

**Appendix 4 to the Risk Assessment Report  
for the Sterigenics Facility in Willowbrook, Illinois:**

**U.S. EPA Risk Assessment for Sterigenics-Willowbrook (Slides from May 29, 2019,  
Public Meeting)**

# U.S. EPA Risk Assessment for Sterigenics- Willowbrook

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# What we'll cover

- ▶ Key Terms
- ▶ EPA's Sterigenics Willowbrook Risk Assessment
  - ▶ What the Assessment Examined
  - ▶ Areas the Assessment Covered
  - ▶ Limitations and Uncertainties
- ▶ Review of Results

# Two Key Terms

- ▶ ***Air toxics*** are pollutants that are known or suspected to cause cancer or other serious health effects
  - ▶ Also known as “hazardous air pollutants”
  - ▶ Ethylene oxide is an air toxic
- ▶ ***Cancer risk*** refers to the chance that breathing in an air toxic will cause people to develop cancer
  - ▶ Separate from the risk of developing cancer from other causes
  - ▶ EPA describes that chance as a number in 1 million people
    - ▶ For example, 1 in 1 million means that 1 person in 1 million people could develop cancer from breathing air toxics

# Areas the risk assessment covered

- ▶ This risk assessment estimates the risks for several communities including:
  - ▶ Willowbrook
  - ▶ Burr Ridge
  - ▶ Hinsdale
  - ▶ Darien
  - ▶ Indian Head Park
  - ▶ Western Springs

# We evaluated two scenarios

1. Potential risks from the Sterigenics-Willowbrook facility that exist after the emission controls that were installed in July 2018
  - ▶ Called the “Pre-Seal Order”
2. Potential risks assuming that the emissions from the facility is more highly controlled
  - ▶ Called the “Illustrative Future Case”

# Assumptions in the scenarios

- ▶ For both scenarios the assessment estimates:
  - ▶ Risk in areas where people live
  - ▶ Risk in areas where people work close to the facility (but not at the facility)
- ▶ For areas where people live, we assume continuous 24/7 exposure for 70 years
- ▶ For areas where people work close to the facility, we assume people are exposed 8.5 hours a day, 5 days a week, 50 weeks a year for 25 years

