

**(Un)making space for the car at home**

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## **(Un)Making Space for the Car at Home**

**Nicola Spurling**

What assumptions of (future) daily life – in particular those related to space for private cars – are embedded in local authority visions, strategies and plans and where do they come from? This question forms the focus of this paper which presents archive research about Stevenage New Town between 1945 and 1970. The research has given us insight into some historic mechanisms by which parking spaces, driveways and garages became a normal part of house and neighbourhood plans.

The paper argues that car parking and parking spaces were critical elements of how car use and automobility managed to be what they are today. The paper also argues that car parking provides a means to study infrastructure as part of a living system of practice. On the one hand, car parking space is part of the infrastructure. It represents the planners' best guess of where destinations will be, and forms the nodes of the road network. On the other hand, parked cars are part of a living system of practice. They signify the destinations, the places, of social practices that have in one way or another become dependent upon the car (Shove, Watson et al. 2015). The paper shows that the relationship of planners to this living system of practice changed across the period of study, from *envisioning everyday life and its mobilities*, to *survey and provide* and eventually *predict and provide*.

From this historical work, the question arises of which assumptions exist today, how they are formed, and which futures of automobility they anticipate. The conference talk will address this aspect by reviewing the current publically available 'Stevenage Car Parking Strategy' in light of the historical background given in this paper, and will reflect on how a Stevenage free from private cars might be anticipated.

### **Background**

In 2014 there were 28 million private cars in Great Britain. Given that the current standard size of a residential parking bay is 2.4m\*4.8m (Building Regs Part M), and estimating that every car has a space at its owner's home, that's 336 million meters square<sup>1</sup>. Nearly all the Isle of Wight, or placed in a straight line, a third of the distance to the moon. Parking space is a big topic, yet just 60 years ago it was not part of neighbourhood plans at all. This chapter focusses on residential parking space and explores how it became a normal, legitimate and planned for aspect of our everyday lives.

Accounts of the embedding of automobility into everyday life have almost exclusively focussed on the performance of driving and on cars in motion, privileging the trips, distances and new living arrangements that automobility affords, and the institutions and infrastructures that have made possible the emergence and stabilisation of car-dependent lifestyles (Urry 2004, Geels 2005). This focus on cars in motion is understandable. For issues of sustainability, the action of driving itself has obvious consequences for carbon emissions: car *use* accounted for more than 10% of UK greenhouse gas emissions in 2009 (DfT) and for 13.4% in 2012. Likewise, for those concerned with the phenomenon of (auto) mobility and its impact on societies, it is movement and its transformative effects on the human experience, which is the central concern (Sheller 2003).

This premise of this paper is that we should be equally interested in cars-at-rest (Aldred and Jungnickel 2013). Parking space and car parking helped to make automobility what it is today, and can therefore offer understanding of present patterns of transport demand and car dependence,

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<sup>1</sup> This chapter is concerned with residential parking space, though it is worth pointing out that there are multiple spaces for every car. Estimates range from 2 to 8 Ben-Joseph, E. (2012). Rethinking a Lot. Cambridge, MA; London, England, MIT Press.

and potential future change.

### **Exploring histories of parking space**

The data presented in this chapter was collected in June 2014 and 2015 in the archives of The Stevenage Development Corporation, held in Hertfordshire Archives and Local Studies. Stevenage was the first of fourteen<sup>2</sup> post-war new towns in Britain, established under the 1946 New Towns Act and planned in the late-1940s. These were major new centres of housing and employment outside of major conurbations, in this case outside of London, providing a new way of life to people who had previously lived in slums and bomb-damaged areas. The original small country town of Stevenage (circa 6000) was planned as a new town for 60,000 people with a newly built town centre, industrial area and six neighbourhoods providing homes, schools, community centres and churches.

