

From: [Kathryn Welds](#)
To: [Wheeler, Mayor](#); [Commissioner Rubio](#); [Commissioner Ryan Office](#); [Commissioner Hardesty](#); [Commissioner Mapps](#); [Council Clerk – Testimony](#); [Kathryn Welds](#); [Wendy Rahm](#)
Subject: More data to support retaining trees & green space in South Park Blocks and avoiding removals
Date: Sunday, June 27, 2021 8:32:52 PM

The proposed increase in hardscape at the expense of grass and planters and the loss of trees to implement the new hardscape, diminishes the current park's helpful health, well-being, and cognitive impact on nearby residents, many of whom are in poor health and economic conditions.

FYI, a review of the impact of hardscape vs green space by **Ethan Kross, PhD** of University of Michigan in his recent book, *Chatter* (2021):

....using data from more than ten thousand individuals in England collected over eighteen years, scientists found that people reported experiencing lower levels of distress and higher well-being when living in urban areas with more green space.

Meanwhile, a 2015 high-resolution satellite imagery study of the Canadian city of Toronto found that having just ten more trees on a city block was associated with improvements in people's health comparable to an increase in their annual income of \$10,000 or being seven years younger.

Finally, a study involving the entire population of England below the age of retirement—approximately forty-one million people—revealed that exposure to green spaces buffered people against several of the harmful effects of poverty on health.

To put it another way that only slightly exaggerates, green spaces seem to function like a great therapist, anti-aging elixir, and immune-system booster all in one.

These findings raise a fascinating possibility: that the internal conversations we have with ourselves are influenced by the physical spaces we navigate in our daily lives.

Kross, Ethan. *Chatter* (p. 111). Crown. Kindle Edition.

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Window May Influence Recovery from Surgery,” *Science* 224 (1984): 420–421. green revelations have followed:

For recent reviews of the link between nature exposure and health, see Gregory N. Bratman et al., “Nature and Mental Health: An Ecosystem Service Perspective,” *Science Advances* 5 (2019): eaax0903;

Roly Russell et al., “Humans and Nature: How Knowing and Experiencing Nature Affect Well-Being,” *Annual Review of Environmental Resources* 38 (2013): 473–502;

Ethan A. McMahan and David Estes, “The Effect of Contact with Natural Environments on Positive and Negative Affect: A Meta-analysis,” *Journal of Positive Psychology* 10 (2015): 507–519; and

Terry Hartig et al., “Nature and Health,” *Annual Review of Public Health* 35 (2014): 207–228.
ten thousand individuals in England:

Mathew P. White et al., “Would You Be Happier Living in a Greener Urban Area? A Fixed-Effects Analysis of Panel Data,” *Psychological Science* 24 (2013): 920–928.

seven years younger: Omid Kardan et al., “Neighborhood Greenspace and Health in a Large Urban Center,” *Scientific Reports* 5 (2015): 11610.

entire population of England: Richard Mitchell and Frank Popham, “Effect of Exposure to Natural Environment on Health Inequalities: An Observational Population Study,” *Lancet* 372 (2008): 1655–1660.

Also see David Rojas-Rueda et al., “Green Spaces and Mortality: A Systematic Review and Meta-analysis of Cohort Studies,” *Lancet Planet Health* 3 (2019): 469–477.

Stephen and Rachel Kaplan: Rachel Kaplan and Stephen Kaplan, *The Experience of Nature: A Psychological Perspective* (New York: Cambridge University Press, 1989).

I also drew on this article to tell the Kaplans’ story: Rebecca A. Clay, “Green Is Good for You,” *Monitor on Psychology* 32 (2001): 40.

One now classic study: Marc G. Berman, John Jonides, and Stephen Kaplan, “The Cognitive Benefits of Interacting with Nature,” *Psychological Science* 19 (2008): 1207–1212.

Also see Terry Hartig et al., “Tracking Restoration in Natural and Urban Field Settings,” *Journal of Environmental Psychology* 23 (2003): 109–123.

clinically depressed participants: Marc G. Berman et al., “Interacting with Nature Improves Cognition and Affect for Individuals with Depression,” *Journal of Affective Disorders* 140 (2012): 300–305.

Another satellite-imagery study: Kristine Engemann et al., “Residential Green Space in Childhood Is Associated with Lower Risk of Psychiatric Disorders from Adolescence into Adulthood,” *Proceedings of the National Academy of Sciences of the United States of America* 116 (2019): 5188–5193.

Also see White et al., “Would You Be Happier Living in a Greener Urban Area?” Palo Alto, California:

Gregory N. Bratman et al., “Nature Experience Reduces Rumination and Subgenual Prefrontal Cortex Activation,” *Proceedings of the National Academy of Sciences of the United States of America* 112 (2015): 8567–8572.

For a conceptual replication at the behavioral level, see Gregory N. Bratman et al., “The Benefits of Nature Experience: Improved Affect and Cognition,” *Landscape and Urban Planning* 138 (2015): 41–50, which linked a nature (versus urban) walk with improved rumination, anxiety, positive affect, and working memory functioning. born and bred city dweller:

There's a natural level of skepticism that many people feel when they hear about these findings on the cognitive and emotional restorative effects of nature.

Indeed, one clever set of studies found that people consistently underestimate how much interacting with green spaces will improve their mood.

Elizabeth K. Nisbet and John M. Zelenski, "Underestimating Nearby Nature: Affective Forecasting Errors Obscure the Happy Path to Sustainability,"

Six-minute video of neighborhood streets: Bin Jiang et al., "A Dose-Response Curve Describing the Relationship Between Urban Tree Cover Density and Self-Reported Stress Recovery," *Environment and Behavior* 48 (2016): 607–629.

Also see Daniel K. Brown, Jo L. Barton, and Valerie F. Gladwell, "Viewing Nature Scenes Positively Affects Recovery of Autonomic Function Following Acute-Mental Stress," *Environmental Science and Technology* 47 (2013): 5562–5569;

Berman, Jonides, and Kaplan, "Cognitive Benefits of Interacting with Nature"; and McMahan and Estes, "Effect of Contact with Natural Environments on Positive and Negative Affect."

improved performance on an attentional task: Stephen C. Van Hedger et al., "Of Cricket Chirps and Car Horns: The Effect of Nature Sounds on Cognitive Performance," *Psychonomic Bulletin and Review* 26 (2019): 522–530.

longer we're exposed: Danielle F. Shanahan et al., "Health Benefits from Nature Experiences Depend on Dose," *Scientific Reports* 6 (2016): 28551.

Also see Jiang et al., "Dose-Response Curve Describing the Relationship Between Urban Tree Cover Density and Self-Reported Stress Recovery."

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