

"Planners are from Venus, transport engineers are from Mars. How can we get them to work together on earth?"

Planners ask 'what' should we do. Engineers ask 'how'. Fundamentally the two often consider their positions to be independent, but they are of course intrinsically linked. You cannot decide to undertake a course of action without knowing whether or not it's likely to be feasible and physically possible. Similarly there is little point embarking on a project without understanding its purpose.

In this paper I will start with an analysis of the title statement regarding the two groups. I will then outline my own career experience which has spanned both areas and show why it is essential for both groups to work together, concentrating in particular on the area of urban traffic management schemes. I will talk about the problems that are caused when they don't work together and finally outline my solutions to enable us to all live happily ever after!

Venus and Mars?

How true is the opening statement? To look at this we need to understand the academic backgrounds of the two. Engineers generally come from civil engineering degrees and this develops a practical and analytical mindset to focus on the way things work and methodical solutions to problems. Planners come from a variety of backgrounds but one of the most common is a geography, economics or town planning degree. Many then go on to undertake a Masters degree in transport planning. In contrast therefore, planners generally have a more subjective academic background which encourages them to think in terms of the wider purpose and functions of systems. The varying academic backgrounds means graduates have been trained to think in different ways and this forms different mindsets. This underlines the difference between engineers and planners and is reflected in their approach to projects as we will see later in this paper.

In addition, engineers and planners often have a lack of common transport grounding from their first degrees and this can exacerbate the difference between them when they work together. For instance for engineers the only experience they will have in traffic engineering will have been one or two units within their degree course and often these are elective, so in some cases they will have none.

However despite these differences, many, especially older planners, have come from an engineering background. Indeed this quote from the website of the Chartered Institute of Transport and Logistics is quite interesting: "Transport Planning is not just for Engineers". This stems from the fact that transport planning is a relatively new area. Indeed the Transport Planning Society was only set up in 1997. In some countries, the transport planning is done exclusively by engineers. So for those planners who have come from engineering, the opening

statement of this paper would not be true. However, for the majority today, it's fair to say it is.

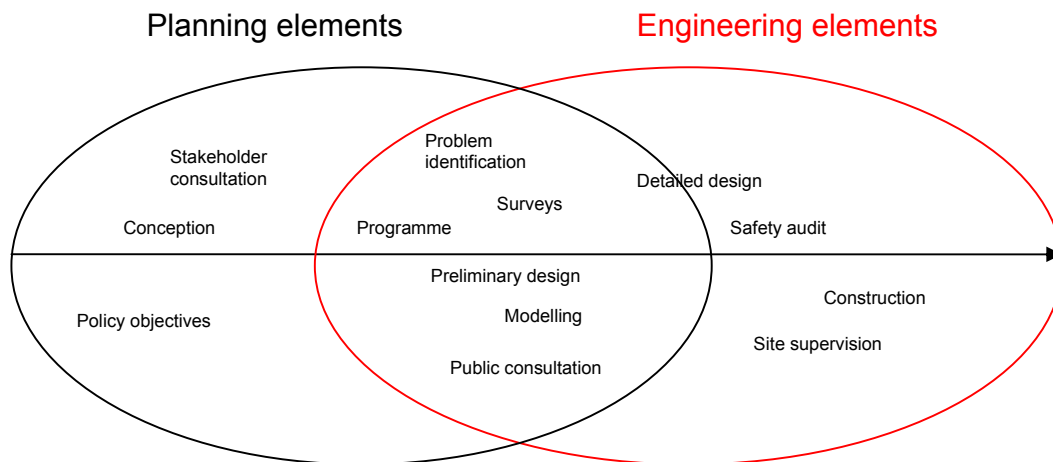
My Experience

My own background has given me a good insight into the way transport planners and engineers work together. My first degree was in Physics and I then undertook a Masters in Transport Planning and Management. However the first five years of my career were spent working in traffic engineering in a consultancy. Predominately this involved undertaking feasibility studies for urban traffic management schemes from conception to detailed design, including traffic modelling. I then spent two years as a transport planner in the Strategy directorate at Transport for London (TfL) before recently moving to work as a traffic engineer within TfL. I found myself in quite a rare position as whilst it is common to find people from an engineering background working in transport planning, the reverse is quite rare.

