

# Food Connects 2050

## a nature-based food economy for all in Washington DC region

Nature Based meets High Tech as a showcase for resilient, healthy and accessible food practices worldwide

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### References, Tables and Figures

- 1 . <https://app.box.com/s/yspij8v81cxqyeb17gj3uifjumb7ufsw>
2. Smith, R. (2017), Food access in D.C is deeply connected to poverty and transportation, DC Policy Center <https://www.dcpolicycenter.org/wp-content/uploads/2019/10/Food-deserts-Randy-Smith-2017.pdf>
3. Vandersluis Morgan, K. (2018), Food Insecurity and its Effects in Washington, D.C. <https://www.roots-for-life.org/resources/2018/11/11/food-insecurity-and-its-effects-in-washington-dc>
4. Foodshed (2012), What Our Region Grows: A look at agricultural production and demand in the Washington Area <https://www.mwcog.org/file.aspx?D=WxHHkclrZ1G7ckMOMSLnEdbZlvYExkIISFTIU9Go1ZU%3d&A=lqXO%2bIu2J%2fL%2bCekrJivM40QwW%2bazYmy1ZMVJijAVjUQ%3d>
5. What our Region Grows: Agriculture's Past, Present, and Future in and around the Metropolitan Washington Region (2019) <https://www.mwcog.org/file.aspx?D=WxHHkclrZ1G7ckMOMSLnEdbZlvYExkIISFTIU9Go1ZU%3d&A=lqXO%2bIu2J%2fL%2bCekrJivM40QwW%2bazYmy1ZMVJijAVjUQ%3d>
6. DC Food Economy Study (2019), DC Food Policy Council <https://dcfoodpolicycouncilorg.files.wordpress.com/2019/09/food-economy-study.pdf>
7. O'Hara, S. (2019), The Five Pillars of Economic Development: A Study of a Sustainable Future for Ward 7 and 8 in Washington, D.C. College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES). University of the District of Columbia, Washington DC. <https://www.fivepillarsdc.org/>
8. Vulnerability and Risk Assessment Climate Change Adaptation Plan for the District of Colombia (2016)DC Department of Energy and Environment [https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/AREA\\_Vulnerability\\_Assessment\\_DRAFT\\_2016-06-21lowres\\_.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/AREA_Vulnerability_Assessment_DRAFT_2016-06-21lowres_.pdf)
- 9: Climate Ready DC (2016), DC Department of Energy & Environment [https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service\\_content/attachments/CRDC-Report-FINAL-Web.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/CRDC-Report-FINAL-Web.pdf)

- 10 What Climate Change Means for the District of Columbia (2016), EPA  
<https://19january2017snapshot.epa.gov/sites/production/files/2016-11/documents/climate-change-dc.pdf>
- 11 Samra, R (2019), As climate change intensifies, how can the region adapt to extreme heat?  
<https://ggwash.org/view/73400/as-climate-change-worsens-how-washington-dc-region-adapt-to-extreme-heat>
- 12 State of the River Report Card (2020) Anacostia Watershed Society <https://www.anacostiaws.org/what-we-do/public-policy-advocacy/state-of-the-river-report-card.html>
- 13 State of the River (2018), Potomac Conservancy  
<https://www.potomacreportcard.org/>
- 14 State Profile and Energy Estimates -District of Colombia (2019), US Energy Information Administration
- 15 Sustainable DC 2.0 Plan (2019), Sustainable DC  
[http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5\\_web.pdf](http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5_web.pdf)
- 16 Agudelo-Vera, C. M., Mels, A. R., Keesman, K. J., & Rijnaarts, H. H. (2011), Resource management as a key factor for sustainable urban planning. *Journal of environmental management*, 92(10), 2295-2303.  
<https://doi.org/10.1016/j.jenvman.2011.05.016>
- 17 Wittmer, I., Badder, H.-P., Scheidegger, R., Sinder, H. Lück, A., Hanka, I., Carlsson, C., Stamm, C. (2010), Significance of urban and agricultural land use for biocide and pesticide dynamics in surface waters. *Water Research*. Vol.44, Is. 9: 2850-2862
- 18 [http://www3.weforum.org/docs/WEF\\_Global\\_Risk\\_Report\\_2020.pdf](http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf)
- 19 [http://www3.weforum.org/docs/WEF\\_New\\_Nature\\_Economy\\_Report\\_2020.pdf](http://www3.weforum.org/docs/WEF_New_Nature_Economy_Report_2020.pdf)
- 20 <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>
- 21 <https://oneplanetresearch.nl/en/homepage/>
- 22 Ellen MacArthur Foundation (2019), Cities and Circular Economy for Food  
<https://www.ellenmacarthurfoundation.org/our-work/activities/food>
- 23 Stuiver, M., Groot, A., van Slobbe, E., Blom-Zandstra, E. M., Korevaar, H. & Soma, K (2019), Key Conditions of Adaptive Governance for Resilient Urban Areas: Insights from the Markermeer-IJmeer Region in the Amsterdam Metropole Region, the Netherlands: Environmental Management and Sustainable Development. 8, 1, p. 127-146
- 24 FAO (2019), Framework for the Urban Food Agenda, Rome  
<http://www.fao.org/3/ca3151en/CA3151EN.pdf>
- 25 <https://ruaf.org/document/the-role-of-private-sector-in-city-region-food-systems/>

