included in these systems. For example, the rail system needed to provide enough capacity to keep pace with economic and population growth; and within that what are the main rail lines and enhancements to the current system that are required.

We have assessed the extent to which current infrastructure provision and plans and strategies for delivery place us on the right trajectory to provide the infrastructure needed at 2050.

As we refine and extend our analysis, we are considering alternative scenarios for London's development to 2050, such as whether some of London's growth might be accommodated outside its borders; or the consequences for London's infrastructure needs should Heathrow close and a new airport be located to the east of London.

With the systems and main strategic projects in place we are assessing the magnitude of cost involved in providing London's infrastructure requirements as a whole, by sector and for identified projects. Given the wide range of technical expertise required, we have procured Arup to provide advice on the

costs. As part of this work they are also advising on the overall feasibility of our proposals, the opportunities for integration and our funding and financing options.

Without pre judging the final analysis and findings, it is likely the level of infrastructure investment will be very high, and higher than expected. We will have to set out the key priorities and develop a co-ordinated approach to deliver these priorities.

Through the process we have been seeking to identify the main barriers to delivery. This is clarifying the steps that will be necessary to ensure delivery. It is likely that we will identify both short term, as well as longer term barriers.

As well as setting out the long term systems of infrastructure London requires, to maintain momentum we need to identify and commit to the key projects we can start planning, sourcing finance for and delivering.

5. Consultation

Stakeholder engagement and consultation have been an integral part of the programme; it has already shaped the process and will continue to do so up to and beyond publication.

In October 2013 an infrastructure debate was held at City Hall. Experts on the panel discussed their own views on infrastructure challenges, including how forward planning could be improved and considering funding and financing issues. The audience, who came from business, government and academia, were invited to contribute to the discussion. This event helped guide our internal deliberations at a relatively early stage.

In late November 2013, the London Assembly Planning Committee held a session on the Long Term Infrastructure Investment Plan. This session included input from Sir John Armitt, (Former Chairman, Olympic Delivery Authority), Michael Liebreich (Chief Executive, Bloomberg New Energy Finance), James Goodman (Director, Forum for the Future) and Michael Mainelli (Executive Chairman, Z/Yen) as invited experts. Minutes of the discussion can be found here.

In December 2013, the GLA held a stakeholder event at City Hall, at which progress to date and emerging proposals were shared with an audience of 120 key stakeholders. The comments and discussions from the day proved very useful, in many cases confirming our emerging proposals, in others providing us with fresh ideas and challenging questions to consider.

Support was expressed for a long term infrastructure plan for London that takes a systems approach that includes more detail on specific requirements. Concern was expressed that the current system is not fit for purpose, and that the need to manage current infrastructure better should not be overlooked.

GLA officers have met with a number of stakeholders individually to understand existing infrastructure planning activity and to hear different views about the realities of infrastructure planning and what it should deliver. These meetings have informed the process to date and will continue to do as we near publication and refine our proposals.

A written call for evidence was made in November 2013, which sought to understand the views of our main stakeholders, seeking input on the following questions:

> Q1. What aspects of London's infrastructure will come under most pressure as London continues to grow?
>
> Q2. What will London's high level infrastructure needs be over the period to 2050? What will be the key projects for London? How could we fund these projects?
>
> Q3. How can we change behaviours to reduce demand for key infrastructure? To what extent could demand side changes affect, for example, our energy needs or over-crowding on London's transport?
>
> Q4. What can we learn from other cities in terms of infrastructure planning, delivery and financing?

> Q5: What are the main barriers to delivering infrastructure in London (at local as well as regional levels)? How might these be overcome?

The call for evidence was sent to our main stakeholders and published on the GLA website. It received a good response from a range of stakeholders including London boroughs, London Councils and businesses. Transport and broadband were considered the key sectors to ensure increased capacity in. Ideas for managing demand often quoted the Olympics as demonstrating the possibilities for changing travel patterns.

