Resolving Berlin's Housing Crisis

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Note: The Annotated Bibliography that led to this essay can be found earlier in the collection.

Berlin is a city in crisis. Germany's capital is rapidly losing its reputation as one of Europe's coolest and most affordable cities as rents have skyrocketed in recent years. Since 2008, rents have more than doubled, and in a city where 85% of people rent, that is a huge problem (Nasr and Hansen). It is such a crisis that Berlin's legislature has taken the unprecedented step to freeze rents for the next five years, over protests from housing analysts and construction firms, according to a *Reuters* report from Joseph Nasr and Holger Hansen. Yet the city legislature has also promised to build a mind-boggling 200,000 new housing units by 2030, a nearly unimaginable goal but one that is needed to keep up with demand and make up for previously lagging housing construction (O'Sullivan). The city wants to build so much that it has no idea of where to put it. With this massive pressure to build, Berlin has experimented with everything from the tasteless to the absurd, including building apartments on the site of Germany's first concentration camp (Borden). As Dan Borden writes for *EXBERLINER*, "expect to see more Berlin history trampled to put roofs over our heads."

But Berlin must have other options. The city is large and has wide reaching authority over its territory as a state in Germany's federal system. For one, as Feargus O'Sullivan, a reporter for *CityLab* explains, the city has numerous out of use brownfield sites throughout the city, a telling relic of its checkered past from World War II and the

time of the Berlin Wall and GDR. But those spaces are simply not enough for the volume that the city needs. Some suggest that Berlin must build on its vaunted green space, but the question still falls of on which green space. The city has a massive amount, more than 6 square meters (about 65 square feet), for each citizen of the city (Kabisch and Haase). The city's most desirable areas have relatively large amounts of open space, even in the urban core, but whether it will or should be built on is a separate question. Berliners have resisted moves to develop more of the city, from voting down a referendum involving the former airfield and current park Tempelhof to backlash against gentrification in Kreuzberg (O'Sullivan). There is still a push for more construction in these open spaces in the inner-city, however, and Mayor Michael Müller still wants to build on Tempelhof. Another option lies in the plentiful greenspaces surrounding the city, but to build there faces another set of challenges, namely NIMBY impulses in these largely wealthy areas and a wish to limit city sprawl (O'Sullivan). What should Berlin do given these conflicting impulses about construction? Should the city sacrifice its core green space for needed housing or focus instead on building on sites further from the city center?

Ultimately, even while Berlin city leaders push for new construction throughout the city, it is more important to balance the city's housing needs with preserving greenspace. This paper will look to examine these conflicting impulses about construction and greenspace that find themselves at the heart of Berlin's housing debate. To start, the severity of Berlin's need for housing construction will be examined. Then, the availability of spaces for said construction will be

evaluated. Next, there will be a discussion of the harms that would be done to the people of the city, including to their health, should more housing be constructed on inner-city green space, including on the site of Tempelhofer Feld. Accordingly, there will then be analysis of where Berlin can build in place of sacrificing the greenspaces in its core, which is something that the city ought to avoid. Ultimately, Berlin must weigh its options and choose the lesser of two evils and develop areas towards its perimeter, sacrificing prime building location in exchange for protecting its urban greenspaces and the well-being of its residents.

The Severity of Berlin's Crisis

Before delving into how Berlin should best address its housing crisis, it is necessary to look at its severity. Berlin certainly does face a similar plight as other cities around the world, as increasing demand in part due to inward migration has put a serious upward pressure on housing prices. In 2017 alone, Berlin saw 41,000 new people move into the city and is on pace to grow from 3.7 million inhabitants today to 4 million by 2030 (O'Sullivan). To meet this demand and a backlog of need from previously slow construction, the Berlin Senate's Department for Urban Development calculates the city needs to construct at least 194,000 units to keep up; the city, to respond, has promised to build at least 200,000, with half set to be affordable (Bünger; O'Sullivan). However, many claim that this is not enough, including Mayor Michael Müller's Social Democratic Party (SPD). The SPD argues that the city needs 300,000 new units by 2030 as they point to the Senate's calculations underestimating where the population will lie by the end of the decade (Bünger). Either way, this is still a massive

number of new units, which may be challenging given controversies between governing parties about where to build, resistance from the population for destroying greenspace, and the downward pressure that the rent freeze (*Mietendeckel*) places on new construction (in the first part of 2019 the city saw a 10.7% decline in the approval of new apartment construction) (O'Sullivan; Schönball "Schon wiede"). This latter development, along with the failure of city housing purchases to push down housing prices, indicate that the only solution that Berlin has remaining to counter rapidly rising rents is to build (Kirschbaum).

