

**DuSable Lake Shore Driving Us Apart:
Neighborhood Livability and Chicago's Lakefront Expressway**

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Abstract

Urban expressways have long been scrutinized for their destructive impacts on the built environment, public health, and the planet. However, the specific impact of Chicago's DuSable Lake Shore Drive on the livability of nearby neighborhoods has yet to see substantial academic scrutiny. To fill this gap, this research seeks to understand (1) if a neighborhood's livability changes depending on proximity to the expressway and (2) if the expressway's wall-like structure and high-speed traffic stifle livability by interrupting pedestrian access to lakefront parkland. Livability variables derived from a New Urbanist framework—Population Density, Walk Score, Bike Score, and Transit Score—were used for the analysis. Geographic Information Science was used to examine each variable's spatial relationship to the expressway in three study areas and to visualize gaps in convenient pedestrian access to the lakefront parks across the expressway via official crosswalks, bridges, and tunnels. Results show: (1) Population density appears to decrease with lakefront distance within every study area while transit access appears to increase, but more advanced methodology is required to determine correlation. (2) Walkability and bikeability have inconsistent relationships with lakefront distance across study areas. (3) Walkability, bikeability, and transit access rapidly increase when moving inland up to 0.2 miles from the lakefront. (4) There are large gaps in pedestrian access to lakefront parks across the expressway which are disproportionately located within historically disinvested neighborhoods on Chicago's South Side. From these findings, the urban design tool Streetmix was used to produce a vision proposal for a more equitable and livable waterfront through a Boulevardization approach designed to promote multimodality and population density.

Keywords: Chicago, DuSable Lake Shore Drive, Livability, Urban Freeways, New Urbanism, Highway Removal, Boulevardization, Waterfront Freeway, Urbanism, Expressways.

I. Introduction

Crashing waves on Promontory Point, birds chirping in Burnham Park, and crowds cheering for a volleyball game at Oak Street Beach. What do all of these things have in common? They are all inundated with the noise of U.S. Highway 41, better known today as John Baptiste Pointe DuSable Lake Shore Drive (DLSD), renamed from “Lake Shore Drive” in 2021 to honor Chicago’s first permanent non-indigenous resident, a Black Haitian fur trader.¹ DLSD’s main section spans the majority of Chicago’s lakefront, running continuously for 15.83 miles from Marquette Drive (6600 South) in the South Side’s Jackson Park, crossing the Chicago River, and terminating at Hollywood Avenue (5700 North) in Edgewater. With this utter domination of the waterfront’s built form, in popular culture, postcards, and our hearts (for better or for worse), Chicago and its lakefront have become inseparable from DLSD.

But what does this codependence mean for the health and liveliness (i.e. livability) of Chicago’s lakefront communities? Does an 8+ lane expressway effectively drive a wedge between an estimated 300,000 lakefront residents and Chicago’s prized parkland? In this research, I follow these guiding questions and—through the methodical analysis of livability-related variables derived from using New Urbanism as my framework—explore how the expressway’s domination of the built environment affects the overall livability of lakefront neighborhoods. To measure livability, I primarily draw from material provided by the spearheading organization of the New Urbanist movement: The Congress for the New Urbanism (CNU). Their book, *The Charter for the New Urbanism*, outlines several aspects that they claim make a neighborhood more human-scale, economically feasible, and desirable (i.e. livable).² The

¹ For the purposes of this research, Expressways refer to limited access roads that connect to other roads, whereas Freeways and Highways are roads that connect to other cities.

