THE HISTORY OF LANDSCAPING TRAFFIC ROUNDABOUTS AND THEIR PRESENT FUNCTIONS BEYOND TRAFFIC MANAGEMENT

DISSERTATION SUBMITTED FOR

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CHAPTER ONE: INTRODUCTION

The European Landscape Convention ELC 2000 (adopted in the UK in 2007) recognises that all landscapes are important, regardless of their location. They do not have to be designated as such, or have special significance, and they can be 'everyday' landscapes,[1] which could arguably include the circa 25,000 roundabouts in the UK.[2] Engineered primarily to minimise vehicle delay and improve road safety,[3] roundabout landscaping offers opportunities to aesthetically enhance the environment and compliment wider landscape designs.[4] This dissertation examines the evolution of early roundabouts and the introduction of purpose designed roundabouts, recording (where possible) their landscaping. The present, and potential functions of roundabouts, beyond traffic management, are also considered.

Although in the UK today the generally accepted definition of a traffic roundabout is 'a road junction in which traffic streams circulate around a central island',[5] historically other terms have been used to describe junctions that function in a similar manner. These include 'circus' which is defined as 'an open place, usually circular, where several streets converge'[6] and 'gyratory' (where traffic is obliged to circle in a clockwise direction). The first move towards the term roundabout may have been instigated by Ernest Law, who protested at the use of the word 'gyratory' in his 1926 letter to *The Times*, describing it as an 'uncouth, Latinese word'.[7] It was possibly in response to this that the following day in the House of Commons, the Minister

[1] Highways England (HE), *Landscape and Visual Effects*, Design Manual LA107 (Guildford: HE, February 2020), pp.4,7.
[2] Ian Wylie, "Traffic lights are so dictatorial'….but are roundabouts on the way out?', *The Guardian*, 19/10/2015, np.
[3] HE, *Geometric Design of Roundabouts*, Design Manual CD116 (Guildford: HE, April 2020), pp.6,33.
[4] Brenda Colvin, *Land and Landscape* (London: John Murray, 1970), pp.359-365; The City of Calgary, *Landscaping Guidelines within Roundabouts*, Report TT2014-0485, June 2014, p.2.
[5] Marian Makins (ed.), *Collins Concise English Dictionary* (Glasgow: Harper Collins Publishers, 1993), p.1169.
[6] Ibid., p.242.
[7] Ernest Law, '"Gyratory" or "Round-about"', *The Times*, 27/04/1926, p.17.

of Transport described junctions with the gyratory system as "the round-about system".[8] The North American term for a roundabout is 'traffic circle',[9] which is used in this work where roundabouts are referenced as such, along with the terms 'circus' and 'gyratory' where they are referenced as such historically, and when the terms continue to be used in the present period. The modern term 'roundabout' is probably used as frequently as the term 'mini-roundabout', which is defined as a reflectorised, white, 1-4m diameter circle (flush or slightly raised as a dome) with concentric rings (Figure 1).[10] As mini-roundabouts may not take any other form, and the central circle/dome is likely to be mounted by long vehicles where junction area is limited, their landscaping is prohibited by law, and as such they do not form part of this research.

Figure 1. Example of a mini-roundabout, Ipswich, Suffolk, 08/2022.

[8] Anon., 'The "Round-Abouts."', *The Times*, 28/04/1926, p.17.
[9] Makins (ed.), *Collins Concise*, p.1169.
[10] Department for Transport (DfT) and County Surveyors' Society, *Mini roundabouts good practice guidance* (London: DfT, 03/11/2011), p.4.

Historiography

The suggestion of using a circular layout for traffic management can already be seen in the UK in the late eighteenth century 'sweep', or 'turn-around', created on the west side of Hampton Court Palace; this enabled horse drawn carriages to move in a circular direction around a confined area, which proved to be effective in reducing congestion (Figure 2).[11]

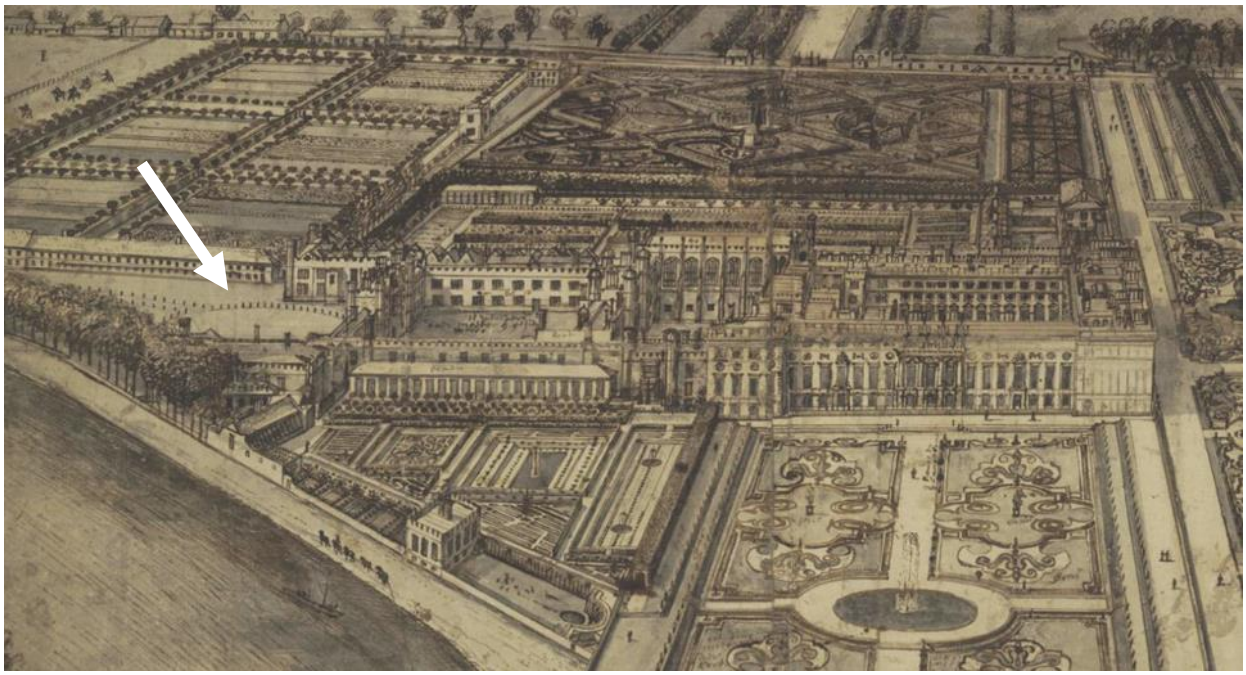

Figure 2. Hampton Court Palace 'Sweep'. Drawing by Leonard Knyff, 1702.

At this same time, early roundabouts were beginning to evolve on town squares that often had a central monument or fountain, and where space was shared by both pedestrians and horse drawn vehicles.[12] (An example is St George's Circus, Southwark, which is discussed in detail

[11] Simon Thurley, *Hampton Court A Social and Architectural History* (New Haven and London: Yale University Press, 2003), p.232.
[12] Kenneth Todd, 'A History of Roundabouts in Britain', *Transportation Quarterly*, 45/1 (1991), pp.143-155 (p.143); British History Online (BHO), https://www.british-history.ac.uk/survey-london/vol25/pp49-64 (accessed 03/04/2022).

in chapter two.) With the development of motorised vehicles, dedicated safe spaces were created for pedestrians by adding elevated footpaths both in the middle, and on the outer edges of the squares.[13]

The literature on the early history of designed roundabouts is generally limited to a few words on the first gyratory systems; the proposals for them by Frederico Ressano Garcia in Lisbon (1877) and Holroyd Smith in London (1897); and their implementation at Columbus Circle, New York (1905); the Place de l'Etoile, Paris (1907); and Sollershott Circus, Letchworth Garden City (1909).[14] In mid-1920s London, a number of circuses were created by sending traffic in one way systems around existing squares to aid traffic management at busy junctions with four or more intersecting roads.[15] In 1929, design guidance for these junctions was drawn up in Ministry of Transport (MoT) Circular No. 302, and by the mid-1930s roundabouts were often included in town centre schemes.[16] In post-Second World War London, planning consultants drew up measures to alleviate traffic congestion, changing routes and priorities, including the abolition of right-hand turns. Roundabouts (which enable this manoeuvre) were proposed at a few locations, some connected to underground stations to offer a lower-level provision for pedestrians. These proposals identified that junctions would become town squares, but no reference was made to soft landscaping, apart from a suggestion that the space created at the lower level of the roundabout 'might be laid out as an open space with appropriate planting'.[17] The nationwide installation of new purpose designed roundabouts continued at

[13] Tomaz Tollazzi, *Alternative Types of Roundabouts An Informational Guide* (Switzerland: Springer International Publishing, 2015), p.1; Herts Memories, https://www.hertsmemories.org.uk/content/herts-history/towns-and-villages/letchworth_garden_city/letchworth_places/sollershott-circus-the-uks-first-roundabout (accessed 28/03/2022).

[14] Charles Legge, 'Going with the flow…', *Scottish Daily Mail*, 08/03/2019, np; Todd, 'A History', p.143.

[15] Tollazzi, *Alternative Types*, p.11.

[16] Mike Brown, *The Design of Roundabouts State-of-the-Art Review* (London: Her Majesty's Stationery Office, 1995), pp.4,5.

[17] C.H. Holden and W.G. Holford, *The City of London A Record of Destruction and Survival* (London and Hertford: Shenval Press, 1951), pp.56-61.

pace with the construction of New Towns such as Harlow and Crawley in the 1940s, and Skelmersdale, Redditch, and Milton Keynes in the 1960s.[18]

Guidance on roundabout design in the UK can be found in the Design Manual for Roads and Bridges (DMRB) documents; their earliest available advice from 1981 focuses on roundabout capacity and size in relation to engineering, economic and environmental factors. The environmental factors are not defined beyond larger roundabouts requiring more land for construction.[19] The 1993 design manual, *Geometric Design of Roundabouts*, highlights: that there is an amenity benefit in roundabout landscaping; the importance of planting species indigenous to the surrounding landscape; and the use of taller planting (such as trees and shrubs) in the central part of the island. It also identifies that planting should be as effective during the winter months as in the summer, and that urban areas may require more specialised planting, which would require a higher level of maintenance. The document also refers to working in association with specialist landscapers, and enhancing the standard of landscaping and planting, for example, with floral displays.[20] In the 2007 manual, 'specialised planting' is described as 'ornamental',[21] but none of the above landscaping guidance was included in the 2019 design manual,[22] or its revised version in March 2020.[23]

The latest (April 2020) design manual, that defines roundabout planting as 'vegetation which includes grass, wildflowers, perennials, shrubs and trees',[24] gives firm guidance on when and where it can be implemented. Planting is not favoured at roundabouts with central island diameters of less than 10m, although it is acknowledged that planting of less than 1m in height

[18] Roads.org.uk, https://www.roads.org.uk/articles/roundabouts/taming-streets (accessed 03/04/2022).
[19] The Highways Agency (HA), *Junctions and Accesses Determination of Size of Roundabouts and Major/Minor Junctions*, Advice Note TA23/81 (Guildford: HA, December 1981), pp.1/1, 6/2.
[20] HA, *Geometric Design of Roundabouts*, Advice Document TD16/93 (Guildford: HA, September 1993), p.6/1.
[21] HA, *Geometric Design of Roundabouts*, Advice Document TD16/07 (Guildford: HA, August 2007), p.8/10.
[22] HE, *Geometric Design of Roundabouts*, Design Manual CD116 (Guildford: HE, July 2019).
[23] HE, *Geometric Design of Roundabouts*, Design Manual CD116 (Guildford: HE, March 2020).
[24] HE, *Geometric Design* (April 2020), p.12.

at these junctions does have a role to play in obscuring traffic approaching from the opposite side of the junction, thus increasing road safety.[25]

A study in Nebraska, USA, found that traffic approaching a roundabout from a single-lane road adopted significantly lower speeds when the roundabout was planted with 7ft (2m) high spruce trees, compared to grass only, allowing drivers more time to focus on other road users.[26] Aberdeen City Council suggests that taller and denser planting of shrubs and trees could be adopted in the central part of some roundabouts, with the outer 2m being hard standing, grass or other similar low growing vegetation. In response to motorists reporting that roundabout planting obscured their view of other motorists and cyclists, Aberdeen City Council identified the need for a formal policy on roundabout planting maintenance,[27] and the City of Calgary, Canada, also noted room for improving their selection of roundabout planting material. The City of Calgary would agree with the DMRB policy that landscaping should be appropriate to its environment, but they suggest it should not be a later enhancement, but rather intrinsic to the initial design,[28] which will have the effect of easing later management and maintenance issues.[29] The DMRB design manuals appear to have overlooked soft landscaping at the design stage, focussing more on roundabout design in relation to its function as a traffic junction, rather than how it is experienced by road users, which is also a function of design.[30]

Although the literature on traffic roundabout landscaping is predominantly concerned with traffic movements and road user safety, Highways England supports improving the

[25] Ibid., pp.30,31,33.
[26] Karen Schurr and Jorge Abos-Sanchez, *Effects of central island landscaping at single-lane roundabouts*, Report Number: SPR-P 1 (03) P550 (Address unknown: United States. Department of Transportation, 01/03/2005) pp.39,40.
[27] Aberdeen City Council, *Roundabouts – Policy on landscaping and vegetation maintenance*, Report CHI/14/017 (Aberdeen: Aberdeen City Council, 2015), np.
[28] The City of Calgary, *Landscaping Guidelines*, p.3.
[29] Ralph Cobham, 'Landscape Management and the Fourth Design Dimension', in *Landscape Design With Plants*, ed. by Brian Clouston (London: Heinemann, 1977), pp.300-323 (p.311).
[30] Colvin, *Land and Landscape*, pp.136-137.

environmental performance of landscapes,[31] defining 'environmental factors' as 'population and human health, biodiversity, land, soil, air, water,…climate [and] cultural heritage'.[32] This shift appears to be in balance with recent movements to explore potential functions of roundabouts beyond traffic management, and the public's changing relationships with them. They have become a topic for environmentalists, who suggest they are urban reservoirs of biodiversity that benefit from reduced mowing and the introduction of native species,[33] rather than traditional bedding that reduces biodiversity.[34] Engineers and landscape architects in the USA are working together to incorporate stormwater infrastructure into roundabouts through attractive and functional landscaping,[35] and those in Canada also identified soft landscaping of roundabouts as an opportunity to manage stormwater.[36]

As places for people, roundabouts offer opportunities for volunteers to create green space for communities, with some ventures receiving Royal Horticultural Society (RHS) awards,[37] whilst guerrilla gardeners adopt them on a less formal basis.[38] The recent introduction of roundabout sponsorship has provided new funding and an impetus for considered planting that is both horticulturally and aesthetically sound. The development of themed roundabouts has also seen the use of statuary and ornamentation, along with an improved standard of planting, and a shift away from grass and shrubs.[39] An 'in Bloom' group at Bury St Edmunds, Suffolk is utilising soft and hard landscaping on its roundabouts to tell the story of the town's cultural

[31] HE, *Introduction to environmental assessment*, Design Manual LA101 (Guildford: HE, 2019), p.11.
[32] HE, *Landscape and Visual*, p.6.
[33] International Association for Landscape Ecology, https://iale.uk/roundabouts-can-be-so-much-more-just-traffic-calming-devices (accessed 25/03/2022).
[34] *Don't Forget the Roundabouts* (Lucy Corrander Blog, 06/05/2015), https://simonleather.wordpress.com/roundabouts-and-more/ (accessed 25/03/2022).
[35] Reid Middleton, https://www.reidmiddleton.com/reidourblog/guest-blog-a-landscape-architects-perspective-on-roundabout-design/ (accessed 04/04/22).
[36] The City of Calgary, *Landscaping Guidelines*, pp.6,7.
[37] Newsdesk, 'RHS award for magic roundabout workers', *Mid-Devon Advertiser*, 21/11/2021, np.
[38] Emma Clayton, 'Gardening guerrillas turn roundabouts into vegetable patches', *Telegraph and Argus*, 29/12/2014, np.
[39] Emily Maltby, 'Roundabouts at the cutting edge of garden design', *Pro Landscaper*, 06/02/2013, np.

heritage, including the 9th century King Edmund of East Anglia, and the achievement of the town's James Moore (1849-1935), who won the Paris-Rouen bicycle race in 1869.[40] These recent changes in how roundabouts are being used, suggest they mean much more to people than simply a means to negotiate a junction.

Writing on the history of roundabouts in Britain, Kenneth Todd offers more than 20 pages on the subject, but he makes no reference to their landscaping or planting,[41] and most of the literature on roundabout history focuses on generic traffic management principles, with few words written about their development as sites of historic interest; their landscaping and planting; and their place in wider landscape designs. In 1939, Peter Youngman (1911-2005) wrote: 'The roundabout is now so common, both in town and country areas [that] its proper landscape design is an urgent matter'.[42] How seriously his words were acted upon would be difficult to assess, given the scarcity of literature on the historical landscaping of roundabouts. This work fills a gap in the literature by examining the evolution of roundabouts in the UK, from the earliest examples to the present day. Consideration is given to their historical soft and hard landscaping, and their present functions beyond a tool for traffic management are investigated.