Before moving forward, I am going to perform calculations of my own to determine the need for housing which will be referenced through the rest of this paper in order to resolve the discrepancies in existing projections from the Senate and SPD. Different calculations are shown in Table 1 as follows. The row labeled Senate are the numbers provided by the Berlin Senate as previously discussed. Senate adjusted is the same base calculations but adjusted for the population being 4 million by 2030. The final row are my own calculations, based on the most recent data from the Berlin-Brandenburg Statistics Office (from 2018). According to the Statistics Office, the number of households per dwelling is not what one would expect at 1.0, but instead is 1.06, making the difference between the number of households in Berlin and the number of dwellings 100,935 ("Kleine Berlin-Statistik" 29). Therefore, the table shows two different numbers for needed housing stock, one of which uses number of needed dwellings to fill the backlog per the Berlin Senate (77,000) and one of which uses this value from the Statistics Office, labeled as adjusted (Bünger). As seen in Table 1, I have calculated the actual number of needed new dwelling units (new

housing units) to be 243,300. This number will be used for the remainder of the paper.

Table 1

Source	Population by 2030[1]	People per dwelling[1]	New households by 2030[1]	Number of dwellings needed[1]	Number of dwellings needed, adj.[1]
Senate	3828.0[2]	1.547	117.0	194.0	217.9
Senate adj.	4000.0[3]	1.547	162.9	239.9	263.8
Author	4000.0[3]	1.771[4]	142.4	219.4	243.3

Finally, before discussing the implications of this for Berlin's greenspace, it is important to look at the key indicator of how severe this problem is, which is the change in prices of housing in Berlin over the last few years. Housing sales prices, a relatively small proportion of the market, have risen 208.2% in the last 10 years to 4,760 Euros/square meter ("Berlin Property Market"). More critical is rental prices, which have more than doubled since 2008 (Nasr and Hansen); the price of new rentals has increased by 31% in the last 5 years, while for new construction rents have increased 50.7% ("Berlin Property Market"). However, this includes the limit on price increases due to the rent freeze (Nasr and Hansen). Therefore, Berlin most certainly faces a grave housing crisis, with prices rising much more rapidly than

[1] In Thousands
[2] According to Bünger
[3] Prediction according to O'Sullivan
[4] Calculated based on data from the Berlin-Brandenburg Statistics Office ("Kleine Berlin-Statistik" pp. 29)

inflation or wages and a drastic need of over 200,000 new housing units.

Where could it all go? Options for Construction in Berlin

The task of building over 200,000 new housing units by 2030 is quite a difficult one, especially in a city which has historically missed building targets and now has the deadweight contributed by the rent freeze. But the city does indeed have the space for such a massive expansion, as it has more than 6 square meters of space per inhabitant, exceeding the city's own target (Kabisch and Haase). While this per capita figure is dubious for planning due to uneven distribution of greenspaces in the city, which will be examined later, it does indicate that at some level Berlin has large amounts of greenspace and thus areas on which housing could be built.

The easiest place to look in Berlin for new construction projects is the city's numerous brownfield locations, which are places in a city previously occupied but have now fallen into disuse (Kälberer). A report for the German Federal Environmental Agency extolls the virtue of such developments, including for "reducing further land occupation" (Kälberer 4), like through the construction of 6,000 apartments on the side of a former railyard in the city center (O'Sullivan). This aspect of brownfields indicates that redeveloping them into usable spaces like housing are ultimately most beneficial, as it keeps the overall land use of the population the same while allowing more people to actively use it. Furthermore, somewhat surprisingly, the number of brownfield sites across Germany, including in Berlin, rose after reunification, leaving a lot of space for potential redevelopment (Kälberer). However,

O'Sullivan points out that in Berlin's case, while there may be substantial opportunities to develop the city's many brownfield locations, that simply does not meet the vast quantity of housing units that the city needs to construct, meaning it must supplement brownfields with other options.

