

City of Minnetonka Maximum Parking Regulations Urban GIS

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On behalf of

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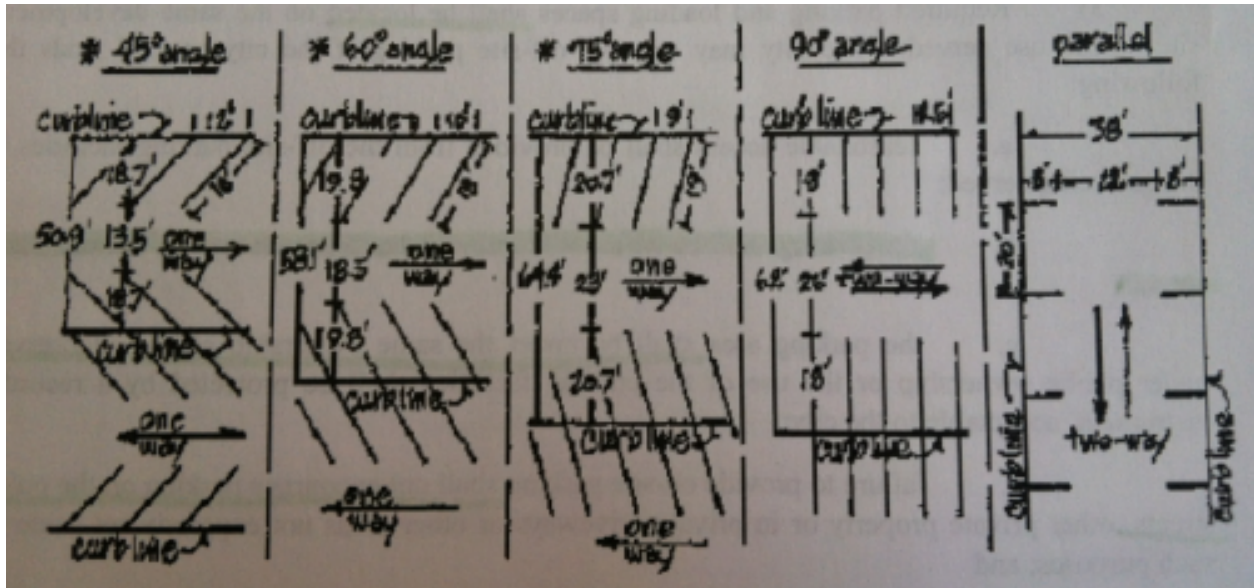
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This research paper will provide information and data about parking regulations in the City of Minnetonka. Brad Johnston, Mark Kelley, and Jonathan Winge have conducted the following research and data throughout this paper. Parking regulations are created through the process of incorporating multiple factors like building size and building type. The square footage of a distinct building type determines the amount of parking spaces that should be provided. Our group will be working with the City of Minnetonka to provide data that will encourage Minnetonka to change the minimum parking regulations into maximum parking regulations. This paper will provide data about the parking provided in the Minnetonka Opus business campus. This research paper will begin by describing the organization we have worked with and the project requirements they have asked our group to complete. Our research and maps created will provide the current parking availabilities, lots that are over and under parked, and maps that provide different scenarios, such as if the minimum regulation were turned to a maximum regulation.

As previously mentioned, we have been working with a principal planner through the City of Minnetonka. Principal planner Susan Thomas was the contact that provided our group with data and current parking ordinances of the Opus campus. Originally there were two focus areas for our research. These two focus areas were the Opus campus along Shady Oak Road and the Carlson Towers located along Interstate 494 and Interstate 394. The Opus campus was later determined to be the sole focus area. The following information is strictly focuses on the parking spaces provided through Opus. The main project goal focuses on providing information and data for Minnetonka that can later be used to create a maximum parking regulation rather than a minimum. The maximum parking regulation will help in reducing the space used for parking lots in future developments.

Minnetonka currently provides five different designs in which parking spaces can be implemented. The figure below displays these 5 different design types. The angle that determines the parking space creates how large the curb length, stall length, and aisle may be. The 90 degree and parallel designs are the only two that are able to provide two-way driving access throughout the parking lot.