The activities, plans, and documents of the Stevenage Development Corporation now form a rich and detailed archive. Moreover, the town and how it was lived in became a topic of interest for social scientists and planners during the 1950s and 1960s. That the Town's history is so well documented is one reason why Stevenage was chosen for this study of parking space in residential areas. The second reason is the coincidence of the planning and building of Stevenage (approximately 1945-1970) with the rise of the motorcar in Britain, from 1.7 million private cars in 1945 to approximately ten million private cars in 1970 (DfT 2015).

The materials discussed in this paper include books of house plans (1951-1969), administrative files on car parking and housing areas (1950-1975), Development Corporation Annual Reports (1948-1979), files of the Social Relations Officer (1960-1971), the Car parking and Garaging Committee (1960-1971), several folders of reports and surveys (1946-1971), and the plans and files from Bedwell (1948-1977) the first of the neighbourhoods to be built.

### **Making space for the car in residential neighbourhoods**

#### *Envisioning everyday life and the car 1946-1953*

In the initial phases of the new town, between the late 1940s and 1953 the planners were in an unusual position; they had a large amount of freedom to design an entire town on a green field site. As such they envisioned future ways of life that might 'put right' some of the social problems of the pre-war period, and create a 'land fit for heroes' returning from war (Talking New Towns 2015). This involved the creation of an alternative to overcrowded cities, streets and houses that were seen as unsafe environments for raising children; ensuring that there would no longer be a lack of green space, or problems of air pollution and smog; and, putting an end to long commutes that were viewed as damaging to family life. The envisioned new way of life can therefore be summarised as one of green 'garden' cities and fresh country air in which all families have their own home, a job and time to engage in leisure activities, all of which would be provided for in the town itself. Given the objectives of the new towns, and the post-war era in which they were created, it is perhaps unsurprising that although radical in the sense of being a nationalised effort to create a better life, many aspects of social structure remained unchallenged. Envisioned futures still centred on providing for the nuclear family (Aldridge 1996), on the young and growing family (Ledeboer 1947), and contained implicit assumptions about gender in depictions of family and working life, in particular that the male partner would be employed and earning a family wage (Aldridge,1996:30).

Central for this discussion is the role of transport, and the car, in these envisioned futures. How people would move around was included within the plans from the start. The town was designed with a system of cycleways and pedestrian walkways that were segregated from the roads. This provision was viewed as vital if workers and school children were to experience fresh country air,

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<sup>2</sup> This refers to the first wave of new towns designated under the New Towns Act 1946.

and safer commutes. The Government film 'Charley in New Town' (Central Office of Information 1948) provides a pertinent example. The central device of the cartoon is the 'everyman' Charley and his bicycle ride to work: "my this a grand way to start the day..." says Charley, "bit different from what it used to be, I can tell you...". This vision not only underpinned the construction of the cycleway infrastructure, but also influenced land use planning. Importance was given to the creation of different zones for different kinds of activity and attention was paid to locational relationships, such that the majority of journeys could be cycled or walked (Bunker 1967). Issues of road safety also played their part, especially in arguing for segregation of different modes. For example, Claxton, who designed and advocated the cycleway system recalls "Beyond all this was my experience of the terrible carnage of wartime... if I could possibly help it, nobody should ever be injured again" (Talking New Towns 2015).

However, the centrality of cyclists and cycling should not detract from the otherwise modernist vision of the motorcar upon which the town was based. The segregation of traffic was as much designed to facilitate the fast, smooth movement of cars, as to facilitate cyclists and pedestrians. For example a 1949 technical report on 'The Road System in the New Town' recommended that "...main roads be designed and constructed for vehicular traffic only, excluding cyclists and pedestrians. No footway being provided but a strip of grass verge being left for the stranded motorist or other exceptional user" (p.12). 'The Great North Road' which ran through Stevenage's centre, was to be replaced with a road of motorway standard skirting the New Town (Bunker 1967), making Stevenage accessible from the north and south. Moreover, a great deal of pride was taken in making it the first town centre in England that would properly accommodate the motorcar, by providing adequate road access and car parking (Vincent 1960). There are therefore multiple futures envisioned in the plans. On the one hand, Stevenage is a modernist town which is built for the motorcar, on the other hand, the envisioned life of the Stevenage 'everyman' is associated with walking and velomobility, rather than automobility<sup>3</sup>.