26 O'Hara, S. (2015), Food Security: The Urban Food Hubs Solution. *Solutions*. January-February, pg. 42-53.

27 O'Hara, S. (2017), The Urban Food Hubs Solution: Building Capacity in Urban Communities. *Metropolitan Universities Journal*. Vol. 28 No. 1.

28 O'Hara, S. (1997), Toward a Sustaining Production Theory. *Ecological Economics*. Vol. 20, No.2 :141-154

29 Blom-Zandstra, G.; Korevaar, H.; Stuiver, M.; Groot, A. (2016), Critical success factors for governing farmer-managed public goods in rural areas in the Netherlands, *International Journal of Agricultural Sustainability* 14 (1). - p. 45 - 64.

30 <https://www.wur.nl/en/Research-Results/Research-programmes/Research-investment-programmes/Connected-circularity.htm>

31 <https://www.wur.eu/greencities>

32 Cheal, D (1988), *The Gift Economy*. New York: Routledge. pp. 1-19. ISBN 0415006414. Retrieved 2009-06-18.

33 <https://timebanks.org/>

34 Dubbeling, M, Santini, G, (2018), City Region Food System Assessment and Planning, RUAU Urban Agriculture magazine.

35 Stuiver, M.; Westerink, J. (2016), Possible routes to improve adaptive management of firms: the business as a social ecological system, *Australian Journal of Business and Economic Studies* 2 (2). - p. 19 - 29.

36 Kasper, C, J. Brandt, K. Lindschulte, and U. Giseke (2017). The urban food system approach: thinking in spatialized systems, *Agroecology and sustainable food systems*, 2017, Vol.14, No.8, 1009-1025

37 Pothukuchi, K., and Kaufman, J.L. (2000) "The food system: A stranger to the planning field," *Journal of the American Planning Association* 66(2): 113-124.

38 Termeer, C.J.A.M.; Stuiver, M.; Gerritsen, A.L.; Huntjens, P.M.J.M. (2013), Integrating self-governance in heavily regulated policy fields: insights from a Dutch Farmers' Cooperative, *Journal of Environmental Policy and Planning* 15 (2). - p. 285 - 302...

39 Lovell, (2010). Multifunctional Urban Agriculture for Sustainable Land Use Planning in the United States, *Sustainability* 2010, 2(8), 2499-2522; <https://doi.org/10.3390/su2082499>

40 Royte, E. (2015). Urban Agriculture is booming but what does it really mean: the benefits of city-based agriculture go far beyond nutrition. *ENSIA Magazine*. April. 27.

41 O'Hara, S. (1995). Sustainability: Social and Ecological Dimensions. Review of Social Economy. Vol. LIII, No.4: 529-551.

42 Yeoman, B (2018), The Hidden Resilience of "Food Desert" Neighborhoods  
<https://www.sapiens.org/culture/food-deserts-washington-dc/>

43 <https://zerowaste.dc.gov/>

44 Gowdy, J and O'Hara, S (1995) Economic Theory for Environmentalists 1st Edition Delray Beach, Fla.: St. Lucie Press

45 Parker M. et al (2014) The Routledge Companion to Alternative Organization, Routledge

46 <https://www.agromovil.co/>

47 <https://www.flo-vex.com/>

48 <https://www.grwnxt.com/>

49 <https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksprojecten-LNV/Expertisegebieden/kennisonline/Sensing-Potential.htm>

50 <https://www.onthecommons.org/work/what-commoning-anyway>

51 <https://doi.org/10.1038/s43016-020-0070-5>

52 <https://www.wur.nl/nl/show/What-is-nudging.htm>

53 [www.groenecirkels.nl](http://www.groenecirkels.nl)

54 <https://www.eia.gov/state/analysis.php?sid=DC>

55 <https://doee.dc.gov/node/1110407>

56 DC Food Policy Council (2018), Food System Assessment 2018  
<https://dcfoodpolicycouncilorg.files.wordpress.com/2019/06/2018-food-system-assessment-final-6.13.pdf>

57 Food and Nutrition policies and programs DC Health  
<https://dchealth.dc.gov/service/food-and-nutrition>

58 DC Office of Planning, Food policy, <https://planning.dc.gov/page/food-policy>

59 Climate Projections and Scenarios (2013), Climate Change Plan for the District of Columbia, DC Department of Energy and Environment  
[https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/150828\\_AREA\\_Research\\_Report\\_Small.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/150828_AREA_Research_Report_Small.pdf)