Methodology

In consideration of the variety of roundabouts and wider landscaping styles in the UK, this research is not limited to one particular town or region. Care has been taken however, to include

[40] Bury St Edmunds and Beyond, https://www.visit-burystedmunds.co.uk/blog/roundabout-art-tells-the-history-of-bury-st-edmunds (accessed 04/04/2022).
[41] Todd, 'A History', pp.143-155.
[42] Jim McCluskey, 'Roads', *in Fifty Years of Landscape Design*, ed. by Sheila Harvey and Stephen Rettig (London: The Landscape Press, 1985), pp.125-140 (p.127), citing Peter Youngman, *Landscape and Garden* (Summer, 1939).

examples from older towns, where roundabouts were laid out over existing junctions/road layouts, and ‘new towns’, where landscape designers and architects had the freedom to include them in the early stages of town planning. Where appropriate, reference is made to examples of roundabouts from other countries. Primary and secondary sources of information inform the backbone of the research. These include: local, national, and central government archives; local government departments; Highways England; Historic England; Gardens Trusts; Garden City and New Town planning documents; the Design Manual for Roads and Bridges; newspapers and magazines; museums and exhibitions; libraries; journals; ‘in Bloom’, community, environmental and guerrilla gardening groups; social media; and internet sources. Site visits were made where possible, to enable the researcher to experience roundabouts as both a motorist and pedestrian; assess present designs and planting; and make a photographic record. This work is set out over three chapters; Introduction; The History and Landscaping of Traffic Roundabouts; and The Present Functions of Roundabouts beyond Traffic Management. The history chapter is divided into two sections: the first identifies how monuments and busy (London) junctions with four or more intersecting roads evolved into roundabouts; the second section records the introduction and later widespread implementation of the purpose designed roundabout. In both sections their soft and hard landscaping is recorded and discussed, along with cultural and heritage associations where relevant. Chapter two, on the present functions of roundabouts beyond traffic management, is also divided into two sections: the first continues the discussion of their use as sites of heritage and cultural interest, and introduces their use as sites for community engagement and the opportunities they offer to beautify the landscape. The second section considers their present and potential uses as sites for environmental improvement. The research was carried out according to SAS ethics guidelines.

CHAPTER TWO: THE HISTORY AND LANDSCAPING OF TRAFFIC ROUNDABOUTS

This chapter explores the evolution of early roundabouts, and the introduction of purpose designed roundabouts, recording and discussing their soft and hard landscaping, along with cultural and heritage associations where relevant. The first section identifies how monuments erected in key locations evolved into roundabouts, recording the history of three sites from monument erection to the present day. It also touches on the introduction of roundabouts at busy junctions, with four or more intersecting roads in central London. The second section explores the history, landscaping and widespread implementation of purpose designed roundabouts.

Section 1. Evolution from monument to roundabout

Long before the purpose designed roundabouts of the twentieth century, town squares and circuses naturally formed at the points where roads converged,[43] such as at St George's Circus, Southwark. Once known as St George's Fields, traditional strip farming and commons grazing after Lammastide continued on this site up until the late eighteenth century, when its first roads were laid over some of the earlier tracks that crossed the fields.[44] These roads converged at a central point that formed a circle with a diameter of 250 feet, created by land purchased through a 1769 Act of Parliament (Figure 3), and an 1812 Act of Parliament required that all buildings surrounding the circus be built with concave fronts.[45]

[43] Tollazzi, *Alternative Types*, p.5.
[44] BHO, https://www.british-history.ac.uk/survey-london/vol25/pp39-48 (accessed 29/05/2022).
[45] BHO, https://www.british-history.ac.uk/survey-london/vol25/pp49-64 (accessed 27/05/2022).

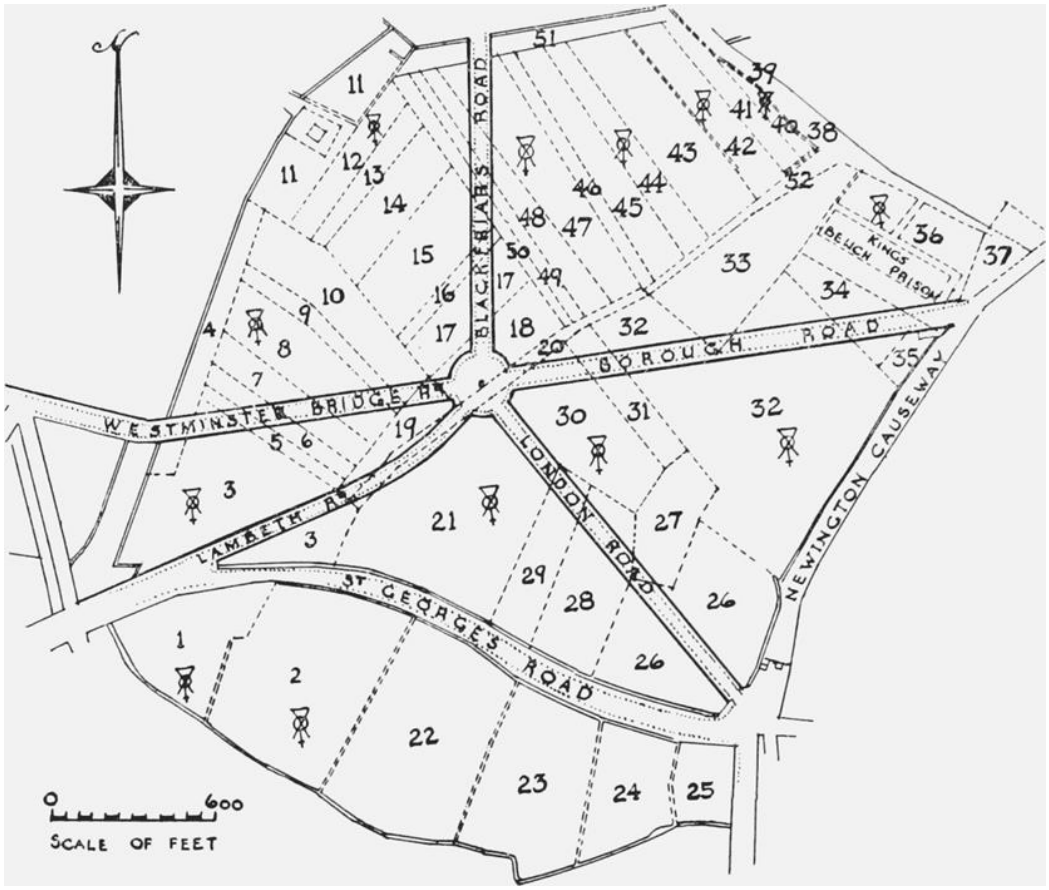

Figure 3. Plan of St George's Fields, Southwark, c.1760-70.

It was not unusual to furnish squares with seating, statuary, memorials and monuments,[46] and in 1771 an obelisk was erected in the centre of St George's Circus that formed part of architect Robert Mylne's (1733-1811) overall design for this gateway to London from the south (Figure 4).[47] Inspired by a rediscovery of classical antiquity, obelisks and other neo-classical monuments had been in vogue in private gardens and civic spaces since the early eighteenth century,[48] largely influenced by architects such as Colen Campbell (1676-1729) and his *Vitruvius Britannicus* (1715), and as the favoured style of the court of King George I (1660–

[46] Historic England (HEng), *Urban Landscapes Register of Parks and Gardens Selection Guide* (Liverpool: HEng, 2017), p.6.
[47] British Listed Buildings (BLB), https://britishlistedbuildings.co.uk/101385642-obelisk-at-the-centre-of-st-georges-circus-cathedrals-ward#.YpNWae7MJPZ (accessed 29/05/2022).
[48] HEng, *Commemorative Structures Listing Selection Guide* (Liverpool: HEng, 2017), p.3.

1727), who ascended the throne in 1715.[49] Apart from being a focal point where the roads converged, the inscriptions on the obelisk's base that signposted the close proximity of Fleet Street, Westminster Hall and London Bridge, also served to highlight the position of the Circus as a central London location.[50]

Figure 4. View of St George's Circus with Obelisk, Southwark. Aquatint by Dagaty, 1797.

During the reign of Queen Victoria (1819-1901), vast numbers of civic monuments were erected to enhance the architectural composition of developing towns and cities. Many of these

[49] Carole Anne Fry, 'The dissemination of neo-Palladian architecture in England, 1701-1758' (unpublished doctoral thesis, University of Bristol, 2006), pp.1,2; Tim Richardson, *The Arcadian Friends* (London: Bantam Press, 2008), p.102.
[50] HEng, https://historicengland.org.uk/listing/the-list/list-entry/1385642?section=official-list-entry (accessed 29/05/2022).

were to celebrate her Diamond Jubilee in 1897,[51] including the replacement of the obelisk at St George's Circus with a clocktower (Figure 5), that was subsequently removed in the late 1930s to improve traffic movement through the junction.[52]

Figure 5. St George's Circus, Southwark, with Victorian Clocktower, c.1930.

The obelisk, that had been moved to the Geraldine Mary Harmsworth Park where it was listed as a Grade II monument in 1950, was re-erected at St George's Circus in 1998, where its conservation status was upgraded to II* in June 2000.[53] In that same year the circus and its environs were designated a Conservation Area, 'of special architectural or historic interest, the

[51] HEng, *Commemorative Structures*, p.6.
[52] BLB, https://britishlistedbuildings.co.uk/101385642-obelisk-at-the-centre-of-st-georges-circus-cathedrals-ward#.YpNWae7MJPZ (accessed 29/05/2022); London Remembers, https://www.londonremembers.com/memorials/st-george-s-circus-clock-tower (accessed 29/05/2022).
[53] BLB, https://britishlistedbuildings.co.uk/101385642-obelisk-at-the-centre-of-st-georges-circus-cathedrals-ward#.YpNWae7MJPZ (accessed 29/05/2022); HEng, https://historicengland.org.uk/listing/the-list/list-entry/1385642?section=official-list-entry (accessed 29/05/2022); Southwark Council Regeneration Department, *St George's Circus Conservation area appraisal (and Design Guidance Statement)* (London: Southwark Council, November 2005), p.18.

character or appearance of which is desirable to preserve or enhance'.[54] With the exception of an undated image that records soft landscaping on one edge of the roundabout (Figure 6), all other images record hard standing only, which in 2005 Southwark Council noted was intentional as 'the stone paving around the obelisk reflects the open space created…in the 18th century' as part of Mylne's original design intention.[55]

Figure 6. St George's Circus and Obelisk, Southwark, with soft landscaping, nd.

The soft landscaping was the work of guerrilla gardener Richard Reynolds, who was recorded maintaining his plants there in July 2006.[56] Such gardeners are part of a worldwide movement, said to have begun in 1973 when Liz Christy scattered flower seeds on derelict land where children were playing in the USA.[57] It is a secretive form of gardening, generally done

[54] Southwark Council Regeneration Department, *St George's Circus*, pp.5,6.
[55] Ibid., p.23.
[56] Kate Muir, 'Why were three people running round a traffic island in the dark, digging holes? Was a body being buried?', *The Times*, 22/07/2006, p.7 [S5].
[57] Kate Muir, 'Richard urges us to…..', *The Times*, 12/07/2008, p.9 [S4].

overnight to avoid alerting the authorities who usually own the land that the guerrilla gardeners are transforming with ornamentals and vegetables.[58] In the autumns of 2006 and 2007, Reynolds and others exchanged messages on guerillagardening.org about planting shrubs, lavender and tulips on the island, partly to celebrate St George's Day with red colours on the roundabout, and in March 2010 they discussed returning to add white tulips and white seasonal bedding to their scheme.[59] In 2022, a site visit revealed that this planting was no longer extant, and the entirety of the roundabout was once again hard landscaped (Figure 7), although it could be argued not in a manner that reflects or enhances the roundabout's special architectural or historic interest (Figure 8).

Figure 7. St George's Circus roundabout, Southwark, 06/2022.

[58] George McKay, *Radical Gardening: Politics, Idealism & Rebellion in the Garden* (London: Frances Lincoln Ltd, 2011), pp.156,157,183,184,190.
[59] Guerillagardening.org, https://guerrillagardening.org/community/index.php?topic=3134.0 (accessed 29/05/2022).

Figure 8. St George's Circus roundabout paving, Southwark, 06/2022.

Numerous memorials were also erected to commemorate Prince Albert's (1819-1861) early death,[60] including a clocktower with a statue of him in a niche, erected in Hastings between 1862-1864 at a junction where eight roads converged (Figure 9).[61]

[60] HEng, *Commemorative Structures*, p.6.
[61] 1066 Online, https://www.1066online.co.uk/hastings-history/hastings-town/albert-memorial/ (accessed 31/05/2022); Sussex Photo History, https://www.photohistory-sussex.co.uk/HastingsPhotgrsGa-Gr.htm (accessed 31/05/2022).

Figure 9. Prince Albert Memorial Clocktower, Hastings, c.1912.

A 1950s/early 1960s image records that it had been incorporated into a roundabout, mostly hard landscaped but with planting directly under the monument and in pots positioned on the

inner edges of the island;[62] a later image from c.1965 records that it was landscaped with grass and what appears to be a circular bed of annual planting (Figure 10). In October 1973 the local council voted to remove the memorial, and despite local opposition to this, they demolished it a month later and have since widened both the road and pavement, removing all signs of vegetation and heritage from this key point in this historical coastal town (Figure 11).[63]

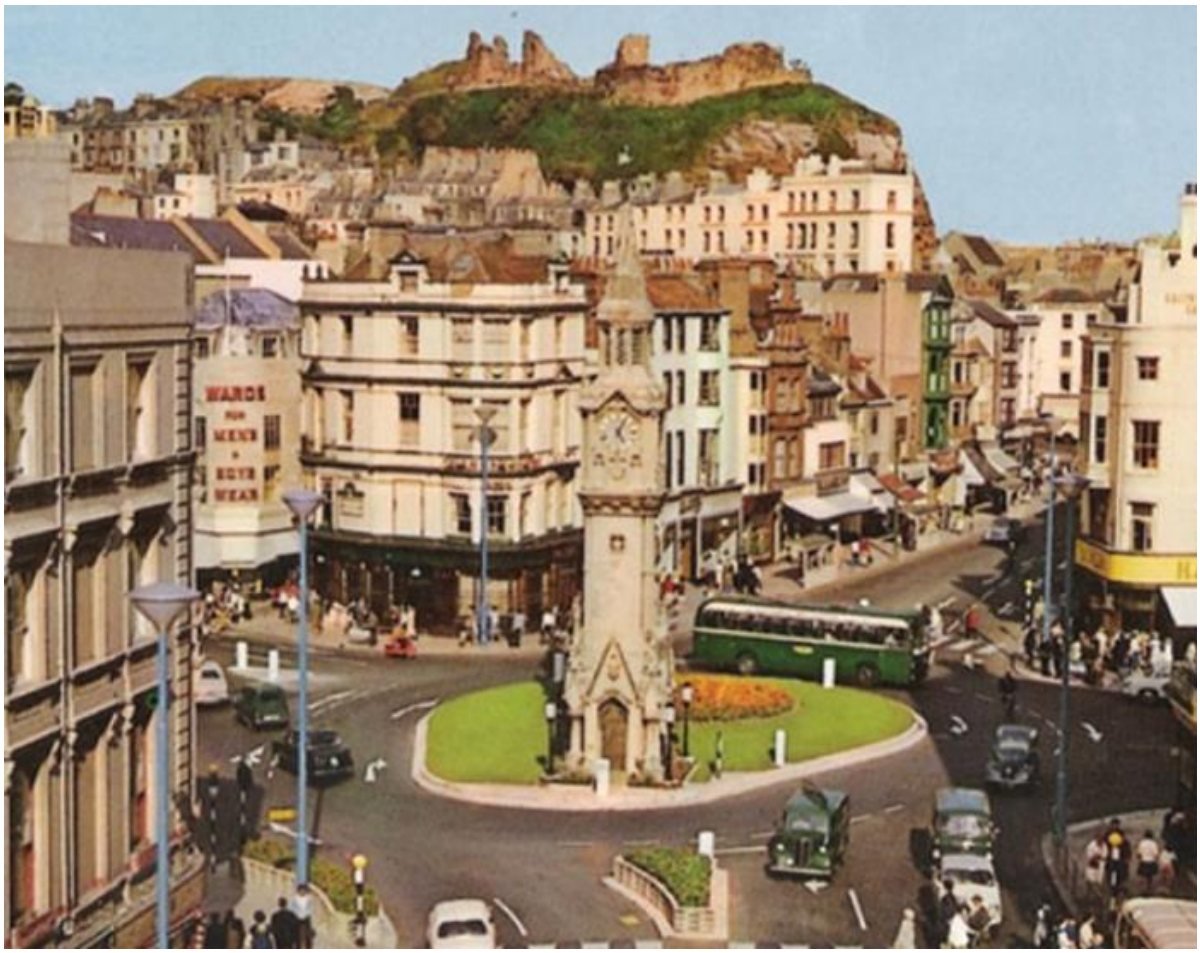

Figure 10. Prince Albert Clocktower on landscaped roundabout, Hastings, c.1965.

[62] SMART Seventies Music and Retro Talk, https://ninebattles.com/2021/02/25/albert-memorial-hastings-town-centre-memories/ (accessed 31/05/2022).
[63] Andy Hemsley, 'Who Remembers when an impressive Memorial clock tower dominated Hastings Town Centre?', *Sussex Express*, 06/03/2022, np.

Figure 11. Junction where the Albert Memorial roundabout once stood, Hastings, 2022.

