

Press Release
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George Washington Regional Commission & Friends of the Rappahannock Complete Urban Heat Island Study in Planning District 16

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Fredericksburg, VA: The George Washington Regional Commission (GWRC) and Friends of the Rappahannock (FOR) are pleased to announce the publication of their 2022 joint study on Urban Heat Islands in Planning District 16 (Caroline, King George, Spotsylvania, and Stafford Counties and the City of Fredericksburg). The study combined citizen science and Geographic Information Systems (GIS) to identify areas with a high concentration of impervious surfaces (such as asphalt, concrete, buildings, etc.) and their correlation to higher ambient air temperatures through heat absorption. This effect is known as Urban Heat Islands and, according to the U.S. Environmental Protection Agency (EPA), [Heat Island impacts](#) can affect a community's environment and quality of life in multiple ways, including increased energy consumption, elevated emissions of air pollutants and greenhouse gases, compromised human health and comfort, and impaired water quality.

Friends of the Rappahannock conducted the study by coordinating 37 volunteers who obtained 320 air temperature measurements at 20 sample sites within Planning District 16 on July 10th, 2022. These samples were then put into a Random Forest model in ArcGIS Pro (an ESRI product). The model was used to extrapolate temperatures across the region, ultimately identifying areas as non-heat islands, heat islands, or urban heat islands. The data found that 3.57% of the landmass of Planning District 16 (approximately 32,700 acres) can be classified as an [EPA-defined Urban Heat Island](#). As shown in Figure 1 below, geographically the results were clustered along the Interstate 95 corridor in Fredericksburg and surrounding areas into Stafford and Spotsylvania. North Stafford along Garrisonville Road recorded the highest temperature in the study at 104°F, a 17-degree difference

from nearby forestland temperatures. Other hotspots included the Route 17 corridor in Stafford County; Central Park and Celebrate Virginia South in Fredericksburg; the Spotsylvania Towne Center and Cosner's Corner in Spotsylvania County; and Dahlgren and the King George Landfill/Birchwood Power complex in King George County.

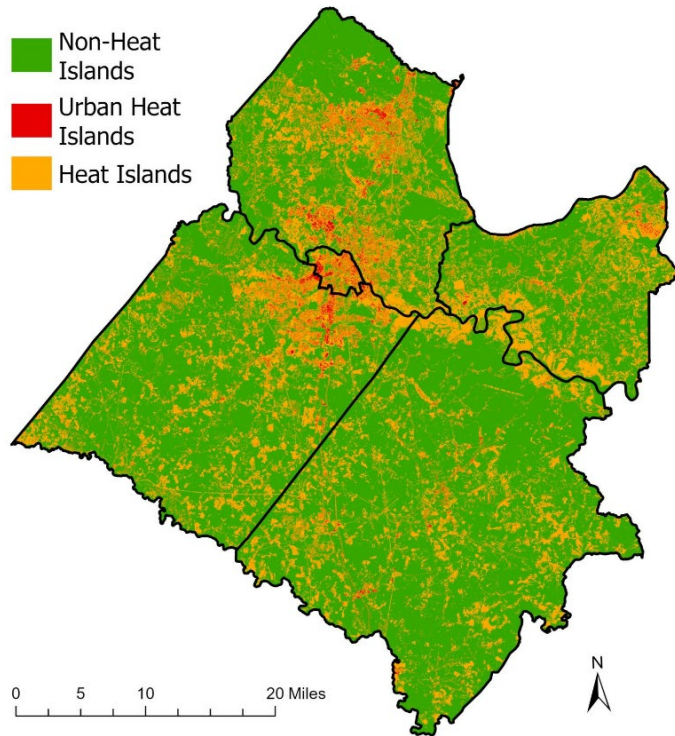


Figure 1 Map of Urban Heat Islands from FOR's GIS Technician, Sarah Kerner

To learn more about the impacts of Urban Heat Islands, the public is invited to attend an Urban Heat Island Community Listening Session on **February 22nd at 10 am or March 9th at 6pm at GWRC's office at 406 Princess Anne St, Fredericksburg, VA 22401**. FOR and GWRC are holding these public meetings to gather information from community members and stakeholders about ways in which they have been impacted by Urban Heat Island and what next steps can be taken to address these impacts.

Persons who require special accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact the GWRC at (540) 642-1575 or Meredith.Keppel@gwregion.org.

Las personas que requieren alojamiento especial de acuerdo con el Americans with Disabilities Act, o personas que requieren servicios de traducción (libre de cargo) deben comunicarse con la GWRC al (540) 642-1575 o Meredith.Keppel@gwregion.org.

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