60 <http://www.sustainabledc.org/>

61 [http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5\\_web.pdf](http://www.sustainabledc.org/wp-content/uploads/2019/04/sdc-2.0-Edits-V5_web.pdf)

62 <https://www.bot.org/the-board-of-trade-releases-2019-2021-strategic-plan/>

63 [https://www.bot.org/wp-content/uploads/2018/12/GWBOT-2019-2021-Strategic-Plan\\_Spreads.pdf](https://www.bot.org/wp-content/uploads/2018/12/GWBOT-2019-2021-Strategic-Plan_Spreads.pdf)

64 Resilient DC (2019) -A Strategy to Thrive in the Face of Change, Resilient DC/100 Resilient Cities  
<https://app.box.com/s/d40hk5ltvcn9fqas1viaje0xbnbsfwga>

65 Berkum, S. van, Dengerink J. and Ruben R, (2018), The food systems approach: sustainable solutions for a sufficient supply of healthy food. Wageningen, Wageningen Economic Research, Memorandum 2018-064.  
<https://library.wur.nl/WebQuery/wurpubs/538076>

66 Li, D, Bou-Zeid, E and Oppenheimer M (2014). The effectiveness of cool and green roofs as urban heat island mitigation strategies. Environmental Research Letters, Volume 9, Number 5

67 O'Hara, S. (2010), "Feminist Ecological Economics in Theory and Practice" in: A. Salleh (ed.) Eco-Sufficiency & Global Justice – Women Write Political Ecology. Pluto Press, London, England & New York, NY/Spinifex, Melbourne, Australia.

**Table 1: Demographic and Socio-Economic Information by Ward**

source: O'Hara, S. (2019,. The Five Pillars of Economic Development: A Study of a Sustainable Future for Ward 7 and 8 in Washington, D.C. College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES). University of the District of Columbia, Washington DC. <https://www.fivepillarsdc.org/>

	<b>Ward 1</b>	<b>Ward 2</b>	<b>Ward 3</b>	<b>Ward 4</b>	<b>Ward 5</b>	<b>Ward 6</b>	<b>Ward 7</b>	<b>Ward 8</b>
Total population	82,859	77,645	83,152	83,066	82,049	84,290	73,290	81,133
Children under 18	12%	5%	13%	20%	17%	14%	24%	30%
People over 65	2%	6%	13%	3%	2%	3.3%	0.3%	0.2%
Foreign born	22%	21%	19%	23%	11%	9%	3%	3%
Black (non-Hispanic)	33%	10%	5.6%	59%	77%	43%	95%	94%
White (non-Hispanic)	40%	70%	78%	20%	15%	47%	2%	3%
Hispanic	21%	9%	8%	19%	6%	5%	2%	2%
Asian	5%	10%	8%	2%	2%	5%	0.3%	0.5%
Household Income	\$113,972	\$209,147	\$257,224	\$123,353	\$82,425	\$140,853	\$56,759	\$45,239
Unemployment	5.1%	3.8%	3.7%	9.8%	14%	6.2%	19%	22%
Single Parent Househ	10%	3.8%	4.2%	19%	22%	11%	33%	39%

Figure 1: College Education Rates of the Population by Ward

source: O'Hara, S. (2019), The Five Pillars of Economic Development: A Study of a Sustainable Future for Ward 7 and 8 in Washington, D.C. College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES). University of the District of Columbia, Washington DC. <https://www.fivepillarsdc.org/>