The memorial erected to commemorate Queen Victoria in front of Buckingham Palace between 1906 and 1924[64] was also to become the centre piece of a roundabout;[65] this was potentially the outcome of French and English police traffic officers visiting each other's capital cities to study and discuss traffic management in 1924/1925,[66] and the writings of Eugene Henard (1849-1923). In his 1909 *Etudes sur les Transformation de Paris,* this French urban planner proposed moving vehicles around busy junctions where numerous roads met, by requiring them to circulate in one direction, until exiting at their desired roads.[67] In January 1926, in a move to reduce traffic congestion in central London, such a gyratory system was trialled around

[64] The Royal Parks, https://www.royalparks.org.uk/parks/st-jamess-park/things-to-see-and-do/monuments-fountains-and-statues/the-queen-victoria-memorial (accessed 09/06/2022).
[65] Anon., 'Gyratory Traffic. The Victoria Memorial Experiment', *The Times*, 26/01/1926, p.14.
[66] Anon., 'London Traffic. Police delegation to visit Paris', *The Times*, 10/10/1925, p.14.
[67] Raymond Unwin, *Town Planning in Practice An Introduction to the Art of Designing Cities and Suburbs* (London: T Fisher Unwin, 1909), p.241.

Parliament Square that required all vehicles to follow a clockwise direction. The success of the trial at both reducing the time required for vehicles to negotiate the junction, and eventually the number of traffic police required to oversee it,[68] made this a permanent feature at Parliament Square. That same year the system was also implemented at the Victoria Memorial, Hyde Park Corner, Marble Arch and Trafalgar Square,[69] with its Grade I listed column and statue of Admiral Nelson erected in 1843 to honour his 1805 victory in the Battle of Trafalgar.[70]

The erection of outdoor commemorative war memorials was to become a recurring theme, with large numbers being installed after the First World War (1914-1918), driven by a culture of commemoration that developed during the Edwardian period; the valuing of the armed forces; and society's sensibility to the tragic losses suffered during that conflict.[71] At Orpington, Kent such a memorial was erected in August 1921, that records the names of 111 local men who fell in the First World War.[72] The Grade II listed, three sided memorial with its three cast iron lions, was erected in a prominent position of the town where three roads converged,[73] and was incorporated into a roundabout of hard standing at some point between 1930 and 1942 (dates identified through images) (Figures 12,13).[74]

[68] Anon., 'London Traffic. Parliament Square Experiment', *The Times*, 05/01/1926, p.12.
[69] Todd, 'A History', pp.145,146.
[70] London.gov.uk, https://www.london.gov.uk/about-us/our-building-and-squares/trafalgar-square (accessed 09/06/2022).
[71] HEng, *Commemorative Structures*, pp.8,9.
[72] HEng, https://historicengland.org.uk/listing/the-list/list-entry/1391943?section=official-list-entry (accessed 25/05/2022).
[73] Ibid.; Orpington History Organisation, https://www.facebook.com/media/set/?set=a.434724203270316.95837.174276472648425&type=3 (accessed 25/05/2022).
[74] Orpington History Organisation, http://orpington-history.org/sub/images_postcards/ images _postcards_ 1921.htm (accessed 25/05/2022).

Figure 12. Orpington War Memorial with fields beyond, Kent, c.1925.

Figure 13. Orpington War Memorial on roundabout, 1942 Postcard.

The first images of soft landscaping appear in 1950,[75] and a 1955 postcard records potted plants placed on a central area of hard standing, and what appears to be seasonal bedding planted on the outer edges of the roundabout (Figure 14).

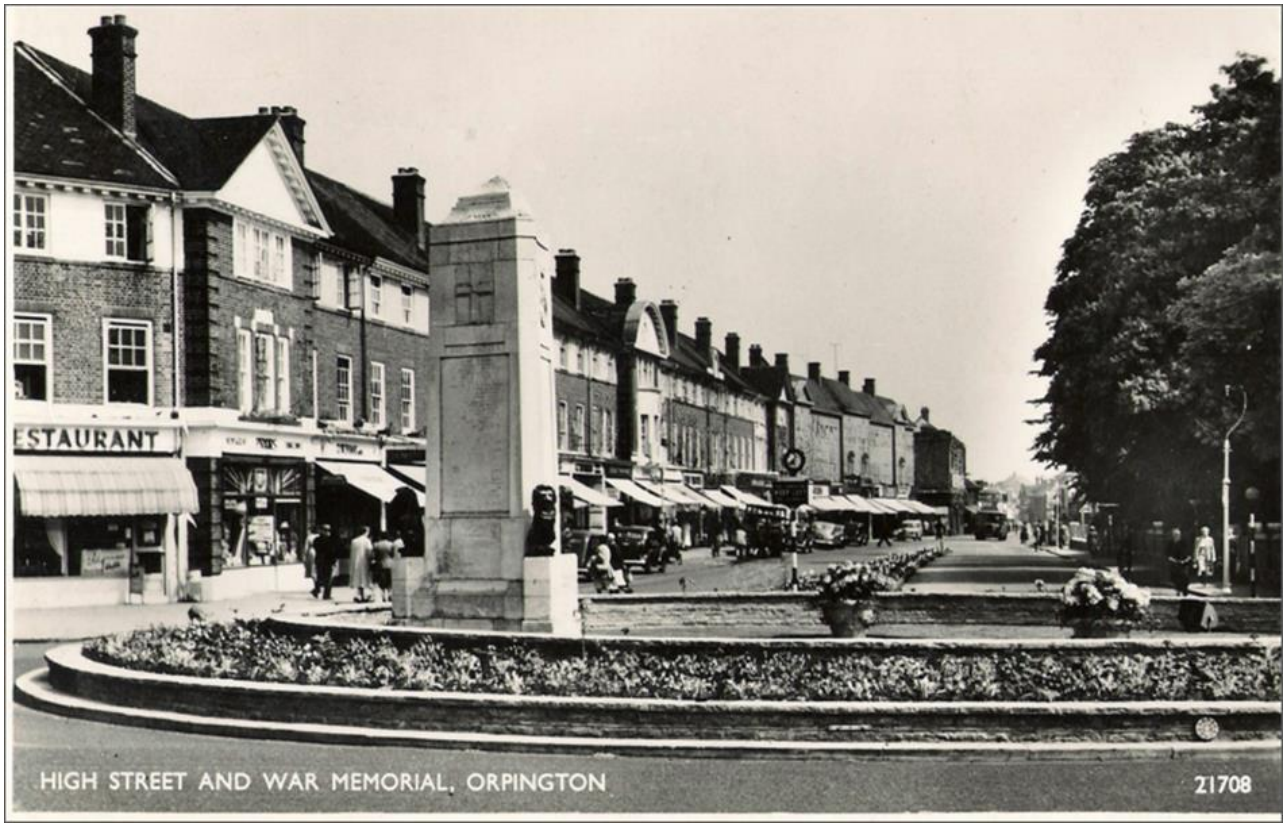

Figure 14. Orpington War Memorial roundabout, 1955 Postcard.

As Orpington was a small village in the early twentieth century, the memorial was important for local residents to mark the loss of a significant number of their young men in the First World War,[76] and their 1997-98 campaign to add memorials to others who fell in later conflicts suggests its significance has not waned.[77] Its importance to the community may also be reflected in the maintenance of the memorial, and the attention given to its soft landscaping,

[75] Ibid.
[76] Orpington History Organisation, https://www.facebook.com/media/set/?set=a.434724203270316.95837.174276472648425&type=3 (accessed 25/05/2022).
[77] HEng, https://historicengland.org.uk/listing/the-list/list-entry/1391943?section=official-list-entry (accessed 25/05/2022).

which has seen many changes since 1950. These include the addition of what appears to be a ring of topiary *Buxus* balls in an image of 1982, that are no longer extant in a 1985 image that records the reintroduction of potted plants on the area of hardstanding. The early 2010s saw the introduction of what appear to be evergreen grasses (Figure 15), but by 2018 the planting appears to have reverted to bedding only (Figure 16). The continued use of bedding is noteworthy, as this style of planting, once a symbol of civic pride in public gardens, has long since largely disappeared from that environment due to local authority financial constraints,[78] but it has continued to be at the very least, the backbone to planting on Orpington roundabout, again, suggesting the site's high value to the community.

Figure 15. Orpington War Memorial roundabout, 11/2013.

[78] Susannah Charlton, 'Introduction', in *100 20th-Century Landscapes*, ed. by Susannah Charlton and Elain Harwood (London: Batsford, 2020), p.12.

Figure 16. Orpington War Memorial roundabout, 2018.

Apart from the incorporation of obelisks, clock towers and war memorials into roundabouts, the research has also identified examples of circular shelters with seating, and a small square pumphouse from the late 1800s/early 1900s.[79] The architect and town planner Raymond Unwin (1863-1940) found value in such features being located where roads converged, noting the particular suitability of obelisks and circular buildings that would look equally pleasing from whichever direction they were approached.[80]

[79] Visit Cleveleys, https://www.visitcleveleys.co.uk/about/history/history-of-the-clock-shelter/ (accessed 01/08/2022); Pembroke Dock Town Council, https://www.pembrokedocktc.org.uk/town-information/ (accessed 01/08/2022).
[80] Unwin, *Town Planning*, p.241.

Section 2. The history and landscaping of purpose designed roundabouts

Whereas the previous section primarily followed the history of three monuments that were incorporated into roundabouts due to their locations, this section considers roundabouts that were constructed as part of town planning schemes, including the first example at Letchworth Garden City; their widespread construction in the 'New Towns'; and their integration into older towns.

The Garden City Movement, that was founded by Ebenezer Howard (1850-1928) in 1899,[81] sprang from his desire for social reform to improve the living conditions of those suffering deprivation in urban areas of the late nineteenth century. He proposed a new type of urbanisation called the 'Town-Country', that would offer the combined advantages of town life (economic and social opportunities), with those of the countryside (nature, healthier environment).[82] His vision was a Garden City, laid out in concentric rings around a central circular 5½ acre garden; the rings were to include a 145-acre Central Park; a glass arcade (the 'Crystal Palace'), open to the park and providing space for boutiques and a Winter Garden; and the Grand Avenue, which was to be a green belt of more than three miles in length, forming a park covering 115 acres (Figure 17). Six wide boulevards were to extend 1,133m from the town's central garden to its circumference, and all roads were to be lined with trees, which Howard noted as an affordable option, unlike the extensive planting he wished to see in his utopian vision.[83]

[81] The Historic England Blog (Nicky Hughes, *The Story of Welwyn Garden City*, 04/12/2020), https://heritage calling.com/2020/12/04/the-story-of-welwyn-garden-city/ (accessed 03/06/2022).
[82] Ebenezer Howard, *Garden Cities of To-Morrow (Being the Third Edition of To-morrow: A Peaceful Path to Real Reform)* (London: Swan Sonnenschein & Co., Ltd, 1902), pp.15-17.
[83] Ibid., pp.22-24,62,63,87.

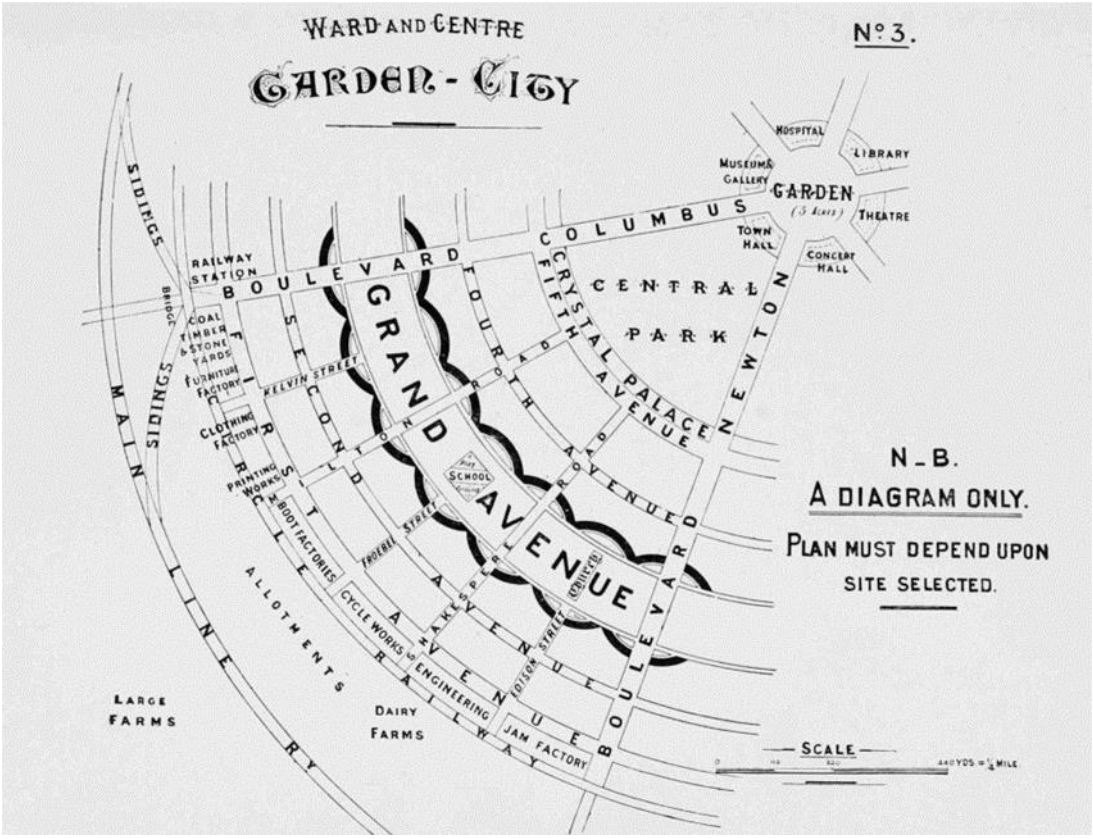

Figure 17. Diagram of one ward (section) of Ebenezer Howard's idealised Garden City, nd.

Beyond Howard's diagrams and ideas on how he thought a Garden City should be laid out, he did not prepare drawings or a planning document with the detail; this was left to the architects and town planners of Howard's first Garden City at Letchworth, Barry Parker (1867-1947) and Raymond Unwin, who worked on the project from 1903. Supporters of the Arts and Crafts Movement with its love of the pre-industrial vernacular aesthetic, their ideas blended easily with Howard's. Whilst incorporating the site's topography and natural features into their design,[84] they adopted his ideas for traffic management and designed a radial street system with roads leading from the town's centre to its perimeters,[85] although not in the perfect concentric circles imagined by Howard (Figure 18).

[84] Stephen V. Ward, *The Peaceful Path: Building Garden Cities and New Towns* (Hatfield: University of Hertfordshire Press, 2014) pp.16,27,40.
[85] Tollazzi, *Alternative Types*, p.7.

Figure 18. Central Letchworth planning drawing, Barry Parker and Raymond Unwin, nd.

This road layout included the UK's first purpose designed roundabout, Sollershott Circus, that connected six converging roads (see lower half of Figure 18) and was designed to give an architectural effect to the junction, with its arrangement of open space that allowed traffic to easily circulate it.[86] A 1908 drawing indicates that the roundabout was to be soft landscaped with shrubs, encircled by a 5m wide footpath for pedestrian use (Figure 19). Circles of trees and hedging between the junction's approach roads is reminiscent of the Place de l'Etoile, Paris, from which Parker took his inspiration during a visit there in 1908, and which he referred to in a speech to the Royal Institute of British Architects in 1909 (Figure 20).[87]

[86] Unwin, *Town Planning*, p.193.
[87] Herts Memories, https://www.hertsmemories.org.uk/content/herts-history/towns-andvillages/letchworth_garden_city/letchworth_places/sollershott-circus-the-uks-first-roundabout (accessed 28/03/2022); Tollazzi, *Alternative Types*, p.7.

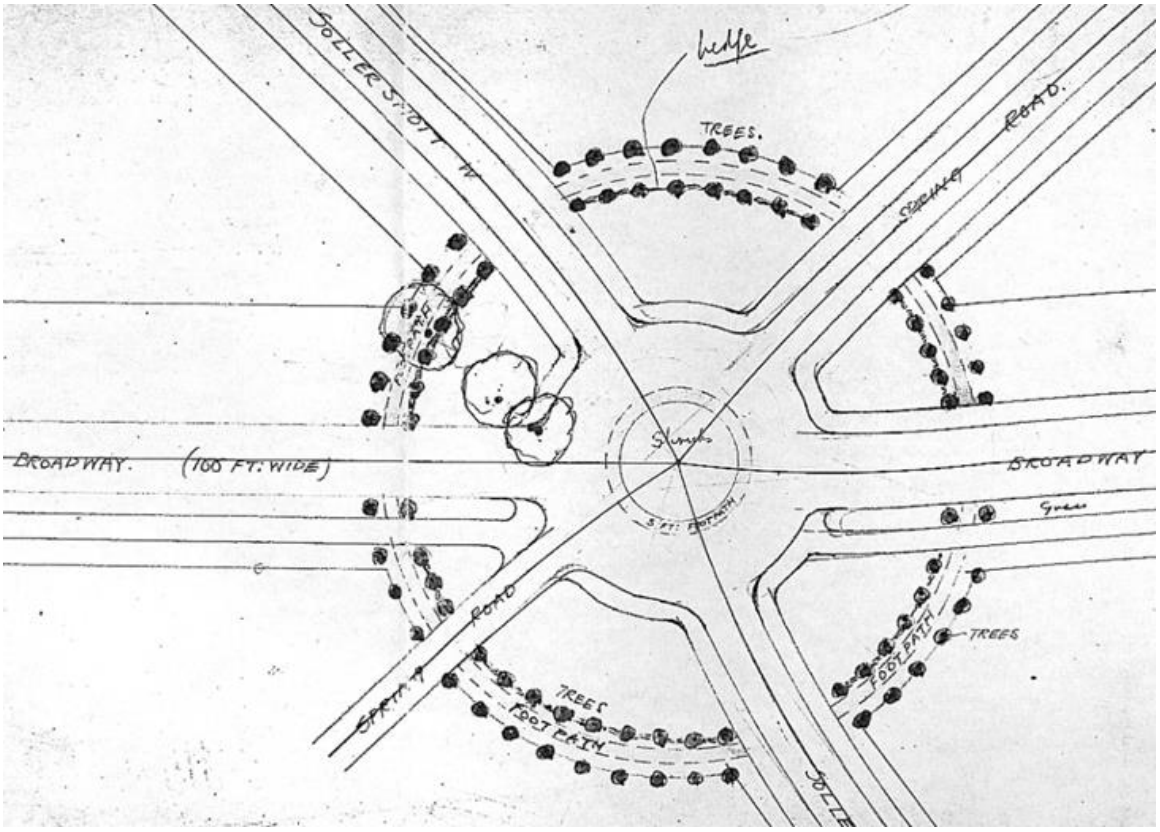

Figure 19. Design drawing for Sollershott Circus, Letchworth, Parker and Unwin, 1908.