Angle	Curb Length	Stall Length	Aisle	Low-Turnover Parking Structure Aisle Width***
45°	12.0'	18.0'	13.5'*	12'
60°	10.0'	18.0'	18.5'*	16'
75°	9.0'	19.0'	23'	18'
90°	8.5'	18.0'	26'**	24'

The current parking ordinance states that the lot must be within 400 feet of the building entrance it is serving. One handicap stall per every 50 and bike parking spaces must be provided in the parking lot design. 25 percent of the parking must be made to accommodate compact cars so that the some will be encouraged to not use non-compact

cars. Calculating the number of spaces in a parking lot is determined through multiple factors. The main factors we implemented into our maps were the building types and the square footage of the building. A general office building requires one space per every 250 square feet and Municipal buildings require 11 spaces per every 500 square feet. These two building types occupy the majority of the space in Opus.

While examining the following maps, take into consideration that each map is created under the assumption that less parking is better than more parking. The data used to create each map was taken from a combination of the City of Minnetonka, MetroGIS, and ESRI. We used the Arc Map computer software to generate each map outcome. To become familiar with the Opus campus take a look at the first map named parking stalls. This map displays the amount of parking spaces that are currently provided in each parking lot. Each parcel in the map is takes the form of the parking structure. Currently the Opus space provides 13,570 spaces available for parking.

The second map displayed is labeled Over/Under (ITE) Parking Ordinance. This map is displaying the number of parking lots that fail to meet the current parking requirement set by the city of Minnetonka. There are a total of 19 different parking lots that fail to meet the requirement. The warm colored parking parcels display the location of the current parking lots that fail to meet the requirements. These parking spaces attract attention by not meeting requirements and are to be looked at as extremely over parked. The following three maps are all created as different scenarios to develop an idea of what the changes would be like if different ordinances were implemented.

The third map display labeled Transit Oriented Development is a scenario that

displays what parking lots would be over parked under the assumption of the light rail station development. A gold star near the middle of Opus labels the LRT station. The map was created under an idea that 1.5 stalls would be provided per 1000 square feet of building space. The implementation of 1.5 stalls per 1000 square feet was found from a case study on Sacramento where the average stalls per TOD development was 1.5 stalls. (City of Sacramento) As you can see in the map, the larger parking parcels are near the LRT station are seen to be over parked, which would mean that Minnetonka residents would be using the spaces as a park and ride. The amount of over parked lots increases from 19 to 65 parking lots. Parking lots would have to be increase to provide adequate parking for LRT riders.

The fourth map created may be the most relevant the project goal because it displays what parking spaces would be over and under parked if the minimum parking requirement were turned into a maximum parking requirement. It is ironic that that there are 19 stalls which exceed the maximum parking regulation, which is the same amount as the current number of spaces that are over parked under the minimum parking regulation. This map does display some positive information though. It helps to focus on which lots need to be expanded and which lots may be successful by changing the minimum requirements to a maximum.

The fifth and final map displays a scenario in which employers would encourage the use of public transportation by providing employees with public transit passes. The result of this would allow the opportunity to reduce current parking regulations by 1 spot per 1000 square feet. This still creates a large number of lots that will be over parked, but when thinking about the LRT development in 2018 it may create more people to ride the train to

work rather than making the decision to drive.

The city of Burlington Massachusetts set zoning laws to change their current minimum parking regulations into a maximum to help reduce unused parking spaces. The case study relates very closely to the ordinances set by the City of Minnetonka. The office space building types were changed from a minimum of 2.5 stalls per 1000 square feet to a maximum of 3 stalls per 1000 square feet. (Burlington Parking Regs.) The current Minnetonka Minimum requirement is 4 stalls per every 1000 square feet. As you can already see the minimum for Minnetonka is one space larger than Massachusetts. After seeing that Massachusetts was able to successfully create a maximum parking regulation of 3 spaces per 1000 square feet, it would be suggested that Minnetonka try to reduce the Minimum and set the Maximum of 3 spaces like in Burlington. By setting the maximum and reducing the parking availability, it will be easier to promote LRT ridership and make it more attractive to Opus employees.

