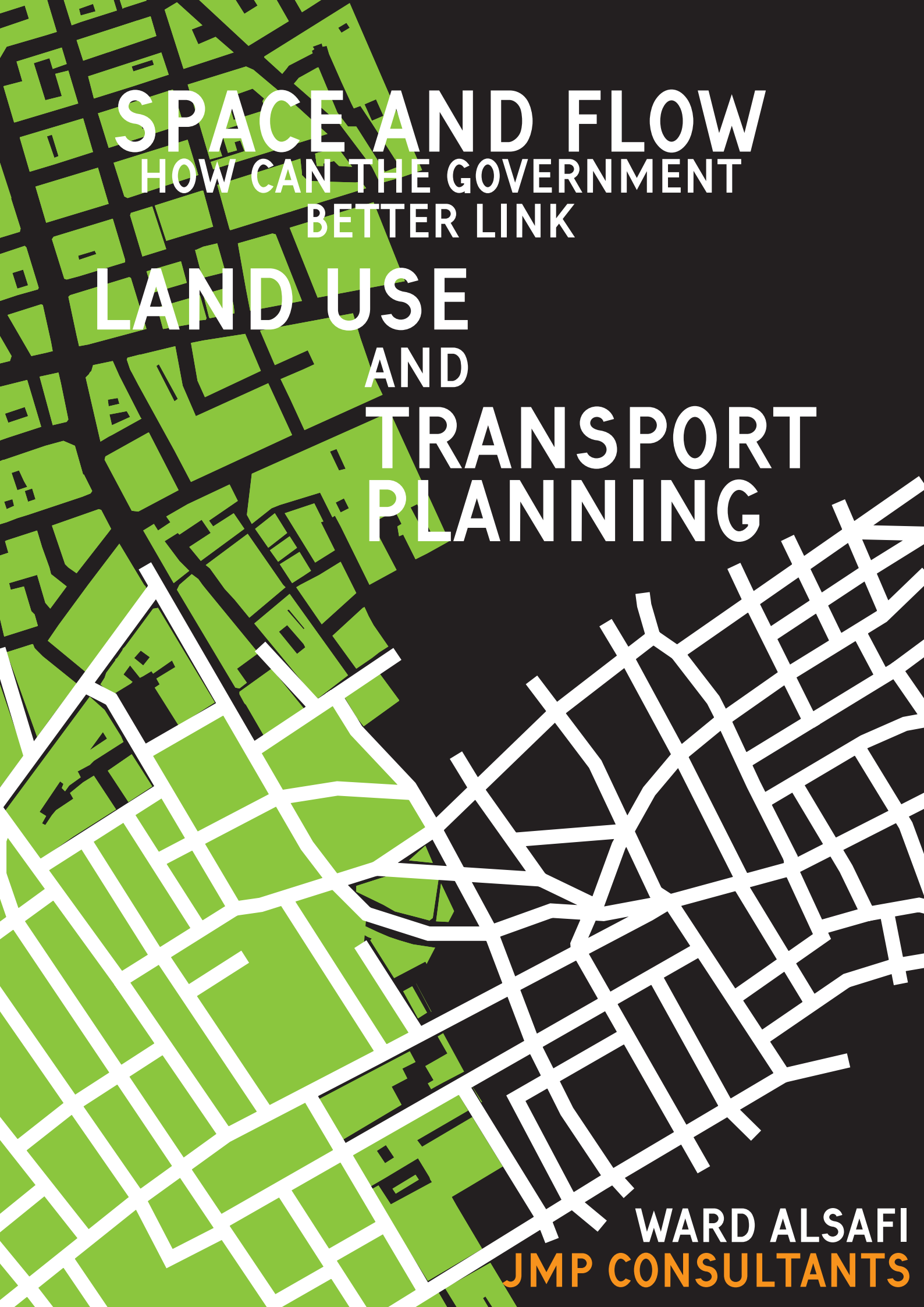

SPACE AND FLOW

HOW CAN THE GOVERNMENT BETTER LINK

LAND USE AND TRANSPORT PLANNING

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SPACE AND FLOW: HOW CAN THE GOVERNMENT BETTER LINK LAND USE AND TRANSPORT PLANNING

PAPER FOR THE TRANSPORT PLANNING SOCIETY BURSARY
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Ebbsfleet station area, only 15 minutes to London's centre but development is yet to take advantage of this accessibility

Introduction

Places and the movement between these places is a single dynamic system; therefore planning land use and transport as one system is the logical approach that results from this.