Figure 20. Place de l'Etoile, Paris, with its 12 radiating avenues and Arc de Triumph, 1950s.

A 1912 image of the circus provides evidence that the vegetation indicated in the planting plan was adopted (Figure 21), which may have been selected by Unwin, who favoured simple massed planting schemes, the use of grass and avenues of foliage.[88]

Figure 21. Sollershott Circus, Letchworth, c.1912.

In 1932, as some motorists were not driving around the circus in a clockwise direction, Parker requested that a 'Keep Left' sign be erected, and the area of the circle was reduced to encourage drivers to do so; when designing the roundabout Parker and Unwin had assumed they would do this automatically, as driving on the left had been obligatory since the 1835 Highways Act.[89] The sign is recorded in a 1936 image, which also indicates that the shrubs had been replaced by annual bedding, possibly *Geranium* (Figure 22).

[88] Unwin, *Town Planning*, p.270.
[89] Todd, 'A History', p.144; Herts Memories, https://www.hertsmemories.org.uk/content/herts-history/towns-and-villages/letchworth_garden_city/letchworth_places/sollershott-circus-the-uks-first-roundabout (accessed 05/06/2022).

Figure 22. Sollershott Circus, Letchworth, c.1936.

In 2012 the roundabout planting was completely removed (a low-quality image records it as grass with a number of circular beds containing low hedging and what appear to be sparsely planted herbaceous perennials); it was replaced with over 800 shrubs and flowers, including herbaceous plants such as *Digitalis* and *Geranium*, which the local council and the Letchworth Garden City Heritage Foundation selected to reflect their popularity when the roundabout was built.[90] A site visit in June 2022, revealed that the roundabout currently has seven beds, set within grass and edged by *Hebe*, variegated *Euonymous* and unhealthy-looking, woody *Buxus*. The central bed contains a large *Aucuba japonica*, and all beds are filled with a mix of *Papaver, Salvia, Geranium, Sedum, Nepeta, Spirea, Scabiosa, Epimedium* and a pine with a prostrate habit (Figures 23,24). This style of planting is reflected in beds on the outer perimeter of the junction; around the Town Square (Broadway); and around the Museum at One Garden City, thus connecting the circus to the wider townscape. However, it must be noted that Unwin did not favour spaces being divided into several beds, or filled with flowers and plants with

[90] BBC News, http://wwwnews.live.bbc.co.uk/news/uk-england-beds-bucks-herts-22246576 (accessed 27/06/2022).

variegated leaves, and neither the 2012, nor the 2022 planting schemes reflect his chosen style of 1909.[91]

Figure 23. Sollershott Circus, Letchworth, 06/2022.

Figure 24. Sollershott Circus, Letchworth, 06/2022.

[91] Unwin, *Town Planning*, p.270.

Following on from the construction of Letchworth, in 1920 the architect and town planner Louis de Soissons (1890-1962) prepared his masterplan for a second development influenced by Ebenezer Howard's ideas, Welwyn Garden City. Like Letchworth, it had low density housing with many private gardens; wide grass verges; public green spaces; generous landscaping with carefully designed views; and was surrounded by a green belt. Taking account of the existing landscape on which they were building, many trees (mainly oaks and elms) were incorporated into the design (such as at the Quadrangle roundabout in Figure 25), and new roads were planted with young trees.[92]

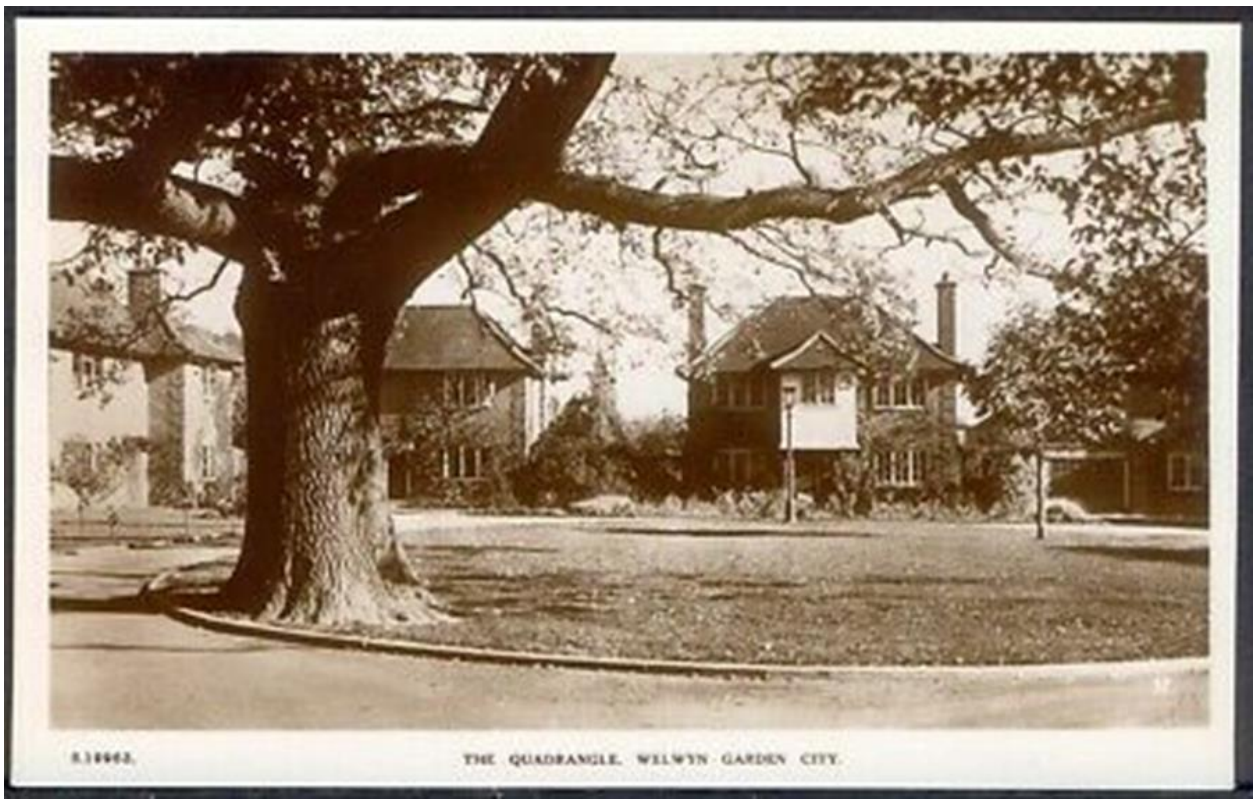

Figure 25. The Quadrangle, Welwyn Garden City, nd.

[92] Welwyn Hatfield Borough Council, http://consult.welhat.gov.uk/portal/planning_policy/local_plan_proposed _ submission_august_2016/lpps_document?pointId=s1467890369508 (accessed 06/06/2022); The Historic England Blog (Nicky Hughes, *The Story of Welwyn Garden City*, 04/12/2020), https://heritage calling.com/2020/12/04/the-story-of-welwyn-garden-city/ (accessed 06/06/2022).

From the 1930s the number of roundabouts nationally rapidly increased, particularly in the new towns, where they became integral to traffic management systems.[93] These towns were developed in response to a housing crisis in the mid-1940s, caused by bomb damage during both world wars, and the government's inability to rebuild bomb damaged houses and sustain its normal level of housing stock replacement, whilst prioritising the war effort.[94] The 1944 Abercrombie Greater London Plan proposed the construction of ten new towns for Greater London,[95] and with the New Towns Act of 1946, corporations were established to develop towns on large parcels of land, both with and without existing development on them, as directed by government ministers.[96] Opportunities existed to develop attractively landscaped public open spaces, and new towns were to be built on the garden city model.[97] Although the extent to which the Institute of Landscape Architects (ILA) was involved in the early stages of planning is debatable, it advocated incorporating existing land forms and features into designs, and building within a green infrastructure of trees, small woodlands, open spaces and natural landscapes. Where necessary, forest belts could be planted around the new towns, and Brenda Colvin (1897-1981) recommended that new roadside cuttings and embankments be planted 'with dogwood, wayfaring tree, goat willow and other mature scrub'.[98]

The new towns were built in three phases, the first of which were designated between 1946-1951, and built on the principle of creating small neighbourhoods.[99] These included Harlow, Essex, for which the architect and landscape designer Frederick Gibberd (1908-1984) drew up

[93] Todd, 'A History', p.146.
[94] F. J. Osborn, *New Towns after the War* (London: J.M. Dent and Sons Ltd, 1942), p.17.
[95] David Hall, 'Garden Cities and New Towns', in Hertfordshire Library Service, *Garden Cities and New Towns* (Hertford: Hertfordshire Publications, 1989), pp.1-11 (p.4).
[96] Legislation.gov.uk, https://www.legislation.gov.uk/ukpga/1946/68/section/1/enacted (accessed 06/06/2022).
[97] Charlton, 'Introduction', p.8.; Stevenage Development Corporation (SDC), *The New Town of Stevenage* (Printed in London & Hertford: Shenval Press, 1949), p.7.
[98] Parliament UK, https://publications.parliament.uk/pa/cm200102/cmselect/cmtlgr/603/603m21.htm (accessed 19/06/2022); Peter Youngman, 'Landscape Planning', in *Fifty Years of Landscape Design*, ed. by Harvey and Rettig, pp.45-52 (pp.47,48).
[99] Hall, 'Garden Cities', p.4.

the first Master Plan in 1947.[100] In the style advocated by the ILA, he incorporated existing land forms and natural features into the design, dropping residential areas into the existing field and hedge patterns, preserving trees and other natural features.[101] Sylvia Crowe (1901-1997) also contributed to the overall design, adding mass planting to enhance the visual appeal of the town and screen unattractive features.[102] Old lanes and hedgerows with grass verges were retained for pedestrians and cyclists who undertook the majority of in-town journeys, and the roads were designed for low capacity use, in line with the low car ownership of the time.[103] The main roads were considered inseparable to the landscape design, and rather than being laid out to cover the shortest distance, they were designed to be seen as part of the wider landscape framing, whilst offering drivers views of the town.[104]

Roundabouts formed part of the design from the outset; images of the town centre from 1959 record that they were set to grass, with the earliest identified images of other planting in the form of beds, hedging and/or trees being seen from 1995 (Figures 26,27).[105] However, a 1969 design drawing for the Brockles Mead residential area suggests otherwise; it records single and grouped plantings of *Robinia*, *Crataegus carrierei* and *Prunus avium* (Figure 28), which were to be repeat planted in other estate areas, along with additional vegetation that supported the idea of creating a woodland feel to the town.[106]

[100] Frederick Gibberd, *Harlow New Town A Plan Prepared for The Harlow Development Corporation* (Printed by His Majesty's Stationery Office, 1947), Harlow Museum Archive, ref. 2004-288.
[101] Ibid., p.12.
[102] Parliament UK, https://publications.parliament.uk/pa/cm200102/cmselect/cmtlgr/603/603m21.htm (accessed 19/06/2022).
[103] Gibberd, *Harlow New Town*, p.10; Frederick Gibberd, Ben Hyde Harvey, Len White, *Harlow: The Story of a New Town* (Stevenage: Publications for Companies, 1980), p.48.
[104] Gibberd, Harvey, White, *Harlow: The Story*, p.49.
[105] Harlow Museum Archive, Specimen examples: 1959, Box 32, 2003-86; 1965, Box 32, 2003-103; 1973, Box 225, 2004-2869.
[106] Landscape Plan Area 84, Brockles Mead, Harlow, 1969, Harlow Museum Archive, ref. 2008-232.2.

Figure 26. Second Avenue grassed roundabout, Harlow, 1963.

Figure 27. Roundabouts with what appear to be planted beds, hedging and/or trees set in grass, Harlow, 1995.

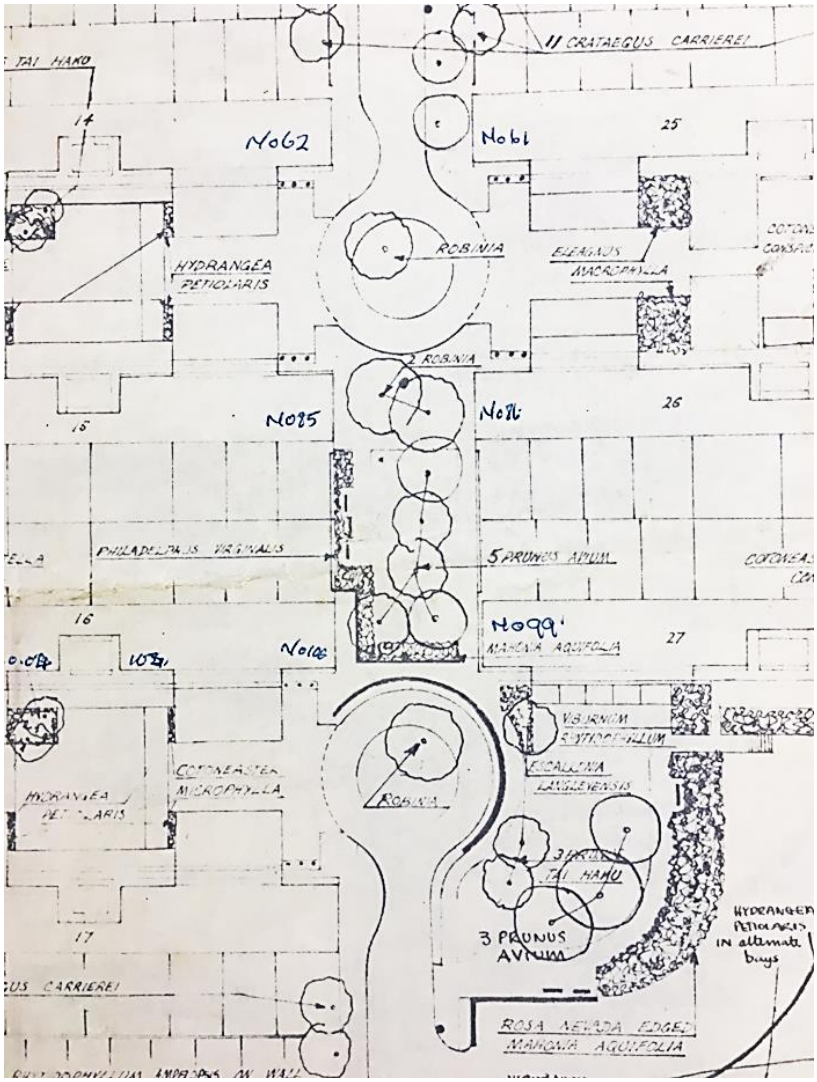

Figure 28. Section of Landscape Plan Area 84, Brockles Mead, Harlow, 1969.

To manage an increase in car ownership and traffic volumes in the 1970s, highway engineers proposed building four miles of elevated roads with multilevel junctions in the town. Wishing to preserve Harlow's character and landscape though, the Development Corporation rejected these proposals and replaced staggered junctions with roundabouts, which increased capacity and improved road safety.[107] A site visit in July 2022 revealed that the 1990s move towards planting hedges and trees on the town's roundabouts continued, creating the sense that one is never far from a woodland, as was intended by Gibberd in his original Master Plan. Of the ten

[107] Gibberd, Harvey, White, *Harlow: The Story*, pp.318,319.

roundabouts visited, just one was set to grass only (Our Lady Fatima roundabout), with the remainder each having at least three trees *(including Aesculus hippocastanum, Fraxinus excelsior, Acer campestre*), and in the majority of cases also with large shrubs (Figure 29).

Figure 29. Edinburgh Gate Roundabout with five mature *Acer campestre*, Harlow, 07/2022.