There are a few different ways we have come up with as a group to help use unused parking spaces and reduce over parked lots. The idea of shared parking may be successful for companies. By providing some sort of shuttle service throughout the Opus campus, employees will be able to park in unused parking lots and not have to walk a long way to work. The shuttle would circulate the Opus structure throughout the day and would be paid for by all of the businesses that operate daily in Opus. Another idea would be to incorporate a larger public transportation opportunity. The Census Bureau provides a 5-year ACS in 2011 about transportation. Currently only 891 out of 26,287 Minnetonka residents choose to use public transportation. If the City of Minnetonka were able to provide more park and ride opportunities other than the 12 and 665 metro transit routes it

could produce higher ridership numbers and use unused spaces. A final idea would be to have another form of transportation from Opus to shuttle riders from Opus to the Southwest Transit stop along Highway 212. Although wait time and transferring bus may come off as very unappealing to Minnetonka residents.

Creating a maximum parking regulation rather than a minimum for Minnetonka would help in reducing space used for parking. It would be helpful to preserve larger green spaces and create a better opportunity for future developments rather than being used as space for asphalt. The research throughout this project has help to present how certain scenarios would affect the Opus spaces and to ultimately improve the current parking regulations and to reduce the amount of space that is currently required for parking amenities.

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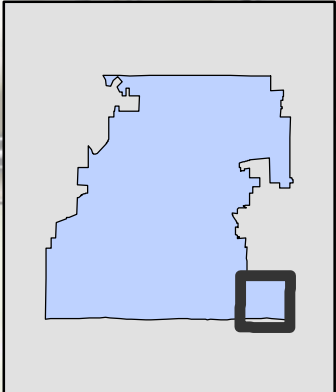
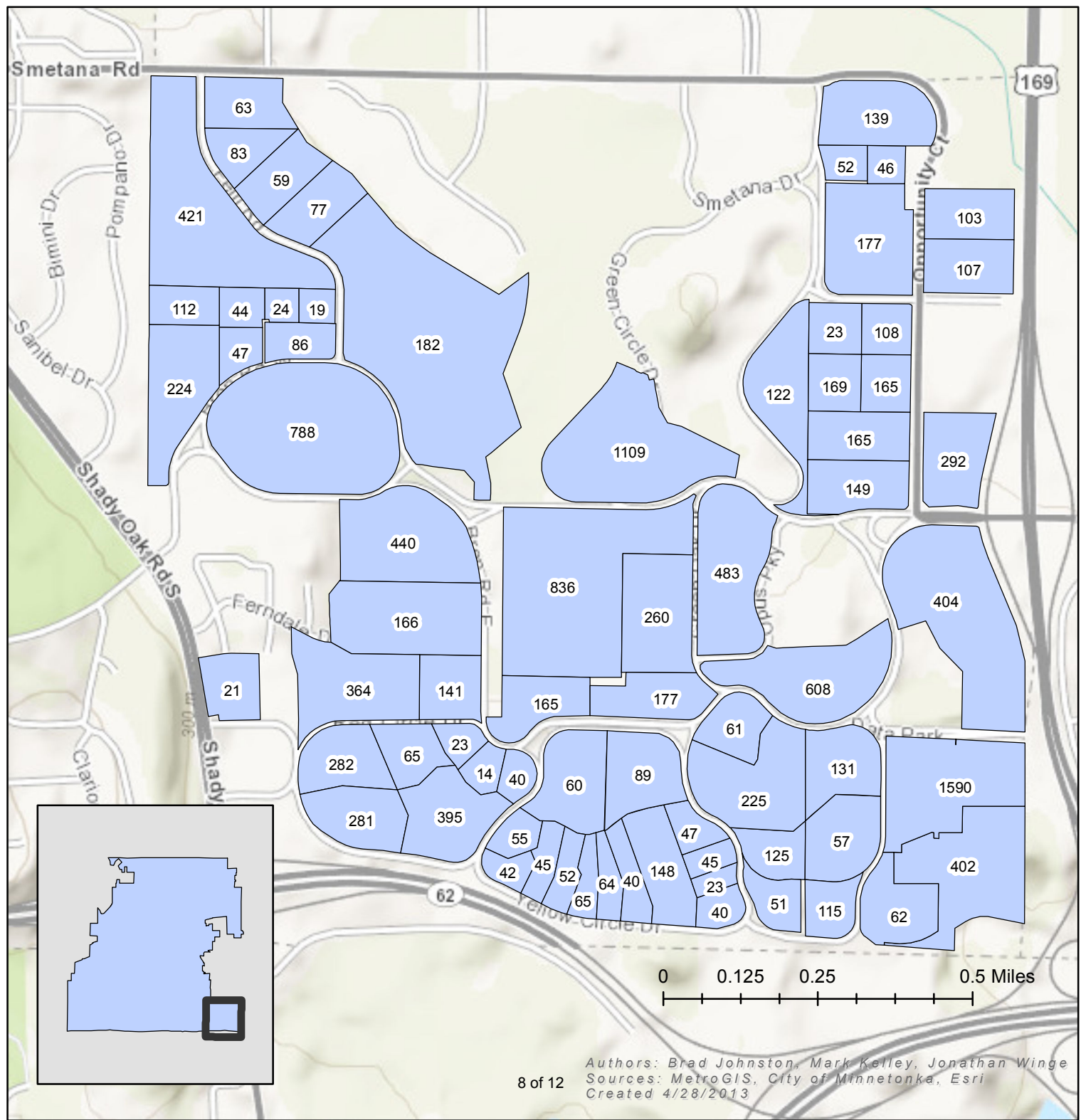
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Parking Stalls per Parcel