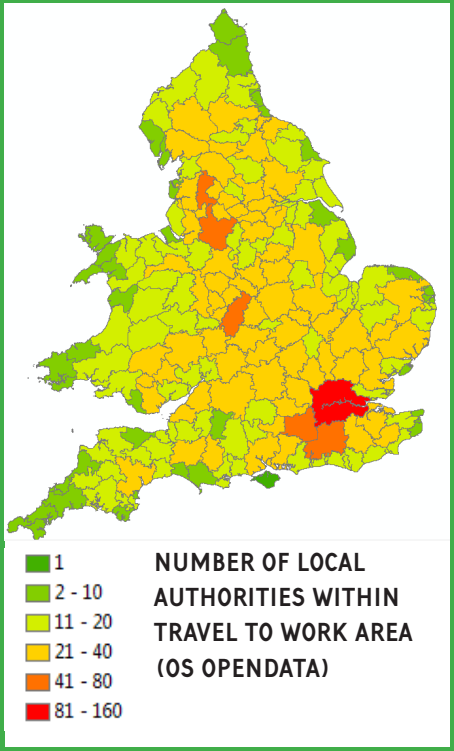
When a government has an objective with spatial implications; it is important that the resulting policies and actions recognise the interaction of places and movement, so that the interaction is planned for, controlled or even utilised to help achieve the objective. This ensures that democratic will and social needs are met in more efficient and effective ways.

However, in the UK and especially in England the integration of land use and transport planning is weak and growing ever weaker. While the rhetoric of many planning authorities and the National Planning Policy Framework itself may recognise the importance of integrated approaches; the actual statutory, professional or systematic links between the two planning systems are often limited in scope.

There are signs that housebuilding rates will be accelerated over the next decade and the spatial implications of this is immense. This will be done in a vastly different land use and transport climate to the post-war delivery of housing supply. Land availability is much lower due to both regulatory, social and economic pressures, transport is performed predominantly via private car and the private sector is generally relied upon to meet land use development objectives with limited strategic overview.

If the relationship between land use and transport planning in governance is not strong, unprecedented consequences may arise from this new wave of development that may undermine many objectives that may be desired, like pollution, resource usage, economic growth, social equity and many others.

This paper briefly reviews the current governmental issues that are holding integration back and then proposes ways to help governance move towards a more integrated culture and structure for achieving their visions and objectives in spatial terms. It then focuses on wider strategic methods of integration and the concept of Transit Oriented Development, using housing delivery as an example. The paper then concludes on the exploration of more local and fundamental links between land use and transport that future planning practice can embrace.



Map showing the fragmentation of planning authorities at the TTWA level.

(NB London's TTWA has one overarching authority with unique planning powers)

Planning System Issues

The professional cultures of land use planning and transport planning are quite separate in the UK. Transport is often seen as an independent system of flows to be managed through technical engineering; land use impacts are often marginalised. The cultural disconnect between professions is reinforced by various aspects of the planning system in the UK.

Scale

The demise of regional planning has created a vacuum of spatial strategy between the Local Authority and National Government. Yet it is between the local and national scale where transport and land use interact as relatively well defined economic and 'travel to work' areas. Below this scale authorities are 'under-bound' and unable to plan and aid distribution of land uses throughout the wider region, and often unable to plan transport systems to complement this either. An example of this are District Councils who are Planning authorities but not Highways Authorities, or Unitary Authorities who have no Highways authority control beyond their boundary. Above this scale at the National level there is no spatial planning to distribute growth and change in tandem with infrastructure. Local Enterprise Partnerships and Combined Authorities are emerging as a larger than local scale but currently have no clear land use planning powers to go with their transport powers.