Widespread support exists for the preparation of a long term, comprehensive Infrastructure Investment Plan for London produced by the Mayor. The current short term funding horizons are seen as a significant barrier to investment.

A list of stakeholders we have engaged so far is attached at Annex A. Our engagement continues and we would welcome input from other interested parties.

6. Emerging Issues

Across housing, public transport, roads, energy, water, waste, ICT and schools there are specific issues and infrastructure requirements. These will be addressed in the Long Term Infrastructure Investment Plan for London. Here we outline the key overarching issues.

Through our internal analysis and stakeholder engagement, the themes of governance, regulation and funding have emerged as a constant across sectors and interest groups. Current arrangements are seen as impediments to London's ability to deliver the infrastructure it requires for growth. The need to incorporate future technological innovation is also a key theme.

Infrastructure Governance

In cities where infrastructure systems come together in a densely crowded space, it makes sense for them to be planned, constructed and maintained in a coordinated way. Current infrastructure governance does not support coordination. As summarised here, it is varied, between sectors and for some, within sectors:

- In transport, the Mayor has responsibility for planning and management of TfL, but Network Rail has responsibility for rail services, whereas governance for the road network is shared between TfL and the boroughs.
- The energy sector is made up of private companies, regulated by Ofgem.
- Water is supplied by 4 monopoly suppliers who are regulated by Ofwat.
- Telecoms are provided by private companies who are regulated by Ofcom. However, within this model, there is an effective monopoly of network infrastructure controlled by BT.
- Private companies collect and dispose of waste under contract to the Boroughs.

London First in their 2010 report 'World Class Infrastructure for a World City' called for more London-wide strategic planning. The report called for the Mayor to play a greater strategic role in the planning and delivery of London's infrastructure, with greater coordination across sectors.

The lack of a primary source of governance for London's infrastructure produces a number of issues, particularly a lack of longer term and joined up planning. This lack of integration across different types of infrastructure leads to inefficiency. Obvious examples include digging up the same piece of road each time one of the utility companies needs access.

Regulation of infrastructure

It is clear from our analysis and from stakeholder input, that the incentives provided in the regulated utility markets are not working effectively for London. There are strong tensions between different, if desirable, objectives including between existing downward pressure on consumer prices and the investment required to maintain, renew and enhance systems; and between the pressing need to reduce demand for natural resources and the lack of incentives for private companies to play a role in reducing demand for their product.

For example, the current regulatory system for electricity does not allow for investment ahead of an immediate request for a connection. This appears to be holding back development in London, by imposing time delays and unexpected costs on developers. There is an ongoing programme of work to resolve these issues, through the London Electricity High Level Working Group[3].

These issues affect the whole country. However, in many cases the investment needs of London, as a growing capital city, are different and greater than the rest of the country.

Integrating technological innovation

Our intention is to ensure that the Infrastructure Investment Plan is a 'Smart Plan' where efficiencies from linkages between systems are maximised; best use is made of available technology and data; and our plans are future proofed, in that they are able to allow for the adoption of further innovations.

While we cannot predict all the technological advances that may occur between now and 2050, we do need to ensure we build on the key emerging advances and ensure our plans are flexible enough to adapt to new developments.

It is clear that availability of data and development of analytical techniques will become increasingly important to improve infrastructure design and delivery. Any long term infrastructure plan needs to include actions to better integrate physical and digital infrastructures. This is made particularly challenging by the need to integrate existing physical infrastructures of varying vintages with new digital technologies.

Visualisation at city level is an increasingly important tool for cross sector integration and efficient infrastructure provision. For example, mapping of underground structures is helping address the inefficiencies of the commonly sighted problem of digging up the same piece of road to allow access for the various utility providers. We are keen to build in visualisation techniques – above and below ground – in a London wide integrated approach to infrastructure planning.

London is home to world leading experts in technology, and we have sought to include their expertise as we develop the Infrastructure Investment Plan[4]. In particular we have sought to incorporate the expertise of the Smart London Board. The Board are undertaking a programme of work to make a reality of their vision for a 'Smart London' that puts technological innovation at the heart of making the capital an even better place to live, work and invest. Their work in set out in the Smart London Plan[5].