Harlow's intention to continue with a programme of roundabout tree planting is demonstrated by recent plantings on two new roundabouts (one of which has twenty-one trees, including *Quercus, Prunus padus* and *Tilia platyphyllus*). However, although 2007 Highways Agency advice states that the maintenance of planting must be agreed between the roundabout designer and third parties that might take responsibility for this (such as the local authority),[108] there is no evidence of an irrigation system for these young trees, and many appear to be dead or dying (Figure 30). As the development, planting and maintenance of new roundabouts today potentially involves a landscape designer, construction company, landscaping company, plant

[108] HA, *Geometric Design* (August 2007), p.8/10.

supplier, and local authority or maintenance contractor,[109] it is easy to understand (but not forgive) how planting at new roundabouts may quickly perish. Another point to consider though, is the quality of a roundabout's growing medium; whereas the suitability of soil for road construction was considered when building the new towns,[110] it is suggested that today's engineers do not always understand the needs of horticulturists, and maybe leave them with large areas of concrete and low-quality soil to plant in.[111]

Figure 30. Sheering Road roundabout, Harlow, 07/2022.

Like Harlow, the 1946 original plan for Stevenage New Town also records a number of roundabouts, along with an extensive cycleway network, planned in anticipation that more than 50% of movements from residential areas to the town centre and industrial areas would be by bicycle.[112] Modelled on Dutch traffic engineering infrastructure (most likely De Berenkuil roundabout, Utrecht, planned in 1939), the primary road and cycle networks were developed

[109] Mark Lovejoy, Arborist, Gristwood&Toms, personal communication, 25/07/2022.
[110] SDC, *The New Town*, p.33.
[111] Nick Coslett, Assistant Parks and Landscapes Officer, Stevenage Borough Council, 1981-1986, personal communication, 30/06/2022.
[112] Ward, *The Peaceful Path*, pp.186,187.

from 1955 by engineer and cyclist Eric Claxton, who skilfully designed 'doughnut' roundabouts in which cycleways sit below the roundabout's circular carriageway,[113] ensuring cyclist safety, whilst maintaining free movement of traffic within a green landscaped environment. Again, similar to Harlow, the aim was to create a green town, with 'trees to punctuate the buildings, grass commons between houses' and views of the open country.[114] This style was reflected in the landscaping of the doughnut roundabouts, that have changed little since construction (Figures 31, 32),[115] and recent images of other Stevenage roundabouts record mature deciduous and evergreen trees.[116]

Figure 31. Six Hills Way 'doughnut' roundabout, Stevenage, 1970s.

[113] Roads were not built for cars, https://roadswerenotbuiltforcars.com/stevenage/ (accessed 27/06/2022).
[114] SDC, *The New Town*, p.17.
[115] Coslett, personal communication, 30/06/2022.
[116] Flickr High St roundabout | David Howard | Flickr (accessed 28/06/2022); Geograph, https://www.geograph .org.uk/photo/5556543 (accessed 28/06/2022); Flickr, Gunnels roundabout | David Howard | Flickr (accessed 28/06/2022).

Figure 32. Six Hills Way ‘doughnut’ roundabout, Stevenage, nd.

During the 1980s, the town centre and town entry point roundabouts were planted with bedding and spring bulbs that were changed seasonally to ensure a continuous display, and to reflect the displays of *Geranium* and *Petunia* in hanging baskets around the town centre. To be innovative, a banana plant was included in one of the bedding schemes, only to be stolen a few days later, and never to be replaced. Although local authority financial constraints from the 1990s reduced the extent of roundabout planting and hanging basket displays,[117] 2020 images record bedding and mixed planting on the Asda roundabout, and in reference to roundabout planting, a satisfied member of the community tells us that ‘Stevenage council do some excellent floral displays’ (Figure 33).[118] More recently, following public consultation, the large police station roundabout has been landscaped with more sustainable planting that has a lower

[117] Coslett, personal communication, 30/06/2022.
[118] Flickr, Flower bed in Stevenage | Stevenage council do some excellen… | Flickr (accessed 28/06/2022).

water requirement, encourages pollinators, and offers year round interest and colour with its plantings of *Cornus* and *Mahonia* (Figure 34).[119]

Figure 33. Floral display on Asda roundabout, Stevenage, 09/2020.

Figure 34. Police Station roundabout, Stevenage, 2021.

[119] Twitter, https://twitter.com/StevenageBC/status/1472880033962340356 (accessed 28/06/2022).

During the 1950s, the usefulness and safety of roundabouts as tools for traffic management came into question; increased traffic volumes left many operating above capacity, based on the minimum ratio of weave space to vehicle number calculated by the MoT in 1946. As there was no rule of priority at that time (vehicles entering the roundabout did not have to give way to those already circulating it), exceeding capacity brought all vehicles to a standstill. (The situation was no better in other European countries that operated on a nearside priority rule, giving priority to traffic entering the roundabout.) This issue was resolved after studies at the British Road Research Laboratory led Frank Blackmore (1916-2008) to conclude that enforcing an offside priority rule (giving way to vehicles already on the roundabout) would increase capacity, whilst reducing traffic delays and injury related collisions; this rule was adopted in November 1966. The only other alternative was to build ever larger roundabouts to increase capacity, which was deemed impractical,[120] and would be particularly so in older towns with limited space.

Ebenezer Howard wrote that it is easier to plan a new city, than to change or adapt an old one,[121] and the old town of Ipswich, Suffolk is a case in point, where government plans for expansion in the 1960s brought about the demolition of older residential and commercial properties to create space for a new road network.[122] These works continued in the 1970s, despite residents objecting to an eastern bypass with 'yet one more monstrous roundabout' that would spoil their views across a valley and 'obliterate the dahlia nurseries'.[123] Figure 35 records Civic Drive, that was built to service new housing estates, shopping centres and leisure facilities for the town that was to receive a large influx of London's residents, effectively doubling its population.[124] From north to south (top to bottom) the plan records St Matthew's roundabout,

[120] Todd, 'A History' pp.147-149.
[121] Howard, *Garden Cities*, p.52.
[122] Ipswich Historic Lettering, http://ipswich-lettering.co.uk/ipswichtomorrow.html (accessed 29/06/2022).
[123] Kesgrave and Martlesham By-pass Improvements Group document, 1970, Suffolk Archives, ref. HD2272/153/9/7/1; Department of the Environment letter, 1975, Suffolk Archives, ref. HD2272/153/9/7/2.
[124] Ipswich Historic Lettering, http://ipswich-lettering.co.uk/ipswichtomorrow.html (accessed 29/06/2022).

Wolsey roundabout, and the Civic Drive/Princes Street junction, that was once a roundabout in the heart of the new Greyfriars development.

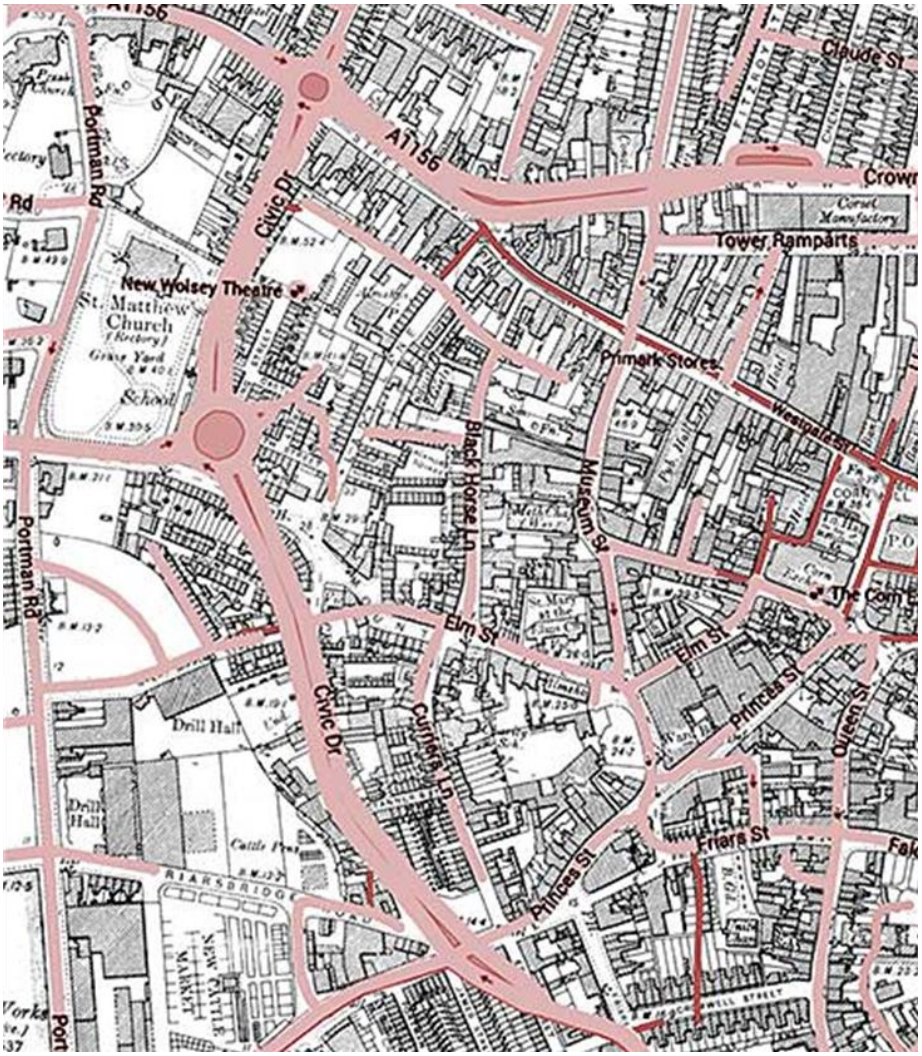

Figure 35. 1902 Map of Ipswich with modern streets and junctions overlaid in pink.

Images of St Matthew's and Wolsey roundabouts of the late 1960s/early 1970s variously record grass and small areas of bedding, including large mounds of dahlias on St Matthew's (Figure 36). Bedding and spring bulbs were to be seen on that roundabout in the early 1990s,[125] but by the 2022 site visit they had been replaced by largely drought tolerant mixed planting (including

[125] BBC, https://www.bbc.co.uk/suffolk/content/articles/2009/03/31/roundabout_food_feature.shtml (accessed 28/07/2022).

Phormium; Lonicera nitida ‘Baggesen’s Gold’; *Alchemilla mollis; Nepeta;* and various grasses) that also offers structure and winter interest (Figure 37).

Figure 36. St Matthew’s roundabout, Ipswich, 1960s Postcard.

Figure 37. St Matthew’s roundabout, Ipswich, 06/2022.

The Greyfriars roundabout has had a more chequered and potentially interesting history though; built as part of the Greyfriars development plan, the area below it was designed as useable space and became home to a restaurant, and later in the early 1970s, a nightclub. The roundabout is recorded in Figure 38, at a point in time when the concrete, grey and stark 1960s

Greyfriars development (on right in image) is being demolished.[126] The nightclub can be seen protruding through the middle of the roundabout, which appears to be planted with shrubs around its perimeter. Although this image suggests there was little concern about beautifying this urban environment, after levelling the buildings around it, the site and roundabout were landscaped with grass and bedding (Figure 39).

Figure 38. Greyfriars roundabout, Ipswich, 1984.

Figure 39. Greyfriars roundabout, Ipswich, 1991.

[126] Anon., 'Gallery: Kindred Spirits looks at the unused and unloved Greyfriars in Ipswich town centre', *Ipswich Star*, 11/10/2020, np.

By 2010 the roundabout had been re-landscaped in a contemporary style that echoed the architectural design of the Willis building (designed by Norman Foster, completed in 1975) with its black glassed, reflective exterior and grassed, hedged roof, from where the view of the roundabout would have been spectacular (building seen in Figure 38).[127] The design included many vegetative components (grass, shrubs, and floral baskets) and a water feature that might have met with the approval of Unwin, who valued the 'life, light and colour' that water could bring to an urban design (Figure 40).[128] However, as part of a scheme funded by central government to improve traffic movements by public service vehicles, cyclists and pedestrians in Ipswich,[129] the roundabout was replaced with traffic signals and a wide expanse of tarmac in 2012 (Figure 41).[130]

Figure 40. Greyfriars roundabout, Ipswich, 2010.

[127] Francis Design, https://www.francisdesign.com/project/willis-building-ipswich/ (accessed 29/06/2022).
[128] Unwin, *Town Planning*, p.287.
[129] The Ipswich Society, http://www.ipswichsociety.org.uk/newsletter/newsletter-october-2015-issue-201/travel-ipswich-what-s-happening/ (accessed 29/06/2022).
[130] Suzanne Day, 'Was Ipswich's Civic Drive junction better as a roundabout?', *Ipswich Star*, 11/10/2020, np.

Figure 41. Greyfriars signalised junction, Ipswich, 2020.

Despite expanding the Ipswich road network to create infrastructure for an increased population, changes in government policy and planned development in other areas such as Milton Keynes, meant that the Ipswich housing developments did not materialise.[131]

Milton Keynes was in the third generation of new towns that were designated between 1966-1970. The Milton Keynes Development Corporation (MKDC) master-planners (Llewelyn-Davies, Weeks, Forestier-Walker and Bor) broke with the traditional road layout of concentric rings around a central town area, choosing instead a decentralised layout[132] with a grid road system designed to give good access around the town, and the flexibility to extend the road network if required.[133] Where possible, the landscape architect Peter Youngman integrated the natural contours and features of the land, creating a curvaceous layout (Figure 42), with main roads designed as generously landscaped parkways.[134]

[131] Paul Geater, 'Ipswich: Revealed 50 years on – Laughable claims for the despised Greyfriars', *Ipswich Star*, 10/07/2013, np.
[132] Roland Jeffery, 'The Centrality of Milton Keynes', *Twentieth Century Architecture, 10, The Seventies: Rediscovering a lost decade of British Architecture* (2012), pp.102-117 (p.103).
[133] Milton Keynes Development Corporation (MKDC), *The Plan for Milton Keynes Volume Two (*Milton Keynes: MKDC, 1970*)*, p.284.
[134] Ibid., pp.301,302; MKDC, *The Plan for Milton Keynes Volume One (Milton Keynes: MKDC, 1970)*, p.41; Jeffery, 'The Centrality', p.104.

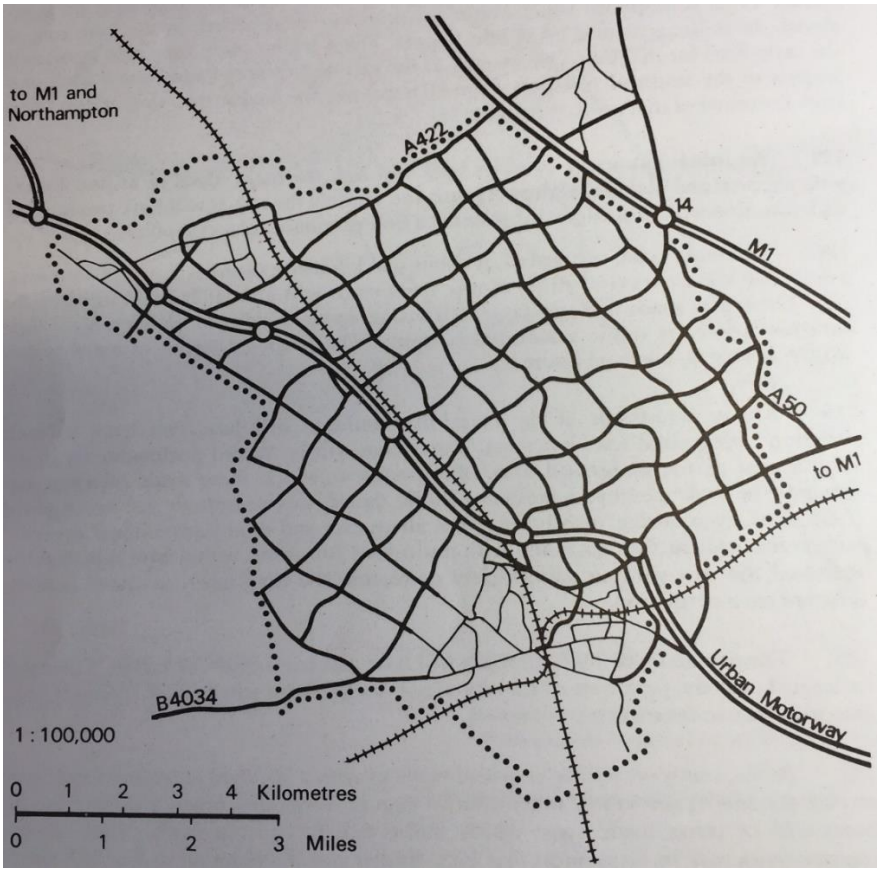

Figure 42. Proposed Main Road Network, Milton Keynes, 1970.

Although roundabouts were not originally planned for Milton Keynes, they were selected as a cheaper alternative to traffic signals and could be incorporated into the curvaceous grid system. Requiring less lane space (and therefore less tarmacked space) than signalised junctions, roundabouts offered further opportunities to increase the green space that enhanced the woodland feel of the town.[135] Some urban planners later raised concerns about the road layout though, such as Steen Eilen Rasmussen (1888-1990), who remarked that the curvature of the roads restricted the view ahead and left drivers unable to orientate themselves.[136] This issue of orientation was also raised by Walter Bor (1916-1999) in 1979,[137] but as Derek Walker (1929-

[135] Walter Bor, 'Milton Keynes New City – ten years on', *Ekistiks*, 46/277 (1979), pp.243-252 (p.251); MKDC, *The Plan Volume Two*, p.286; Jeffery, 'The Centrality', pp.104,105.
[136] Jeffery, 'The Centrality', p.108.
[137] Bor, 'Milton Keynes', p.243.

