

October 2019
**2018 ANNUAL
GREEN ROOF
INDUSTRY SURVEY
EXECUTIVE SUMMARY**



GREEN ROOFS
FOR HEALTHY CITIES

www.greenroofs.org

ON THE COVER: Green Roofs for Healthy Cities 2019 Awards of Excellence winning projects

Top row: (Left) 510 West 22nd St, image courtesy MKM Landscape Architecture PC; (Right) Boston Medical Center Rooftop Farm, image courtesy Recover Green Roofs

Upper Middle row: Garage Apartments, image courtesy Living Roofs, Inc

Lower Middle row: (Left) Health Education Building, image courtesy Jeffrey L. Bruce & Co (Right) International Flavors & Fragrances Lobby Green Wall, image courtesy urbanstrong

Bottom row: Room For A View, image courtesy Green Roofs of Colorado

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- **Green Infrastructure Foundation:** Michael Krause, Kandiyo Consulting, LLC
- **Legal Counsel:** Ann Neil Cosby, McGuire Woods LLP
- **Ex Officio:** Steven Peck, Green Roofs for Healthy Cities

Acknowledgements

This report was prepared by Blaine Stand, Professional Resources Manager and Steven W. Peck, GRP, Honorary ASLA, Founder and President, Green Roofs for Healthy Cities.

Green Roofs for Healthy Cities would like to thank its corporate members for their participation in the 2018 Annual Green Roof Industry Survey.

Foreward

2018-2019 Board of Directors

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Steven Peck
Green Roofs for Healthy Cities

October 9, 2019

Green Roofs for Healthy Cities is the non-profit industry association for the green roof and wall market in North America. We develop and protect the market through education, advocacy, and celebrations of excellence. One of our initiatives is the Annual Green Roof Industry Survey. This represents the 15th year that Green Roofs for Healthy Cities has surveyed the development and growth of the green roof market in North America.

Green Roofs for Healthy Cities would like to thank its corporate members for their participation which makes this survey report possible and encourage more members to participate next year.

We look forward to working with you all to advance the industry through education, advocacy, celebrations of excellence, and events; and encourage everyone to download the 2019 North American Policy Guide, a brand new resource designed to catalog and help develop local green roof and wall policy.

Sincerely yours,



Matt Barmore,
GRP



Steven W. Peck,
GRP, Honorary ASLA

Executive Summary

Green Roofs for Healthy Cities is a member-based non-profit industry association dedicated to the growth and development of the green roof and wall industry in North America.

Every year, Green Roofs for Healthy Cities conducts an annual survey of its Corporate Members in order to collect data on the growth and composition of the green roof industry across North America. 2019 marks the 15th year that Green Roofs for Healthy Cities has conducted this Survey of its members and shared the results with a wide range of stakeholders.

In 2019, 14 respondents recorded 763 projects in 35 US states and three Canadian provinces across North America, installing 3,112,818 square feet of green roofing. While this represents a decrease from data reported from 2017, particularly impacted by a limited sample size of the Canadian market, long range analysis continues to indicate an estimated 5-15% overall industry growth trend since 2013, although this is a conservative estimate, as indicated in Figure 1 below.

