



Frontier regularly conducts international research trips to observe and understand more about international trends and to meet and evaluate, first hand, a range of fund managers and products.

In conjunction with insights we share with our Global Investment Research Alliance partners, these observations feed into our extensive international research library.

This report provides a high-level assessment on the key areas and observations unearthed during this recent Real Assets' trip. We would be pleased to meet with you in person to provide further detail on these observations.



AUTHOR Tim Stringer Principal Consultant Head of Property

Tim is a Principal Consultant at Frontier and leads our property research and advice. His responsibilities at Frontier include providing consulting advice to Frontier's clients, and involvement with strategy, investment and manager research. Tim has 30 years of experience in the commercial property sector, having held senior executive, fund management, portfolio management, and advisory roles with Colonial First State Global Asset Management Property, where he was CEO, Summit Capital Advisors, and AMP Capital Investors. Tim has completed a Graduate Diploma in Property from RMIT University, holds an Associate Diploma in Valuation from RMIT University, and is an Associate of the Australian Property Institute.



Light at the end of the tunnel!

The populations of Europe's biggest metro cities have been rising relentlessly and are at record levels. Employment levels in London and Paris are also at all-time highs and these trends are projected to continue well into the future. There is a critical need to open up new areas for housing growth and also to relieve stress on transport networks.

Major transport projects often sit within the wider framework of a city's spatial plan and economic development agenda, and Paris and London offer great illustrations. The Grand Paris plan was initially conceived to reduce inequalities between regions, while London's failure to build more road crossings across the Thames in east London is widely acknowledged to have held back the growth of housing and jobs in the east. In all, the Greater London Authority believes around £200 billion of transport investment could be needed to support 1.3 million extra homes and 1.4 million additional jobs by 2050. The potential for real estate developers, landlords and investors is enormous. In Paris, the visionary transport project includes themes linked to economic development, housing, higher education, culture, sports and the environment.

These two major infrastructure projects in particular are 'future proofing' core real estate investment in London and Paris. The benefit to real estate values, from urban transport infrastructure is undeniable. Reducing the costs of friction (dollar cost, time and inconvenience) has major positive influences on real estate surrounding upgraded and new train stations. Major pieces of infrastructure are currently in the process of being built in Europe's two largest and most important centres of commerce.

The London Crossrail project and the Grand Paris project, are Europe's largest and most ambitious infrastructure projects and the impact on both cities will be far-reaching. Benefits will be journey times that will be significantly reduced in addition to a large increase in the capacity of the networks. This step change, in both connectivity and capacity, will open up new parts of London and Paris, but also have significant value accretion to existing properties close to the new and upgraded stations. In real estate terms these projects are game changers.

The projects have already had significant impacts on key decisions of users and investors. They are having a major impact as a catalyst for redevelopment, new development and upward influence on real estate values.

The influence on different sectors is interesting with retail, office and residential all being major beneficiaries. The macro benefit is the reinforcement of these two gateway cities as long-term central places of commerce. As an investor, this type of commitment to infrastructure by governments provides a substantial boost to confidence. Major real estate investments will attract demand from both tenants and investors over long-term horizons.

This commitment to infrastructure upgrade and improvement ensures that these two great gateway cities remain as key targets for core investment over the very long-term.



Crossrail - The Elizabeth line

London's transport system has evolved significantly over the last 20 years and this is set to continue. Currently planned schemes will add approximately 30% to total rail based public transport capacity by 2030, including the long-awaited Crossrail project.

The Elizabeth line is the name of the new London transport service born out of the Crossrail project. When fully completed the high-frequency train service will connect towns in Berkshire and Buckinghamshire to Essex and southeast London via the centre of the capital.

The new service is designed to ease pressure on the existing Underground network, particularly the busy Central and District lines, but also the link to Heathrow Airport. It will take 20 minutes off the journey time from central London to Heathrow Airport.