Process

The process of developing transport schemes leaves little chance for land use integration. Separate transport, land use schemes and proposals accumulate on 'wish lists' from a mixture of technical, public and political sources. These wish lists are then appraised narrowly and retroactively linked or weakly linked to objectives or needs. This forms a 'back to front' approach, with interactions between land use and transport ignored or simply given lip service.

Funding and Appraisal

National Government generally controls transport funding streams through bids and awards funding based on relatively narrow appraisal methods that focus on journey time savings and direct transport user impacts, meaning schemes with future land use change or development in mind would struggle to emerge. This is exacerbated by the inability of local governments to retain a lot of the taxes or economic benefits that their transport schemes may create through land use change and vice versa, as well as a limit on being able to borrow money on the basis of these returns. Additionally, the competitive bidding nature of these streams favour larger core cities over peripheral regions; giving no opportunity for regions of similar economic tier to compete only with each other and thus limiting their scope for integration with land use.

Timescale

The volatility of electoral cycles also disrupt longer term thinking which is important for land use and especially important for transport. While 1-4 year scales may be effective for local authority issues outside of spatial planning and economics; longer term strategies, investments and visions require longer and more persistent implementation to form effectively.

Narrow Focus

Overall there are fundamental mismatches in the main focus of land use and transport planning. Transport planning is focused on the management and maintenance of existing networks with a limited ability to fund or influence new transport links and strategies. Land use planning is focused on development control of new development, with limited ability to fund or influence existing spaces and development.

Planning System Opportunities

There are opportunities to build better links between land use and transport planning in the governance structure. This can be acheived by taking a full perspective of the places and movements at the right scale and going through the planning process in the right order. These structures and processes can form a common pursuit of land use and transport professions, enabling a closer relationship.

Scale

Working between the local and national creates a scale of spatial planning that can influence a relatively self-contained unit of economic activity and travel patterns. Current authority geographies could reshape into Travel to Work areas or Functional Economic Areas, they could do this through forming new Combined or even Unitary Authorities. This reduces the potential for overlap, conflict and inefficiency in distributing and influencing spatial development.

Process

While singular schemes can still offer good and visionary ideas, they should be a supplement to a more comprehensive and worked through 'front to back' process. This would allow integrated land use and transport considerations to be 'baked in' from the beginning and run through the entire planning process. Cities or regions can be assessed as an integrated land use and transport system, recognising fundamental issues, opportunities and relationships before going on to applying strategies and objectives within this context. By defining the spatial opportunities for decision makers first, it provides them with a rational basis to proceed, rather than having decision makers develop schemes and then assess them spatially afterwards.

Funding and Appraisal

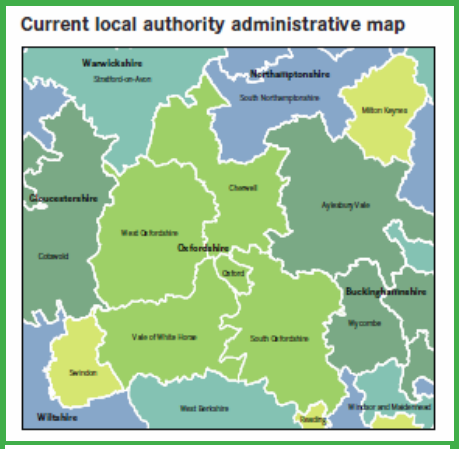
The funding of this process requires more locally raised sources, creating an incentive for authorities to invest spatially as they can capture the returns more consistently over the long term. This is especially true of transport schemes where funding is limited to direct CIL and s106 contributions from specific land developments, which are ad-hoc and cannot link directly to the ongoing transport costs and benefits to land. Being able to directly capture benefits generated by a transport scheme's influence on land use makes transport a more viable investment. This then bypasses the central government appraisal process which generally restricts the scope to recognise future returns through land use impacts. However, if authorities are limited in funding but feel their land use-transport strategies are strong, bidding for loans or grants can still provide useful streams, however it is important that competitive bids are done in a range of tiers, recognising different levels of economical or spatial functions, creating a fairer competition between authorities.