These envisioned futures had implications for the planning of parking space for houses and neighbourhood areas. Bedwell was the first of the New Town neighbourhoods to be planned and built from 1950 onwards. Developed in the period following the Dudley Report 1944 (HMSO 1944), car parking did not yet feature in national house design standards, and reflecting this, none of the house plans for Bedwell show parking space for cars (Housing Record Book, 1968-69). It is not only because there is no national standard that parking is not planned, but also because automobility was not part of the envisioned way of life for future residents.

An early report for the Stevenage Development Corporation (Ledeboer 1947) states:

"There will be a great number of bicycles and a great deal of gardening at Stevenage. It cannot be sufficiently stressed that adequate provision is necessary...the shed should be large enough to contain a bicycle" (Ledeboer, 1947:18).

This report gives particular consideration to terraced houses and how to "...avoid dirtying the house with the traffic of children, dustbins and bicycles". The Report suggests that the location of the shed should be changed, so that instead of being at the back of the house they should be brought to the front with access to the street. This suggestion is taken up in the Bedwell house designs, with terraced houses having two doors on the front of the house, a front door, and a door providing access to the store (see Figure 2a and 2b).

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<sup>3</sup> A Stevenage Cycling Leaflet showing the main roads and cycleways of Stevenage can be viewed online at <https://www.flickr.com/photos/carltonreid/11064068396>



Figure 2a: C5, Bedwell, front elevation of end terrace house. The image shows a front door. Alongside the door is a brick built wall which conceals the entrance to the store.

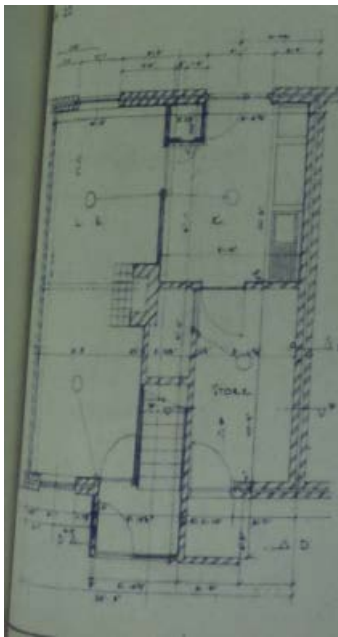


Figure 2b: C5 downstairs layout. This shows the front door which opens into a small porch with stairs and doorway into the living room. To the right of the front door is the brick built wall and behind it the entrance to the store.

Parking space was not completely absent in Bedwell, and calculations were made at a ratio of one parking space for every eight households (Stevenage Borough Council, 2004), though it is unclear what form this provision took, or whether it simply referred to earmarked space. Also unclear is how planners arrived at this ratio, but one hypothesis is that it was derived from the proportions of housing for different income groups. Mixed housing and households in neighbourhoods was a vision of The Dudley report that was adopted by the New Town planners (HMSO, 1944), however, the anticipated population of skilled and semi-skilled workers meant that the large proportion of housing was aimed at working class families (Ledebauer 1947, Willmott 1962).

A final point is that landscape was also key in achieving the new town vision, and Edwards (1956) notes that consultant landscape architects were involved in both the initial Master Planning and throughout the build (1956:45). This work included detailed planning of neighbourhoods, open space, parks and allotments, and the design and execution of landscape schemes and their maintenance. In Bedwell the majority of houses had front gardens and/or grass verges to the front of homes, there was at least one area of allotments, as well as woodland (Whomerley Wood) a park and several smaller play areas for children. Such provision was viewed as vital to the realisation of the 'garden city' principles. However, as we will see, such spaces were threatened as car ownership rose, and the forms of transport associated with daily life changed.

Between 1946 and 1953 envisioned futures of Stevenage life were multiple. On the one hand Stevenage was built with the future of the car in view. On the other hand, the future daily lives of the majority of its residents were characterised as lives lived locally, with cycling and walking as the main modes of transport. This is reflected in the design of homes and the provision of parking spaces in the first neighbourhood. The first residents moved into Bedwell in 1952, and the newly built infrastructure became part of living systems of practice. As might be expected, these lives did not entirely reflect the plan.