Funding London's infrastructure

Providing for London's long term infrastructure requirements is made all the more difficult in a world of uncertain funding.

Bidding to Central Government on a project by project basis does not provide a basis for integrated infrastructure planning where the strategic needs of the city are assessed and prioritised. The process of bidding for funds is in practice often prolonged and arduous. The high levels of uncertainty of

[3] http://www.london.gov.uk/priorities/planning/london-electricity-high-level-working-group

[4] The following papers have informed our thinking:
M Dodgson and D Gann 'Technological Innovation and Complex Systems in Cities' Journal of Urban Technology, Oct 2011.
D Gann, M Dodgson and D Bhardwaj 'Physical–digital integration in city infrastructure' IBM Journal, Jan/March 2011.

[5] http://www.london.gov.uk/priorities/business-economy/vision-and-strategy/smart-london/smart-london-vision

success can be demotivating. Bidding to siloed Whitehall departments which have few incentives to plan for integrated systems of infrastructure and housing is also sub-optimal.

The London Finance Commission recommended fiscal devolution for London. Our work here has reinforced the need for London to have greater control over the taxes paid by Londoners and London's businesses. As stated by the London Finance Commission, with fiscal devolution the Mayor and local authorities would be in a position to make more timely responses to our infrastructure requirements, while devolved revenue streams would also make London more accountable; and they would enable the means of repaying borrowing necessary for capital expenditure.[6]

We are therefore approaching the question of how London will pay for its infrastructure requirements under current fiscal arrangements and with fiscal devolution of the form recommended by the London Finance Commission.

[6] It is notable that the Government has largely accepted this argument for Wales. The Wales Bill, published on 20 March 2014 aims to fully devolve business rates, stamp duty land tax and landfill tax to the Welsh Government and National assembly for Wales. It will also allow the Welsh Government to have borrowing powers to invest in capital projects from 2018 up to £500 million. Significant further devolution is being considered following the publication of the Silk Commission report.

7. Next Steps

A consultation report will be published in Summer 2014. This will set out our analysis and view of London's long term infrastructure requirements, proposals to ensure effective delivery; along with an estimate of the magnitude of costs involved and proposals for how we might pay for our needs.

By the end of the year, we will publish the first Long Term Infrastructure Investment Plan for London, taking account of consultation responses. While this document will mark the conclusion of this initial assessment of London's growth and infrastructure requirements, the city's requirements will inevitably change over time in ways that cannot be foreseen at present. We expect work on planning for and ensuring delivery of London's infrastructure requirements to be on-going, with the Plan being revisited periodically.

Annex A - Stakeholder Engagement

Bilateral discussions

- AECOM
- Arup
- Atkins
- Association for Consultancy and Engineering
- Ballymore Group
- BAM Nuttall
- Cabinet Office
- Central London Forward
- Centre for Cities
- Civil Engineering Contractors Association
- Construction Products Association
- Department for Business, Innovation & Skills
- EC Harris
- EY
- Environment Agency
- Foresight
- Forestry Commission
- Foster and Partners
- Gerald Eve
- HM Treasury
- iBUILD
- Infrastructure for Studies Institute
- Infrastructure UK
- Institute for Civil Engineers
- Institute for Sustainability
- London Chamber of Commerce and Industry
- London Councils
- London Wildlife Trust
- National Trust
- Natural England
- Ofcom
- PwC
- Professor Brian Collins
- Sir Alan Wilson
- Sir John Armitt
- Skanska
- South East England Councils
- Sustrans
- Total Flow

Written responses to the call for evidence were received from:

- Most London boroughs
- London Councils
- Atkins
- Confederation of British Industry
- London Chamber of Commerce and Industry
- Federation of Small Businesses
- Institute for Sustainability
- Institute for Civil Engineers
- Peter Neal
- Foster and Partners