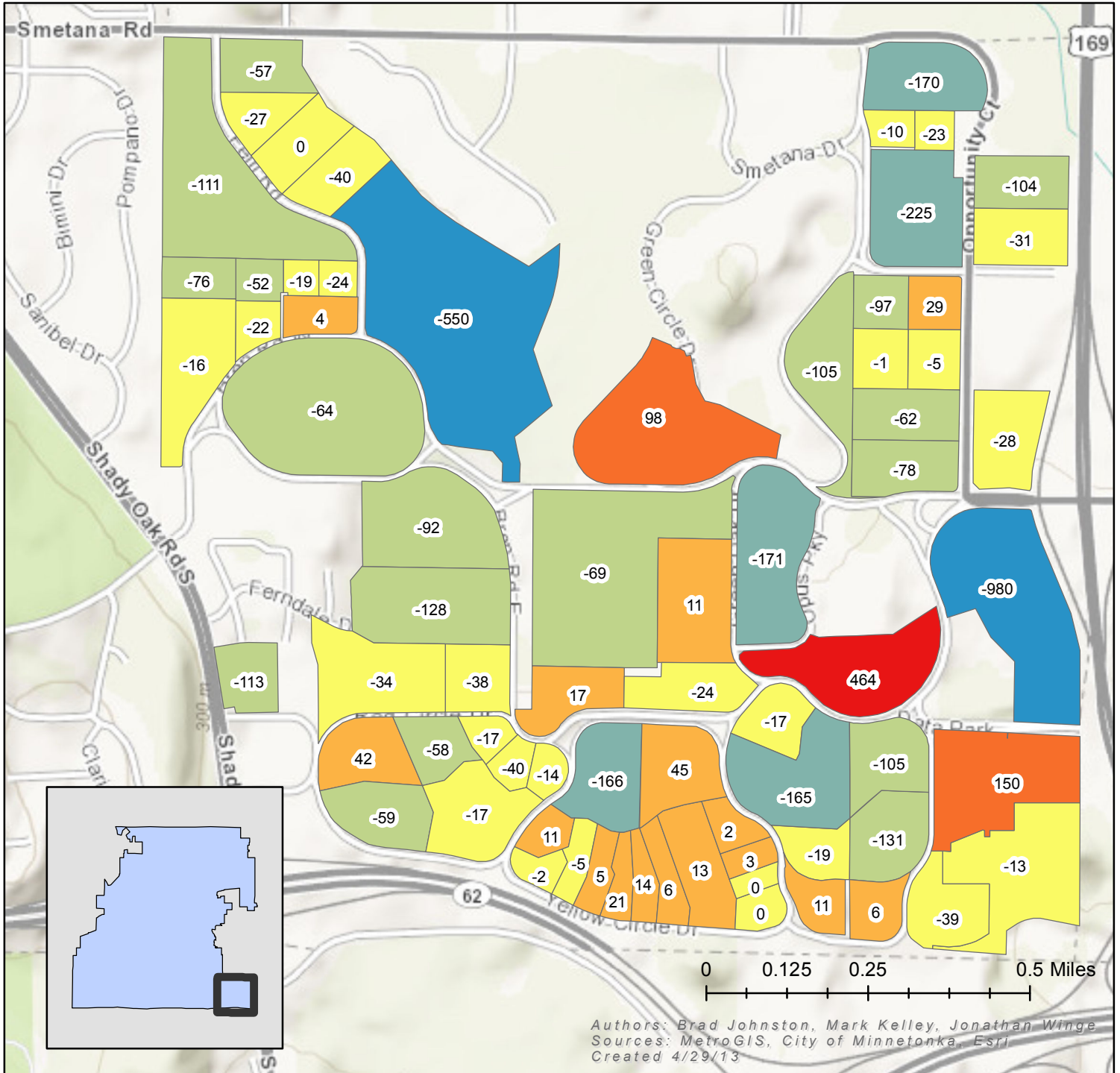
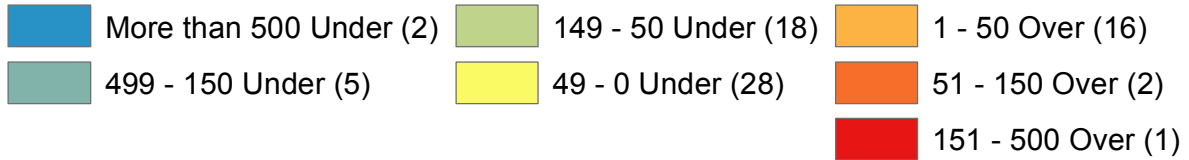
Opus Campus, Minnetonka