2015) wrote that 'the aim…was to lose the city in a re-created forest', it can be suggested that the design brief had been met.[138] Today in Milton Keynes, being key to the infrastructure and landscape design, the wide verges remain,[139] and the issue of orientation has been solved by naming the roundabouts and the introduction of sponsorship signage.[140] Like Stevenage, some roundabouts are integrated with Redways (tracks for cyclists and pedestrians),[141] such as Brinklow (Figure 43) that is grassed and planted with shrubs and a perimeter belt of trees. Also reflecting the town's forestry style of landscaping, many roundabouts have mature trees,[142] such as the Open University roundabout (Figure 44) and Simpson, whereas others, such as Shenley and Manderville are simply grassed.

Figure 43. Brinklow roundabout, Milton Keynes, 05/2021.

[138] Adam Lusher, 'Derek Walker: Architect and planner who designed Milton Keynes dies aged 85', *Independent*, 13/05/2015, np.
[139] Buckinghamshire Gardens Trust (BGT), *Understanding Historic Parks and Gardens in Buckinghamshire, Central Milton Keynes* (CMK), Site Dossier (2020), p.10.
[140] Joe Moran, 'Our Roundabout Way of Driving', *New Statesman*, 19/07/2004, p.23.
[141] Letready, https://letready.co.uk/2020/08/19/mk-redways-cycle-paths/#:~:text=The%20route%20stretches%20for%20137%20miles%20%28220%20km%29,for%20cycling%20on%20the%20whole%20137%20mile%20canal. (accessed 30/06/2022).
[142] BGT, *Understanding Historic Parks*, p.7.

Figure 44. The Open University roundabout, Milton Keynes, 2020.

Some of Milton Keynes' roundabouts are also now home to works of art, such as the striking image of the town's Olympic long-jumper, Greg Rutherford, whose success is clearly celebrated and a source of civic pride (Figure 45).

Figure 45. Greg Rutherford / Fen roundabout, Milton Keynes, 2020.

As the Milton Keynes road network was designed to create 'a sequence of visual events for vehicle occupants and pedestrians alike',[143] it could be suggested that roundabout artwork makes a modern contribution to this sequence, and in a town such as Milton Keynes, where modern sculpture formed a key feature of the original designed landscape[144] artistic installations on roundabouts can be successful. However, site surveys have revealed that not all roundabout art is successful, as is arguably the case with *The Ship* at the Wolsey roundabout in Ipswich (Figure 46). Constructed by local sculptor Bernard Reynolds (1915-1997) in 1971, it was originally positioned at the Civic Centre in a blue tiled, water filled pool with water jets splashing its base; moved to the roundabout in 1996, though currently surrounded by a sea of *Lavendula* and described as being orientated towards Ipswich docks and Felixstowe, it would not easily be recognised as a ship, and its suggested interpretation of shipping through the years and a tribute to Ipswich as a port might easily be lost.[145]

Figure 46. *The Ship*, Wolsey roundabout, Ipswich, 06/2022.

[143] MKDC, *The Plan Volume Two*, p.302.
[144] BGT, *Understanding Historic Parks*, p.5.
[145] Ipswich Historic Lettering, http://ipswich-lettering.co.uk/shipreynolds.html (accessed 28/07/2022).

Using roundabouts as spaces for art has increased considerably since the 1980s, as has their use as advertising spaces, whether that be by depicting company names in planting schemes, building products for sale into the landscape design, or erecting sponsorship signs.[146] Roundabout sponsorship has been widely adopted by many local authorities[147] that might benefit from sponsorship income; roundabout landscaping; roundabout maintenance; aesthetic improvements to the locality; and increased business driven by local advertising.[148] However, in February 2022, it was reported that Milton Keynes' income from roundabout sponsorship in the previous 12 months had fallen from a projected £280,000 to just £9,000. Roundabout and bus shelter sponsorship had fallen by 200%, and with many of the 130 roundabouts having old or no advertisements, local councillors proposed waiving the £2,000-£5,000 annual (per roundabout) fee, to help small businesses and to kick-start a post-pandemic recovery.[149] In 2001, John Alcock (Horticultural Development Officer with Oxford City Council since 1961) was also concerned about losing roundabout sponsorship, noting that planting, maintaining and grass-cutting on a roundabout costs £4,000-£5,000 per annum, and without sponsorship, roundabout flowers would be the first to go.[150]

Although Alcock says his preference is for bedding planted into various shapes cut into grass, he notes that the MoT does not favour eye catching displays.[151] This point is quite interesting, as in 1992 the Abergavenny in Bloom group came under attack by the Welsh Office for planting

[146] Peter Barnard, 'Invasion of the magic roundabout', *The Times*, 25/04/1998, p.48; Sponsoraroundabout.com, http://www.sponsoraroundabout.com/media/#television (accessed 28/07/2022).
[147] Marketing Force, https://www.marketingforce.co.uk/areas-covered.html (accessed 28/07/2022).
[148] Buckinghamshire Council, https://www.buckscc.gov.uk/services/transport-and-roads/policies/roundabout-sponsorship/#:~:text=The%20purpose%20of%20roundabout%20sponsorship%20is%20to%20improve,put%20onto%20a%20sign%20erected%20on%20the%20roundabout. (accessed 28/07/2022); South Gloucestershire Council, https://www.southglos.gov.uk/transport-and-streets/streets/road-and-traffic-management-information/road-signs/roundabout-sponsorship/ (accessed 28/07/2022); Wrexham County Borough Council, https://www.wrexham.gov.uk/service/roundabout-sponsorship (accessed 28/07/2022).
[149] Sally Murrer, 'Why does nobody want to sponsor our roundabouts in Milton Keynes?', *MKCitizen*, 07/02/2022, np.
[150] Calinda Crewe, 'The Roundabout Gardener', (interview with John Alcock) *The Times*, 20/01/2001, p.61 [S4].
[151] Ibid.

too many *Narcissus* on their Hardwick roundabout. Being a gateway to Wales, they had planted thousands of bulbs to attract and welcome tourists in the time-honoured tradition that dates back to at least 1938, when important roundabouts were decorated with floral displays in Glasgow for the Empire Exhibition.[152] By the 1960s flower displays on traffic roundabouts had become a source of pride for many communities across the nation, and the British Travel and Holiday Association was leading a campaign to introduce a 'Britain in Bloom' competition (which already had the support of 200 towns in 1963).[153] As is discussed in chapter three, Britain in Bloom groups have gone on to have a significant impact on roundabout landscaping, but with such a wide choice of styles and plant material available, they have not always succeeded without disagreement. In 2002 one such dispute received national media attention when the incumbent Mayor and an ex-Mayor of Aldeburgh, Suffolk, became embroiled in a spat over the roundabout's hanging baskets, which one party derided as 'a monstrous and unauthorised floral erection'.[154] In Oxford, Alcock's favoured *Geranium, Petunia and Calendula officinalis* also came to be criticised by some who wished to see perennial planting on the roundabouts, and the Welsh Office, who thought there were too many *Narcissus*, wanted to see more wild flowers and shrubs.[155]

These issues around plant choice are discussed further in chapter three, but as this chapter nears its conclusion, consideration must briefly be given to a style of roundabout that has recently been introduced to the UK. Designed to meet the needs of pedestrians and cyclists over all other road users, the so-called Dutch-style roundabout, was opened in Cambridge in 2020 (Figure 47).[156]

[152] Anon., 'Daffodils prove too plentiful', *The Times*, 06/04/1992, p.5; Anon., 'The Empire Exhibition', *The Times*, 19/04/1938, p.7.
[153] A Correspondent, 'Brightening towns with flowers', *The Times*, 02/11/1963, p.11.
[154] Libby Purves, Un-named article, *The Times*, 06/07/2002, p.3 [S].
[155] Crewe, 'The Roundabout Gardener', p.61; Anon., 'Daffodils', p.5.
[156] Cambridgeshire County Council, https://www.cambridgeshire.gov.uk/news/dutch-style-roundabout-opens (accessed 30/07/2022).

Figure 47. Dutch-style roundabout, Cambridge, 2020.

Although roundabouts generally have a good overall record of safety, this is not the case for cyclists, who are vulnerable to being struck by vehicles entering the roundabout as they are circulating it. Whereas previous innovative schemes implemented in the UK have not been shown to reduce cycle accidents, in countries where cycling is more prevalent, tighter geometry (narrow entry, circulatory, and exit carriageways) was identified as a contributory factor to improving cyclist safety, along with having a separate cycle track.[157] Applying this method at the new Cambridge Dutch-style roundabout, motorists are obliged to reduce their speed, which allows time to look and potentially stop first for pedestrians crossing, then cyclists on their

[157] D.G. Davies, M.C. Taylor, T.J. Ryley and M.E. Halliday, *Cyclists at roundabouts – the effects of 'Continental' design on predicted safety and capacity*, Transport Research Laboratory Report 285 (Crowthorne: Transport Research Laboratory, 1997), pp.3,4,6,7.

dedicated lane, and lastly other motor vehicles on the roundabout.[158] Although it is acknowledged that some drivers might initially be uncertain how to negotiate the junction, research suggests they will learn through signage and experience.[159] This has been the case since the first vehicles passed either side of monuments at points where roads converged; later learning to move in a clockwise direction; then to giving way to vehicles already on the roundabout. Police officers directed people in 1920s London; Barry Parker had signage erected in Letchworth in 1932; and as late as 1972, with the installation of Ipswich's first mini-roundabout, the local authority posted notices to inform drivers what it was, how the signage looked, where it would be placed, and how to negotiate the junction.[160]

In terms of soft landscaping, the Cambridge roundabout has been planted with a single, centrally located tree, surrounded by what appear to be low growing shrubs. As has been demonstrated, this style of planting, that was first selected for the garden cities and new towns, continues to be a popular choice. Numerous examples of annual bedding schemes have also been recorded, and although still popular in some spheres, it has been identified that its continued use may be threatened by a move towards more sustainable planting schemes.

As the history of roundabout landscaping is on a continuum, it is inevitable that some of the themes raised in this chapter are discussed further in chapter three, that considers the present functions of roundabouts, beyond traffic management.

[158] Cambridgeshire County Council, https://www.cambridgeshire.gov.uk/news/dutch-style-roundabout-opens (accessed 30/07/2022); David Child, 'UK's first Dutch-style cycle friendly roundabout opens in Cambridge', *The Evening Standard*, 07/08/2020, np.
[159] Brown, *The Design*, p.20; Child, 'UK's first Dutch', np.
[160] Ipswich Borough Council, Notice of new roundabout, 1972, Suffolk Archives, ref. HD2272/153/9/6/4.

CHAPTER THREE: THE PRESENT FUNCTIONS OF ROUNDABOUTS BEYOND TRAFFIC MANAGEMENT

Whereas the previous chapter explored the historical development of roundabouts and their landscaping, this chapter (that is also divided into two sections) focuses on their present and potential uses beyond traffic management. Although their use as a source of local authority income has already been discussed, sponsorship is touched upon again in section one, that identifies how people and communities are adopting roundabouts to meet their own needs and agendas. Section two considers the opportunities to use roundabouts for environmental improvement, and it concludes with what might be the most enlightened example of a roundabout designed equally for traffic management, community, and sustainability.

Section 1. Roundabouts as spaces for people

Unlike the many local authorities that have passed roundabout landscaping to sponsorship and marketing companies, in Bury St Edmunds this is managed by the Bury in Bloom society, that was launched in 1986.[161] Largely made up of volunteers, the group works alongside local authorities, businesses and the local community, financing their work through sponsorship and grants, and paying West Suffolk Council to maintain their sites.[162] Prior to the society's involvement many of the roundabouts had simple planting schemes, but since arranging sponsorship for eighteen of the town's roundabouts, the focus has been on low maintenance,

[161] Amanda Mays, Asset Manager (Drainage and Soft Estate), Suffolk Highways, email communication, 03/05/2022; The Bury Society, https://www.burysociety.com/the-bury-in-bloom-story/ (accessed 23/05/2022).
[162] Bury in Bloom, https://www.buryinbloom.org.uk/about/ (accessed 26/05/2022); Melanie Lesser, Chair, Bury St Edmunds and Beyond, email communication, 26/05/2022.

drought tolerant soft landscaping, and the installation of modern artworks on seven sites.[163] Researchers in Germany found that many groups use roundabout landscaping to reflect the individual character of their communities,[164] which is also the case here, where the artworks record key moments in the town's history, and its connections to the surrounding agricultural landscape and local associated industries (such as Green King brewery).[165] These artworks include the martyrdom of King Edmund (Figure 48); commemoration of the 1943 arrival of the US Air Force at the nearby Rougham airfield (Figure 49); and grains of corn (Figure 50), that were sculpted by Nigel Kaines in 2011, 2016 and 2013 respectively.[166]

Figure 48. St Edmund, Risbygate roundabout, Bury St Edmunds, 08/2022.

[163] Lesser, email communication, 26/05/2022; David Irvine, Co-ordinator, Bury in Bloom, email communication, 04/04/2022.
[164] Werner Brilon and Mark Vandehey, 'Roundabouts – The State of the Art in Germany', *Institute of Transportation Engineers Journal*, 68/11 (1998) pp.48-54 (p.53).
[165] Bury in Bloom, https://www.buryinbloom.org.uk/about/ (accessed 26/05/2022); Bury in Bloom, *2013 Portfolio*, Document, 2013, p.6.
[166] St Edmundsbury Chronicle, http://www.stedmundsburychronicle.co.uk/Chronicle/2001.htm (accessed 26/05/2022); Bury St. Edmunds and Beyond, https://www.visit-burystedmunds.co.uk/blog/2018/roundabout-art-tells-the-history-of-bury-st-edmunds (accessed 04/04/2022).

Figure 49. *Flight of Peace* roundabout, Bury St Edmunds, 06/2022.

Figure 50. *With the Grain* roundabout, Bury St Edmunds, 08/2022.

The RHS (that has organised the Britain in Bloom groups since 2002[167]) has commended Bury in Bloom's horticultural contributions to the town, noting its commitment to promoting volunteering, enhancing community relationships, and bolstering civic pride.[168] It is likely that civic pride was the impetus for using highly visible roundabouts to raise awareness of the town's heritage, and it calls to mind the relationship between Orpington's residents and their

[167] London in Bloom, https://londoninbloom.co.uk/britain-in-bloom/ (accessed 30/07/2022).
[168] RHS, https://www.rhs.org.uk/get-involved/community-gardening/news/articles/bury-in-bloom-inspires-cooperation-article (accessed 06/07/2022).

war memorial roundabout. David Marsh notes the power of community pride in reference to the successful 2021 restoration of a memorial to Prince Albert in Swanage;[169] however this is not always enough, as evidenced by the failed 1990s campaign by Hastings' residents, who found little support from local councillors and senior council officers to have their Albert Memorial Clocktower re-erected.[170] Nearby though, in Battle, Sussex, wishing to mark the 950th anniversary of the Battle of Hastings, a local competition and crowdfunding campaign brought forth a 2016 sculpture by Guy Portelli, depicting an opening scene from that historic event. Residents were engaged in this effort throughout the entire process, even to the point of fixing mosaic tiles onto the soldiers' shields (Figure 51).[171]

Figure 51. Battle of Hastings commemoration roundabout, Battle, 2019.

[169] The Gardens Trust (David Marsh, *The First Albert Memorial* Blog, 02/04/2022), https://thegardenstrust.blog/2022/04/02/ the-first-albert-memorial/ (accessed 03/08/2022).
[170] Hemsley, 'Who Remembers', np.
[171] Battle Festival, https://www.battlefestival.co.uk/battle-roundabout-featuring-sculpture-by-festival-2016-artist-in-residence-comes-second-in-british-roundabout-of-the-year-award-2017/ (accessed 15/07/2022).

The RHS is firmly committed to encouraging community participation in horticultural projects, which can have a positive impact on both those actively involved, and the gardening space.[172] In recognition of this, it awards both financial support (as was the case with Bury in Bloom in 2021) to instigate and develop projects, and Community Awards, in recognition of their achievements.[173] The Newton Abbot Community Interest Company, Devon, were recipients of an RHS Outstanding Award, for their development of a community green space with a team of volunteers at the Penn Inn roundabout, where they planted trees, shrubs, and wild flowers under a new flyover, resulting in a radical change to their local environment (Figures 52,53).[174] The volunteers of Stony Stratford in Bloom, Milton Keynes, who have beautified their local Wolverton Road roundabout using plants that attract pollinators, have also received an RHS Outstanding in Nourishing Your Community Award for community vegetable growing.[175]

Figure 52. Penn Inn roundabout, Newton Abbott, prior to community work, 2017.

[172] RHS, https://www.rhs.org.uk/get-involved/community-gardening (accessed 06/07/2022).
[173] RHS, https://www.rhs.org.uk/get-involved/community-gardening/news/articles/rhs-community-funds (accessed 06/07/2022); RHS, https://www.rhs.org.uk/get-involved/community-gardening/news?sortReverse=false (accessed 06/07/2022).
[174] Newsdesk, 'RHS award', np.
[175] Judith Deveson, Stony Stratford in Bloom, email communication, 19/06/2022; Stony Stratford in Bloom, https://stonyinbloom.wixsite.com/stonyinbloom (accessed 06/07/2022).

Figure 53. Volunteers and new landscaping at Penn Inn roundabout, Newton Abbott, 2021.