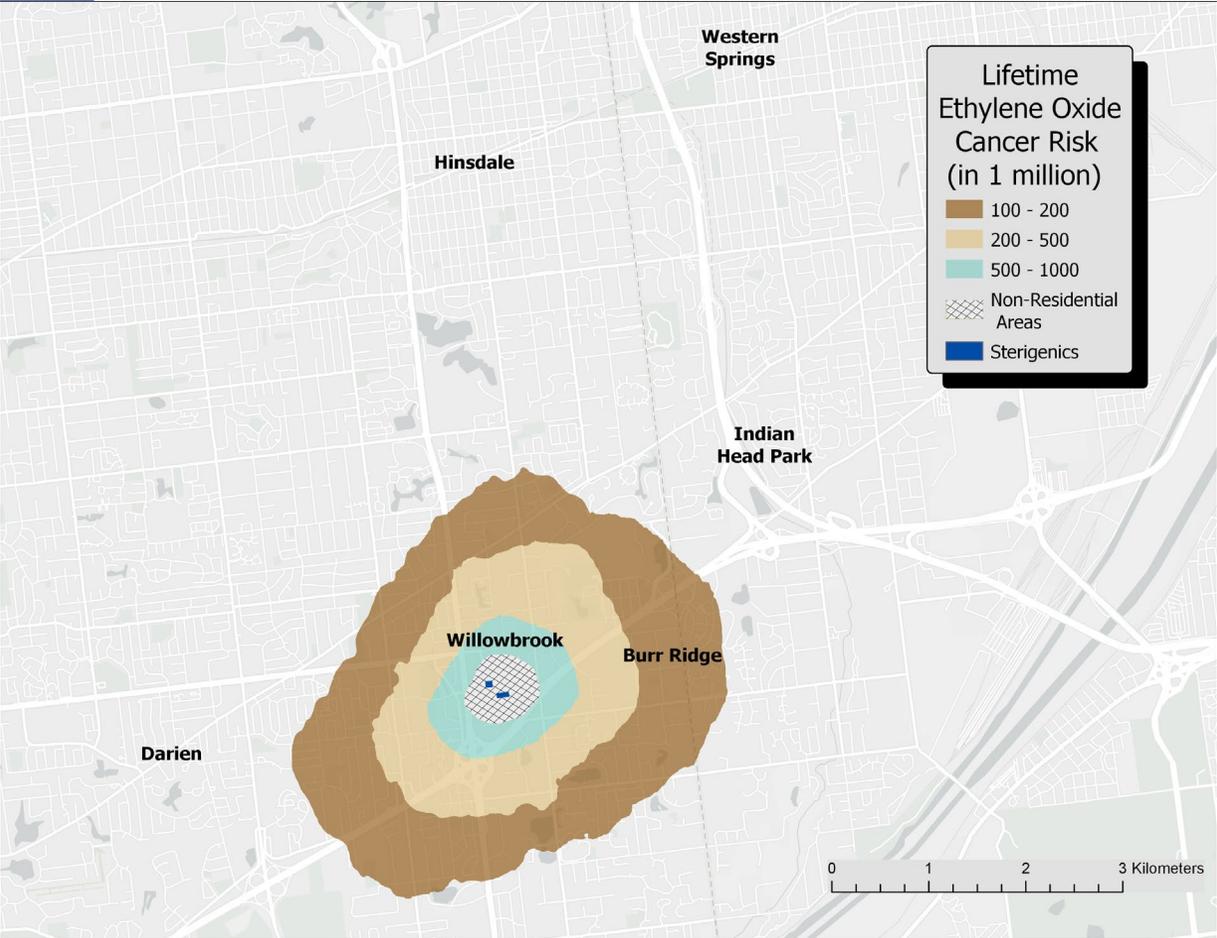
# Limitations and Uncertainties

## This risk assessment:

- ▶ Focuses on risks from the Sterigenics facility only
  - ▶ Does not assess comprehensive risk from all air pollution sources
- ▶ Provides *general* estimates of a population's risk of getting cancer due to EtO emissions from the Sterigenics-Willowbrook plant
  - ▶ Cannot be used predict an individual's chance of getting cancer
- ▶ Is more likely to over-estimate risk than underestimate risk due to what we call 'health-protective assumptions'

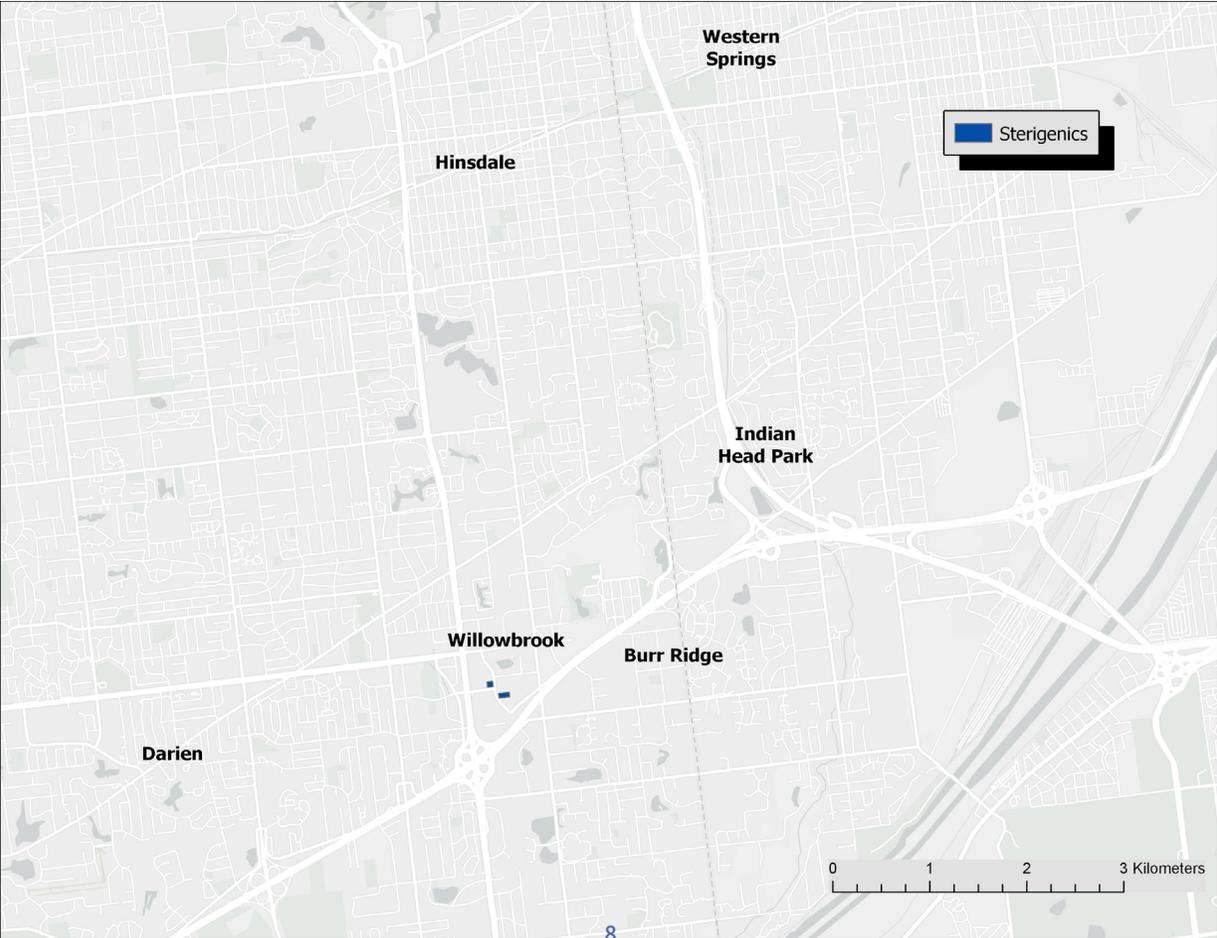
# Estimated Residential Lifetime Cancer Risk from ethylene oxide emissions from Sterigenics Willowbrook