Over and Under Parked Parcels Minnetonka Parking Ordinance (ITE) Opus Campus, Minnetonka

Divergence from ITE Standard (Parcel Count)

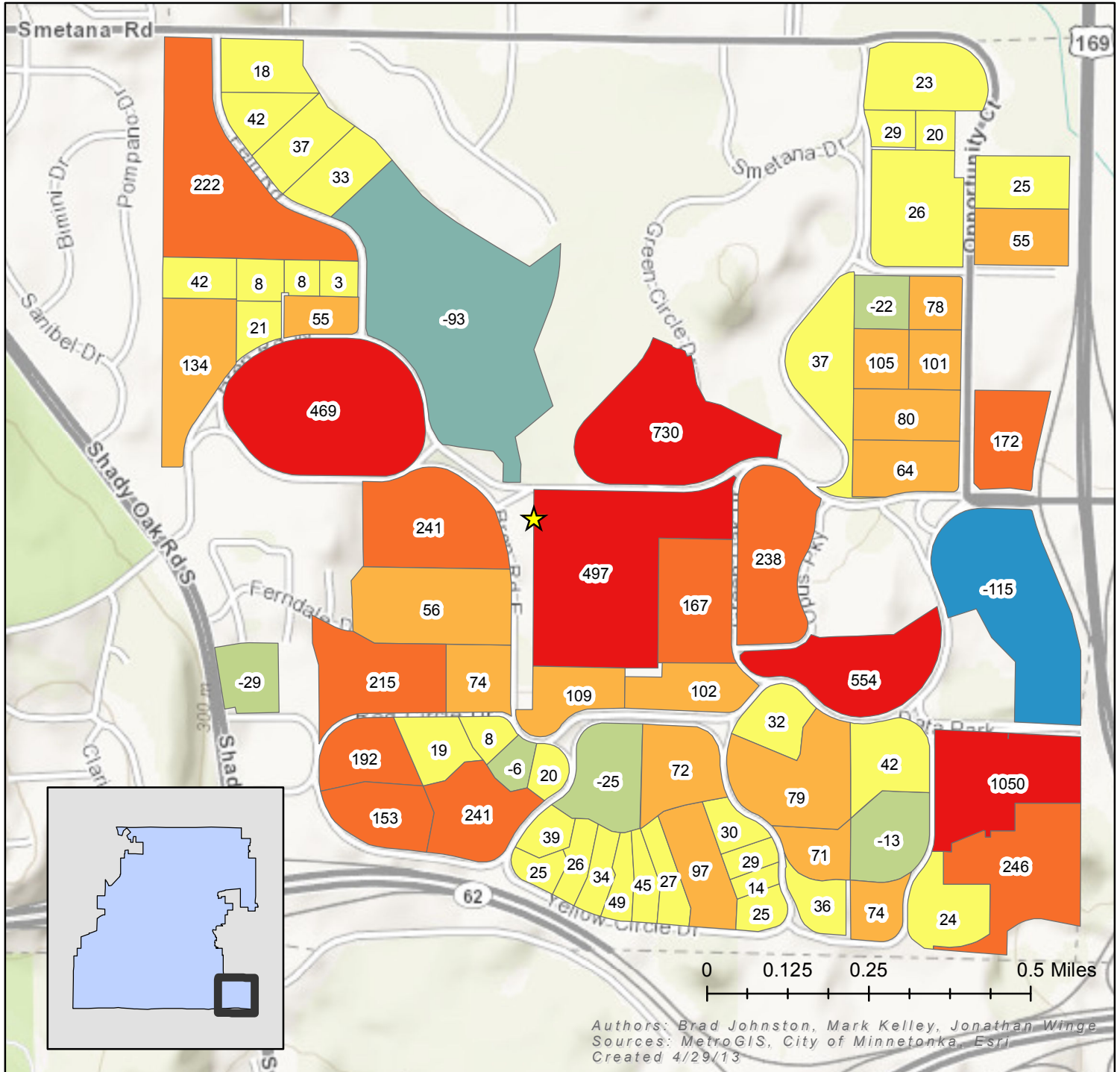
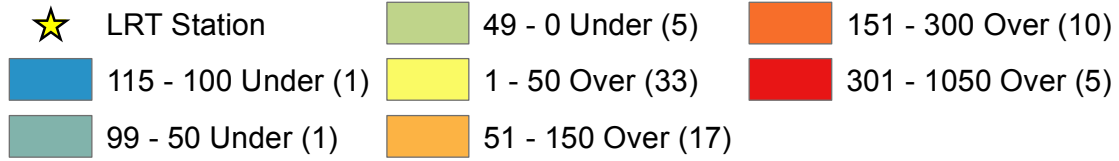


Authors: Brad Johnston, Mark Kelley, Jonathan Winge
Sources: MetroGIS, City of Minnetonka, Esri
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Over and Under Parked Parcels Transit Oriented Development (TOD) Scenario Opus Campus, Minnetonka