Timescales

The timescales that larger scale transport planning and some land use planning requires needs protection from frequent or significant changes. Development of longer term spatial visions need to be in tune with democratic and political sentiment from the beginning thus preventing harmful opposition. Furthermore it needs a more robust process of evaluation and comparison with alternatives as suggested before as this allows plans to be easier to support and harder to oppose.

Narrow Focus

With more locally controlled funding at the right scale, local government can begin to work with the land use and transport planning in one system, evaluating and developing its entirety. The next section explores how a fuller and more integrated perspective can increase the effectiveness of government planning.



The Centre of Cities suggest combining smaller and more peripheral unitary authorities or districts with their counties to create City County Authorities, creating a suitably devolved scale where lower tier cities share strategic transport and land use planning powers with their wider region **(Centre for Cities, 2014)**

State Investment Banks

'Spatial' state investment banks could be formed to provide government backed loans that are specifically tailored to help develop transport schemes and land use schemes together, using a more integrated appraisal process to evaluate the value capture that can form the return on investment.

In France (Caisse Des Depots) and Germany (The KfW), public finance institutions utilise their state backed stability and zero-tax operation to fund development such as energy efficient homes and public transport, these institutions provide capital directly to projects which have long term returns that also achieve government objectives.

A Full Strategic Perspective

It is important to look at the entire range of interaction between transport and land use in order to develop better integration, as new development and infrastructure is only a part of the picture. This sections explores how existing patterns and structures of land use and movement can be influenced to achieve objectives.

Infrastructure Pricing

From a strategic transport planning perspective, the fairer pricing of infrastructure usage can create a universally stronger link between infrastructure and the land use that arranges around this.

Road usage is not linked to the funding it requires or the true value it brings to users, meaning land use locational decisions don't take into account the specific pressure on infrastructure it creates, either through congestion, pollution, health impacts or road maintenance. Without a price signal to guide them this adds up to a split between the provision of road capacity and the use of roads and land.

Within public transport usage in the UK, price signalling has a significant element of paying direct costs incurred on infrastructure; but general subsidies for operation still exist. This could be said to be a subsidy to encourage the use of a more resource efficient mode; however oftentimes this is an indiscriminate subsidy that can be used more effectively. For example, subsidy could be used more actively to recognise potential for better use of land around stations, using discounted fare zones in depressed areas with vacant homes or office space for example.

Furthermore, containing the price within infrastructure ensures that land values do not distort excessively due to the transport provision it enjoys, reducing the need to use difficult value capture techniques to pay for infrastructure investment.

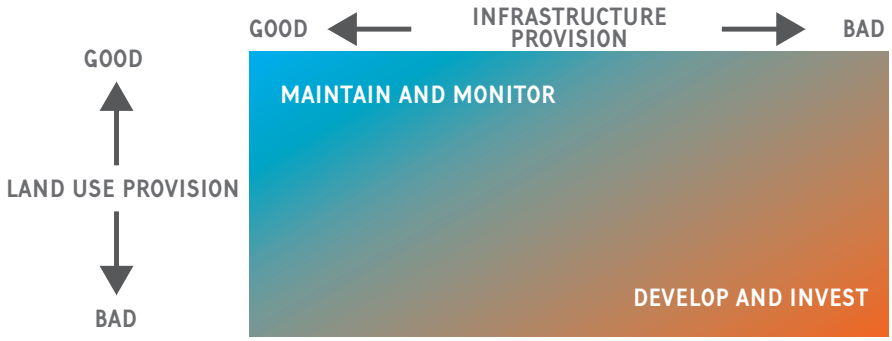
By charging for public infrastructure in a more targeted way, many objectives could be realised as the market acts more rationally or in pursuite of specific objectives. A more rational land use and transport market makes appraisal and modelling more accurate, which in turns help the management of capacity and development.