GLA/ London First Funding and Finance Workshop was held with the following organisations:

- Rothschild
- Principalis Asset Management
- PwC
- Macquarie
- UKPN
- J.P. Morgan Asset Management

Water Advisory Group

- Stephen Martin, Director of Asset Management, Affinity Water
- Mike Pocock, Physical Asset Strategy Manager, Affinity Water
- Martin Lunn, Essex & Suffolk Water
- Lester Sonden, Engineering Director, Sutton & East Surrey Water
- Richard Aylard, External Affairs and Sustainability Director, Thames Water
- Yvette de Garis, Head of Environmental Regulation, Thames Water
- Howard Davidson, Director South East, Environment Agency
- Milo Purcell, Deputy Chief Inspector, Drinking Water Inspectorate
- Helen Charlton, Consumer Council for Water
- Dr David Balmforth, Senior Vice President, ICE
- Colin Fenn, Chair, Water Resources Panel, CIWEM
- Tim Evans, Chair, Wastewater Panel, CIWEM
- Mike Woolgar, Director, Atkins
- Prof Tony Allan, Emeritus Professor, Water, Kings College London
- Elliot Gill, CH2M Hill
- Amanda Nobbs, Chair, RFCC

Green Infrastructure Reference Group

- Peter Head, Chair, Ecological Sequestration Trust
- Sue Illman, Chair, Landscape Institute
- Julia Thrift, Head of Projects, TCPA
- Katherine Drayson, Environment and Energy Unit Research Fellow, Policy Exchange
- Tom Armour, Associate Director, Arup
- Tony Barrett, Principal Consultant - Water, AECOM
- Peter Neal, Landscape and Green Infrastructure Consultant
- Tony Leach, Director, London Parks and Green Spaces Forum

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Chinese
如果需要您母語版本的此文件，
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Hindi
यदि आप इस दस्तावेज की प्रति अपनी भाषा में चाहते हैं, तो कृपया निम्नलिखित नंबर पर फोन करें अथवा नीचे दिये गये पते पर संपर्क करें

Vietnamese
Nếu bạn muốn có văn bản tài liệu này bằng ngôn ngữ của mình, hãy liên hệ theo số điện thoại hoặc địa chỉ dưới đây.

Bengali
আপনি যদি আপনার ভাষায় এই দলিলের প্রতিলিপি (কপি) চান, তা হলে নীচের ফোন্ নম্বরে বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Greek
Αν θέλετε να αποκτήσετε αντίγραφο του παρόντος εγγράφου στη δική σας γλώσσα, παρακαλείστε να επικοινωνήσετε τηλεφωνικά στον αριθμό αυτό ή ταχυδρομικά στην παρακάτω διεύθυνση.

Urdu
اگر آپ اِس دستاویز کی نقل اپنی زبان میں چاھتے ھیں، تو براہ کرم نیچے دئے گئے نمبر پر فون کریں یا دیئے گئے پتے پر رابطہ کریں

Turkish
Bu belgenin kendi dilinizde hazırlanmış bir nüshasını edinmek için, lütfen aşağıdaki telefon numarasını arayınız veya adrese başvurunuz.

Arabic
إذا أردت نسخة من هذه الوثيقة بلغتك، يرجى الاتصال برقم الهاتف أو مراسلة العنوان أدناه

Punjabi
ਜੇ ਤੁਹਾਨੂੰ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਤੁਹਾਡੀ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੀਦੀ ਹੈ, ਤਾਂ ਹੇਠ ਲਿਖੇ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਹੇਠ ਲਿਖੇ ਪਤੇ 'ਤੇ ਰਾਬਤਾ ਕਰੋ:

Gujarati
જો તમને આ દસ્તાવેજની નકલ તમારી ભાષામાં જોઈતી હોય તો, કૃપા કરી આપેલ નંબર ઉપર ફોન કરો અથવા નીચેના સરનામે સંપર્ક સાધો.