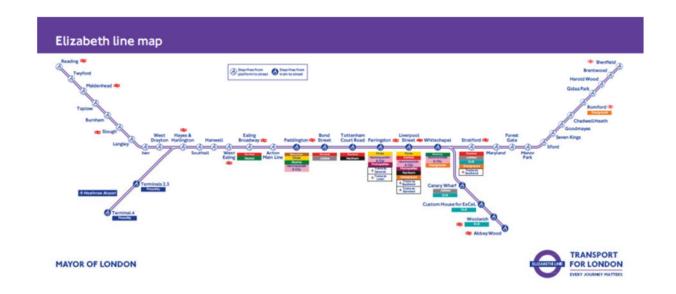
In December 2018, the Elizabeth line opens between Paddington and Abbey Wood, Liverpool Street to Shenfield, and Paddington Main line to Heathrow Terminal 4.

New trains specifically designed for the line are now running on a TFL railway route from Liverpool Street to Shenfield in Essex, but this stretch of railway won't be connected to the Elizabeth line for two years. The entire line will be completed in May 2019 when the section west of Paddington opens, running to Heathrow Airport and Reading.

As the map below shows, once fully completed the Elizabeth line will stretch all the way from Reading in Berkshire, to Shenfield, a commuter suburb of Brentwood in Essex.

Branches will run to Heathrow in the west, and Abbey Wood, on the border of Greenwich and Bexley in south-east London. In total, it covers 73 miles (118km) of track. Most of the line will run above ground, but a 13-mile stretch runs under central London. The line will have interchanges with 10 tube stations, including Canary Wharf. This will dramatically improve the connectivity of the currently out-lying financial district to both the West End and City CBD areas, and with Heathrow and City airports.

Tube interchanges in central London are (from west to east): Heathrow, Ealing Broadway, Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel, Stratford and Canary Wharf. There's also Custom House on the DLR, and Romford on the Overground. The entire Elizabeth line will be completed in December 2019.





Grand Paris project

This project is underpinned by an initiative by former French President, Nicolas Sarkozy, to reorganise the Paris region into 12 distinct territories, with an upgraded transport infrastructure that connects the outer districts to central Paris and suburb to suburb. One of the key aims is to support economic development in areas that were previously isolated.

As part of the Grand Plan, Greater Paris will be characterised by seven new competitiveness clusters, among them a Research and Innovation cluster, a Digital Creation cluster, and an Airspace cluster. Real estate lies at the heart of the project with developers, investors and funders playing an active role, contributing to a wide range of property developments. For example, in the Financial Services cluster, La Défense is undergoing a program to renovate obsolete buildings and to construct 300,000 m² of new office space. Elsewhere, in the Saclay cluster, over 1.7 million m² of mixeduse space is being developed around the Ecole Polytechnique and Moulon districts. And in the northeast section, the development of the Triangle de Gonesse will add more than 1.8 million m² for economic and recreational activities, including offices, shops, sport and cultural facilities. These projects broaden the opportunity set for real estate developers and investors, including overseas investors who have for too long found themselves confined to Central Paris. Development of districts around the 68 new train stations will provide bright investment prospects.

Grand Paris plans to develop in the Ile-de-France region, a fully automated métro line which will encircle Paris, called

"Grand Paris Express", as well as extensions to existing lines. It will add track in total 200 km long, equivalent to the existing Paris metro network. The project is of a scale unprecedented in the capital since the construction of the regional railway (RER) lines in the 1960s and 1970s. The aim of the project is to improve transport within the Greater Paris Region (particularly transport from suburb to suburb) but also to create employment and support development in territories that are currently isolated.

To achieve this, four new métro lines will be developed: lines 15, 16, 17 and 18, while other lines are to be extended (lines 14 and 11). Upon completion, this new metro network will serve 72 stations (including 57 new stations), which will be strongly interlinked with the existing transport network, and will link the three airports and the high-speed railway (TGV) stations. The network is planned to gradually come into service between 2017 and 2030.

The main objective of the Grand Paris project is the sustainable development of the region's economy and employment with a view to maintaining and even strengthening, the Greater Paris Region's position among the most attractive international cities. Grand Paris does not have a defined border, nor does Greater London or Greater Berlin. Grand Paris is first and foremost a project, as stated in the law relating to Grand Paris dated 3 June 2010: "Grand Paris is an urban, social, and economic development project which brings together the Greater Paris Region's strategic areas with Paris at the heart of the Greater Paris area".