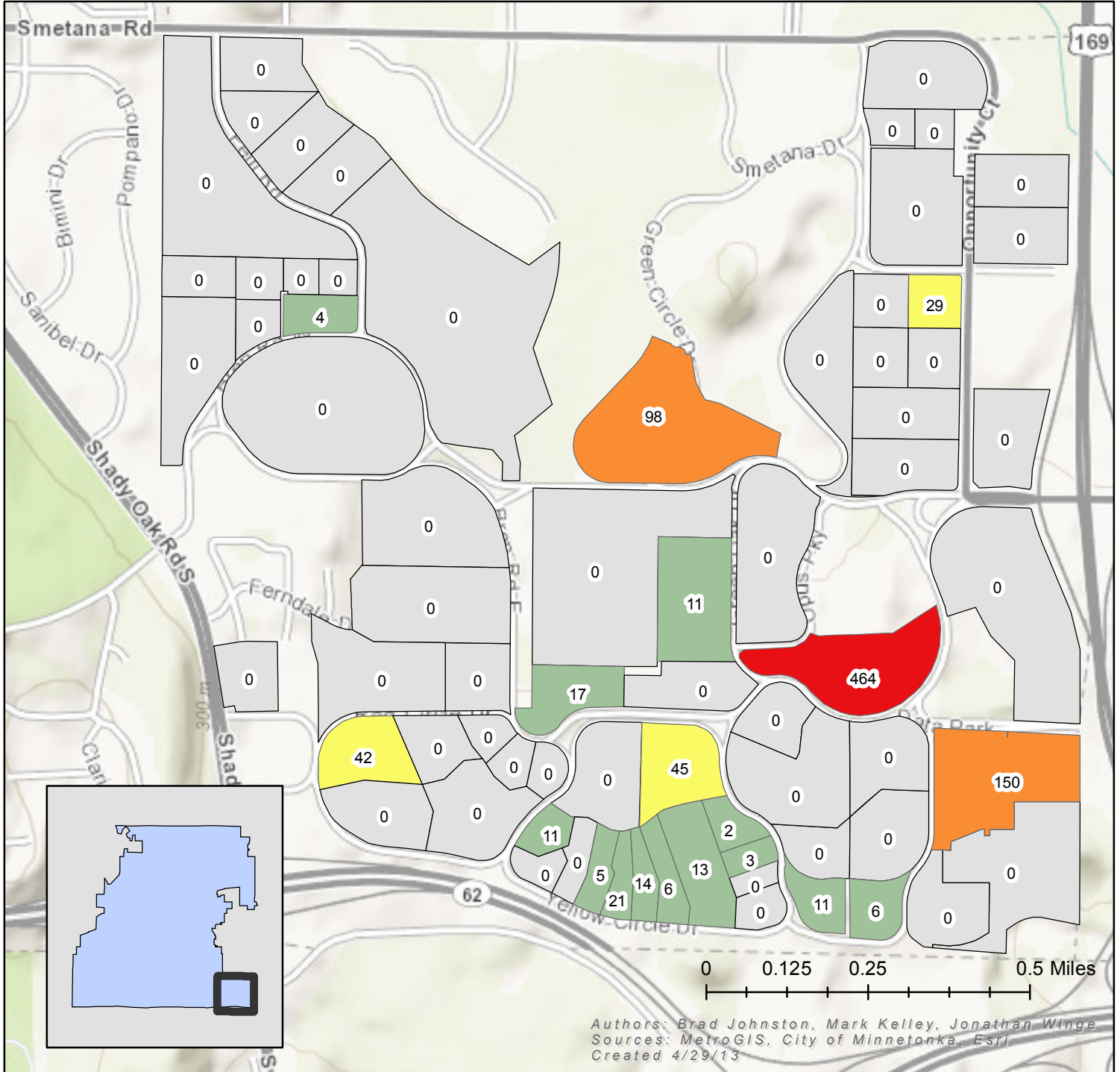
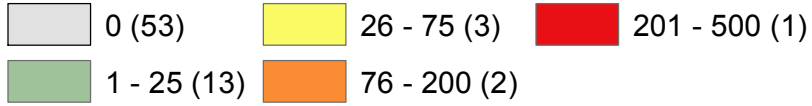
Divergence from TOD Recommendations (Parcel Count)





Over and Under Parked Parcels Minimum to Maximum Allowed Scenario Opus Campus, Minnetonka