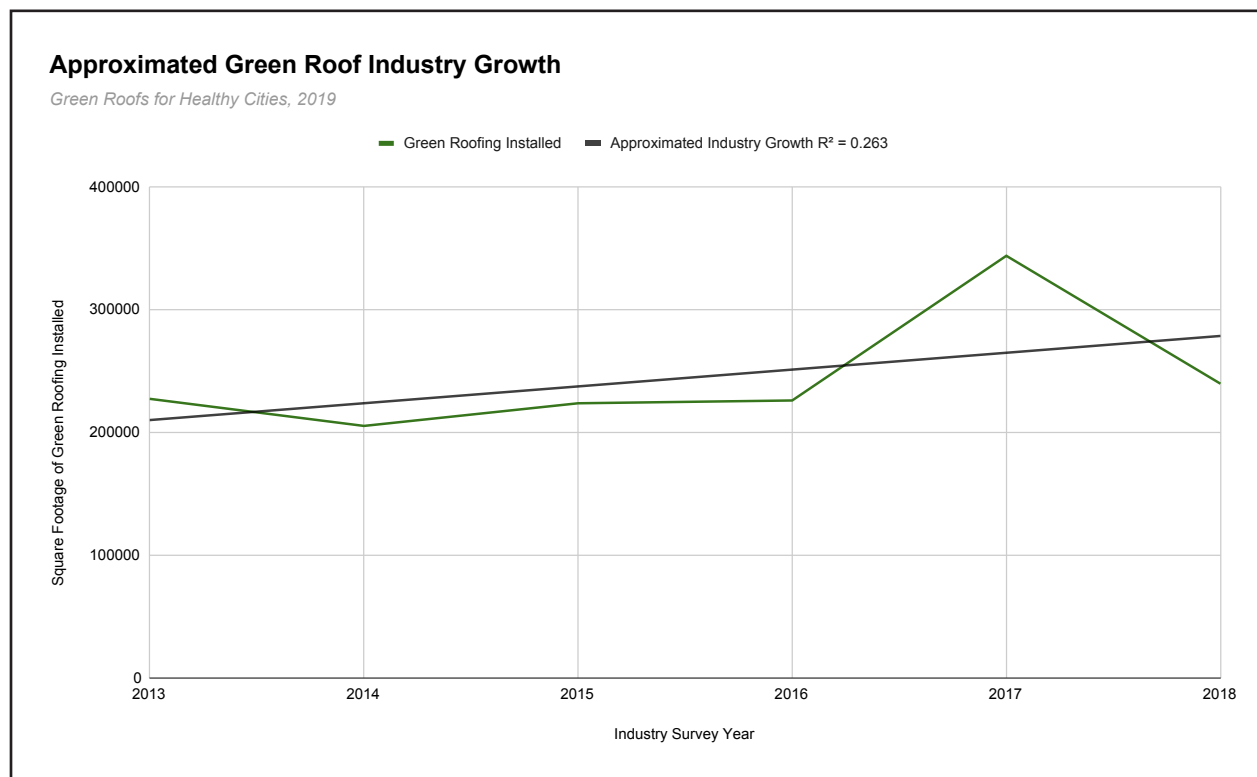


Figure 1 - Approximated North American green roof industry growth since 2013.

Some market stabilization compared to previous years is occurring due to corporate acquisitions and mergers, limited federal funding support and global economic uncertainty, and the activation of multiple municipal policies impact development cycles and specification that will not be reflected in survey data for another 1-2 years.

Based on average performance research, Green Roofs for Healthy Cities estimates that the 3,112,818 square feet of installed green roofs will yield the following approximate benefits:

- 36.9 million gallons of stormwater retained per year;
- 120 tons of carbon sequestered every two years;
- 5.06 million kWh (equivalent) of energy saved per year;
- 1,199 full-time equivalent (FTE) construction jobs;
- 45 full-time equivalent (FTE) maintenance jobs annually.

