

Transport Planning Society

Response to the Department of Housing, Planning, Community and Local Government on Ireland 2040, the National Planning Framework



About the Transport Planning Society

The Transport Planning Society (TPS) is an independent institutional body in Ireland and the UK which was established to facilitate, develop and promote best practice in transport planning. The Society provides a focus for dialogue between practitioners and others interested in the field. The Society, which has over 1,200 members in the UK, launched in Ireland in 2016 and now has almost 50 members here with an active professional development programme. Many of our members are active in national planning policy.

The TPS administers its own Professional Development Scheme for transport planners, leading to award of the Transport Planning Professional (TPP) qualification which is the only professional qualification uniquely aimed at transport planners.

This submission on the National Planning Framework (NPF) has been drafted by the Committee of the Transport Planning Society in Ireland which is composed of transport planners from both the public and private sectors. The Committee is in constant dialogue with other members of the Society and the views expressed here may be taken as representative of those held generally by our membership.

Introduction

The Transport Planning Society (TPS) welcomes this opportunity to get involved at this early stage in development of the National Planning Framework (NPF). We have reviewed the *Issues and Choices Report* and appreciate its broad scope and ambition. While our submission is specifically focused on spatial and transport planning, we would like to draw attention to the following points of more general concern in the first instance:

- Ireland 2040, Our Plan presents the first opportunity in over a decade to reflect on the potential of our country, agree a vision for its development and how this vision can be achieved. The value of this exercise – agreeing a clear and deliverable vision – cannot be underestimated. The Plan will provide a blueprint for future development of our country which needs to be sustainable and serve the best interests of current and future generations. We need to embrace this opportunity to ensure the NPF is robust, inclusive, ambitious and deliverable.
- On the basis of this unique opportunity, the TPS suggests that ambiguity needs to be avoided, especially in relation to spatial planning and infrastructure proposals. A coherent and deliverable Plan will ensure we can move closer to implementing our vision for the future. We suggest that the Plan is supported by a well-informed timeframe for delivery, an Action Plan, that will guide delivery not just for the current Government, but also for many more to come.
- The impact of political interference in agreeing both the scope of the plan and its delivery needs to be limited to ensure it remains focused on the long term Vision rather than short term gains.
- Encouragingly, the NPF documents presented to date do present a cross-sectoral approach to policy which needs to be sustained through to delivery. None of the key Government sectors can be viewed in isolation as each will provide input to resolving some of the key issues the country is facing. For example, transport outcomes are potentially at the core of many Government departments, especially Health, Education and Planning. The approach to plan delivery should therefore cross the boundaries of ‘internal structures’ seamlessly and efficiently.
- The NPF should be supported by a clear evaluation framework which can be monitored regularly to ensure delivery is within scope and contributing to the vision and objectives defined for the Plan.

Transport Principles for 2040

The TPS has proposed nine principles which should guide development and delivery of the NPF. The principles are focused primarily on our transport networks and integration with land use.

Spatial planning needs to reduce the need for travel, especially by car

Transport is not an end in itself but a means to an end which is largely dependent on the patterns of spatial development we allow to materialize. Patterns of spatial development in Ireland over the past twenty years have not always been conducive to the promotion of sustainable means of travel – and it shouldn't be allowed to continue.

Whilst population growth over the last two decades has been primarily focussed on Dublin and the regional cities, growth has mainly occurred in low density suburban developments on the edge of cities or in rural settlements. This settlement pattern has led to an over reliance in the use of the private car due to limited available travel choices in low density areas. At a national level, this pattern of development has resulted in key strategic corridors becoming heavily congested, adversely impacting on the economy and environment. At the community level, unsustainable spatial patterns have led to the erosion of the countryside and deterioration in quality of life as people spend more time commuting and less time with their families and in the community.

Only through more sustainable spatial patterns can we reduce the need to travel and increase opportunities for short trips which can be taken on foot, bike or public transport – and thereby reducing the need to drive.