## Pre-Seal Order Conditions



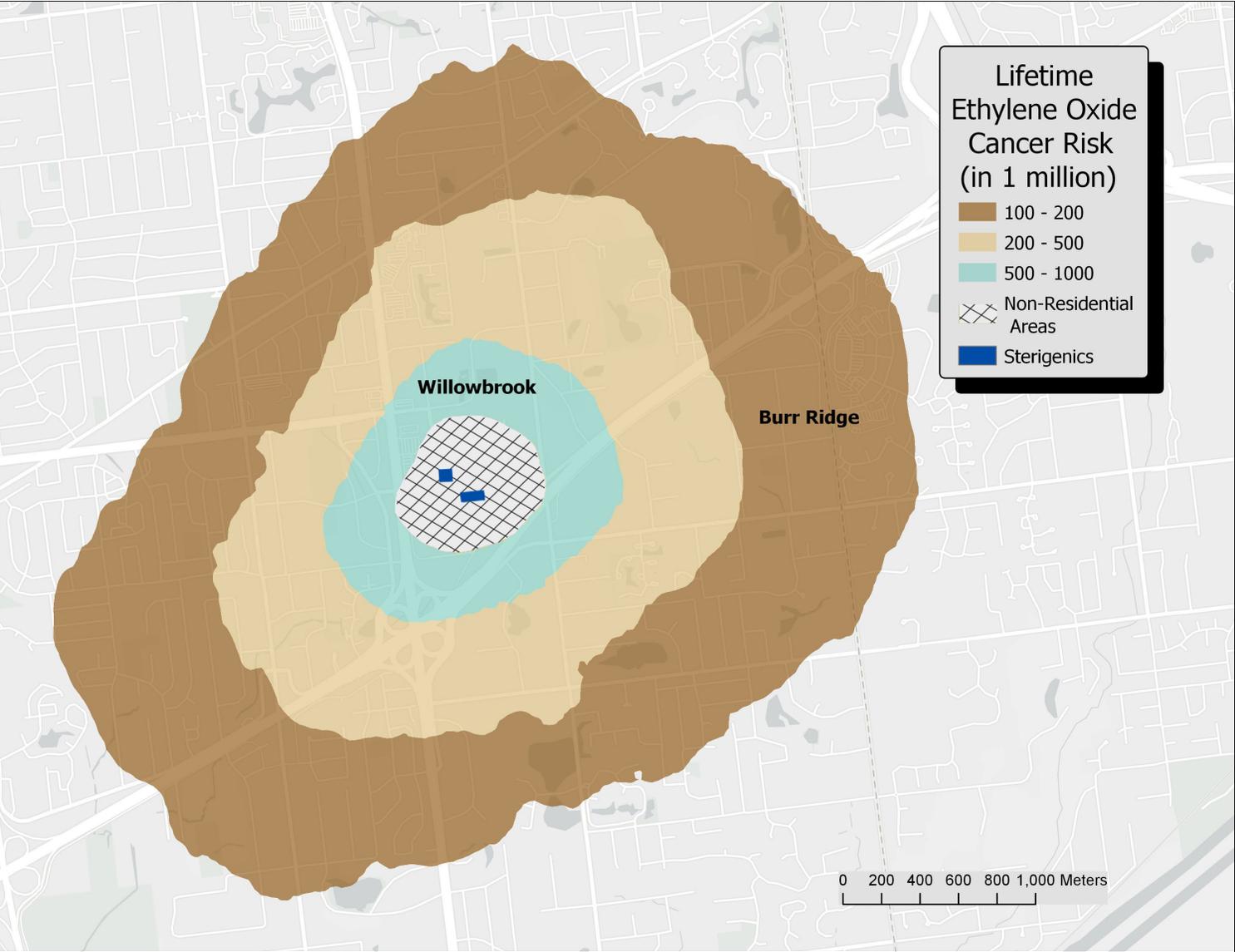
Based on operations before seal order (Reflects emissions reductions from controls installed in Summer 2018)