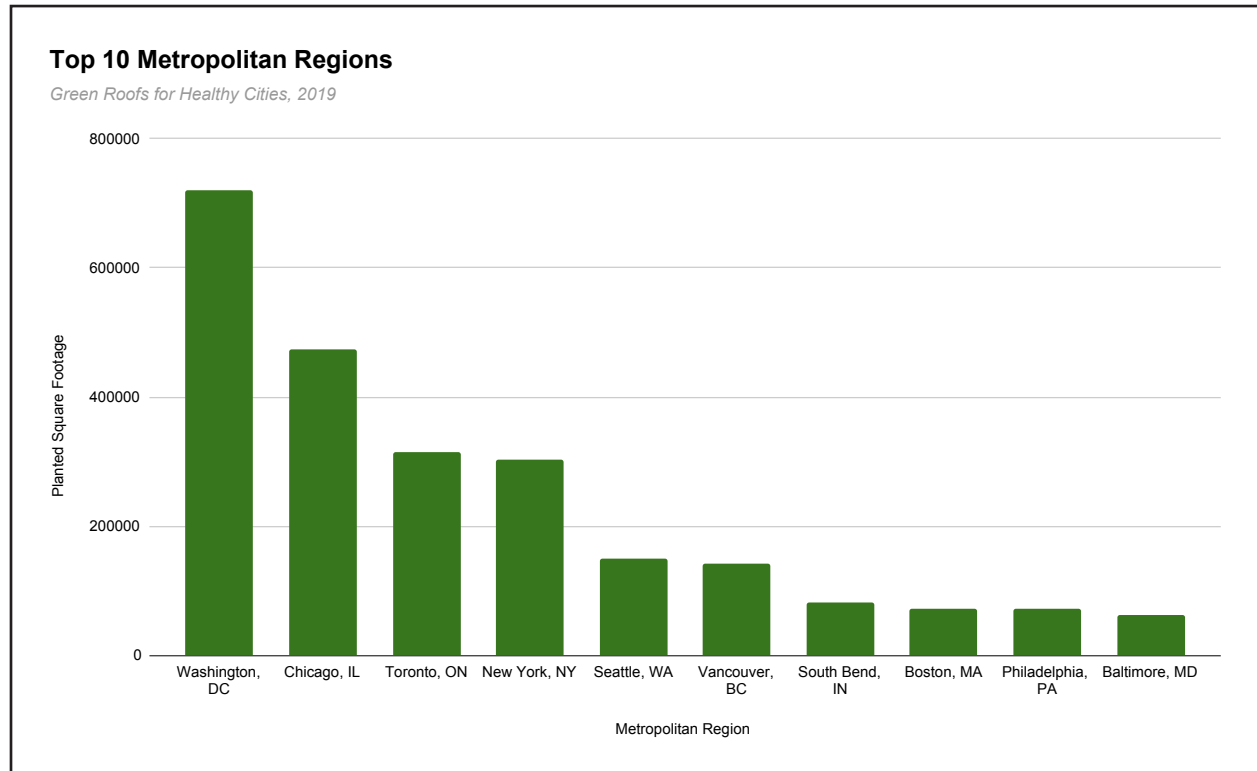


Figure 2 - Top 10 metropolitan regions recorded installed in 2018.

As shown in Figure 1 above, and as observed in previous years, Washington, D.C. continues to hold the top spot for green roof installations, followed by Chicago, IL; Toronto, ON; New York, NY; and Seattle, WA. As has been previously observed, municipalities with supportive green policies continue to domination annual green roof installations.

In 2019, Green Roofs for Healthy Cities released its first *North American Policy Guide*, designed to provide professionals in the green infrastructure industry with information about where to source supportive policies and programs for green roof and wall installation across North America. It is also designed as a resource for policy makers and advocates that are interested in establishing or updating green roof and wall policies and programs. More than 31 North American jurisdictions have targeted green roof requirements or incentives in place, all detailed in the report available at <https://greenroofs.org/policy-document>.

Figures 2 and 3, below, show the top 10 breakdown of metropolitan regions in the United States and Canada respectively. Both graphs show several new municipalities reporting green roof construction in 2018.