TPS makes the following spatial planning recommendations to improve transport sustainability:

- **Strengthen our urban centres:** Larger settlements (minimum 20,000 population) in Ireland provide a good mix of employment, shops and specialised services. As such, there is greater likelihood of residents finding jobs, utilising facilities and of services being able to draw their employees and customers locally. This contributes to greater 'self-containment', reduces average trip lengths and reduces the need for inter-urban travel. TPS recommends that focus should be on consolidating our existing urban centres through brown field development, increasing density and halting urban sprawl to encourage more sustainable travel patterns. Furthermore, we recommend that city and county development plans needs to draw and adhere to realistic urban boundaries which protect our green belt against further erosion.
- **Halt Ribbon Development:** Ribbon development in rural areas needs to be avoided because the patterns of travel demand associated with this development is very unsustainable. The impact of this can be seen in our regional cities where the catchment areas for employment trips in both Cork and Galway, for example, are so dispersed

across a significant rural area that responding with a feasible public transport offer would be impossible. The resulting car based travel demand exacerbates issues of urban congestion. TPS recommends that planning permission in rural areas needs to become more closely linked to local industries such as farming.

- **Increase urban density:** Raising the density of development, particularly around public transport nodes, can also help achieve more sustainable travel patterns. There is scope for this especially in Dublin and regional cities and along intercity rail corridors. This provides greater scope for viable and attractive public transport services, and reduced car use in terms of both mode share and distance travelled. While TPS do not believe it would be appropriate to introduce a minimum density requirement in national policy as it is important for density ranges to be decided locally to be aimed at local needs. However, some guidance on good practice and appropriate applications would be helpful, as well as typical barriers and how to overcome them.
- **Actively encourage more mixed use development:** An over-concentration on housing can ignore the need for other land uses and place making. Future growth areas should be developed in tandem with the delivery of schools and other services to shorten average trip lengths and thereby maximise the use of more sustainable modes of transport such as walking and cycling. Guidance on the mix of land uses required to support a vibrant local community and minimise the need for travel would be useful.
- **Significantly improve the strategic public transport network:** To reduce the growth in medium-and longer-distance car-based travel generated between settlements, the efficiency and reliability of the existing public transport network (rail and bus) needs to be improved. This is best integrated with the existing and planned development pattern, resulting in the support of public transport and discouragement of the use of the strategic highway network.

Work across government sectors to reduce peak hour traffic nationally

Peak hour traffic is a phenomenon not just in Ireland but across the world which is driven largely by the time constraints we place on our workplaces, schools and services. Through cross government working, TPS believes that the issues of peak our traffic can be tackled in a reasonable way which does not impact on the economy or lifestyles.

In the context of significantly improved public transport, walking and cycling networks, TPS recommends that the following steps are taken to reduce peak hour traffic:

- Parking needs to be used more as a tool to manage travel demand and is currently under-utilised as a strategy tool to encourage modal shift, reduce congestion and its impact. Controlling parking through the restriction of spaces, timing and pricing typically complements a variety of measures designed to promote the use of non-car alternatives, and it can be linked to giving priority to low-emission vehicles. TPS recommends that

parking standards are reviewed, especially in city and town centres nationally, with a view to realistically challenging car use in the peak hour.

- Explore the potential of road tolling in urban areas with the revenues from any schemes being channelled towards delivery of improved place making, public transport, walking and cycling networks.
- Ensure that Travel Demand Management (TDM) becomes a core component of all local authority transport departments, especially in urban areas with a focus on soft (promotional campaigns, travel planning) as well as hard measures (tolls and infrastructure) to encourage modal shift.
- School travel contributes significantly to peak hour travel demand. There is potential to reduce this through the following measures:
 - Revising school start and finish times.
 - Reducing requirements for heavy books which act as a deterrent to walking and cycling modes for the school trip.
 - Improving walking and cycling infrastructure on routes to schools.
 - Sustaining current support for An Taisce (or similar) school travel planning but engage more actively with parents.
- Encourage workplaces nationally to introduce and promote flexible working practices to assist in spreading peak hour travel demand or reducing the need to travel altogether.
- Introduce Remote Working Centres in suburban towns to reduce the need for longer distance travel to work at least one day per week where possible. Similar facilities in the Netherlands and Singapore provide a good example.
- The public sector needs to lead the way in exemplifying sustainable travel in the workplace by controlling parking provision, promoting flexible working practices (where possible) and encouraging sustainable travel.