Whereas the above examples of volunteering and community gardening are conducted with the consent of the landowning local authorities, guerrilla gardening, 'the illicit cultivation of someone else's land', is not.[176] Members of the UK guerrillagardening.org have transformed a number of sites in London, including the Elephant and Castle Roundabout, Camberwell Green, Tower Bridge Road, and St George's Circus, which was discussed in chapter two.[177] It is interesting to note Reynolds' intentions in beginning the UK movement, which he says 'is not just about gardening, it is about communities coming together, making use of idle land';[178] and his plant selection at St George's Circus (to celebrate St George's Day) is suggestive of patriotism and civic pride, rather than rebellion. For some group members it is more political though, such as the landscape architect Britta von Schoenaich who has guerrilla gardened at

[176] Richard Reynolds in McKay, *Radical Gardening*, p.183.
[177] Jane Shilling, 'Green-fingered guerrillas sow the seeds of revolution', *The Times*, 17/02/2006, p.7.
[178] Anon., 'Arbonauts', *The Times*, 10/12/2011, p.11 [S].

Chiswick roundabout, London, and questions who actually owns public land, stating in 2011 that government agencies 'are starting to realise that it's not their land, it's ours'.[179] On the question of land use, it seems that the various local authorities have different attitudes; whereas Southwark Council did not support the work at St George's Circus, and will not work together with the guerrilla movement, Brent Council accepts their activities, and Newham Council has given them some financial support to continue their work.[180] Through collaborating with the Old Chiswick Preservation Society, Transport for London are supporting von Schoenaich's work at Chiswick roundabout, offering group training and labour.[181] At Victoria Park Village roundabout, London, Caroline Bousefield (who does not necessarily regard herself as a guerrilla gardener) sought permission to work on the roundabout from the outset. After noting its neglect in 2004, she contacted Hackney Council and has since reached an agreement to lease it so she can tend the 'garden' on their behalf (Figure 54).[182] Some might suggest that the method of negotiation with the local authority from the outset is more effective than guerrilla gardening, where sites might be worked on for short periods, but later neglected after the initial action[183] (such as Hogarth roundabout where von Schoenaich originally sowed a wildflower meadow in 1996, but due to work commitments next returned to work on the site in 2006[184]).

[179] Ed Cumming, 'How to turn a roundabout into a meadow', *The Telegraph*, 31/07/2011, np.
[180] BBC, Gardens Illustrated Magazine – Guerrilla Gardening Lecture, 08/01/2009, by Immediate Media, https://archive.org/details/podcast_gardens-illustrated-magazine_bbc-gardens-illustrated-magazi_1000111671385 (accessed 11/07/2022). Henceforth Guerrilla Gardening Lecture
[181] Cumming, 'How to turn', np.
[182] The Gentle Author, 'Gardening on the Roundabout', *Spitalfields Life*, 03/06/2019, np.
[183] Guerrilla Gardening Lecture.
[184] Cumming, 'How to turn', np.

Figure 54. Victoria Park Village roundabout, London, 2019.

Whereas the Stony Stratford in Bloom group do not grow food on their roundabouts because of roadside pollution,[185] the Kington Local Environment and Energy Network, Herefordshire, began using a local roundabout to grow potatoes and pumpkins in protest at the local authority reducing its grass cutting regime from seven to three cuts per annum (Figure 55).[186] Although

[185] Deveson, email communication, 19/06/2022.

[186] Anon., 'Guerrilla Gardeners in roundabout plot', *The Times*, 08/08/2014, p.14; Adam Knight, 'Pictures: Potatoes and pumpkin patch planted in Kington roundabout', *Hereford Times*, 05/08/2014, np.

Figure 55. Kington roundabout, Herefordshire, 2014.

the group declared that 'as responsible and eager citizens we undertook urgent guerrilla gardening',[187] it could be suggested that before doing so they might have opened a dialogue with the local authority to determine its reasons for changing its cutting regime. Some local authorities (such as Dorset Council) have adopted a policy of cutting their class B and C road networks just once per annum, to allow wild flowers to complete their lifecycle, attract pollinators and increase biodiversity.[188] The Herefordshire Green Network is campaigning its local authority to adopt a similar policy,[189] which puts them at odds with both Herefordshire Council and the Kington group, who want a return to clipped grass. Von Schoenaich, who supports creating wildflower meadows on roundabouts, has also found herself at odds with

[187] Anon., 'Guerrilla Gardeners', p.14.
[188] Dorset Council, https://www.dorsetcouncil.gov.uk/countryside-coast-parks/countryside-management/verge-cutting/verge-cutting-information-dorset#:~:text=%20Management%20of%20Dorset%27s%20Highway%20Verge%20%201,done%20with%20a%20biodegradable%20herbicide.%20This...%20More%20 (accessed 22/07/2022).
[189] Herefordshire Green Network, https://hgnetwork.org/protecting-herefordshires-verges/ (accessed 22/07/2022).

native wildlife groups, whose work with community projects (she says) has resulted in gardens of brambles and nettles; Reynolds, whose initial motivation was solely to beautify his urban environment (but later began planting for pollinators) was criticised by a local resident for removing an area of grass, which he preferred to flowers.[190] Although von Schonaich raised the question, 'Who owns the land?',[191] in light of different groups having conflicting opinions, perhaps the more relevant question is, who has the right to decide how it is managed?

It has become clear that where some find beauty, others do not, but regardless of how individuals, community groups and guerrilla gardeners are managing their roundabouts, their words and landscaping make it clear that they all have one thing in common, a desire to plant for wildlife, pollinators, and environmental improvement.

Section 2. Roundabouts as contributors to environmental improvement

This section explores both present and potential uses of roundabouts for ecological and environmental improvement; consideration is given to roundabout landscaping to improve biodiversity; air quality; reduce atmospheric carbon dioxide (CO_2); and water management, whilst continuing to be spaces for people and aesthetically enhance the landscape. Regardless of how roundabouts are landscaped though, it must first be acknowledged that they are already environmentally friendly junctions, designed to reduce congestion, and therefore fuel consumption and emissions.[192]

[190] Guerrilla Gardening Lecture.
[191] Ibid.
[192] Moran, 'Our Roundabout Way', p.24; Anon., 'United States: Merry-go-round; The boom in roundabouts', *The Economist,* 11/08/2007, p.36.

Concern for the environment is not a new topic and can be traced back to at least the nineteenth century with William Robinson's 1870 publication of *The Wild Garden.*[193] Most notably, almost a century later, Rachel Carson's *Silent Spring* brought attention to environmental damage caused by pesticide use,[194] and by the 1980s the general public were also expressing their misgivings on environmental management.[195] Although by the 1940s the ILA had already identified that 'the interests of nature conservation and landscape are complimentary',[196] it has been suggested that some landscape architects continued to prioritise architectural design over ecological considerations, only reaching consensus that they had a key role to play in ecological and environmental improvement towards the end of the century.[197] Although roundabouts have not been specifically designed for this purpose, as parcels of land in the wider landscape, it could be argued that their green infrastructure (trees, shrubs, grass, flowers) can make a positive contribution to environmental improvement.

It has been identified that fertiliser and pesticide use on agricultural land has reduced the UK's areas of natural habitation and biodiversity,[198] with 97% of its wildflower meadows lost since World War Two. What remains are small biodiverse patches of land, potentially with isolated gene pools, much in need of conservation and connection.[199] Research to establish levels of biodiversity at roundabouts in Bracknell, Berkshire, found that thirteen of the fifteen roundabouts studied were home to the Carabid beetle, a species indicator that reflects levels of biodiversity. A direct correlation was found between roundabout area and Carabid beetle numbers; whereas smaller roundabouts with sparce vegetation were found to have a lower

[193] William Robinson, *The Wild Garden* (London: 1870).
[194] Rachel Carson, *Silent Spring* (London: Hamish Hamilton, 1963).
[195] Youngman, 'Landscape Planning', p.50.
[196] Ibid., p.46.
[197] Michael Spens, *The Complete Landscape Designs and Gardens of Geoffrey Jellicoe* (London: Thames and Hudson, 1994), p.9.
[198] Biodiversity is defined as 'the diversity of species, habitats and ecosystems' by Sheffield City Council Ecology Unit, Sheffield City Council, https://www.sheffield.gov.uk/parks-sport-recreation/ecology-unit (accessed 18/07/2022).
[199] Nick Coslett, 'Verges to the Rescue', *Pro Landscaper*, 09/2019, p.67.

count, the larger ones were found to have species rich habitats with a greater number of beetles. This led researchers to conclude that increasing habitat varieties on roundabouts would significantly add to urban biodiversity.[200] In Suffolk, some roundabouts have been given the status of Roadside Nature Reserve, indicating that they are species-rich plant areas, and/or have plants of national or county importance.[201] These sites are individually managed to preserve habitats, such as at Claydon roundabout, which is located below the A14 and is cut just once a year in September to preserve its chalk flora, which includes *Anacamptis pyramidalis* (Figure 56).[202]

Figure 56. *Anacamptis pyramidalis*, Claydon roundabout, Suffolk, 07/2022.

[200] Simon R Leather and Alvin J Helden, 'Magic Roundabouts? Teaching conservation in schools and universities', *Journal of Biological Education*, 39/3 (2005), pp.102-107 (pp.102,107).
[201] Suffolk County Council (SCC), https://www.suffolk.gov.uk/planning-waste-and-environment/suffolks-countryside-and-wildlife/landscape-and-wildlife/ (accessed 18/07/2022).
[202] SCC (Claydon Roadside Nature Reserve Factsheet No.144, 06/2020, pp.1,2), https://www.suffolk.gov.uk /assets/planning-waste-and-environment/suffolks-countryside-and-wildlife/RNRs/Claydon-RNR-144.pdf (accessed 03/08/2022).

Today there is a drive to re-connect isolated patches of biodiversity by encouraging wild flowers to grow on amenity grasslands, such as roadside verges.[203] This idea is not new; Sylvia Crowe had already identified verges as one of the few remaining habitats for wild flowers and their associated biodiversity by 1960, but until recently, the presence of wild flowers has not deterred local authorities from executing their rigorous grass cutting regimes.[204] In recent years, wildflower displays on roundabouts have become an increasingly common sight, but as acknowledged by von Schoenaich, native wild flowers have a very short season, and by July they often have the appearance of hay.[205] The question of introducing non-native plants into the mix has been a source of debate, partially driven by pro-native plants organisations,[206] and some ecologists suggest that native plantings have the advantage of encouraging a greater diversity of beneficial invertebrate.[207] It could also be argued that native only planting reflects and connects more closely with the wider landscape, strengthening the local ecology and giving a sense of place.[208] However, research indicates that many invertebrates are not host specific, and a study of 60 urban gardens in Sheffield found no evidence to suggest those containing native only species had higher levels of biodiversity.[209] It is also interesting to note that the researchers found just 33% of the garden plants to be native (including weeds), which might suggest that planting to reinforce a sense of place in urban areas can be equally well achieved by planting a mix of native and non-native species on roundabouts.[210]

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[203] Coslett, 'Verges', p.67.
[204] Sylvia Crowe, *The Landscape of Roads* (London: The Architectural Press, 1960), p.67; Ibid.
[205] Guerrilla Gardening Lecture.
[206] Nigel Dunnett and Andy Claydon, 'Resources: The Raw Materials of Landscape' in *Landscape and Sustainability*, ed. by John F Benson and Maggie Roe (Abingdon: Routledge, 2007), pp.196-221 (p.206).
[207] Leather and Helden, 'Magic Roundabouts?', p.107.
[208] Dunnett and Claydon, 'Resources', p.206.
[209] Ibid.; Ken Thompson, Kevin Austin, Richard M. Smith, Philip H. Warren, Penny G. Angold and Kevin J. Gaston, 'Urban Domestic Gardens (I): Putting small-scale plant diversity in context', *Journal of Vegetation Science*, 14/1 (2003), pp.71-78 (p71).
[210] Thompson *et al*, 'Urban Domestic Gardens', p.71.

Taking this action would introduce plants that require higher temperatures to germinate, consequently beginning to bloom as native varieties are declining, thus extending the season from early spring bulb colour, through to early November, with seed heads providing structure and food well into winter. Although some plants will self-seed, others will need to be sown annually, but overall, such designs tend to be low maintenance, low cost, and environmentally friendly.[211] Such plantings (generally described as 'Pictorial Meadows' and developed by Nigel Dunnett at the University of Sheffield in the early 2000s) can be sown on ecologically poor, urban amenity grasslands, such as roundabouts.[212] Examples of roundabouts with these planting schemes can be found in Glasgow, Woking, Swindon, Birmingham, Liverpool, Leeds, and Sheffield (Figure 57).[213]

Figure 57. Sheffield Park Square roundabout, Sheffield, c.2017.

[211] Katherine Swift, 'Corn marigolds sparkled in the September sun', *The Times*, 27/09/2003, p.33 [S2]; Guerrilla Gardening Lecture; William Robinson, *The Wild Garden* 2nd edn (London: John Murray, 1894), pp.xviii,xix.
[212] Katherine Swift, 'Corn marigolds', p.33 [S2]; Pictorial Meadows, https://www.pictorialmeadows.co.uk/about-pictorial-meadows/ (accessed 19/07/2022); Coslett, 'Verges', p.67.
[213] Pictorial Meadows, https://www.pictorialmeadows.co.uk/project_showcase/enterprise-environmental-project/ (accessed 19/07/2022); Liverpool City Council, https://liverpoolexpress.co.uk/roundabout-in-bloom/ (accessed 19/07/2022).

The environmental benefits that roundabouts can offer are not necessarily limited to their ground level surface area; in collaboration with Balfour Beatty and Biotecture, Southampton City Council transformed the Millbrook roundabout by installing ten living walls in 2019 (Figure 58). Adopting a planting design that reflects the shape of the local River Itchen and Southampton's heritage as a coastal town, the walls have greatly improved the appearance of the roundabout's flyover. The project has increased the roundabout's area of vegetation by 260m^2, and the 11,295 plants were selected from species suitable for Southampton, that would provide a habitat for wildlife and support the city's varied biodiversity. The walls, which are designed to be green all year and have a high-tech integrated irrigation system, are part of a wider local authority scheme for environmental improvement.[214]

Figure 58. Millbrook roundabout living walls, Southampton, nd.

[214] Southampton City Council, https://www.southampton.gov.uk/news/article/southampton-s-living-wall-bursts-into-life/ (accessed 19/07/2022); Biotecture, https://www.biotecture.uk.com/portfolio/highway-living-wall-southampton/ (accessed 19/07/2022).

The environmental benefits of green walls are numerous: catching rain water (in plants and growing medium) that might otherwise land on an impervious surface and contribute to run-off; capturing CO_2; cooling the urban heat island through evapotranspiration; and improving air quality.[215] Delivering clean air is a priority for Southampton City Council,[216] as it is in many cities where high concentrations of nitrogen dioxide and particulate matter (the main pollutants in urban areas and largely derived from vehicle emissions) have been found to be detrimental to health.[217] Green infrastructure is widely regarded as an effective method of reducing urban air pollution, whereby gaseous pollutants are processed through the plant's biochemical pathways and particulate matter is captured on plant material.[218] Although extensive research has found a number of factors that contribute to its effectiveness (plant species, plant maturity, urban density, traffic volumes, temperature, season, weather, wind speeds, particulate size and gaseous composition),[219] discussion here is limited to a few considerations only.

