City of Madison

Problem Identification: Internet Access Analysis

1.0: Contact Information	
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2.0 Problem Statement (max 200 words)
Prompt: What's the problem we are trying to solve? What is actually happening? Where does the problem exist? How do you know this is a problem?

Where are the best places to provide residential internet access, in order to serve the greatest number of K-12 students, with the lowest amount of resources?

When the COVID-19 pandemic hit Madison, classes at the Madison Metropolitan School District became fully online. Students without reliable home access to internet are less able to participate in their classes, and are at risk of falling behind their peers.

While the City of Madison, MMSD, and other local governments are not legally allowed to be direct internet service providers, other entities are exploring providing home internet access to students. They wish to know how their resources could be most effectively deployed to reach the target population.

3.0 Impact Statement (max 100 words)
Prompt: What change would you like to see happen? What should be happening?

This analysis should offer probabilistic estimates of the residential addresses at which internet access may be provided, in order to most efficiently provide residential internet access to K-12 students who would not otherwise have it.

People move frequently, so we cannot guarantee that providing access at a certain address would provide access to a certain number of students.

Rather, this analysis should provide probabilistic estimates of addresses where internet provision would likely have the greatest effect.

Of note, the model developed from this project is as important as the results. As discussed below, this project should be based on Census tract information, which will be updated shortly. The new numbers should be easy to plug into the model to generate updated estimates.

4.0 Service Change Statement
Prompt: What is the results you are trying to make with this project?

Current State	Future State

Due to the COVID-19 pandemic and virtual schooling, Madison-area elementary and secondary students without home internet face a disadvantage. There is a desire to explore providing residential internet access to these students, but currently no analytic methodology for targeting that assistance.	This project develops probabilistic models that: ● Recommend residential addresses where Probabilistic models recommend residential addresses where residents likely do not have internet access, and are in the target population ● Moreover, these models maximize efficiency, providing access to the greatest number of students with the least resources. ● These models can be easily updated when more recent Census information becomes available.

5.0 Project Success Statement
Prompt: How will we know the project is successful?

The models developed in this analysis project will provide actionable insights that can help guide residential internet assistance.

6.0 Data Resources
The following data resources are available to support this project.

City of Madison tax parcels: This dataset lists every property in the City of Madison, what Census tract it is in, its address, and, if it is a multifamily dwelling, how many units it contains. Available at https://data-cityofmadison.opendata.arcgis.com/datasets/tax-parcels-assessor-property-information/data.

Census Data: There is a broad array of Census data. This can provide useful information, such as the rate of internet access per tract, number of school-age children per tract and household, incidence of subsidized housing, and household income. This analysis should use the full Census, not the American Community Survey, because Census data is released at the tract level. Available at https://data.census.gov/cedsci/