Ensure new developments make a clear and enforceable commitment to sustainable travel

The main opportunity to influence the travel demand impact of new development is through the planning process. TPS believes that development plans should require developments to reduce CO₂ per capita and vehkm travelled through the consolidation of development following transit oriented development patterns. In fact we believe that only developments which demonstrate these targets can be achieved should be zoned for development

Additionally, TPS believes that at present local authorities have insufficient 'levers' to ensure that large developments, once complete, will achieve the modal share target commitments made during the planning process. While Traffic and Transport Assessments do provide a holistic impression of how travel patterns at new developments are likely to materialise, this

is not monitored after developments are occupied. On this basis, the potential for new developments to become overly dependent on car use, especially where parking charges are not in place, is high.

TPS proposes that:

- Local authorities, especially in urban areas, commit transport planning resources to the review of mobility management plans for ‘large developments’.
- The status of Mobility Management Plans as part of the planning process needs to be reviewed as well as their function in the years post occupation of new and expanded development.
- The permissible standard and content of Mobility Management Plans should be reviewed with guidance provided at a national level.
- Monitoring of Mobility Management Plans should be reviewed to ensure that local authorities have some means of introducing ‘penalties’ where commitments made towards sustainable transport are not delivered.
- Mobility management practices should be extended to all new residential areas.

Actively support infrastructure to support non-motorised travel

Non-motorised transport can be hugely attractive for transport for shorter distances, which make up the largest share of trips in our towns and cities. In Ireland, we have made significant progress in recent years in improving infrastructure for pedestrians and cyclists and this needs to continue. We believe that in urban centres, non-motorised transport should be placed at the top of the priority list for investment rather than being perceived as an add-on to highway investment.

In addition to focusing on more sustainable land use patterns, we believe that the following initiatives should be implemented to encourage walking and cycling:

- Delivery of seamlessly integrated walking and cycling networks in every town and city in Ireland.
- Full build out of the national cycle network which would support international tourism as well as more active commuting and leisure trips.
- Funding for the development of cycle networks needs to be significantly increased.
- All major urban local authorities need to designate an officer specifically to oversee walking and cycling policy and investment.

- Bike sharing needs to be integrated as a seamless part of our transport network in all cities and large towns.
- Active promotion of walking and cycling for commuting and leisure as part of a national health campaign.
- Continue to support tax incentives which encourage cycling such as the Bike to Work Scheme.

Preserve high frequency intercity rail services

The TPS believes that improvements in inter-city bus and rail services is hugely important in improving transport sustainability nationally. High quality, high speed and high frequency inter-city rail services, connected with appropriate bus services are essential to delivering a sustainable transport network.

Over the past twenty years significant progress has been made in developing our national motorway network. However the resulting networks now compete strongly with our intercity public transport offer both in terms of travel time and price. The improved inter-urban linkages provided by our improved national road network have led to the phenomenon of ‘induced demand’ on our national roads, with new traffic diverting onto the road network and competing with public transport.

The transport sector already contributes to approximately 20% of our national emissions profile and as our economy continues to improve and more traffic utilises our road network this contribution to our national emissions profile will only continue to rise.

To reverse this trend public transport must contribute much more significantly to the total national transport mileage. In turn, a transition to clean energy sources for public transport services must be made as soon as possible.

As Ireland has emerged from the recent recession commercial investment has been focused on our larger city regions. High quality inter-city access and international connectivity have assisted in securing this investment. The existing rail network, has in part contributed toward this investment, however further investment in our rail network is essential.

The TPS would like to see action taken to support:

- Reduced intercity travel times by train.
- Better PT connectivity to PT hubs.
- Increased bike storage on trains.
- Reduce rail fares to improve competition with private car transport.
- More express services especially to our key cities.

- Service provision that ensures all main cities can be accessed for start of business hours.

Significantly expand public transport networks, especially in Dublin and regional cities

In order to provide sustainable and healthy living options for our citizens we need to encourage the use of existing public transport systems and work to significantly expand the current offer.

The TPS makes the following recommendations:

- The existing pricing structure of fares should be revised to allow for a payment system based on our origin and destination allowing use of our combined public transport system, inclusive of bus, light rail, heavy rail, bikes and possibly shared mobility in the future.
- In Dublin, it is imperative that we build on our existing assets and invest in our bus, light rail and heavy rail networks together with new systems such as bus rapid transit to establish a far reaching, connected and reliable transport network. TPS supports accelerated delivery of the following schemes in the Dublin area:
 - Metro North serving the City Centre, Airport and Swords.
 - Metro South as a future extension.
 - DART Underground.
 - Bus Rapid Transit network across the city.
 - More orbital public transport services.
 - Revised and more efficient bus network.
- Public transport investment in regional cities is also critical to reducing existing congestion and delays, especially in Cork, Galway and Limerick. Bus, light rail or bus rapid transit schemes, as appropriate, need to be advanced in these cities in addition to a full review of the efficiency of the existing bus network.
- In addition to public transport infrastructure investment, there is a need to review the ‘last mile’ connection from public transport hubs.