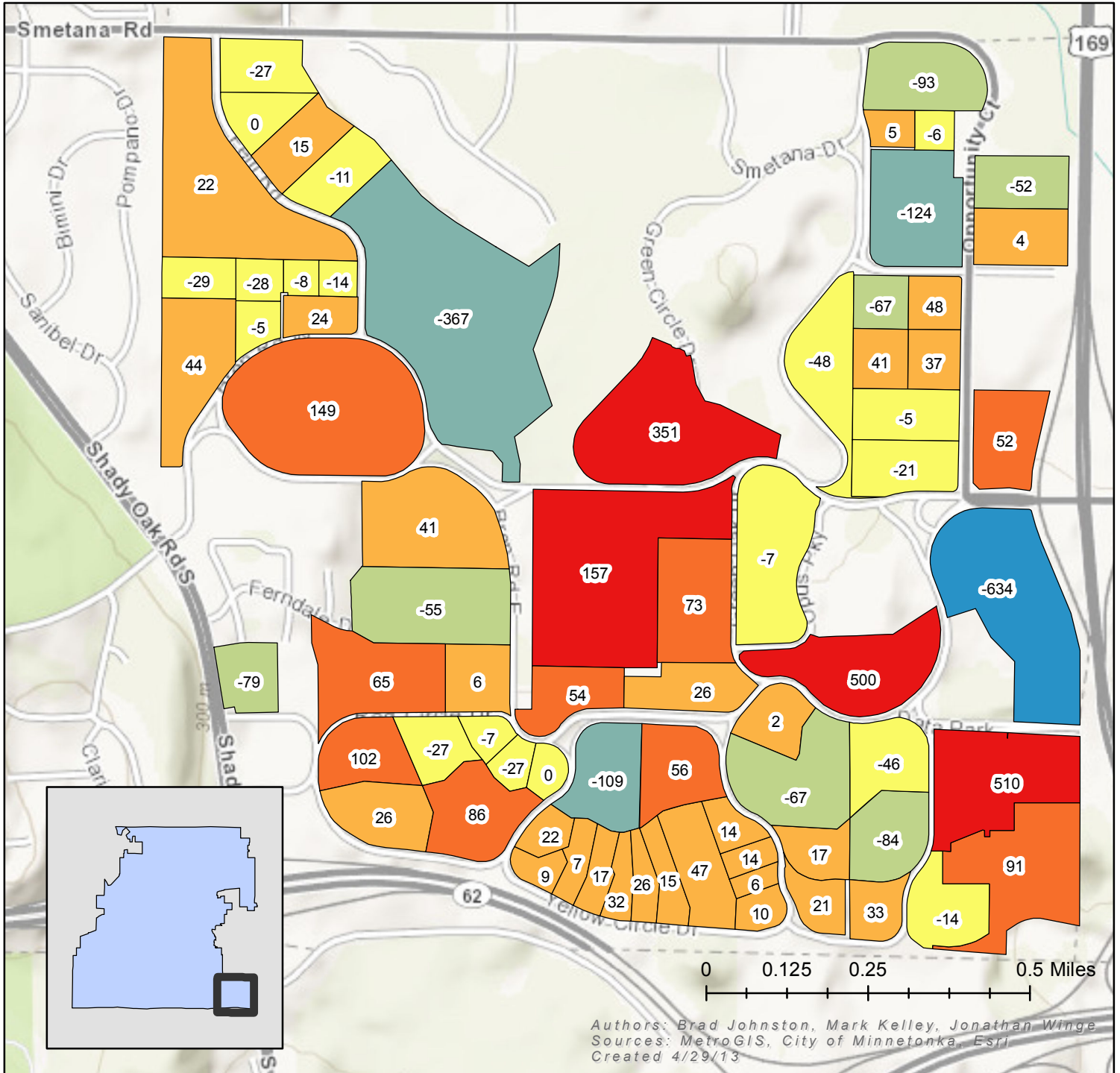
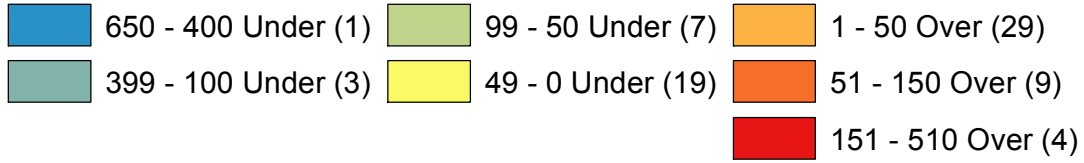
Number of Stalls Exceeding Maximum (Parcel Count)





Over and Under Parked Parcels Reduced Demand Scenario Opus Campus, Minnetonka

Divergence from Reduced Demand Requirements (Parcel Count)



Authors: Brad Johnston, Mark Kelley, Jonathan Winge
Sources: MetroGIS, City of Minnetonka, Esri
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