However aiming for more rational land use and transport usage needs to be weighed against public sentiment and other objectives such as wealth distribution and sustainability. Moreover, the phasing in would require slow uptake to aid acceptance. For example, road user charging can be rolled out with Low Emissions Vehicles to ensure that as the mode share of these vehicles increases and matures, the charging scheme increases and matures in use **(Levinson, 2014).**

Comprehensive Appraisal: Node-Place

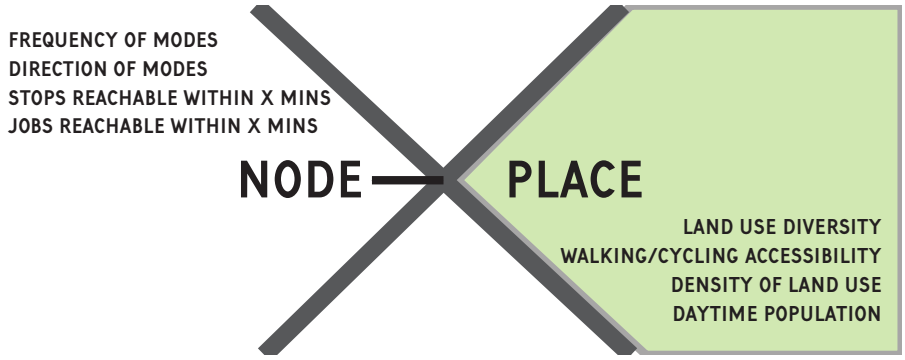
The Node-Place assessment is a good example of a process that assesses land use-transport networks in a comprehensive and integrated way; providing opportunities for both new and existing developments to better integrate. The Node-Place assessment appraises the nodes in a transit system for their accessibility, against the land uses that form the 'Place' surrounding these nodes. This can create an initial impression of where land use changes or increases can be absorbed, or where transport changes can allow nodes to absorb more land use (Bertolini, 2006). Combining these measures with the operational capacity that the nodes have for handling traffic may help build a complete picture of the infrastructural requirements and abilities of nodes in a transport network. This provides a robust basis for decision makers to distribute infrastructure or land use development or change according to their objectives. **Figure 1** shows the general relationship between land use and transport and the actions required.

Figure 1- Land Use and Transport relationship and recommended action



However it can also assess the qualities of the places, such as through the diversity of land use, or other bespoke measures that are relevant to objectives. This provides another layer of results which can guide more specific interventions. **Figure 2** below shows examples of indicators that could be used to plan and monitor such systems.

Figure 2- Node and Place Indicators



This process would require deep collaboration between transport and land use planners. Developing a strong base of evidence that provides decision makers and the public with a clear guide of how transport and land use work together and give them a chance to make better informed decisions.

Land Use integration with Transport- Beyond the Mailbox

For land use planning processes to create actions that integrate with transport networks in the UK, it needs to consider the entire city or region as a whole in its plans rather than only focusing on whatever comes into the planning application mailbox. Land use planning in the UK needs to establish a consistent counterpart to Development Control that can help influence existing development and the use of this by people, this then creates a way of influencing development to better utilise or be served by transport networks. Transit Oriented Development is a method of doing this by using public transport as a more sustainable and efficient basis for integration.

The Benefits of Integration: Transit Oriented Development (TOD)

This section will illustrate the benefits of better links between transport and land use planning through the context of using Transit Oriented Development. 'Transit' is defined here as the public transport and the modes that access to and from this network such as walking or cycling or certain car journeys; creating a multi-modal alternative to car-only mobility **(Marshall, 2009)**.

By orienting new and existing development better to link with the transit system, a greater integration can be formed which can allow objectives to be better met. This will be illustrated with the objective of Housing Delivery. Integration between land use and transport policy and planning can achieve a higher rate of housing delivery as well as a stronger business case. Using the transit system as a basis for housing delivery creates the potential for more units in the same area due to the lower need for car infrastructure such as parking and access routes, a concurrent restriction on car usage through low parking or road pricing thus creates a captive ridership which allows the transit system to confidently invest in providing a good transit service.