Work on line 15 began in 2015, with its first section scheduled to open between Pont de Sèvres Métro station and Noisy - Champs RER A station around 2020. This line was first proposed in the Orbival project, then integrated into the Arc Express.

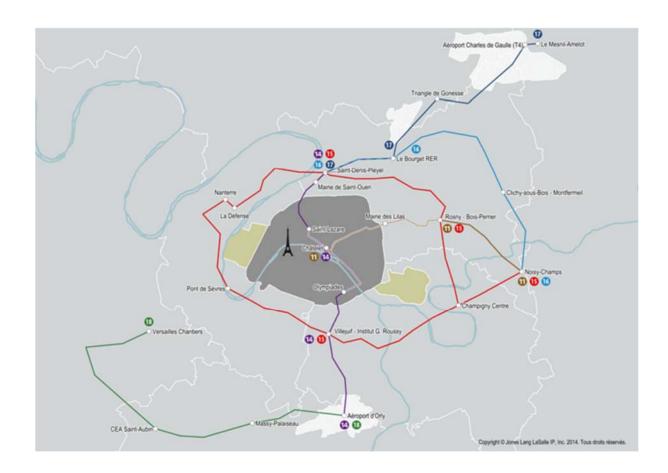
Line 15 is conceived as a high-capacity underground rail line, providing a new ring line around Paris in the departments of Hauts-de-Seine, Val-de-Marne and Seine-Saint-Denis. It will enable direct transportation between the suburbs, bypassing Paris and thus avoiding transloading.

The main component of the project is the extension of existing Metro lines and the addition of new lines to make up the Grand Paris Express (GPE). Relying on the creation of this new transportation network, the regional project will develop new economic centres around Paris, linking them to

the city, the TGV stations and airports, as well as constructing over 1.5 million homes around the new stations.

Property values surrounding the new stations connected to the transportation system, have and are expected to continue to rise leading up to the projected end dates.

The Crossrail and Grand Paris projects will have a direct impact on the fundamentals at the very core of office market dynamics: transport and economic development. Locational value is based on many things including its proximity to major centres, lifestyle attributes, beauty and safety. If new transport infrastructure improves an area in one of more of these factors, the value of the area should increase. Employee access to work, proximity to economic drivers, links with other office centres are all elements that contribute to the attractiveness of office markets – and are all elements that will be affected by these projects.







The opening of new train lines in these two great gateway cities will shorten journey times to certain areas and open up others or will create new, direct routes. The projects will tend to reinforce existing or emerging economic centres. In particular, this includes the development of real estate supply by renovating existing stock or by creating new buildings. The long term potential is considerable as the scale of these projects dedicated to long term economic activity is reinforcing confidence in the market. In Paris, the projects that have already been announced is equivalent to more space than is currently in the La Défense office market as a whole.

These elements, linked to others such as demographics or working practices, will gradually shape the new office landscape of these gateway cities. The markets will steadily be transformed as and when new transport lines are developed or completed and as the competitiveness in sub markets gains momentum. The emergence of new office centres will impact existing markets, some will be strengthened and some will be weakened by the development of new competition.









About Frontier Advisors: Frontier Advisors is one of Australia's leading asset consultants. We offer a range of services and solutions to some of the nation's largest institutional investors including superannuation funds, charities, government / sovereign wealth funds and universities. Our services range from asset allocation and portfolio configuration advice, through to fund manager research and rating, investment auditing and assurance, quantitative modelling and analysis and general investment consulting advice. We have been providing investment advice to clients since 1994. Our advice is fully independent of product, manager, or broker conflicts which means our focus is firmly on tailoring optimal solutions and opportunities for our clients.

Frontier does not warrant the accuracy of any information or projections in this paper and does not undertake to publish any new information that may become available. Investors should seek individual advice prior to taking any action on any issues raised in this paper. While this information is believed to be reliable, no responsibility for errors or omissions is accepted by Frontier or any director or employee of the company.

Frontier Advisors Pty Ltd ABN 21 074 287 406 AFS Licence No. 241266