### *Contestation and control 1954-1959*

Car parking in residential neighbourhoods emerges as a topic in the Development Corporation archives from 1954 onwards, in the files of the Car Parking and Garaging Committee (Vol 1, 1954-1959). We know from national car ownership statistics that private car ownership in Britain more than doubled in the 1950s, from circa 2 million in 1950 to approximately 5 million in 1960 (DfT, 2015), even so 75% of British households still did not have a car (Leibling 2008). Wilmott (1962) shows national statistics suggesting this was split 52% middle class households and 22% of working class households. Since Stevenage had a disproportionate number of skilled and semi-skilled working class, we might wonder why car parking became a problem so early on.

Wilmott (1962) provides a clue. Although based on a small sample of 380 Stevenage residents, his survey shows that by 1960 car ownership in Stevenage was way above the national average, with 59% of non-manual, and 40% of manual households owning a car – an average of around 50%. This is also supported by Osborn and Whittick (1963) who note of Stevenage that “The people have had well-paid regular jobs in the factories and this has... enabled them to furnish their homes well, to acquire televisions, cars and domestic gadgets”.

The SDC’s Car Parking and Garaging Committee was established in 1954, and a memo from November that year notes that: “... the Ministry of Housing and Local Government has only allowed the Corporation to build initially 8-14% of garages to dwellings, although recently it has been found that even the initial demand for garages from tenants of newly occupied dwellings has been as high as 16%”. In 1956, just four years after the first residents had moved into Bedwell, there was an entry about retrofitting parking space in Stevenage Development Corporation (SDC) Annual Report: “The problem of garage accommodation and parking space in the residential neighbourhoods is still acute, but the completion of additional garages, for which expenditure was approved during the year, will be of considerable help.” (SDC Annual Report, 1956:358). This early attempt to meet the demands of residents contrasts with the events that followed. 1957 to 1959 witnessed a marked shift in the planners’ approach. They became focussed on controlling the emergent practices of residents, and on keeping to the original plan, making few concessions and enforcing that there would be no spaces on roads and verges for motorcars.

For example, the SDC Annual Report in 1957 noted that “The problem of cars parked overnight on roadways and grass verges is one which continues to exercise the Police, the local authority and the Corporation”. Bedwell is referred to because it is particularly problematic. Not only had it been built for a future without the car, but its development had also coincided with cuts in funding associated with the incoming Conservative Government of 1951. This had been achieved by reducing road widths and building higher density homes (‘Social Indices in Stevenage’ 1971). Narrow roads meant that roadside parking caused congestion and obstructions to other road users, and as a result tenants were leaving cars on front gardens and landscaped areas. As noted above these green spaces were key tenets of the new town philosophy, furthermore, the maintenance of these areas was paid for by the Corporation, and as such the SDC planners voraciously fought to protect them.

A series of memos between the Corporation’s Chief Executive Officer (CEO) and the Chief Architect (CA) reveal these tensions. On 18<sup>th</sup> November 1958 the CEO wrote how there were “Many tenants

who insist on having their vehicle in the immediate vicinity of their houses...”, that “landscaped areas are being ruined”, and that “Harlow Development Corporation [a neighbouring new town] do not allow any vehicles to be parked on grassed areas” (Files of the Social Relations Officer, 1958). Another memo, from 1959, records a “persistent offender... parking at night opposite number 30 Whormley Road. This is making a bad mess of the grass”. The memo requests that the vehicle be dealt with.

These measures are accompanied by schemes which attempt to retrofit parking. In a 1958 report on the initial Stevenage neighbourhoods, land that could be used for garages and hard standings was listed. This included: the temporary use of undeveloped land such as the site of the future nursery school; the rear of the telephone exchange; parts of children’s play areas; parts of the gardens of houses; and, getting rid of pavements and grass verges in cul-de-sacs. (Car Parking and Garaging Vol 1, Nov 1954-Dec 1959). Other options discussed included car stacking (i.e. multi-storey car parking) in residential areas (meeting minute from 1958), though this was never implemented.