## Illustrative Future Case



Based on the facility being more highly controlled. Estimated risks would be below 100 in 1 million - and potentially as low as 1 in 1 million.

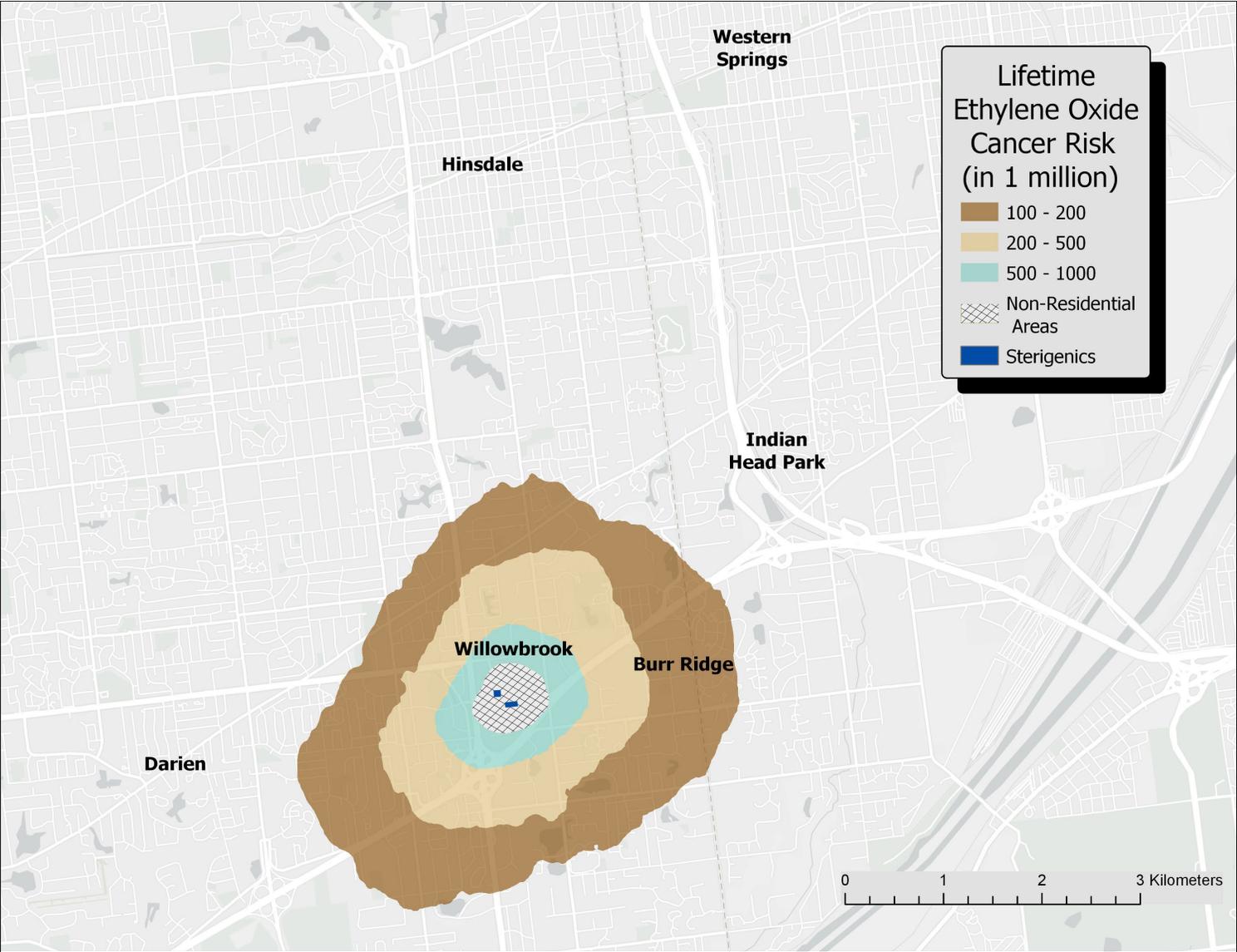
# Zooming in: Estimated *Residential* Lifetime Cancer Risk