TPS also supported continued support for demand responsive services in rural areas and for vulnerable groups.

Complete the network of intercity motorway corridors to drive economic growth and improve safety

Connectivity is crucial to attracting and sustaining investment in the cities and regions. In the last decade, the delivery of the inter-urban network linking Dublin to the regional centres of

Waterford, Cork, Limerick and Galway has improved economic activity both regionally and internationally. By bringing geographic areas closer together through accessibility enhancements, it lowers transport costs and increases competition in the economy. It has also helped to substantially reduce the number of accidents and fatalities on the network through the provision of safer designed roads which enable reduced travel times.

The economic productivity of all regions has increased over the past 15 years, however the Eastern region has benefited the most with improved road network connectivity playing a significant role in this growth. Whilst cities along the western and northern regions have developed strong economic ties, the existing roads linking these regions operate at capacity and pose safety concerns. These issues inevitably lead to increased congestion, longer journey times, higher costs and suppressed economic activity. These constraints are hampering the development of these regions and this is likely to accelerate in the future as economic and population growth returns.

The completion of the motorway network linking the regional cities will not only support the economic growth and social activity of these areas, but the country as a whole.

Whilst completion of the motorway network will stimulate further growth in the economy, it is essential that it is supported by appropriate planning policy and demand management measures which reduce the reliance on private car travel. This will help protect the capacity of the network, safeguard the substantial investment in public transport and aligns with the requirements of a low carbon resilient economy.

Embrace the potential of technology to reduce dependency on car use with a shift to shared mobility

The way in which transport services are offered will change significantly over the coming years with the potential for a single digital phone app to consolidate all mobility services. Mobility As A Service (MAAS) is already well advanced in the US and Northern Europe. The TPS recommends that the NPF enables a way forward so that the next generation of mobility services can also be offered in Ireland.

In addition to digital enhancements in transport, the types of services and vehicles used to operate them will change. Ongoing advances in vehicle technology in terms of semi and fully autonomous vehicles will change the types of services on offer with more opportunity for shared and door-to-door mobility.

The TPS anticipates that the NPF will take the first stages in developing a roadmap to a scenario which allows such advances in technology to assist in providing alternatives to private car use and a subsequent shift to shared mobility.

The TPS recommends that the NPF supports the following:

- Accelerating the roll out of high speed broadband nationally to ensure all communities have the potential to access to MAAS digitally.

- Legislative changes required to support shared mobility across Ireland as well as a scenario where all public transport providers can work under a common digital mobility service platform.
- Introduction of innovative mobility services to the Irish market including automated public car sharing and pooling schemes.
- Improved incentivisation of non-fuel fuel vehicles such as electric cars.

Improve sustainability of freight movement nationally

Timely and effective delivery of goods throughout the country will remain critical to supporting future development in Ireland. While it is important to ensure the freight industry maintains its quality of service, it is also equally important to ensure that the negative implications of freight movement on communities and environment is minimised. This impact includes noise and air pollution, disturbance of the urban realm and sometimes conflict with other road and street users. To facilitate plans for more sustainable, accessible and healthier places, the NPF should encourage cities and towns to introduce the following freight management proposals:

- Road freight movements should be optimised to minimise the impact on residential areas and environment. Every city, town and settlement should aim to have a dedicated Freight Movement Plan /Strategy outlining routes which can and cannot be used for freight access. Where possible, freight traffic should avoid entering dense residential areas and instead use dedicated bypass routes.
- Where it is not possible to divert freight traffic from residential urban areas, the negative impacts of road freight traffic movements need to be mitigated. Measures should be put in place to exclude and minimise potential conflicts to enhance safety, such as limiting the tonnage and size of vehicles allowed, restricting freight movements only to specific days and times, introducing speed limits and other traffic calming measures in areas of potential conflicts with other users.
- Freight consolidation centres should be encouraged and developed in areas accessible to the National Road network to minimise vehicle movements and reduce the number of large vehicles entering towns and city centres.
- Freight distribution should be optimised with the use of new technologies to identify and optimise freight capacity. The use of smart logistics platforms should be encouraged.
- New and more sustainable opportunities for freight movement nationally should be revisited including rail and sea transport, especially where there are cost savings.