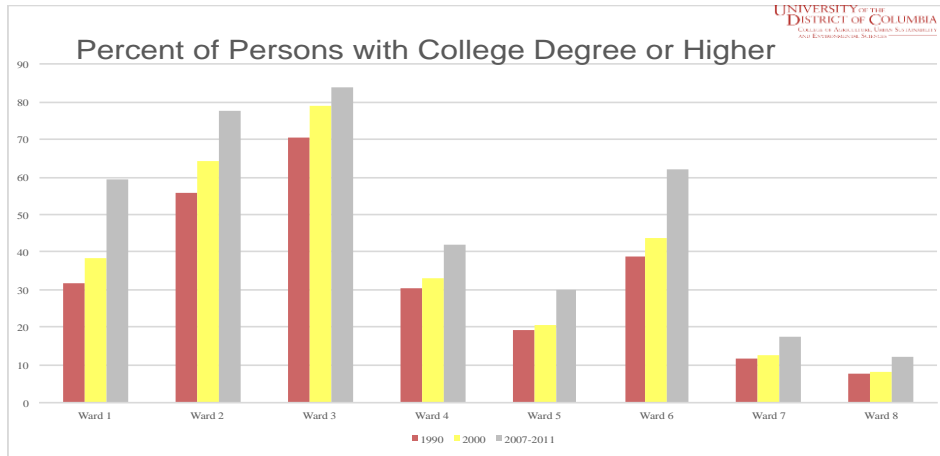
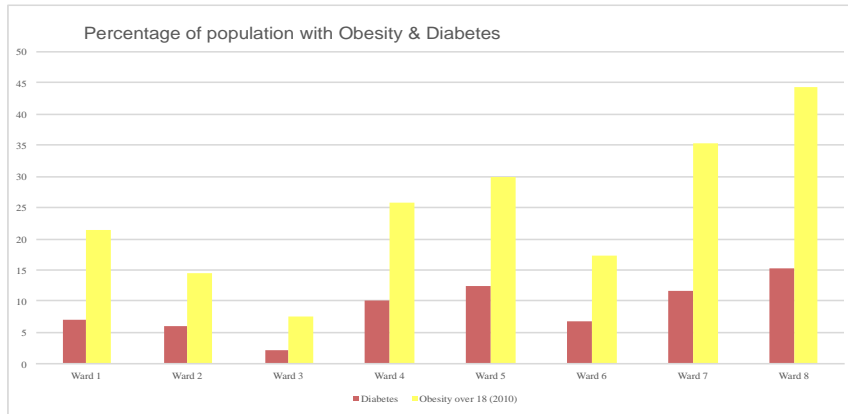


Figure 2: Adult Obesity and Diabetes Rates by Ward

source: O'Hara, S. (2019), The Five Pillars of Economic Development: A Study of a Sustainable Future for Ward 7 and 8 in Washington, D.C. College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES). University of the District of Columbia, Washington DC. <https://www.fivepillarsdc.org/>



### Figure 3: Full Service Grocery Stores and Urban Food Hubs

source: O'Hara, S. (2017), The Urban Food Hubs Solution: Building Capacity in Urban Communities. Metropolitan Universities Journal. Vol. 28 No. 1 (Winter 2017).

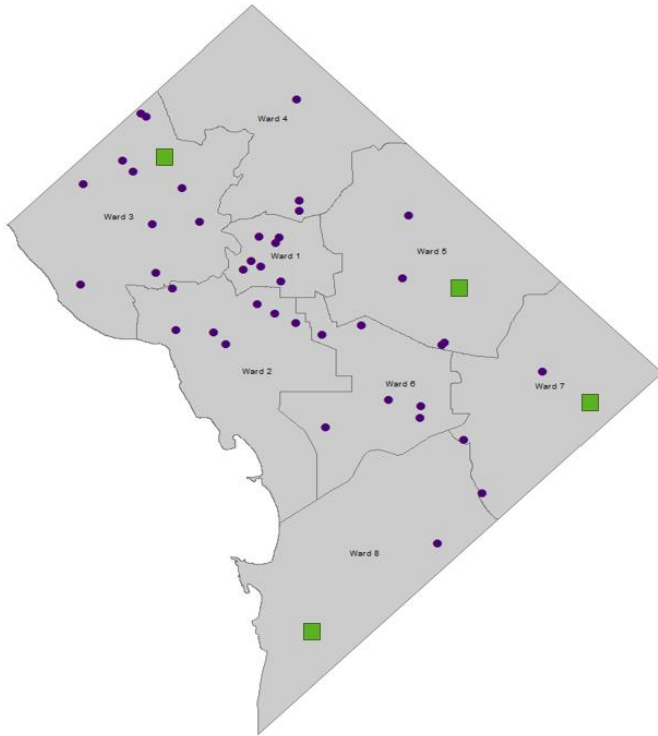




Figure 4 Agricultural reserves and green open space

Source: <https://ggwash.org/view/72501/why-everyones-talking-about-upzoning-environment-equity> (Image by Tracy Hadden Lo)

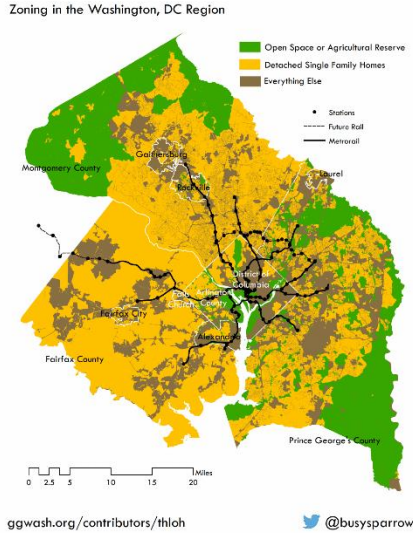


Figure 5 Food system approach

Source: Berkum, S. van, Dengerink J. and Ruben R, (2018), The food systems approach: sustainable solutions for a sufficient supply of healthy food. Wageningen, Wageningen Economic Research, Memorandum 2018-064.