## Pre-Seal Order Conditions

Based on operations before seal order (Reflects emissions reductions from controls installed in Summer 2018)

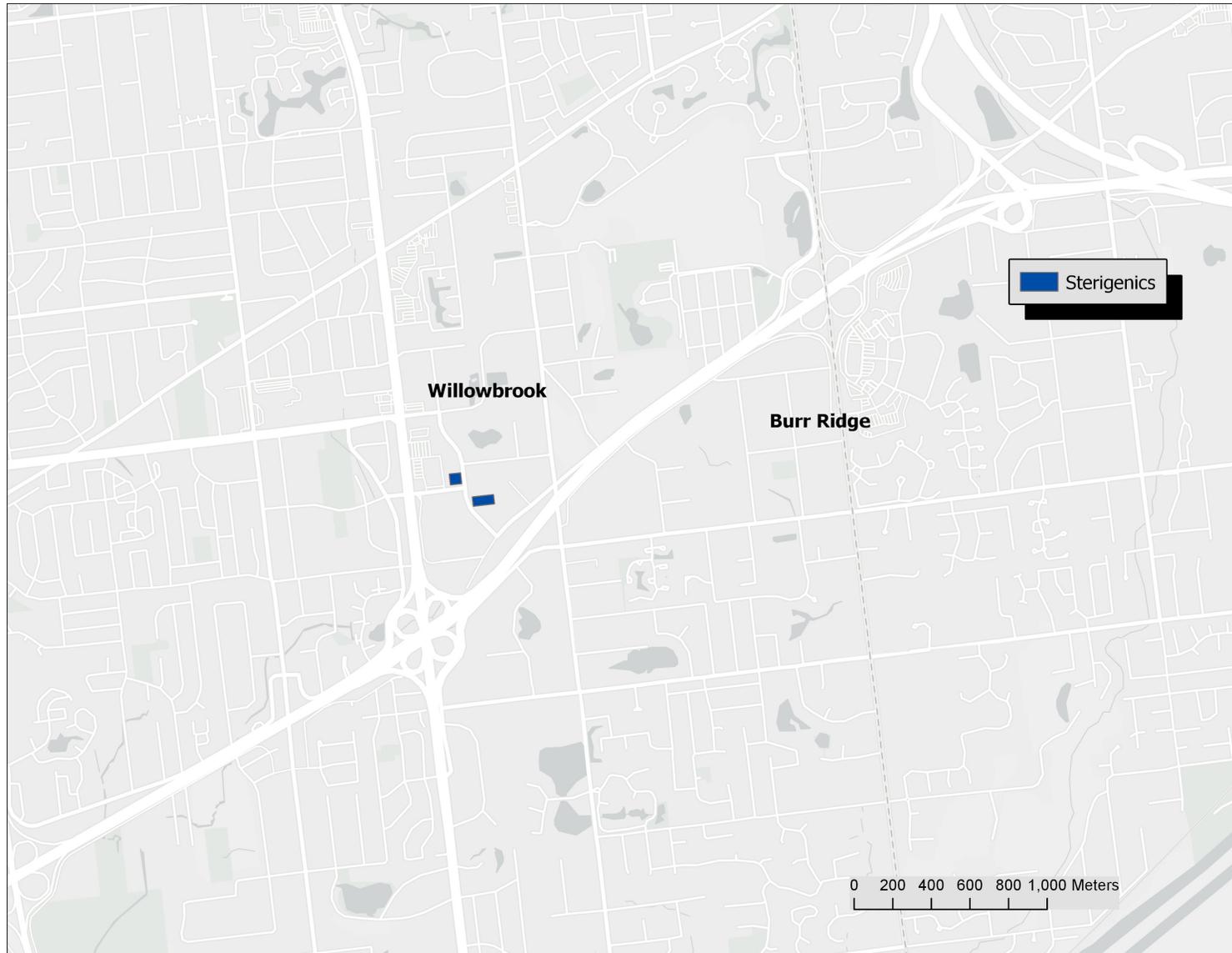
# Estimated Residential Lifetime Cancer Risk from ethylene oxide emissions from Sterigenics Willowbrook