TOD Methods

While there are general policies in the UK of directing the scale of development according to its proximity to public transport, these are within Development Control processes that only effect scattered new market developments around existing transport networks. TOD can be more active than this by instigating the development, focusing on a multitude of approaches that deal with both existing development and new opportunities. By using an integrated region wide appraisal of networks such as the Node-Place appraisal, the interventions and opportunities can be laid out for decision makers to develop and choose by thinking about their objectives.

In the case of the housing delivery objective, they can assess the housing need, as well as the specific types of housing, against the places with both the appropriate place qualities and transport access. **Table 1** below outlines interventions according to the general type of TOD opportunity.

Table 1- TOD Intervention types

	New Development	Existing Development
New Transport	Self contained development anchored solely on a new transport node or corridor	Route or stop in an under-served or inaccessible area. Diversifying or changing land uses, increasing activity along side the new transport
Existing Transport	Infill development around an under utilised node or corridor	Improving capacity or quality of transport in under-served or inaccessible area. Diversifying or changing land uses, increasing activity along side the upgraded transport

Case Studies of TOD

The (Mass Transit Railway) MTR in Hong Kong operates at a profit due to their excellent operational performance and a dense urban form that makes ridership viable; it leverages this profit to plan or own developments around their stations; allowing them to capture some of the positive externalities that transit infrastructure brings to the land uses around it.

Copenhagen was faced with a dwindling tax base as people moved into the suburbs. The government used empty municipal land located at a highly strategic location between the Central Business District (CBD) and the international bridge to Malmo in order to create a new urban district anchored around a new metro line, offering an extension to the CBD and delivering accessible houses close to the city centre. **(Knowles, 2012)**

The Denver Transit Oriented Development Fund uses loan capital for strategic property acquisition in current and future transit corridors before land values increase due to transit service. A partnership of quangos, banks and non-profits then convert these properties into affordable housing and related amenities. The initial ownership of land means that the benefits of transit access that are already there or will soon be there are captured in the property itself and not in land values. Accessibility and affordability are preserved in the future through leases and returns on investment for the fund are possible.

Existing Land Use integration

The challenge to this approach is developing techniques to adapt existing land uses better to new or existing transport networks; such as connecting up stations and stops better to their areas through public realm or highway improvements or encouraging reconfiguration or reclassification of land uses.

For example, a government objective of universal accessibility means that a bus route needs to be heavily subsidised due to an under-populated corridor. Therefore the land use changes could involve loosening restrictions on land use to encourage more density, or even directly influencing this through engaging with locals to identify opportunities to encourage more people to locate their homes or business there. Incentives such as temporary tax breaks or public realm development could ultimately encourage better utilisation of the bus route and a long term reduction in the subsidy required.

Appraisal and Value Capture

TOD strategies need an appropriately integrated appraisal process. This consists of weighing the combined picture of transport and land use impacts against the social, economic and environmental benefits they bring. Expanding the vision beyond direct business case benefits creates a greater scope of schemes and ideas that can help achieve objectives, increasing the chance of success.

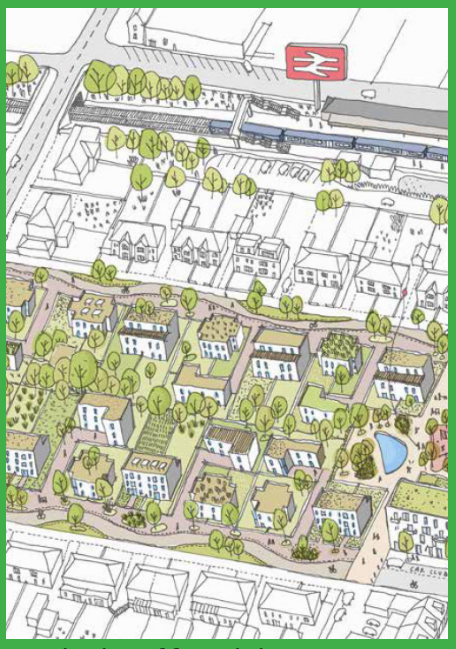
However, with the right tools and mechanisms, the relationship between land use and transport can be used to benefit and enhance the viability of major developments and/or transit infrastructure. This can work through being able to directly capture economic benefits that infrastructure and/or development can bring through business rates, levies and other long term mechanisms. On the opposite side of this, pricing infrastructure closer to its true cost ensure can that land use value does not distort excessively, reducing issues with gentrification or displacement as well as increasing the financial self-sufficiency of the transit system. With both of these approaches a degree of progressive charging may help equity amongst users.