Similar to the redevelopment of brownfields is an approach that more-or-less involves optimizing the usage of existing structures, included through adding floors to existing residential buildings or the construction of apartment blocks on top of grocery stores (O'Sullivan; Borden). The latter has the potential to be a major injection of new housing supply in Berlin, should the city be willing to fully exercise it; grocery store chain Aldi has already begun to proceed with building units on top of two of its stores (see Figure 1), which if expanded city wide would lead to 2,000 new units (Borden). While nowhere near the 243,300 units needed, this is a sizable number that is worth the city's interest.

Figure 1: Rendering of an Aldi Store with apartments. Image from Borden.

However, these two options still leave Berlin short, if it chooses to pursue them at all. That leaves a clear other option that is the most contentious: using the city's greenspace. First are a myriad of options that would develop greenspace lying in some of the city's central districts, including city-owned parks and courtyards around buildings. Movements have already occurred in this regard, including an attempt

to build on a courtyard in Lichtenberg and construction on the site of a cemetery (not true greenspace, but an approximation of it) in the district of Neukölln (Klages and Stollowsky; O'Sullivan). Another major project, the potential redevelopment of the former Tempelhof Airport, is such a consequential one that it will be discussed in a following section. This option of developing on greenspace in the city center seems to be what most attracts Berlin's leadership, especially as these are the most in-demand areas and would not lead to any spreading of the city, allowing it to rely on existing infrastructure, much like brownfield redevelopment ("Berlin Property Market"; Kälberer).

Finally, there remains the option of the city's lush external ring of greenspace. This is the option, which is supported by many, including journalist Ralf Schönball of *Der Tagesspiegel.* Rejecting calls to build in the city center, Schönball argues that "the city is large enough. There is space in Spandau and Pankow [two districts that include parts of the city's exterior, see Figure 2]…. A team of experts must… develop ideas for city expansion" ("Bauen"). There are plentiful

Figure 2: "Berlin District Map." Map from Berlin: Manifestation of a Distance.

options in these areas, including in and out of use farmland and

expansive forests (O'Sullivan). But these ideas run into problems mentioned earlier relating to city expansion, including the need to develop more city infrastructure and places like shops and schools (Schönball "Bauen"; Kälberer). Furthermore, these areas of the city are often wealthier and willing to put their weight behind resisting attempts at new, affordable construction in a NIMBY-esque fashion, opposing development on a "specific ill-chosen site" as new construction remains broadly popular in general (O'Sullivan). Clearly Berlin has many options but has still yet to fully move forward in any way to solve its crisis. How should the city weigh what lies in front of it?

The Necessity of Preserving Urban Greenspace

Even given the complex needs of a city like Berlin, clear empirical evidence suggests the serious harms done to a city's residents by destroying greenspace, including studies done on Berlin itself. These studies have looked at factors like life satisfaction of people living in Berlin, self-reported health, and whether these spaces are justly distributed throughout the city.

First is the issue of Berliner's life satisfaction in relation to greenspace. Bertram and Rehdanz in *Ecological Economics* conducted a study on individuals' life satisfaction in relation to the available amount of greenspace in their immediate area (within a radius of 1km from their home address). To limit their study to the most urban areas of Berlin, it only included the districts of Mitte, Friedrichshain-Kreuzberg, Pankow, Charlottenburg-Wilmersdorf, Tempelhof-Schönberg, Neukölln, and Lichtenberg (Bertram and Rehdanz; see Figure 2 for

reference), which include some of the most in-demand areas of Berlin that have a serious lack of housing stock ("Berlin Property Market"). According to their survey, after adjusted for other factors like wealth, district, and level of access to public services, Bertram and Rehdanz found that the ideal amount of greenspace within their 1km radius is 35ha, 11% of that total area (149). Furthermore, their results indicated that "three-quarters of the respondents have less than this amount of urban greenspace available in their living environments, green space is, overall, in insufficient supply in the case study area in Berlin" (Bertram and Rehdanz 149). As seen in this study, greenspace not only has an impact on an individual's life satisfaction, which serves as a good indicator of general well-being, but Berlin itself lacks sufficient greenspace in its urban core, in effect harming the wellbeing of its citizens. Therefore, as Berlin has an insufficient amount of greenspace in these denser areas, it would not be prudent for the city to continue to build more housing in these jurisdictions as it would harm the wellbeing of those already living there and produce an overall lower quality of life.