- The use of green and bio fuels for the movement of freight needs to be prioritised. A shift to the use of electric vehicles for freight movement needs to be actively encouraged.
- The potential of autonomous vehicles for the movement of freight should be investigated. Automation could bring significant efficiencies in the distribution of goods with longer travel times and distances, which ultimately could decrease total transportation costs and bring goods to more remote areas.

Specific Feedback on the Issues and Choices Report

This section provides a high level response to some of the ‘Key Questions’ outlined in the Issues and Choices Report.

SECTION 3

- **Are we prepared to make changes now so that a ‘healthier places’ legacy can be handed over to the next generation of Ireland’s citizens?**

Yes. The need to change is recognised and supported by the public, by evidence and is required to meet our legal and policy obligations.

- **What policies can the NPF include to effect improvements to our general health, including physical and mental wellbeing, in Ireland over the next twenty years?**

We require policies that consolidate land uses and are designed to ensure access to services etc. by walking and cycling. Policy should prescribe wider social infrastructure and should require that CO₂, Kms and cost of travel per capita are reduced by developments. This will require the application of minimum density guidance etc.

- **Are there key priorities the NPF can identify to ensure better or improved health and wellbeing of people and places in Ireland?**

Consolidated development with integrated services provision, e.g. schools, shops health centres, parks etc., delivered in tandem with development located within walking distance. The current SDZs provide a good start for this. Emissions must be at the centre of planning for good health, i.e. design to reduce emission through reduced need for motorised travel.

- **Are there facilities that the NPF needs to highlight for places in Ireland in order to enable greater participation in a healthy lifestyle?**

High quality infrastructure for walking and cycling linked to the mandatory delivery of services with-in those catchments. This will require minimum densities to be specified

SECTION 4.1

- **Taking on board all of the relevant environmental and physical capacity issues, what role should our cities have as part of the NPF?**

The TPS views cities as being central to the delivery of future growth because new settlements, unless they are to have very large populations and be built at much higher densities than traditional new towns, are likely to depend on unsustainable transport modes. The only circumstances in which new settlements can be built sustainably is when they are more or less within the footprint of – or contiguous to - larger conurbations and principally use brownfield land. Even then they require good connectivity by sustainable transport and comprehensive place making, with a range of land uses, not just housing. Simply building them around a railway station would still mean residents make the majority of their journeys by private car.

- **How might we develop one or more strong regional complements to Dublin that can address their whole city-region, including interactions between settlements?**

Management of the employment market will be key to this. Dublin is ‘over-heated’ because the majority of employment opportunities are there. This draws people from other regional cities and rural areas, despite their desire to live and work in their place of origin. Attracting large employers to Cork, Galway and Limerick will be critical to rebalancing population.

- **Do we need to reform and strengthen administrative and governance structures so that they are capable of delivering the necessary alliances, collaboration and actions to build up our cities and their regions?**

Absolutely, we need to move to a planned collaborative approach. Government and associated authorities must determine and support the required outcomes.

- **How might we develop an urban policy that distinguishes between development within the existing built-up area of cities and towns and greenfield development sites?**

Our submission sets out a number of recommendations in this regard. In general, the TPS rejects the use of greenfield development as it causes loss of countryside together with its tangible and intangible benefits and is likely to depend on unsustainable transport modes. The degree of intrusion caused by greenfield development is mitigated to some small extent in urban extensions by the fact it will adjoin existing development on one or more sides. International examples of clear, defined and protected greenbelts need to be adhered to. High density urban living needs to be more attractive with the support of minimum dwelling sizes and building standards.

- **What measures could be used to examine potential densification scenarios that may be applied to parts of existing urban areas?**

- Improving the standard of housing stock, particularly sizes, which would encourage people to live in high density accommodation for longer and to appeal to a wider market
- Improve accessibility to existing and planned services (delivered in tandem)
- Improve public realm through the ‘Healthy Cities’ approach
- Continue to support Arts and Cultural events
- Tackle inner city crime and drugs issues
- Tax incentives

SECTION 4.3

- **How can the NPF capture (in a national, strategic policy context) the range and quality of resources that exist in rural areas that could be leveraged to support national economic growth, climate action objectives and the development of local communities?**

Consolidation and densification of existing settlements will strengthen rural communities by supporting social facilities within walking catchments.

