

UNCHARTED TERRITORY

A SMARTER WAY TO MEASURE POPULATION MOVEMENT ON CAMPUS

RESULTS

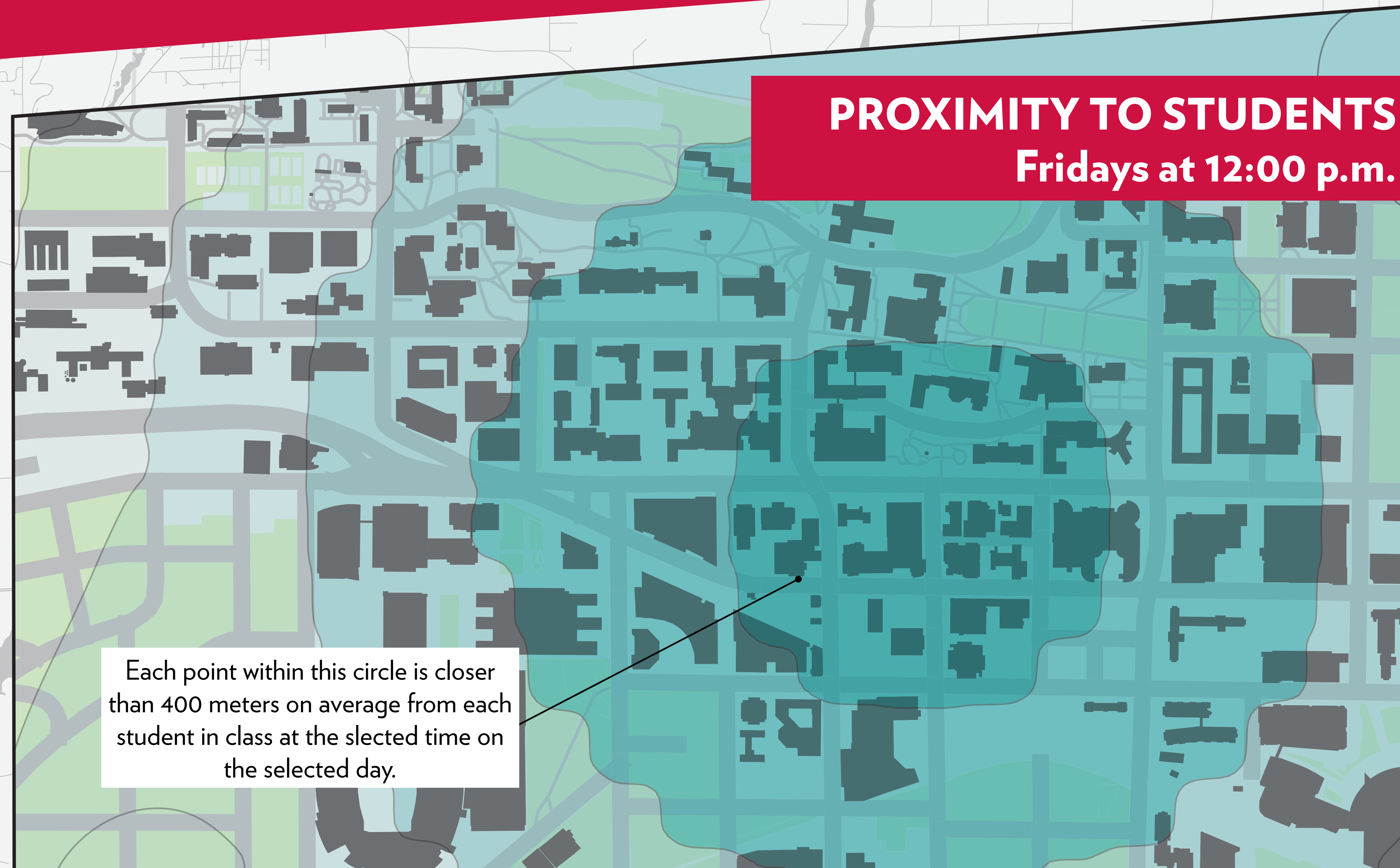
The resulting set of animated maps showed that, indeed, OSFA's outreach locations were not optimized to be as close as possible to the classrooms of targeted populations. Furthermore, the times OSFA had selected for outreach were not optimal either; too few students were in class or outreach events were planned at times that students happened to be extraordinarily spread out across campus.

In the future, OSFA is using this tool to select not only the locations of office hours and events, but also the times and days of the week. Our goal is to be present for the greatest number of people at times when they are the most concentrated. Not just for total students, but for selected populations we believe have the most to gain from the planned programming.

The map to the left is a sample of the full interactive dashboard. It shows contour lines at 200-meter intervals of average proximity to all students in class at the selected time. Here, Fridays at 12:00 p.m. has been selected as it is the most common time for one of OSFA's regular events. At the time of this map's creation, OSFA has never hosted this event in any of the buildings shown inside the smallest circle. The same analysis can be replicated for each target population.

More research is necessary to gauge the impact of our technique. Today, the technique does not account for locations of student employment, student housing choices, or extracurricular activities and organizations. The technique is too new to yet assess the impact on attendance at outreach events.

PROXIMITY TO STUDENTS Fridays at 12:00 p.m.



The resulting map is an animated heat map showing, for each point on a 100-yard-grid over campus, the average distance from that point to each student in the targeted population during that hour and on each day of the week. Using it, OSFA is able to determine the time and location of the highest concentrations of the students targeted for intervention or services.

Student services units often have long-held understandings of what parts of a campus are high traffic areas, but these don't take into account a targeted population's unique behaviors, attitudes, and communities. The Office of Student Financial Aid tested this by applying geospatial analysis to student course schedules.