Alongside these concessions the enforcement of parking became stronger, and in 1959 the Urban District Council and SDC agreed to prosecute residents if they parked on a grass verge when hard-standings or garages had been provided (Letter, 4<sup>th</sup> April 1959, Car Parking and Garaging Committee Vol 1, Nov 1954-Dec 1959). On 23<sup>rd</sup> April 1959, the CA wrote to all tenants informing them that the Corporation was “concerned at the number of cars being parked on grass verges... [their] very unsightly appearance... [that they are] causing damage” and warning tenants that “the SDC would use all their powers to stop the practice” (Files of the Social Relations Officer, 1959). On 10th December 1959, 15 cars parked on landscaped areas in Bedwell were removed.

These are just a few examples of the residents’ contestation, through their lived practices, of the planners’ imagined futures, and the planners’ attempts to control activities. At the same time, these experiences of lives lived were seen as an opportunity to more accurately plan the next areas to match the demands of future tenants.

#### *Challenging the standards: Survey and provide in new build areas 1957-1960*

Within the neighbourhoods yet to be built, these experiences fed into a change in the planners’ approaches to the future. Rather than envisioning future daily lives and the movement and transport that might be part of them, they instead began to focus on actual parking demands based on their experiences in the original neighbourhoods. Their experiences led to the SDC challenging the Standard of 8-14% that the Ministry had previously set. In a letter to the car parking and garaging committee in 1955 the Chief Architect notes that “...under pressure from the Corporation the Ministry has now agreed to consider a larger provision”. In July 1955 these new standards were outlined as being at least 1 in 4 ‘A’ type dwellings (aimed at lower income groups) would have a garage, and eventually 1 in 2. ‘B’ and ‘C’ type dwellings (which were aimed at higher income groups) would have an allocated garage each. In Stevenage, these new standards were implemented immediately with in-progress contracts being modified so that garages were built into the next neighbourhoods. For ‘A’ type dwellings, which were often terraces, these took the form of separate garage blocks. In ‘B’ and ‘C’ type dwellings the garages were to be attached to the homes (Car Parking and Garaging Committee, 1955).

This demonstrates a revised approach to the future on the part of the planners. They accepted that patterns of life were different to those that had been imagined, and that the motorcar was to be part of daily life for many people, including manual workers. The planners learned from the experiences in the original areas and how tenants lived, and proposed new standards based on these observations. These were not so much forecasts or models as we know them today, but instead an acceptance that initial plans had been wrong, and that lived experience provided the most useful estimate of the amount of provision that was needed. So for example, The Stevenage

Development Corporation Annual Report in 1957 notes that “Surveys conducted during the year have revealed that although the initial demand for garages in areas of standard housing is generally between 20 per cent and 25 per cent, within three years this increases to an average of 35 per cent” (SDC, 1957:364). Under pressure from the Stevenage Development Corporation, The Ministry agreed to Stevenage applying these new standards, and eventually adopted the standard nationally.

For the areas built in the late 1950s, the approach to the future is no longer one of envisioning daily life. Rather it is about monitoring and keeping up with the rise of the motorcar. From the start of the 1960s this shifts again, as newly available statistics and forecasts lead to approaches in which planners anticipate and get ahead of the future, predicting future demand and providing for it, even before it happens.

### *Predict and provide 1961-1970*

Provision for the car first appeared in National Housing standards in the 1961 Parker Morris Report, (HMSO 1961). This was in response to a Road Research Laboratory study in 1960 which estimated that by 1980 there would be an average of one car per household in Great Britain. This report was taken seriously at the SDC, where a Daily Telegraph article was circulated and discussed in the Car Parking Committee meeting. The Parker Morris Report suggested that “Each of these ten and half million extra cars will need about 250 square feet of scarce residential land or building space for overnight parking and for access to the place where it is kept”. The report suggested that parking space should “...be provided as near as possible to the home” (1961:45). Following Parker Morris, in 1961 the County Council advised the SDC to “... plan with the motor vehicle and not against it...” because “... motor cars are a universal ideal”.