Urban Traffic Management


Urban traffic management schemes which involve changes to existing layouts are a very common area of work for consultancies and local authorities today. Figure 1 below shows some of the elements comprised in such a project. From the conception stage the work is very much transport planning orientated. Understanding the wider purpose of the highway network, objectives, political and local considerations. In designing solutions to problems the work then moves onto engineering. The functional areas overlap and there is no one cut off point where it stops being planning and becomes engineering. Most elements require knowledge of both areas. As there is no clear point in which a planner could simply hand over to an engineer, a successful project requires either of two things; someone who has knowledge of both areas, or a planner and engineer both working on the project together.

Figure 1 Elements comprising a typical urban traffic management project



There are increasing numbers of people like myself, whose work covers both fields and this reflected in many job adverts, a selection of which are shown in Figure 2. Although the first two adverts next to each other require similar skills the first asks for a 'transport planner' and the second a 'traffic engineer'. The third combines the two to ask for a 'traffic planner'. Really these are just names, it's the nature of the work and the mindset which is important. Increasingly companies and authorities are requiring people to have knowledge of both planning and engineering, in recognition that one cannot exist without the other. In my own career, my own job title has switched from planner to engineer regularly. "What are you?" ask many people. There is no catchy one word title to describe this line of work. Planner/Engineer is probably the most common description. However there is a certain stigma attached to having knowledge of both areas as people don't want to be known as a 'jack of all trades, master of none'. This is quite unfair given that this type of work can be considered a profession in itself, especially judging by the number of companies and authorities requiring people with these skills.

Figure 2 Job Adverts

<p>TRANSPORT PLANNER Cleveland - £22-25,000 p.a. + benefits</p> <p>Respected, multi-disciplinary consultancy seek enthusiastic and motivated Transport Planner with related engineering degree and two years relevant experience. Competency in packages such as TRICS, PICADY, ARCADY, TRANSYT, PARAMICS and / or VISSIM necessary. Diverse and interesting workload to include green travel plans, accident studies and traffic calming. See PJP6529 on our website for more details.</p> <p>SENIOR TRAFFIC ENGINEER Scotland - to £30,000 p.a. + benefits</p> <p>A major consultancy offers a first-class career opportunity for a Traffic Engineer to manage projects. Educated to degree level and with a minimum of five years broad traffic engineering experience, you will have a good working knowledge of TRANSYT, LINSIG and/or ARCADY and have solid staff and project management skills. Microsimulation software experience advantageous. See PJP6467 on our website now</p>	<p>Senior Traffic Planner £37,888 - £43,060 p.a. inc.</p> <p>Join the cutting edge of urban transport policy and practice. Twice winners of the London Transport Borough of the Year, a Council with an "Excellent" CPA category, Camden has made a name nationally as innovators in the field. With major capital investment - the largest capital settlement of any borough for the last three years, and using significant borough resources - we are making these innovations a reality on the borough's streets.</p> <p>The Street Policy Team is responsible for developing strategies and programmes to deliver the Council's transport policies, and for obtaining funding to deliver them. We are looking for someone who would relish the chance to help us continue to ensure that Camden's streets are the safest, best maintained and most attractive in the Country.</p> <p>The Team prepares the Council's Local Implementation Plan, the annual funding bids and supporting documents, the Walking Plan, Cycling Plan and Road Safety Plan, and develops innovative policy and turns this into effective capital programmes. These have delivered a 25% reduction in motor traffic over ten years, and we have achieved the national casualty reduction targets a full six years early. From the macro level of strategy to the micro level of the Streetscape Design Manual that sets the borough's high design standards; linking parking controls, traffic and environmental schemes into the wider social and economic policies of a Council with a very varied borough, the Team is an integral part of London's best transport authority.</p> <p>You will be working on a wide range of topics and will need effective communication skills, be conversant with relevant legislation and regulations, as well as the latest techniques and ideas. Your role will require you to represent the Council's policies to the public, carry out public consultations, develop effective and innovative schemes and prepare bids. You will be responsible for the day-to-day supervision of one or more junior staff. A relevant engineering or similar qualification will be expected, and at least two years' experience in traffic, transport or highways related work.</p> <p>Camden Council values the diversity of its community and aims to have a workforce that reflects this. We therefore encourage applications from all sections of the community.</p> <p>For further information and to download a job application form, please visit www.camden.gov.uk/jobs Alternatively, call us on 020 7974 5892.</p> <p>Please quote job ref: IRC308. Closing date: 19 April 2006.</p> 
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Problems I Have Observed

Projects led by planners

While I have been able to undertake most urban traffic management projects myself, I have watched projects start to be undertaken by a planner, then get

transferred to an engineer at design stage. This is where problems often occurred. While planners will have the schemes wider purpose at heart, a lack of understand of the physical engineering concepts often resulted in projects stalling. For instance one scheme was looking at a bus pre signal. Having undertaken the initial analysis, consultations, project planning and commissioned traffic counts and other information, it was then handed to an engineer for design. He quickly established that site restraints regarding traffic islands, widths and signals meant a pre signal could not be provided in this location. So effectively the work by the transport planner was a waste of time.