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# Zooming in: Estimated *Residential* Lifetime Cancer Risk

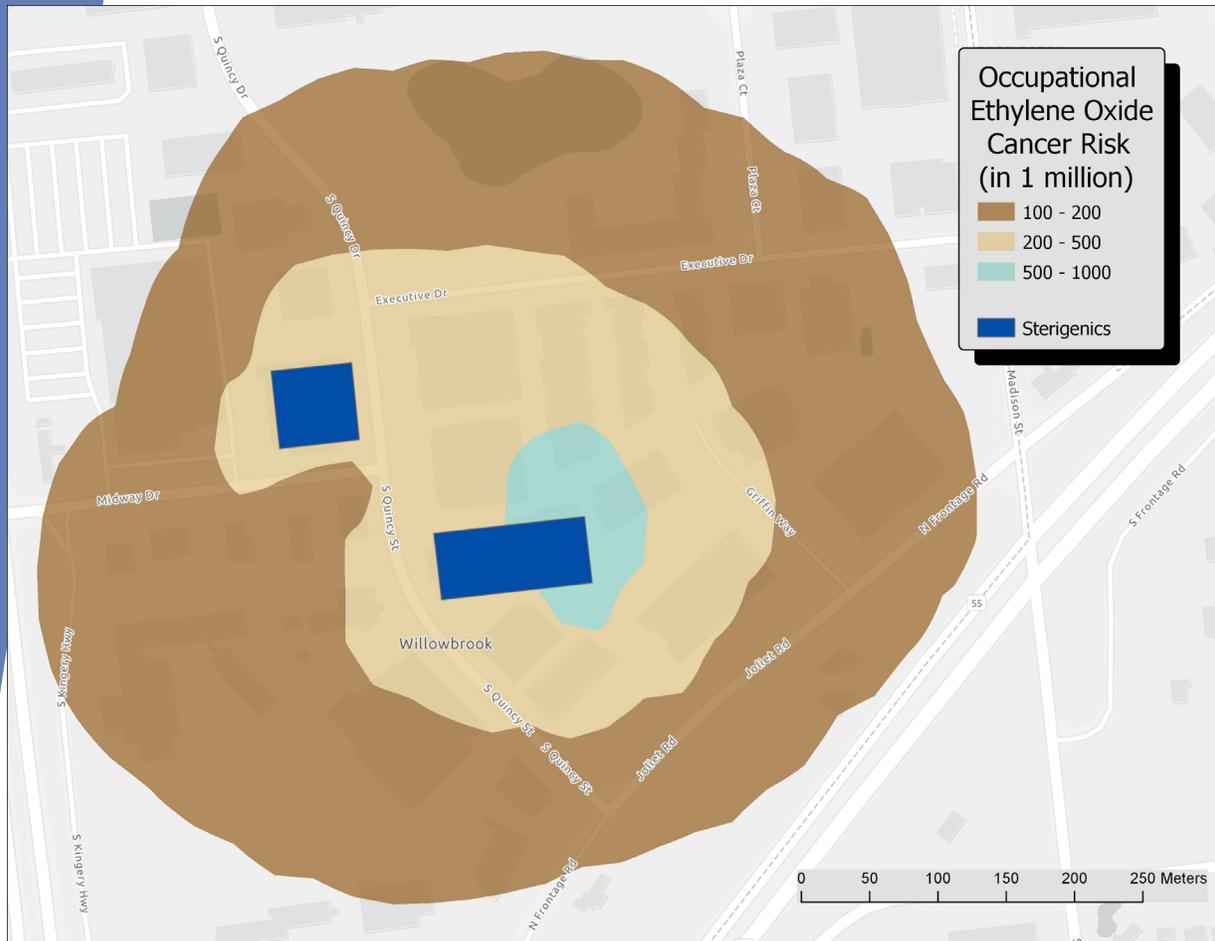


## Illustrative Future Case

Based on the facility being more highly controlled. Estimated risks would be below 100 in 1 million - and potentially as low as 1 in 1 million