The influence of these new standards is seen in approaches to both existing areas and in areas yet to be built. Generally, the enforcement of illegally parked cars in the original areas continued until the end of 1960, with reports of illegally parked vehicles becoming even more frequent (and varied) during that year (including reports of motor cycles, vans, caravans and ice cream vans). During this year there are also reports of tenants taking more radical actions to make parking space. For example, a memo on 31<sup>st</sup> March 1960 reports of one garden in which “the tenant has removed the rail of the paddock fence to allow entry for the car”.

In 1961 these memos stopped and illegally parked cars were discussed as evidence that more and better parking was needed. For example, a memo from the CEO to the CA on 13<sup>th</sup> December 1961 requested the provision of additional parking: “There is a lot of parking on forecourts etc. every night with consequent damage to verges. Is there any possibility that a temporary parking area could be made available on the vacant land?”. In this example the CEO was informed of multiple parking developments that were nearly complete in the area, including 65 new garages on the offending street.

This acceptance of retrofit is reiterated in the 1961 SDC Annual Report, which recorded that the demand for garages showed ‘no sign of slackening’ and reported that the Corporation had prepared schemes for 600 more garages to be provided by 1963. There is also evidence of the SDC responding positively to tenant demands. For example, in 1962, a petition signed by residents of King George’s Close on the edge of Bedwell was sent to the SDC (29<sup>th</sup> October 1962) requesting that the grass verge at the top of the cul-de-sac be converted into parking spaces. After some quibbling between the SDC and the Stevenage Urban District Council (letters on 3<sup>rd</sup> and 13<sup>th</sup> December 1962), the changes are included in SDC minor improvement works scheduled for the first quarter of 1963 (memo from the Chief engineer, 11<sup>th</sup> Feb 1963). The progress and impact of retrofit schemes was carefully monitored. For example, in 1965 the SDC undertook extensive surveying of car parking in the original neighbourhoods. The archive work identified fifteen surveys conducted in 1965 which



noted details of parked cars at different times of day and across the days of the week at specific locations, many of which were in Bedwell.

The 1960s brought with it a shift away from the emphasis on garages which had been viewed as the main solution up to that point. Gardens and landscaped areas were conceded for the creation of drive-ins (which we now call drives or driveways) and parking bays, which were hard standings on grass verges which separated gardens from roads. New estimates suggested that 150% provision (i.e. 1.5 parking spaces per dwelling) was possible in even the oldest neighbourhoods (Additional Garages and Provision of Drive-ins, 1965 report to the Car Parking and Garaging Committee). This provision would meet the Parker Morris Standard of one space per dwelling, including space for visitors too. We can only speculate as to why garage provision had been the sole solution up to that point, though there is a clue in a memo from 31<sup>st</sup> January 1963 which states “Once we provide vehicular access into a tenant’s garden it is inviting him to turn it into a yard in which inevitably some tenants will carry on vehicle repairs, possibly cannibalising old vehicles to repair others”. The messiness and unsightliness of early automobility appears to have been a key concern.

There are also discussions about how the retrofit of parking spaces should be organised. The additional rents which the SDC charged for parking spaces meant that some tenants did not want to pay for them. The SDC therefore decided to build drive-ins and garages whenever a change of tenancy occurred (memo to car parking and garaging committee, 1965).

There was therefore a full commitment to predict and provide by the SDC, and a sense of urgency underpinned the whole endeavour. This is captured in a 1965 Report which stated that provision “should be made at the best pace possible... given the Road Research forecasts” (12<sup>th</sup> October 1965, report on garages and drive-in sites to the Car Parking and Garaging committee).