Another example was the Elephant and Castle regeneration project. The project was led by planners who had visions of creating a more pedestrian friendly environment, removing the dominance of traffic. Perfectly laudable objectives. However their way of achieving this was by removing the roundabout and rerouting the inner ring road and providing us as engineers with a base plan of how they wanted the road and area to look. We were then brought in halfway through the project and tasked with making a planners dream come true.



Elephant and Castle

Convenient pedestrian facilities are easier to provide with one way traffic as they allow signalised 'walk with traffic' straight crossings over smaller road widths which can be called more frequently. Their proposed two way system would need double the road widths of the roundabout to maintain capacity and bus priority. This would result in longer crossings and increased delays for pedestrians due to the introduction of 'all red' traffic stages. Removing capacity would result in massively increased congestion and pollution, which of course is no good for pedestrians. Compromises were possible but clearly the planners needed to work closer with the engineers from the beginning to achieve their objectives.

It's particularly important for planners to understand some engineering as their involvement in a project (usually) comes first. Planners don't need to know *what* the regulations are, just where to find them or at the very least, that they exist. A planner with ideas of introducing for instance a new method of traffic control, needs to know that there are detailed considerations to be made with regard to the sitting of traffic signals, ducting, etc as well as traffic modelling. Whilst it is not necessary for the planner to have a detailed knowledge of the ins and outs of signal design standards, knowledge of their existence would help to avoid mistakes. It would allow them to bring an engineer into the discussion at an appropriate stage before getting too far down the garden path.

Projects led by engineers

While projects led by planners often tend to overlook practical aspects in favour of policy aspirations, conversely those led by engineers often do the opposite. There is a tendency for some engineers to concentrate on the link function and blindly apply every possible safety and capacity feature without thinking about the impact on the place function of an area, urban design, street clutter or the wider issues of whether or not these measures are really necessary or effective.

The photos below show two examples of what I think are good and badly designed areas in London. Whilst traditional engineering would say that guardrailing, bollards and other forms of segregation improve safety, the Kensington High Street scheme has shown that removing these may actually have reduced accidents. Pedestrian amenity was also improved without having to reduce traffic capacity. In contrast the area around Centrepont at St Giles Circus takes the opposite approach. The clutter of guardrails does not stop people doing what they want to do. All over the UK examples of ugly, 'over engineered' high streets can be found where often little thought has been given to the place function of the area as opposed to link functions.



Kensington High Street



St Giles Circus

Having designed pedestrian crossings myself, the engineers I was working with had led me to believe that it was law for staggered crossings to have guardrail when in fact it isn't. Any attempts to 'think outside the box' and design differently to established regulations/guidelines (or perceived regulations) were always dismissed. It's worth noting that Kensington High Street was a planning led project and political intervention was necessary to get engineers to agree to the new design.

My experience of engineers is also that a lack of transport planning knowledge will sometimes result in them designing schemes that they *think* are in tune with transport policy objectives. Whilst there is a stereotype that engineers care only for traffic capacity, I have found this not to be true with many having swung to the other extreme. For instance the push to get more people on buses and provide bus priority. I have worked with engineers who are of the opinion that it is

perfectly ok to 'screw' general traffic in order to meet this objective. However, looking at the wider purpose, why do we want more people on buses? It's not an objective in itself, it's a means to an end, that end being reduced numbers of cars and therefore reduced congestion and pollution. If we then design schemes which increase congestion and pollution, surely we are defeating our original objectives? Congestion also causes delays to businesses, especially freight deliveries which are all too often forgotten. One engineer even told me he thought creating more congestion was a good idea to discourage people from driving! No thought given to the impact on freight, or the fact that congested traffic causes more pollution than free flowing traffic. However, this is also a criticism that could be levelled at some transport planners.