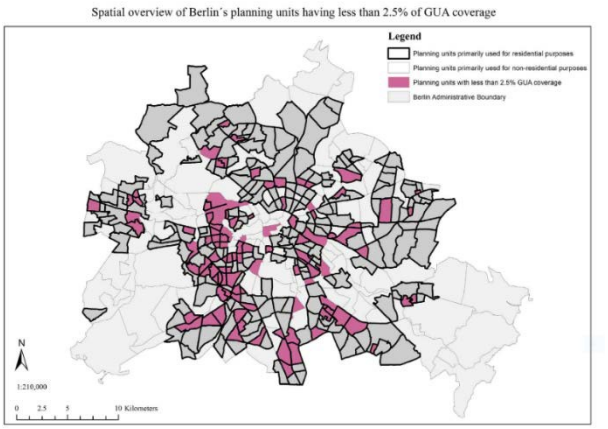

Figure 3: "Spatial overview of Berlin's planning units having less than 2.5% of GUA [green urban area] coverage." Map from Coppel and Wüstemann.

Additional studies have also shown the insufficient levels of

greenspace within Berlin, including how it negatively impacts

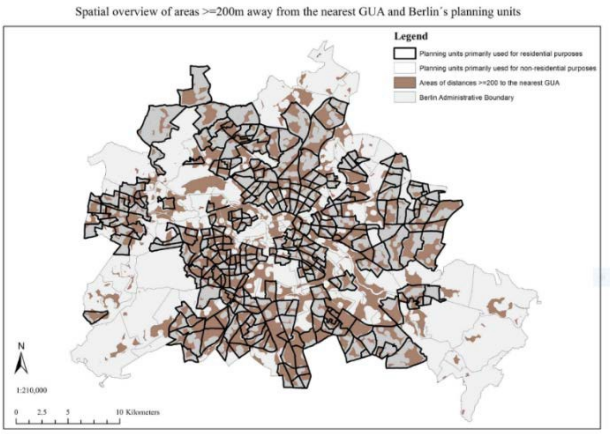

Figure 4: "Spatial overview of areas >=200m away from the nearest GUA and Berlin's planning units." Map from Coppel and Wüstemann.

individual health. Taking a survey of participants throughout the city, a study from Coppel and Wüstemann looked at whether certain levels of greenspace or distance from it had positive or negative effects on the self-reported health (SRH) of those surveyed. After being adjusted for other contributing factors, which were found to be consistent with other studies on SRH, the authors found that having greenspace within 200m distance or living in an area where greater than 2.5% of the area is taken up by greenspace has a positive effect on SRH (Coppel and Wüstemann). Accordingly, living further away or in areas with less coverage were found to have negative impacts on SRH. The others conclude that based on their findings, "437 of Berlin's 447 planning units that provide access to UGS negatively affecting SRH of which 297 were used for residential purposes primarily" (Coppel and Wüstemann 417). Therefore, further reducing the amount of greenspace that Berliners have access to would undermine citizen's health and that of new residents as well. This would especially be the case in the core of the city, as those areas are most likely to already have lower levels of greenspace (seen in Figure 3 as pink areas, in Figure 4 as brown), meaning that building in the city's core would be especially harmful.

Furthermore, looking at it from a social justice perspective, Kabisch and Haase found significant problems with Berlin's distribution of greenspace, particularly as immigrants lived in areas where greenspace is low, which are those areas in Berlin's center city area. Therefore, immigrants are disproportionately likely to not benefit from greenspaces in the ways previously discussed, meaning that the lack of greenspace relatively speaking in Berlin's urban core is specifically harming them in relation to other groups. On the other hand, areas on the outskirts of the city, particularly the southeast, have a large and excessive amount of greenspace, including large farms and forests (Kabisch and Haase). These results indicate, as the last two studies did, that reducing the provision of greenspace in Berlin's urban core will harm the individuals living there, including by disproportionately harming immigrants, an already vulnerable group. Altogether, this demonstrates that Berlin has insufficient levels of greenspace in its urban core and that the reliance on a city-wide measure of per capita greenspace is not relevant for planning, as those spaces are unevenly distributed throughout the city, meaning that Berlin cannot afford to build on greenspace in the city center.