The SDC embraced this approach in relation to new build areas too (neighbourhoods 5 and 6 of the original Stevenage plan were under construction between 1960 and 1969. Reflecting the new Parker Morris standard, The Corporation’s Annual Report in 1961 records that land was being reserved for 100% garage provision (i.e. a garage for every dwelling) in all new developments. With national projections of future car ownership updated each year, by 1966 the SDC is reporting provision is for 2.3 parking spaces per dwelling irrespective of its size or type “... the minimum provision must be about 2.3 car spaces per unit if we are going to cater properly in the future for keeping the cars off the highway” (letter to Chief Architect on 30<sup>th</sup> November 1966). These spaces are provided in front or adjacent to the property, with additional spaces for casual parking.

The SDC Annual Report in 1973 records that this new standard of 2.3 parking spaces per dwelling is being retrofitted into the original areas to keep up with demand. This is achieved by building more drive-ins and parking bays, and the development of ‘car tracks’; hard standing tracks which run through rear gardens, (Annual report 1976:389). Allotments are another source of space in this swathe of development, and the archive contains an allotment survey from the early 1970s which evaluates current usage of the 20 allotment areas in Stevenage and makes proposals about the proportion of each that can be reallocated for parking cars.

### **Making and (Un)making space for the car**

From this historical work, the question arises of which assumptions exist today, how they are formed, and which futures of automobility they anticipate. The conference talk will address this aspect by reviewing the current publically available ‘Stevenage Car Parking Strategy’ in light of the historical background given in this paper, and will reflect on how a Stevenage free from private cars might be anticipated.

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## References

- Aldred, R. and K. Jungnickel (2013). "Matter in or out of place? Bicycle parking strategies and their effects on people, practices and places." *Social and Cultural Geography* **14**(6): 604-624.
- Aldridge, M. (1996). "Only demi-paradise? Women in garden cities and new towns." *Planning Perspectives* **11**(1): 23-29.
- Ben-Joseph, E. (2012). *Rethinking a Lot*. Cambridge, MA; London, England, MIT Press.
- Bunker, R. (1967). "Travel in Stevenage." *The Town Planning Review* **38**(3): 215-232.
- Central Office of Information. (1948). "Charley in New Town." from <http://www.talkingnewtowns.org.uk/content/resources/films-new-towns>.
- DfT. (2015). "Vehicle Licensing Statistics." from <https://www.gov.uk/government/collections/vehicles-statistics>.
- Edwards, P. (1956). "Landscape at Stevenage." *The Town Planning Review* **27**(1): 45-48.
- Geels, F. W. (2005). *Technological Transitions and System Innovations*. Cheltenham, UK; Northampton, MA, USA, Edward Elgar.
- HMSO (1944). "The Dudley Report: The Design of Dwellings, the Report of the Sub-Committee of the Central Housing Advisory Committee appointed by the Minister of Health".
- HMSO (1961). *Homes for Today and Tomorrow: Report of the Parker Morris Committee*. London.
- Ledeboer, J. G. (1947). "Stevenage Corporation Report on Housing Requirements and Standards."
- Leibling, D. (2008). "Car Ownership in Great Britain." *RAC*.
- Osborn, F. J. and A. Whittick (1963). *The New Towns. The Answer to Megalopolis*, McGraw-Hill.
- Sheller, M. (2003). "Automotive emotions: feeling the car." *Theory, Culture and Society* **21**: 221-242.
- Shove, E., M. Watson and N. Spurling (2015). "Conceptualising Connections: Energy demand, infrastructures and social practices." *European Journal of Social Theory* **18**: 274-287.
- Talking New Towns. (2015). "Eric Claxton about Creating a Safe Town." from <http://www.talkingnewtowns.org.uk/content/category/towns/stevenage/eric-claxton-engineer>.
- Urry, J. (2004). "The 'System' of Automobility " *Theory, Culture and Society* **21**(4/5): 25-39.
- Vincent, L. G. (1960). "The Town Centre." *The Town Planning Review* **31**(2): 103-106.
- Willmott, P. (1962). "Housing Density and Town Design in a New Town: A Pilot Study at Stevenage." *The Town Planning Review* **33**(2): 115-127.