# Estimated *Occupational* Lifetime Ethylene Oxide Cancer Risk from Sterigenics Willowbrook

## Pre-Seal Order Conditions



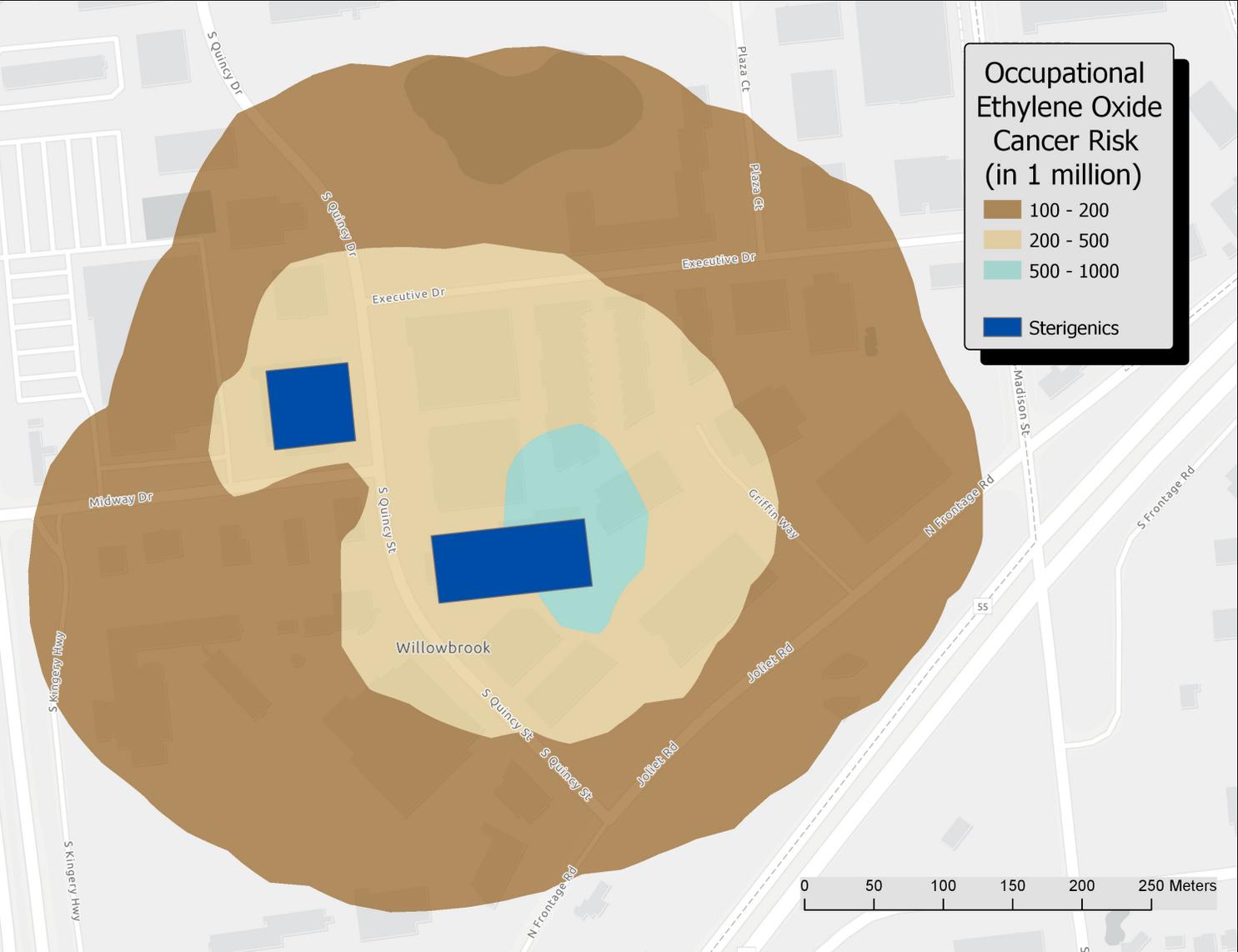
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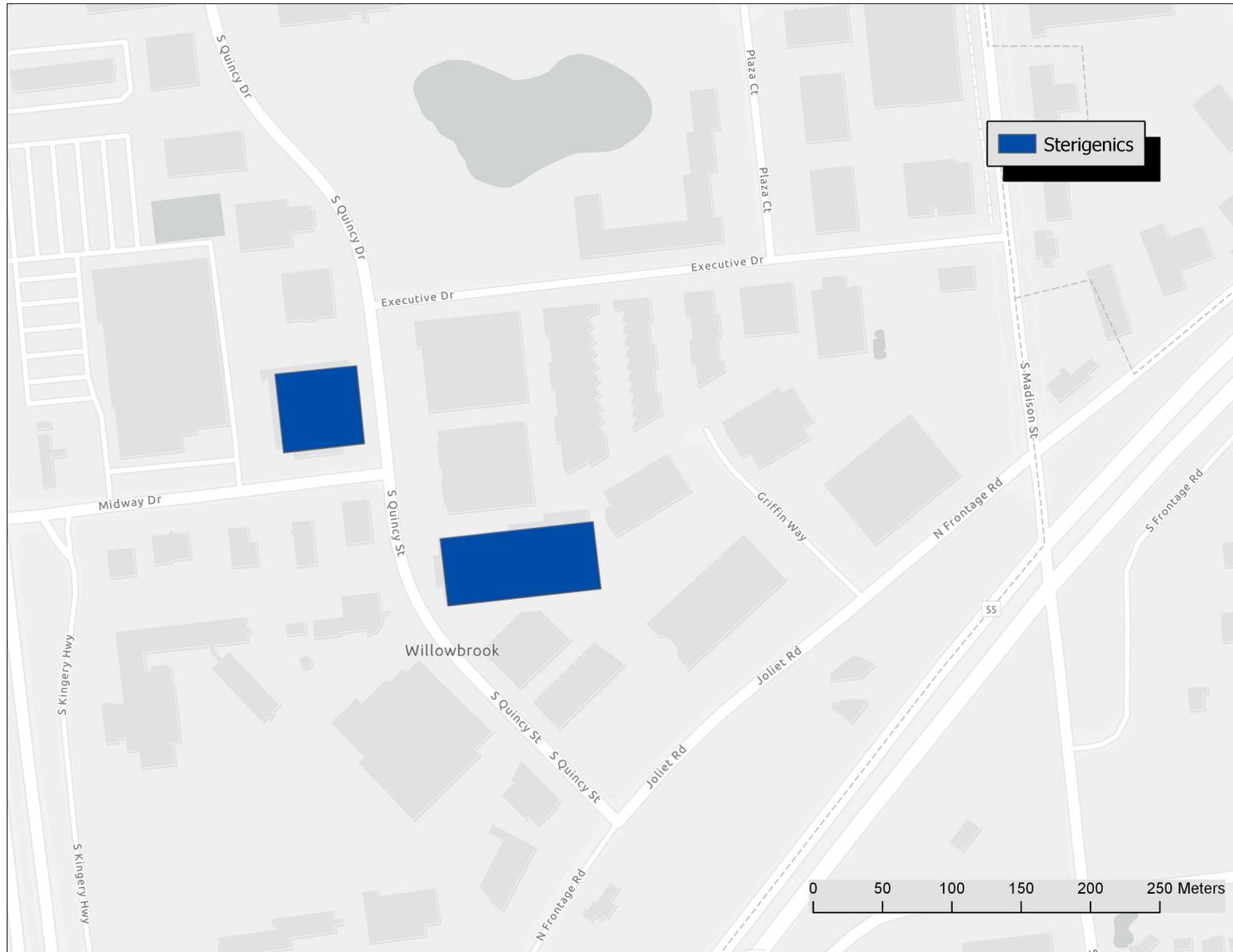
# Estimated Occupational Lifetime Ethylene Oxide Cancer Risk from Sterigenics Willowbrook



## Pre-Seal Order Conditions

Based on operations before seal order (Reflects emissions reductions from controls installed in Summer 2018)

# Estimated *Occupational* Lifetime Ethylene Oxide Cancer Risk from Sterigenics Willowbrook



## Illustrative Future Case

Based on the facility being more highly controlled. Estimated risks would be below 100 in 1 million - and potentially as low as 1 in 1 million

# Thank You