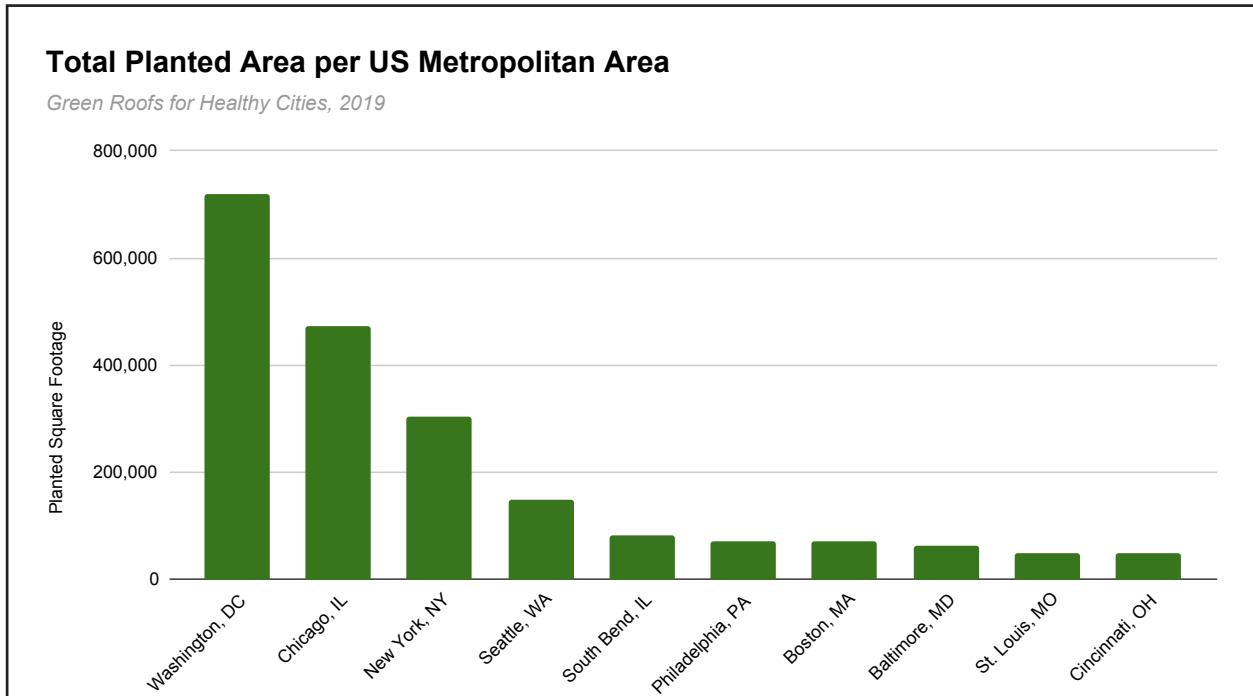


Figure 2 - Top 10 US metropolitan regions recorded installed in 2018.

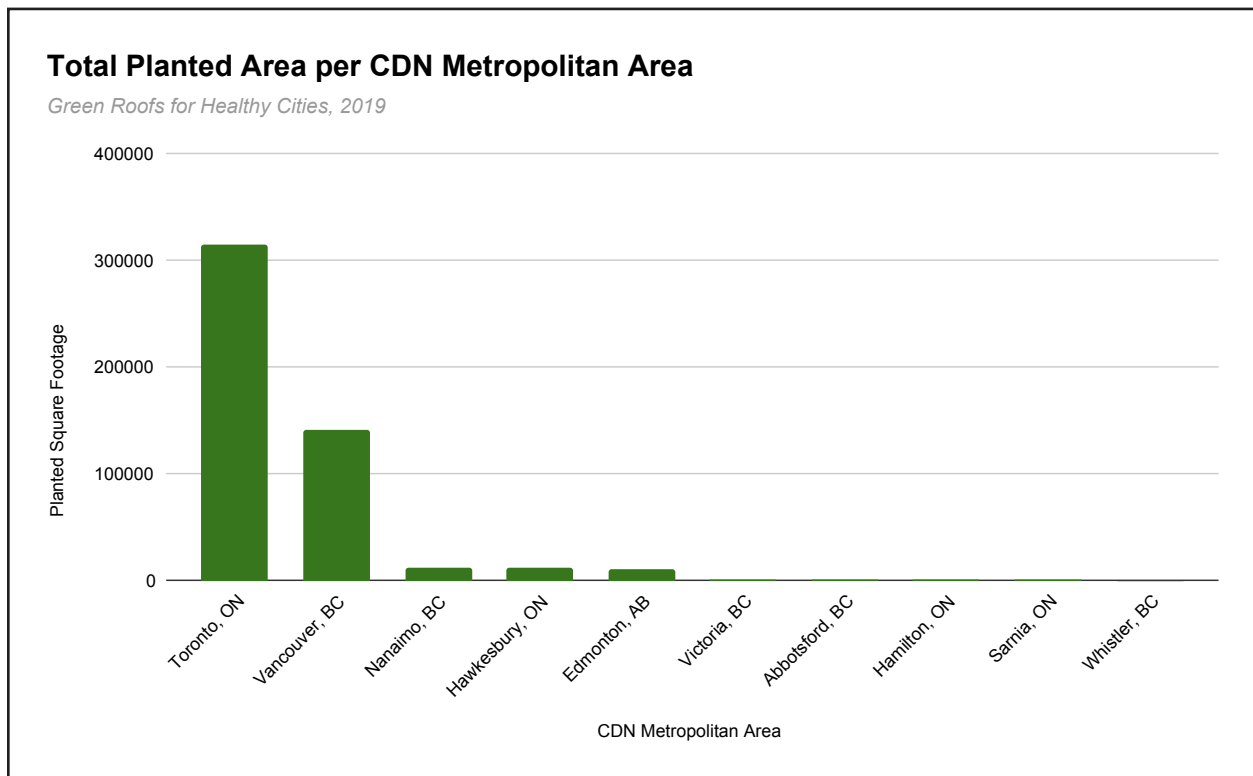


Figure 3 - Top 10 Canadian metropolitan regions recorded installed in 2018.

There is still an enormous potential for new green roofs to be installed on tens of billions of square feet of roof area across North America. With growing urgency around climate concerns, and urban sustainability and resilience, it is imperative that these technologies be adopted at a more rapid rate. Green roofs have a variety of social, economic, and ecological benefits that impact our communities, and regions. With increasing trends of heat waves, record breaking storm activity, diminishing habitat for pollinators, and a number of other deleterious impacts of climate change, green roofs will play an ever increasing and important role in making our cities more livable for residents, and less damaging to the global ecosystem.