An Application: Tempelhofer Feld

Now having examined the need for Berlin to preserve the greenspace in its urban core, I will apply these principles and others to a brief case study of Tempelhofer Feld, a park on the location of the former Tempelhof airport. The park is situated in the northeast corner inner-city district of Tempelhof-Schönberg and borders the districts of Neukölln and Friedrichshain-Kreuzberg (see figure 2), two of the areas

of Berlin with the greatest housing shortage ("Berlin Property Market"). These areas, as found by Bertram and Rehdanz, are already lacking greenspace, visualized in figures 3 and 4, which indicate that Tempelhof-Schönberg and adjacent districts in the south-central portion of the city have among the worst distributions of greenspace, along with the neighboring district of Mitte. As such, Tempelhof provides a key access point for individuals in these areas to access greenspace when it would otherwise be lacking, meaning developing this particular site, even with its immense size may be ill-advised.

Figure 5: One proposed development of Tempelhof. Rendering from Schönball "Ein Ring..."

Supporting this fact is a survey conducted on visitors to Tempelhof, which found that an even proportions of visitors (greater than 35% of the total, each) came from the immediate area surrounding Tempelhof and from neighboring districts, supporting the idea that Tempelhof's accessibility is allowing it to serve as a substitute for greenspace in areas that are otherwise lacking it (Kabisch and Haase 135). This indicates that developing Tempelhof (an example of which is seen in Figure 5) and thereby making it a less attractive site by taking away greenspace would not only impact those in the immediate surroundings, but those in nearby districts as well, causing potential widespread harm on a level larger than the immediate areas near the site.

One shortcoming is identified at Tempelhof in that "Only 9% of survey participants were immigrant residents, whereas 27% of individuals within the 1500m catchment were immigrants" (Kabisch and Haase 135). However, solutions to this problem exist, including through the creation of park amenities that are preferable to immigrants, which would make immigrants more likely to use Tempelhof and attain the benefits of greenspace, overall helping to rectify some of the discrepancies in greenspace prevalence in areas immigrants live (Kabisch and Haase). Especially unique to Tempelhof and an indication of how much the public values greenspace in the urban core, Berliners rejected a referendum that would have led to developing the site (O'Sullivan). While that factor alone should dissuade Mayor Müller from continuing to pursue construction on this site, these other factors make it clear that Tempelhof's function as a park needs to be preserved. Ultimately, these different factors involving Tempelhof, while some only applicable to it as Berlin's largest urban greenspace (Kabisch and Haase), indicate how preserving greenspace in Berlin's urban core is key and enables large numbers of individuals to access greenspace in spite of living in areas that otherwise have lower than optimal levels of it.

What should Berlin do, then?

Some of the possible solutions to Berlin's housing crisis were discussed previously in the section entitled "Where can it all go?" Seeing that the evidence points to the most favored option of developing greenspace in the core as unsustainable and harmful to the citizens of Berlin, this section will evaluate the other possible solutions

and offer suggestions on what Berlin should indeed do to alleviate its housing crisis.

First comes the question of brownfields, the clear leader and most popular option at many levels, from journalists like O'Sullivan to the German Federal Environmental Agency. However, these brownfields raise another question when they are located in the city center, which is whether they could be turned into greenspace in order to alleviate the problems caused by the low levels of greenspace in these areas. Certainly for some sites that would be wasteful to do, like former industrial sites due to the level of work involved, however, other brownfield sites that are largely empty could readily be turned into greenspace rather than housing in order to provide Berliners with more places to go. As found in a study of people's preferences regarding greenspace, "The residents did not seem to disapprove of using urban wastelands as recreational areas per se, but a minimum level of maintenance and accessibility appeared to be necessary" (van der Meer et al. 314). Therefore, some of these brownfield sites that sit open, including areas along where the Berlin Wall once stood, could be productively turned into greenspace and be just as successful as traditional greenspaces in appealing to and providing the benefits for the residents of the city.