POPULATIONS OF INTEREST

Students of different socioeconomic backgrounds make different choices about career interests, course enrollments, and community involvement. At OSFA, we want to make it as easy as possible for these targeted populations to interact with us, so it's important to know where on campus they are so we can meet them there. Below are some of the populations we might target for outreach opportunities:

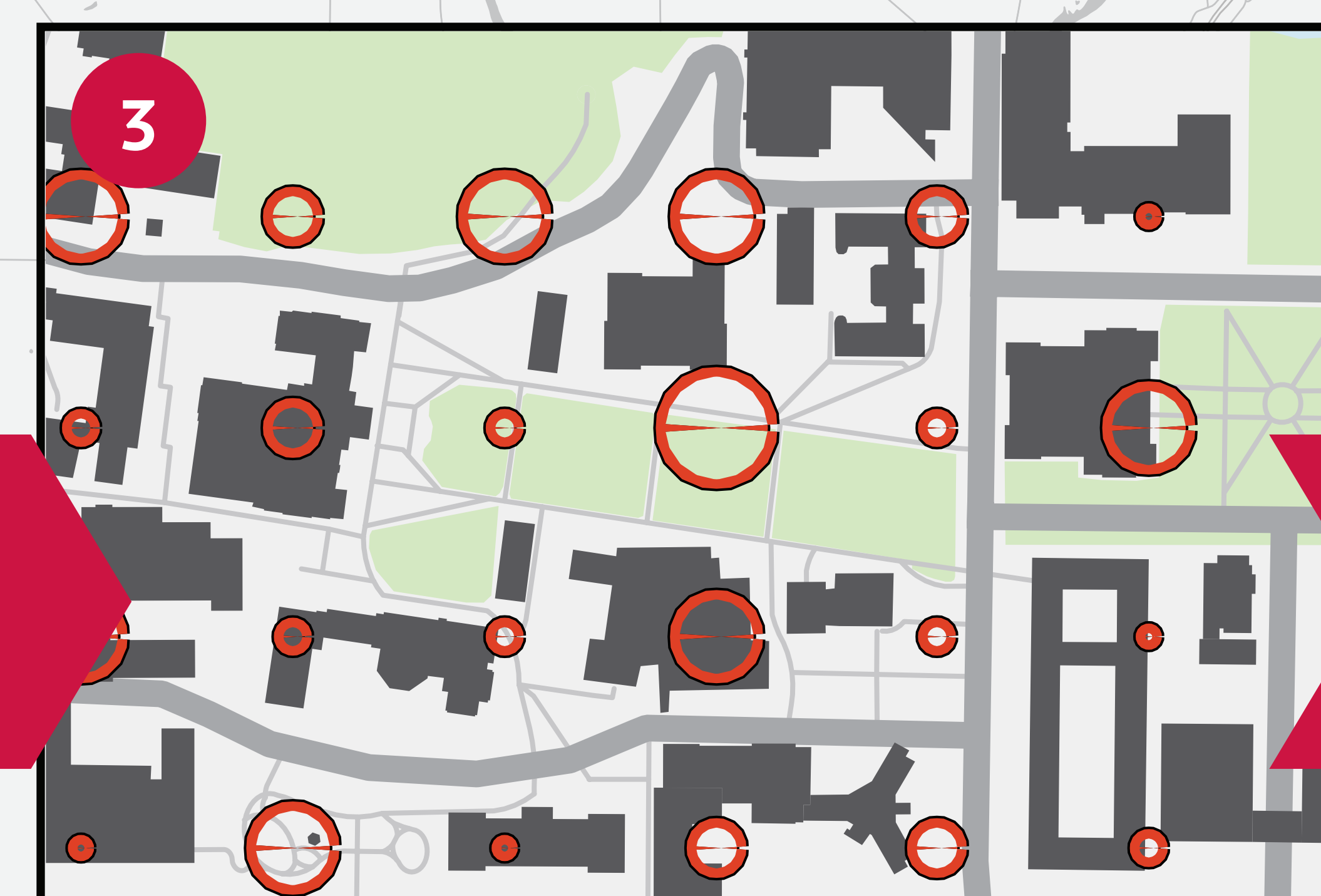
Pell Grant Recipients	Some OSFA services are particularly relevant to students receiving Pell
BTP Recipients	Since Bucky's Tuition Promise is such a new program, we're interested in their progress
First Generation Students	First-generation students sometimes report concerns about belonging on campus



First, we overlay a grid of dots on campus. These dots are evenly spaced by 100 yards, and approximate all possible locations outreach events could be held on campus.



Next, we calculate the distance between each of these "weather stations" and all buildings where classes are held. This generates a distance matrix with every possible distance calculated.



Third, we use course schedules to determine, for each time period, how many targeted students are in class in each building. We use this to calculate a weighted average distance for each dot.



Finally, we use Inverse Distance Weighted interpolation (IDW) to generate contour lines at intervals useful for analysis. These can be saved as shapefiles for interactive visualization.

CONTACT

Interested in learning more about how the Office of Student Financial Aid uses data and research to drive outreach? Let me know! We love to share strategies with campus partners.

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To find the highest-impact areas for the populations of interest, we used student course schedules and a geospatial data scaffolding technique to generate a dataset that would have information about any possible point on campus. Currently, this model only takes into account student course schedules, and makes the assumption that students will be passing between buildings in between classes. In the future, we'd like to build into the model the location of a student's residence, and, if possible, the location of a student's employment. In 2020, OSFA is exploring the use of this same scaffolding technique to identify outreach locations throughout the state of Wisconsin.