Strong policy support in cities like Washington, D.C. and Toronto is driving market growth in these jurisdictions. Green Roofs for Healthy Cities encourages municipalities, regions, states, and provinces to adopt policies in support of green roofs and green walls in order to build healthier, more sustainable and resilient communities.

With multiple municipalities adopting a suite of new green roof regulations in 2018 and 2019 such as Denver, CO; Portland, OR; and New York City, NY; as well as several more on the horizon, we are confident that the industry will continue it's trend of strong market growth in the years to come. Green Roofs for Healthy Cities encourages more municipalities to explore supportive policy options around green roofs, green walls, and other forms of green infrastructure as a solutions to achieving their sustainability goals. These technologies offer a multitude of benefits at a fraction of the cost of traditional grey infrastructure systems, and easily integrate with existing systems.

Public policy support is proven to help reduce the upfront costs of green roofs and monetize their many public benefits. The Benefits and Challenges of Green Roofs on Public and Commercial Buildings, a study by ARUP for the United States General Services Administration in 2011, found that over the course of 50 years an extensive light weight, low maintenance green roof would generate the equivalent of \$38 per square foot of public benefits.

Methodology

Each year, Green Roofs for Healthy Cities' corporate members voluntarily and confidentially provide information on a range of categories for each project installed or supplied in 2018. Once submissions are closed, the data is reviewed. Duplicate entries which occasionally arise from sourcing data from both suppliers and installers are removed from the data set to minimize the possibility of double counting projects by comparing the type, size, and location of each project.

The annual growth rate is determined to give a broad look at the overall health of the green roof market in North America. This growth rate is determined by comparing the previous year's results with the current year's results, controlled for respondents and total installation size. Annual industry growth rates are derived by determining the growth rate of a cross section of participant installation averages recorded by a median sample range of respondents. Installation totals are determined per data sheet and controlled for outliers, with the three largest and smallest values removed from the calculations, to obtain the most accurate overall average.

This method of growth rate is employed because of the anonymous survey submission process. In previous years individual growth rates were determined for participatory companies, but in an effort to ensure anonymity of the submission process for participants, these individual growth rates cannot be determined. Utilizing average installation values allows for growth rates to be determined while controlling for a variable sample size.

The square footage of reported green roof installations is then aggregated against several reported categories such as city; building type; green roof type; to analyze installation trends that may arise. Data is then parsed geographically to determine the top ten metropolitan regions for green roof installations in the United States, Canada, and North America as a whole. Metropolitan region aggregates are determined by mapping the project cities and then finding the largest metropolitan center in a 25 mile radius within the same province/state.

Green Roofs for Healthy Cities estimates that the data in this report generally understates the market activity by anywhere from 25 to 50 per cent given that not all firms in the industry are members of Green Roofs for Healthy Cities and not all members are able, or willing, to participate in the annual survey. Nonetheless, the data does provide important insight into the composition of the industry and its development. Due to the sample size of the submitted data, and the inability to collect installation data from every green roof company in North America, industry forecasting is not provided in the results of this survey, and observations are based purely on comparative reporting and current market state.

The survey report is made available to all Green Roofs for Healthy Cities corporate members as a membership benefit, along with access to all previous survey reports. The full data set is made available to all participants of the survey. Current and previous reports are available for purchase online at greenroofs.org.

Participants

Green Roofs for Healthy Cities would like to thank these companies for their participation in the 2019 Annual Green Roof Industry Survey.

In alphabetical order:

- Architek barrettroofs.com
- Eco-Roofs eco-roofs.com
- Elevation Green Roofs www.elevationgreenroofs.net/
- Emory Knoll Farms/Green Roof greenroofplants.com
- Plants etera.com
- Etera ginkgosustainability.com
- Ginkgo Sustainability greenrisetech.com
- Greenrise Technologies greenroofoutfitters.com
- Green Roof Outfitters jlbruce.com
- Jeffrey L. Bruce & Co liveroof.com
- LiveRoof omni-ecosystems.com
- Omni Ecosystems recovergreenroofs.com
- Recover Green Roofs sempergreen.com/us
- Sempergreen/Moerings USA xeroflornorthamerica.com
- Xeroflor America

Participants and Advanced Corporate members receive a detailed database of projects.

The Green Pages Industry Directory, a full directory of GRHC Corporate members can be found at <http://issuu.com/grhcna/docs/grhc>.