Next are the strategies I labeled previously as optimizing the use of structures, which involves building additional housing on top of existing buildings. In certain regards this makes a lot of sense, as in general Berlin has many areas that could expand upwards, especially given the city's height limits (O'Sullivan; van der Meer et al.). However, planers need to be cautious about embracing this as a primary strategy,

given that not only does likely it not meet the necessary need of over 200,000 units (O'Sullivan), but it also has negative implications on citizens' well-being. Adding stories to buildings has been found to increase the perception of density and crowding for individuals, leading to stress and negative implications for their health (van der Meer et al.), leading to the recommendation that "From the perspective of environmental psychology… keeping… inner city's restriction of the building height… can lead to increased quality of life" (van der Meer et al. 327). One caveat, though, exists with structures like grocery stores and other single-story buildings. These buildings by their nature are inefficient users of space as they provide no housing or other diverse public needs, meaning that should they have apartments built on top of them as Aldi is beginning to do; it could more efficiently use this space and provide much-needed housing (Borden). Aldi alone can provide 2,000 new housing units to the city, so if the city gave incentives for other grocery stores and similar establishments, it could make a serious dent in the 243,300 needed units, along with effectively having similar benefits to developing brownfields, as the city infrastructure is already there if a grocery store is there (Borden; Kälberer).

Finally comes the other contentious proposition: building on greenspace in the outer ring areas of the city. While many would argue that this idea is harmful as these areas may lack infrastructure or that developing there would encourage urban sprawl (O'Sullivan), there is a lack of research into this issue in relation to Berlin's circumstances, meaning that it is impossible to draw these conclusions at this time. However, it is clear from the existing body of research that serious harms would be done by destroying greenspace in the city center in

order to build housing, meaning that that option would be wrong for Berlin to pursue. Indeed, this same research found that external areas in Berlin have substantially more greenspace than the internal parts of the city, reaching levels way above the city's target and more than satisfying the ideal levels found for SRH by Coppel and Wüstemann, reflected in figures 3 and 4 (Kabisch and Haase). Therefore, Berlin can safely develop portions of the outer ring of the city without sacrificing its citizens' life satisfaction and SRH, along with not contributing to existing inequities that exist based on greenspace development; all these factors would be worsened should the city develop in the city center.

Building in these areas may indeed require more effort for the city than building in the center city area as infrastructure and stores may not be frequent enough (Kälberer), however, Berlin should be capable of taking these efforts to solve their massive housing crisis. City leaders need what Ralf Schönball calls "civil courage" and to acknowledge that "the city is large enough!" ("Bauen"). Schönball is right; these areas of the city have enough greenspace as is that can be developed into housing. All the city needs to do is address their other deficiencies, as Schönball suggests through "a team of experts in traffic, environment, economics, and housing development must, in consultation with the districts, find locations and develop ideas of city expansion" ("Bauen"); doing so would resolve problems relating to infrastructure in these locations. Berlin is in the middle of a housing crisis, and while this solution may not be the easiest one, the city can accommodate building in its outer ring should it put in the effort to do so, which would save citizens of the city from the harms that would be

caused by destroying greenspace in its core, while allowing new residents to have plentiful greenspaces for themselves.

Conclusion

It is clear that Berlin needs to reevaluate how it seeks to approach its housing crisis and properly consider the negative implications that high levels of construction along with the destruction of greenspace would mean for its urban core. Instead, the city can move towards finding better and more responsible ways to deal with its massive, but solvable, housing crisis. These options need to be further studied and research should be conducted on the implications of projects like mixed-use developments on grocery store footprints and the development and expansion of the city into traditionally green areas on the city's perimeter, including forests, grasslands, and farms. However, that does not mean that Berlin should not pursue these options given the known harm of developing on the already limited greenspaces in the city's center. This paper also indicates how other cities facing conflicts between construction and greenspace preservation can evaluate the importance of greenspace in relation to other factors. Urban planners must consider the value of greenspace in other cities going forward and attempt to find quantitative understandings of a city's circumstances on the detailed level that Berlin has access to in order to inform where construction should go. Ultimately, Berlin shows that simple solutions to housing problems that sacrifice greenspace are not the appropriate course of action and should serve as both a warning and a guide as to how other cities can approach planning for the future.

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