It is important then that planners work with engineers both to give a different perspective and ensure they design schemes which are in line with overall policy objectives, especially within the context of a changing political environment. However getting engineers to work with planners can be more tricky than vice versa as engineers may perceive that they don't actually need planners to complete a project. As opposed to planners, who will definitely need the assistance of engineers at some point if they are to see their ambitions become reality on the ground.

Working Together on Earth

So how exactly should we get planners and engineers to work together? Should we actually work together more or just become jacks of all trades? The answer is, I believe, a bit of both.

To get planners and engineers to work together requires three main elements:

1. Early involvement in the project by both parties.

By early I mean at the conception and writing of the brief stage. All too often a brief written by planners will result in engineers being led down the garden path from the very beginning. Early working will result in mistakes and unnecessary work being avoided. Had for example engineers been involved in the drafting of the brief for the Elephant and Castle project mentioned above, then less prescriptive design guidelines would have been provided which would've enabled the planners' objectives to be met more easily and faster.

2. No 'handover' from planner to engineer in the project, before the construction stage.

The involvement of a planner is necessary in the project management team up to and including detailed design stage to ensure that the final scheme meets with overall policy objectives.

3. Develop mutual understanding

It's very important to ensure each group has a certain amount of understanding of the other's subject area so they appreciate *why* they need to work together. For instance a planner who is aware of the design considerations for a scheme in future will bring an engineer into the project before it's too late. So how do we get engineers and planners to understand each other? Here are some possible solutions:

- More balance within transport Masters degrees

Given the importance of both planning and engineering in projects, Masters degrees are an ideal opportunity to give people an understanding of both elements. Masters degrees focused on purely planning or engineering may serve to reinforce the one dimensional mindset gained from degree level. Encouraging more engineers to undertake Masters degrees with transport planning elements would also be beneficial (on my course there were no engineers).

- In house courses aimed at established engineers and planners

While some such courses do exist already such as the "Streets for People" urban design training, the emphasis should be on running these such that all staff at a company undertake the training at the same time. Quite often an individual may be sent off on a very useful course which will open their mind up to new ideas and ways of thinking. However upon return to the office they still face barriers from colleagues and managers who have not had the benefit of this knowledge.

- Work Experience in different teams through secondments or structured training.

The TfL graduate scheme is quite a good example of this. Graduates undertake placements for a number of months in a variety of departments, enabling them to get a broad base of experience before applying for a permanent position. This doesn't have to be just for graduates. Secondments can be for all levels of staff as there is always benefit to be had from seeing things from another point of view.

- Cross disciplinary offices of planners and engineers, working alongside each other or at least in the same office.

Teams do not need to be mixed e.g. engineers being led by a planner, as such a person may not command respect. The emphasis should be on proximity of working. The physical separation of teams of planners and engineers through a different building or even different floors creates a physiological 'us and them' feel to work. A more mixed environment creates an opportunity for networking and wider understanding. It's a lot easier to pop over to the desk of someone you

know to ask a question than to request help from someone anonymous in a different building. Such a mixed environment can also reduce the negative 'banter' between engineers and planners which while on the face of it may seem like just a laugh, but often underlies a lack of understanding. At TfL, the Strategy directorate and the engineers in Street Management are in different buildings. My experience of working in both sections is that quite often people are not even aware of what those in the other department do.

- Informal internal workshops and discussion sessions, often over lunchtimes.

These are quite often the only times that some planners and engineers get together and can be an extremely cheap and effective way of promoting debate and mutual understanding. The emphasis here really is on the 'discussion'. Death by powerpoint for an hour tends not to be too popular!

Conclusion

Given the different nature, background and approach of engineers and planners, yet the mixed nature of the transport projects they often work on, it is essential that they work together. Problems such as wasted time and resources and badly designed schemes are the consequences if they don't. Engineers need to work with planners early on, from at least the project brief stage and planners need to carry on their involvement to detailed design and not simply handover to an engineer.

To compliment this, it is important for planners and engineers to enhance their knowledge of the others subject area so they appreciate *why* they need to work together. This is also important as most aspects of for instance an urban traffic management scheme, span both professions so knowledge of purely one area is often not enough. There are a number of techniques ranging from education to simple changes to working environments which can achieve this in the long and short term. The suggestions in this paper could go a long way to avoid unnecessary problems and enable Venusians and Martians to work together happily, on earth!