The key is being able to influence the land use and transport at the same time, ensuring that distribution, incentives and value capture all work together to help achieve the objective.

Concessionary Model

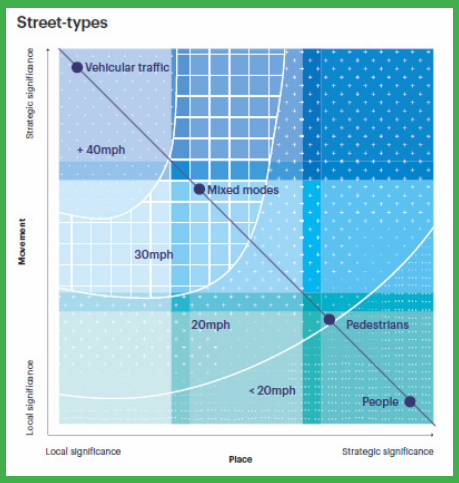
A potential approach for locking in development and transit integration can be to define these integrations clearly at the outset and commissioning the private sector to develop within these relationships. Rather than allocating sites or developing transit routes in the hope the market will deliver, actively engaging developers and developing TOD schemes to ensure their delivery would ensure that objectives are being met and returns on investment are clear.

A concessionary model can offer a way for local government to define the integrations of land use it seeks around existing or proposed transit routes. It assumes the majority of the risk, backed by either its own funds or a state backed investment bank and takes the majority of the return through leases on property and other mechanisms such as Tax Increment Financing. The private sector then is guided on the land uses and design of development, but is able to market and develop the schemes on the government's behalf. The incentives to the private sector can include the reduced risk exposure as well as possibly providing a percentage of the future returns as an incentive for quality. This creates confidence that an authority can develop a public transport network that will have land uses designed around it and conversely that they can meet the land use demand and needs in accessible places.



Housing is problematic in terms of densification or adaptation. For example houses in London have been divided up into smaller units to deal with demand, however this process has been unregulated and has created inadequate accommodation standards. Incentivising homeowners to better utilise housing around transit nodes needs a combination of downsizing incentives as well as possibly encouraging better regulated permitted development for expansion, division or new units **(HTA, 2014)**.

Housing that is near new or upgraded transit routes will increase in market value, the Overground has increased housing values by an average of £90000 over 5 years in surrounding areas **(Hamptons, 2014).** While TfL can take increased fare box revenue and CIL contributions from new development, the existing stock largely keeps this windfall. While charging infrastructure at true cost or increasing council tax accordingly would reduce the housing value change, this may be difficult due to pricing out lower income users and clashes with other government objectives. Another possible method of capturing or control land value uplift would be to place an addition to stamp duty on any sale with clear accessibility benefits, meaning only those who are reaping the benefits of any windfall have to pay.



The Link-Place model, adapted by TfL in their Roads Task Force, aims to classify streets based on how they function as a transport link and a place. This creates a clear guide to direct investment to where integration can be improved or other objectives can be developed. Increasing the place function of a street for example needs to be weighed against the reduction in transport capacity etc. **(TfL, 2013)**

The Olympic Broadcasting Centre conversion will cost around £150 million

Local Integration: Towards a more Integrated Perspective

Street based integration

At the level of streets and plots, the opportunities for integrations become more obvious to a degree. Balancing the transport use and land use qualities of streets offer a systematic way to apply visions and objectives spatially at local levels where measuring and evaluating schemes are clearer.

Planner for Potentiality

The arrangement of streets create paths that can easily persist for many decades or even centuries, therefore there is an imperative to ensure that they have a degree of adaptability built in for future travel patterns, modes and land uses.