As the ability of green infrastructure to reduce airborne pollution is very localised,[220] it is not surprising that researchers advocate its use as close as possible to the source of pollution, ideally immediately next to the road, with low growing vegetation to capture pollutants emitting from vehicle exhausts, and shrubs managed as 2m high hedging to form a barrier

[215] Samar Sheweka and Arch. Nourhan Magdy, 'The Living Walls as an Approach for a Healthy Urban Environment', *Energy Procedia*, 6 (2011), pp.592-599 (p.595).
[216] Southampton City Council, https://www.southampton.gov.uk/news/article/southampton-s-living-wall-bursts-into-life/ (accessed 19/07/2022).
[217] Thomas Pugh, Angus Mackenzie, Duncan J. Whyatt and Nicholas C. Hewitt, 'Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons', *Environmental Science and Technology*, 46/14 (2012) pp.1-24 (p.2).
[218] Yendle Barwise and Prashant Kumar, 'Designing vegetation barriers for urban air pollution abatement: a practical review for appropriate plant species selection', *Climate and Atmospheric Science*, 3/12 (2020), pp.1-19 (pp.1,3).
[219] Pugh *et al*, 'Effectiveness of Green'; Barwise and Kumar, 'Designing vegetation barriers'; Tijana Blanusa, Michael Garratt, Margaret Cathcart-James, Leigh Hunt and Ross W.G. Cameron, 'Urban hedges: A review of plant species and cultivars for ecosystem service', *Urban Forestry & Urban Greening*, 44 (2019), pp.1-16; Tijana Blanusa, Zeenat Jabeen Qadir, Amanpreet Kaur, James Hadley and Mark B. Gush, 'Evaluating the Effectiveness of Urban Hedges as Air Pollution Barriers: Importance of Sampling Method, Species Characteristics and Site Location', *Environments*, 7/81 (2020), pp.1-19.
[220] Pugh *et al*, 'Effectiveness of Green', p.9.

between vehicles and people.[221] Certainly this might seem like the obvious location to place hedging, but a 2020 study on roadside hedging in Reading found there to be similar total concentrations of particulates on both sides of 1.5m deep *Crataegus* and *Thuja* hedges, concluding that greater hedge depth of these species would be required to reduce concentrations of fine particles.[222] As the minimum recommended width of a footway 'should be sufficient to allow two wheelchairs or double buggies to pass', with this considered to be 2m,[223] it could be suggested that for many urban areas, opportunities to grow hedging even up to 1.5m deep will be limited. Whereas there has been much research on hedging as a barrier between vehicles and people,[224] none has been identified on the potential opportunities of roundabout planting to manage pollution. It may be that this is taken for granted, and indeed, this research has identified roundabouts planted with shrubs (Figures 23,24,37,45,50,53,54,60), but perhaps future plant selection could be made with an eye on species found to be effective in mitigating airborne pollution. Appropriate selection is not an easy task though, as consideration has to be given to factors such as type and size of the pollutant;[225] *Ligustrum ovalifolium* (for example) attracts the metals scandium and vanadium, whereas *Elaeagnus* × *ebbingei* was found to be better at trapping lead, chromium and copper.[226] However, a number of leaf traits that increase the capture of particulate matter have been identified, including small size; hairy or waxy surface; rough surface; and a complex shape,[227] with the 2020 Reading study finding that *Cotoneaster*, with its small, hairy, ovate leaves, attracted the greatest particulate deposition, by

[221] Blanusa *et al*, 'Evaluating the Effectiveness', p.3; Barwise and Kumar, 'Designing vegetation barriers', pp.4,15.
[222] Blanusa *et al*, 'Evaluating the Effectiveness', p.15.
[223] HE, *Footway and Cycleway Design*, Design Manual HD39/16 (Guildford: HE, February 2016), p.2/4; DfT, *Inclusive Mobility A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure* (London: DfT, 2021), p.28.
[224] Blanusa *et al*, 'Evaluating the Effectiveness', p.3; Barwise and Kumar, 'Designing vegetation barriers', pp.4,15.
[225] Barwise and Kumar, 'Designing vegetation barriers', p.6.
[226] Blanusa *et al*, 'Urban hedges', p.11.
[227] Barwise and Kumar, 'Designing vegetation barriers', p.7; Blanusa *et al*, 'Evaluating the Effectiveness', pp.1,16.

leaf area.[228] Foliage longevity is also key to reducing air pollution (with evergreen species naturally being more efficient than deciduous species), as is plant maturity (chemical and morphological changes associated with leaf ageing increase pollutant deposition rates).[229] It has been suggested that where space permits, high and low-level vegetation should be combined,[230] which many roundabouts lend themselves to, and in some cases allow plants to achieve greater maturity, including the Claydon (Roadside Nature Reserve) roundabout, that has an area of c.5194m2 (Figures 29,44,59,60).[231]

Figure 59. Claydon roundabout, Suffolk, 07/2022.

[228] Blanusa *et al*, 'Evaluating the Effectiveness', p.15.
[229] Barwise and Kumar, 'Designing vegetation barriers', p.7; Blanusa *et al*, 'Urban hedges', p.11.
[230] Barwise and Kumar, 'Designing vegetation barriers', pp.4,15.
[231] SCC (Claydon Roadside Nature Reserve Factsheet No.144, 06/2020, pp.1,2), https://www.suffolk.gov .uk/assets/planning-waste-and-environment/suffolks-countryside-and-wildlife/RNRs/Claydon-RNR-144.pdf (accessed 03/08/2022).

Figure 60. Edinburgh Way / Howard Way roundabout, Harlow, 07/2022.

However, an abundance of mature vegetation is not always a good thing, as seen in Figure 60, where the pollution mitigating vegetation is flowing onto the road surface and one tree has snapped at this very busy central Harlow roundabout, which currently poses a risk to road users through lack of maintenance. Managing vegetation poses a risk to maintenance workers though, whether accessing the roundabout by foot or vehicle.[232] It must also be noted that whereas towns like Harlow and Milton Keynes were built with wide avenues and have large roundabouts that can accommodate mature trees, in urban areas where roads may be enclosed by high rise buildings, allowing trees to grow to maturity with wide canopies has the potential to limit air exchange from above, thus containing pollutants at a lower level.[233] Also to be considered is that urban roadside environments present extremely stressful conditions for vegetation, and despite extensive research on the subject, it is not yet known how much

[232] Lovejoy, personal communication, 25/07/2022.
[233] Barwise and Kumar, 'Designing vegetation barriers', p.4.

pollution a plant can ultimately tolerate, whilst continuing to grow as a healthy specimen.[234] What environmentalists have identified though, is the potential carbon storage capacity of hundreds of tree species, which means those who are planting to combat global warming can make informed judgements on the optimum species for their planting location.[235] With local authorities increasingly considering carbon management, many are including tree planting as a solution in their plans[236] (which may potentially have been the case with the failing young trees at Harlow's new roundabouts).

Although it might appear that much criticism is being levelled at Harlow Council, their extraordinarily high levels of roundabout planting should be commended, particularly when compared to a recent roundabout installation at Colchester, Essex, where two small roundabouts (grassed and with a tree) were replaced with a single larger one of hard standing, which will inevitably contribute to the urban heat island effect (Figure 61).[237]

Figure 61. Cowdray Avenue / Ipswich Road roundabout, Colchester, Essex, 06/2022.

[234] Ibid., p.9; Dr Tijana Blanusa, RHS Principal Horticultural Scientist, email communication, 12/07/2022.
[235] Barcham, https://assets.barcham.co.uk/wp-content/uploads/2021/02/TOP-TRUNKS-TABLE.pdf (accessed 21/07/2022); Mark Maslin, *Climate Change A Very Short Introduction* (Oxford: Oxford University Press, 2014), p.2.
[236] Alex Gilroy, Sales Executive, Barcham Trees, personal communication, 21/07/2022.
[237] Anon., 'Single roundabout proposal on table for Colchester's Ipswich Road junction', *East Anglian Daily Times*, 11/10/2020, np; Essex County Council, https://essexhighways.org/a133-ipswich-road-improvements-colchester (accessed 24/07/2022); Oliver Milman, 'Urban heat island effect exacerbating summer heatwaves, study shows', *The Guardian*, 14/07/2021, np.

Despite landscape designers now having the ability to select trees based on their levels of carbon sequestration, there are still significant gaps in the literature on this topic, which is also the case with the role that green infrastructure can play in flood prevention.[238] Of concern since the 1970s, flooding is caused by a number of factors, including poor condition of old urban drainage systems; unpredictable storm run-off; the growing number of dense urban developments with extensive paving; and building adjacent to and on floodplains.[239] (Surface flooding close to the new Cowdray Avenue roundabout pictured above, has occurred on a regular basis since houses were built on the River Colne flood plains.[240]) With an increase in stormy events over the past fifty years, and the prospect of heavy rainfall events becoming more common, it is almost inevitable that flooding will become more frequent and more severe.[241] At the same time, and also caused by global warming, heatwave events are also predicted to increase, making water both a finite resource, and an unpredictable destructive force, that needs to be carefully managed.[242] Green infrastructure can offer integrated systems to support the management of both urban flooding and drought, through the application of Sustainable Drainage Systems (SuDS) that use various components to control the flow of rain and surface water, redirecting it, storing it, and allowing it to slowly infiltrate into the ground.[243] Vegetation is primarily used to intercept and retain rainfall to reduce run-off (as in the green walls at Southampton) and restore the soil's capacity to absorb more water through evapotranspiration.[244] Although in the UK SuDS components such as green roofs, bioswales,

[238] Blanusa *et al*, 'Urban hedges', p.1.
[239] E.C. Penning-Rowsell, D.J. Parker and D.M. Harding, *Floods and Drainage* (London: Allen & Unwin, 1986), p.26.
[240] Tom Dalby, 'Colchester: Call for action to tackle Cowdray Avenue flooding', *Essex County Standard*, 30/12/2021, np.
[241] Maslin, *Climate Change*, p.76.
[242] Ibid., pp.11,79,80; Nigel Dunnett and Andy Claydon, *Rain Gardens Managing water sustainably in the garden and designed landscape* (Portland, Oregon: Timber Press, Inc., 2007), p.9.
[243] Susdrain, https://www.susdrain.org/delivering-suds/using-suds/suds-components/suds-components.html (accessed 23/07/2022)
[244] Blanusa *et al*, 'Urban hedges', p.12.

and rain gardens have been given much attention,[245] it appears that the benefits of integrating SuDS into roundabouts have been completely overlooked. However, this is not the case in the USA, where in 2010 Hoerr Schaudt Landscape Architects constructed the Uptown Circle (roundabout) to manage stormwater and traffic. It functions by collecting run-off from the streets joining the circle, storing and treating it in a 75,000-gallon underground cistern, before using it to irrigate local vegetation, or be cleansed in the roundabout's wetland filtration system (Figure 62). The sound of the water acts as a buffer to traffic noise for the residents, who congregate on the roundabout that was also designed for community recreation and sustainability.[246]

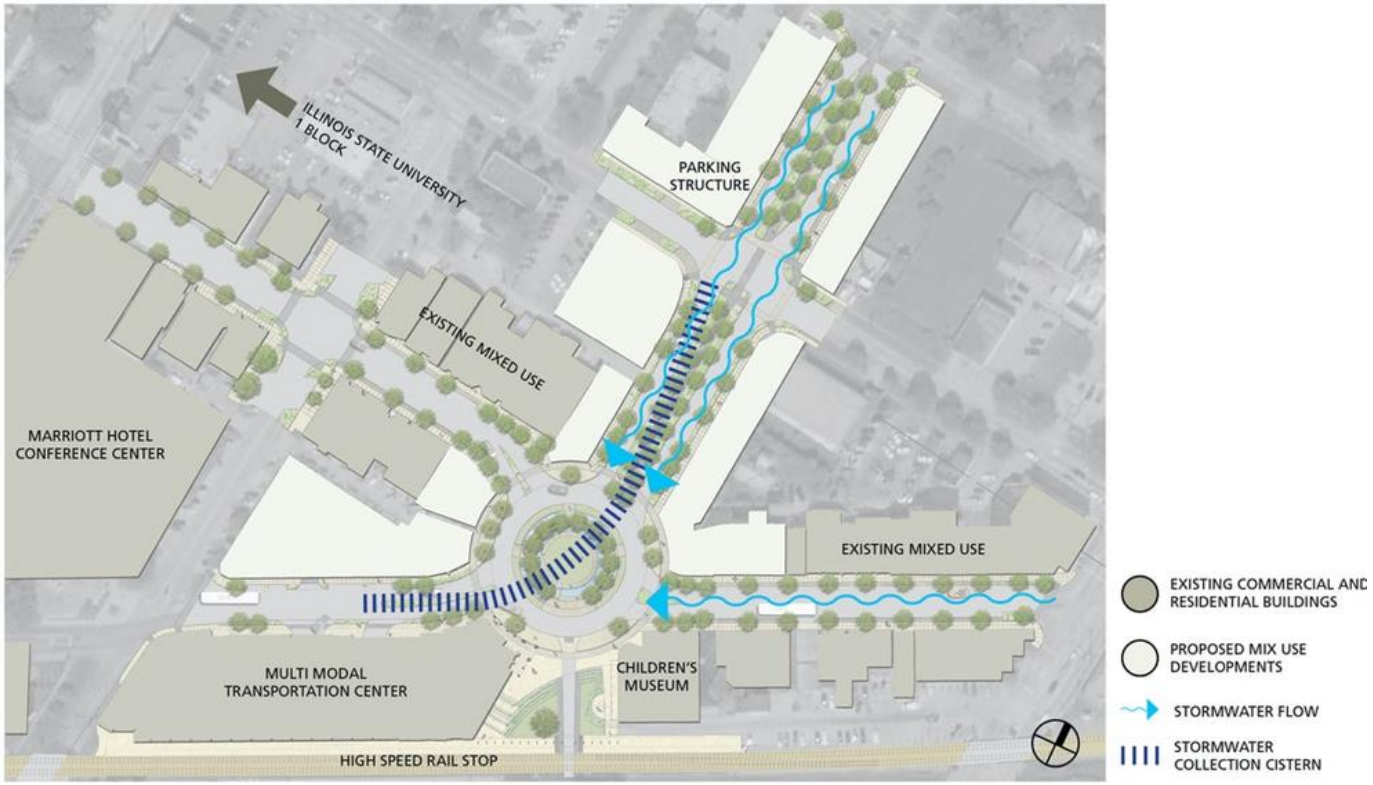

Figure 62. Uptown Circle, Normal, Illinois, stormwater management design, nd.

[245] Ibid.
[246] Architonic, https://www.architonic.com/en/project/hoerr-schaudt-landscape-architects-the-circle-uptown-normal/5101740 (accessed 23/07/2022); Hoerr Schaudt, https://hoerrschaudt.com/project/uptown-normal-circle/ (accessed 23/07/2022).

As part of the wider landscaping scheme, 104 trees were planted into underground structural cells on the roundabout and its approach roads, allowing room for root growth, irrigation, and recharging groundwater supplies with storm water. It has been calculated that the trees sequester at least 4,900 kilograms of carbon annually. Rob Gray, landscape architect at Hoerr Schaudt, says the design was intended to challenge what a roundabout is in urban infrastructure, recognising its value in traffic management and flood mitigation, but believing it should also be a place for people, and a celebration of the values and identity of the community (Figures 63,64).[247]

Figure 63. Uptown Circle, Normal, Illinois, nd.

[247] Architonic, https://www.architonic.com/en/project/hoerr-schaudt-landscape-architects-the-circle-uptown-normal/5101740 (accessed 23/07/2022); Hoerr Schaudt, https://hoerrschaudt.com/project/uptown-normal-circle/ (accessed 23/07/2022).

Figure 64. Uptown Circle, Normal, Illinois, nd.

Despite efforts to identify contrasting opinions on the success of this design, none have been found; however, it must be noted that this roundabout is located in a business district that may have low traffic volumes, particularly at weekends and evenings, when families are more likely to congregate. Although it is open to question why such schemes are not being implemented in the UK, perhaps it is only a matter of time. At the close of chapter two reference was made to Cambridge's new Dutch-style roundabout; with its reduced traffic speed, and designed to prioritise cyclists and safe crossing for pedestrians, it is not impossible to imagine an Uptown Circle style roundabout fitting within a Dutch-style roundabout scheme.

CONCLUSION

Although it has been said that roundabouts are 'perennially associated with clinically planned, anonymous public spaces',[248] this work suggests otherwise. It has been demonstrated how early roundabouts were set around monuments that were highly valued by communities, and since the 1980s there has been a trend towards using roundabouts as spaces for art, primarily to highlight and celebrate an area's history or achievements, and as an expression of civic pride. Rather than accepting roundabouts as 'dead space',[249] those that actively engage in beautifying them might agree with De Soissons, that streets should be enjoyable places, and travelling through them a pleasure.[250] This sentiment is supported by opinion polls in Germany, where communities responded positively to aesthetically pleasing roundabout designs, whether that be through the use of statuary and monuments, or soft landscaping.[251]

Reflecting on the changes in roundabout soft landscaping over the past century, although a general shift away from annual bedding (with its associated financial and environmental costs[252]) has been identified, it is occasionally still to be seen, primarily in towns seeking to attract visitors and tourists. Bedding is also to be seen in Stevenage though, where an eclectic approach to roundabout landscaping includes grass, trees, and sustainable planting. Unlike Stevenage, the new towns of Harlow and Milton Keynes have developed roundabout planting that maintains the woodland feel of those towns, as set out in their development plans (with the addition of artworks in Milton Keynes). Largely driven by local authorities, environmental, and community groups, the overriding trend has been towards more sustainable, drought

[248] Moran, 'Our Roundabout Way', p.23.
[249] Lovejoy, personal communication, 25/07/2022.
[250] William Allen, 'The Architecture of the Garden Cities and New Towns', in Hertfordshire Library Service, *Garden Cities and New Towns*, pp.88-112 (p.91).
[251] Brilon and Vandehey, 'Roundabouts', p.53.
[252] Charlton, 'Introduction', p.12.

tolerant, wildlife friendly planting; yet there is still much to do both in terms of the research and implementation of green infrastructure that has been shown to be cost effective at providing numerous ecosystem services, whilst having a positive effect on mental and physical health.[253] Indeed, although the risks associated with accessing and being on roundabouts must be acknowledged, a journalist researching gardening on roundabouts found that 'the pungent scent and the absorption of the work induced a state of concentration in which the presence of the traffic did not register. We were consumed by our task'.[254]

The need to manage our finite spatial resources, as expressed by the Stevenage Development Corporation in 1949[255] was reiterated by guerrilla gardener Reynolds in 2022, who noted the need to look after small patches of land, particularly when there is a worldwide deficit of this valuable resource.[256] This work has demonstrated how small, and sometimes large patches of land, that also function as roundabouts, have a much greater role to play beyond traffic management. The key components are already there; Highways England supports improving the environmental performance of landscapes (for people, health, cultural heritage, biodiversity, land, soil, air, water, climate),[257] and the large number of geometric variables that come into play when designing roundabouts, offer infinite design opportunities.[258]

[253] Barwise and Kumar, 'Designing vegetation barriers', p.1; Blanusa, *et al*., 'Urban hedges', p.1.
[254] The Gentle Author, 'Gardening', np.
[255] SDC, *The New Town*, p.18.
[256] Guerrilla Gardening Lecture.
[257] HE, *Introduction to environmental*, p.11; HE, *Landscape and Visual*, p.6.
[258] Dr L.G. Willumsen, W. Kay and A. Ghosh, *Computer Assisted Design of the Geometry and layout of roundabouts*, Interim Report on Research Grant GR/C/42955, September 1985, British Library ref. 3926.78818.

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