- **What are the solutions to maintaining population in those rural areas where decline has been experienced? What role should towns and villages in rural areas play in catering for Ireland’s future growth?**

The consolidation of towns and villages will better support these areas than the business as usual approach that of sprawl and one off housing by bringing sufficient people (customers) within in the walking catchment of social infrastructure. This will reduce the likely hood in people seeking services further away by car. This will require policies to move away from providing locations that are car first and that compete against existing down centres. Again strong plan lead development is required.

- **What measures need to be in place to allow those who have a genuine need to live in the countryside to be accommodated?**

The measures outlined above will drive the consolidation of development in all areas of Ireland. This will directly support those who must live in rural areas e.g. farmers by adding to the viability of “urban” services adjacent to them. The types of development that we are proposing will further shift people to the sustainable modes and thus will improve viability of PT in rural areas.

SECTION 5

- **How can the NPF help to ensure we get a sustainable balance between catering for a growing population and avoiding or addressing environmental pressures?**

This can only be achieved by directly requiring each development to meet and exceed environmental target. It should be a requirement that developments demonstrate full live emissions reductions per capita. This should be mandatory at a plan level too. Sites that are like to result in high emissions per capita should be excluded. There and plenty of site that can achieve this in the fashion we have outlined above.

- **How do we plan for growth in such a way that supports a transition to a low carbon and climate resilient economy and what planning policy measures are needed to achieve this?**

This can only be achieved through a shift to the type of consolidation that we have outlined above.

SECTION 6

What are the nationally important infrastructure projects for Ireland that require delivery over the next twenty years?

Transport: Focus on PT, Walking and cycling with in the main cities. – Funding and roll out of city cycle networks in Dublin, Cork, Waterford, Limerick and Galway which support carbon, health and accessibility goals. PT projects include Dart expansion, CBC and BRT in Dublin and quality bus in other cities in support of consolidation, health, environmental goals.

- **What do we need to do to make best use of existing infrastructure?**

Focus development on locations where high capacity modes exist e.g. along pt. corridors where densities support walking and cycling. Avoid sprawl which will consume road capacity by increasing per capita kilometres travelled walk and cycling catchments

- **How can we ensure that the provision of infrastructure can be planned to match future demand and how can the NPF reflect this?**

Through the appropriate use of phasing, i.e. the linking of development and infrastructure including social etc. development must be delivered in a holistic fashion i.e. housing with schools and shops etc.

- **How can capital spending on new infrastructure be sequenced in a way that is affordable and equitable, while taking account of Ireland's Climate Change obligations?**

This can only be achieved if the cost of provision is part of the planning process. Too often plans exist that require massive unfunded and uncoded infrastructure investments. This should not be permitted.

- **How do we ensure that existing and new development can be supported by the timely provision of social infrastructure?**

This must be mandated as part of future development. National guidance should require this and it must be tied together as part of Phasing. SDZ have shown that this can be achieved.

SECTION 7

- **When it comes to implementation and monitoring of the NPF, are there common goals that can be identified and apply to every place?**

Yes there are many goals that should be consistently applied. These include the requirement to reduce emissions, minimum densities, the requirement for services to be within walking and cycling distance, restrictions on greenfield development. In general any plans must comply with national policy too often there in scope at a local level to break from national goals.

- **What barriers exist to implementation?**

There is a lack of consistency across authorities and a level of competition between authorities that delivers suboptimal results. The national plan must direct the lower tiers and prescribe locations and outcomes. Lower level authorities must be constrained to act within the boundaries set down at a national level.

- **How best can sustainable planning outcomes be recognised and rewarded?**

Planning process should reward schemes that deliver sustainable outcomes through rapid planning e.g. SDZ, and additional funding to deliver social infrastructure and other.

Additionally, the full cost of developments impact on infrastructure must be accounted for in the planning process. This would favour schemes that make use of existing infrastructure and that reduce the need to travel.

- **What the key indicators for measuring the successful implementation of the NPF?**
 - Accessibility to services by walking and cycling
 - CO2 per capita as well as other emission
 - Level of walking and cycling
 - Capacity of sustainable modes to absorb new demand
 - Kilometres travelled per capita
 - Travel cost as a portion of income
 - Health outcomes