Integrated planning may work more effectively as a planner for potentiality, creating streets and places that can absorb new patterns of movement and land use through things such as network resilience and more neutral land uses. For example many issues with housing delivery in the UK have arisen due to the distribution of housing and types of housing, rather than the total housing stock.

There are dangers of over prescribing in planning or 'brittle cities' **(Sennett, 2006)** that work on closed systems that can't bear new realities. Shoreditch is a prominent example of an unplanned growth and change in land use. The houses and industrial buildings were able to be adapted into offices and other new land uses, and the existing transport provision was able to be upgraded and improved through the Overground. Compared to the Olympic Park only a few miles away, where monolithic stadia and broadcast centres have to be expensively converted only years after their construction, around a significant transit hub obscured by a similarly monolithic shopping centre.

The ability to create new or evolving strategic visions using transport and land use are limited by local constraints. For example, elements such as high permeability allow for the permeability to be reduced in the future through small interventions in infrastructure like bollards and hedges; but low permeability will offer little scope for future changes as new roads or demolished buildings would be required to open up new paths.

Integrated Planning Guidelines

There is an opportunity for creating land use and street design guidance and design 'codes' to better complement each other. Things that go beyond common 'PTAL/plot density' type integrations that appear in most UK guidance. Relationships between things such as frontages, road hierarchy, block size and junction types can create new integrations that can be used to create adaptability or objectives. For example, using privacy and sunlight aspect codes for individual buildings that eventually create a series of paths that sometime in the future ends up being used to create a new cycle lane for a new school opening nearby.

Applying to the UK Context

However these approaches need regular and constant evaluation against prevailing objectives and visions, which would require a stable strategy-based funding for an integrated street/land-use planning approach, which does not exist in the UK at the moment. A possible structure could be achieved through merging Highways and non-Development Control Land Use functions into a single Street Planning department that appraises the entire network and invests in highways, public realm and land-use considerations such as high street improvements and other land use investments.

Conclusion

This paper explored the current issues with linking land use and transport planning processes in the UK and finds it is currently not fit to effectively articulate objectives into the unified spatial system of movement and places. At every scale the ability to plan, fund, appraise or implement is mismatched between land use and transport, stifling the concept of integrated development before it can even emerge. The competition for funding does not pit similar tiered cities and regions against each other, meaning larger cities outbid smaller cities, reducing their potential to approach integrated strategies and wider visions, creating issues of regional disparity and exclusion. The process of developing schemes is often back to front, ignoring the full table of options and opportunities that the land use and transport system offer and often retrofitting the benefits to get ideas through the appraisal process. Furthermore the provision of transport is often considered strategically, but the land uses in existing areas that arrange around this cannot be influenced due to the system's emphasis on development control.

There is a need to take a wider perspective of the places and movement that is already happening and taking an active role in the development of this to better achieve objectives. There is a potential in encouraging the existing churn of land use patterns and people to locate in ways that help the achievement of strategic objectives, through more effective price signalling and more targeted subsidy of infrastructure and land use.

Integration through Transit Oriented Development can use the relationship between transport and land use to meet objectives more effectively through reconfiguration of existing land use as well as new development around a strong public transport network. This can be achieved through positive structures of funding and appraisal that recognize the virtuous circle that infrastructure and development can create. This will allow decision makers and communities to approach integrated schemes and strategies with confidence and support, and to choose and appraise schemes on their true merit.

The local level of streets and plots counter intuitively needs the most long term thinking, using codes and guidance to design streets and land uses that complement each other and are more neutral in their designs and uses, creating areas that can react better to any wider shifts in strategy and patterns.

One significant area of further exploration is understanding how to reconcile the strategic interactions and needs between land use and transport with the local interactions and needs; and closed systems of investment with more open ended, visionary and resilient physical outcomes.

Ultimately the physical and spatial configurations of places and the movement between them are important, costly to change and persisting. These patterns need to be balanced as much as possible before other considerations and realities are applied; this creates a fundamentally well-functioning spatial system where more fluid objectives such as the social or economic can better be achieved.

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Transport for London
Roads Task Force Executive Summary

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