² Congress for the New Urbanism and Emily Talen, *Charter of the New Urbanism, 2nd Edition*, 2nd edition (New York: McGraw Hill, 2013).

variables that appear to best fit these goals are population density, walkability, bikeability, transit access, and time-based accessibility to lakefront parks. I hypothesized that the blocks within each study area that are furthest from DLSD would be the most livable according to the New Urbanist variables, and that the distribution of DLSD's pedestrian crossing points would create large walls that prevent convenient lakefront access. Findings support the hypothesized presence of accessibility gaps for DLSD crossings, which are disproportionately located on the city's South Side in historically disinvested neighborhoods. Findings also suggest a mix of positive, negative, and inconclusive relationships between livability variables and distance from DLSD, but more advanced methodology is required to determine correlation. Finally, findings show large increases in walkability, bikeability, and transit access as distance approaches 0.2 miles, suggesting livability impacts may happen at a much smaller scale than originally thought.

i. Roadmap

In the sections that follow, I explore the public perceptions of DLSD and the expressway's fascinatingly complex history. Next, I provide a brief overview of several concepts and theories that lie at the core of this research: the roots of livability, New Urbanism and the Anti-Modernist, the broader New Urbanist debate, Urban/Rural Transect Theory, New Urbanism as a livability Framework, and Boulevardization. Keeping this brief, yet thorough, contextualization in mind, I then lay out the methodologies used in this research to explore the aforementioned research questions. Through the lens of New Urbanism, I explore how livability values of accessibility, multimodality, and density change in Census Block Groups at varying distances from DLSD. In the Data and Methods section, I detail the process of preparing the collected data for analysis. To acquire, clean, and explore the spatial relationship between my chosen livability variables, I employed heavy use of GIS and data-based tools including R,

Python, and QGIS. With these at my disposal, I was able to transform raw data into several visualizations that showcase the spatial relationships between the livability of Hyde Park/Kenwood, Lakeview, and Rogers Park/Edgewater and each neighborhood's distance from DLSD in my first approach. The second set of methods involves measuring the accessibility of the lakefront parks from the neighborhoods located across DLSD. To do this, I created maps that depict how far one would have to walk to cross DLSD through isochrone walksheds to examine the spatial service coverage of crossings and potential consequences for accessibility. The following Results and Analysis section examines the resulting maps and charts and distills their key findings as they relate to neighborhood livability. Finally, alongside a boulevardization vision proposal for a reimagined DLSD, the results of this research are contextualized and the limitations and opportunities for future research are explored.

II. Background and Context

i. Perceptions of DLSD

There is, to my knowledge, a large gap—part of which this research aims to fill—in academic research surrounding DLSD's modern-day impacts on the people and neighborhoods it touches. Interestingly, while academics have not widely investigated DLSD and its impact on surrounding neighborhoods, the public has been openly debating the expressway across artistic, historical, and analytical mediums. Related to DLSD's juggernaut presence on Chicago's lakefront is how utterly enamored Chicagoans are with the expressway. In what I believe is the only published non-fiction book that directly addresses the expressway as its main subject, *Chicago's Lake Shore Drive: Urban America's Most Beautiful Roadway*, authors Neil Samors and Bernard Judge open with testimony from Northwestern University's Dr. Henry Binford who attempts to capture this popular sentiment:

To the modern motorist, Chicago's Lake Shore Drive seems to have been laid down in a single grand act of planning. From Jackson Park on the south to Edgewater on the north, it offers a smooth and uniform multi-lane expressway, at once a blessing to commuters, a link between numerous parks and beaches, and a way to dazzle visitors to the city with a continuous spectacle of water and skyline.³

This tradition of revelation regarding DLSD has, however, long predated this 2010 work. In film, it served as a backdrop for both the opening exposition in Rob Reiner's 1989 classic *When Harry Met Sally* and the happy ending shots for Peter Paige's iconic contemporary Queer romance *The Thing About Harry*.⁴ While these incredibly popular films no doubt played a role in DLSD's marriage to Chicago in the minds of Americans nationally, there is perhaps no better (published) example of DLSD's influence on poetry than Patrick Joseph Creevy's *Lake Shore Drive*:

Where we were, on the Drive, at the near edge of the huge city now, we enjoyed everything that we said to each other. And the buildings everywhere, still so spectacularly delineated, lit, glistening—looming and then stopped by a bordering of darkness as terrible as a drowning—let us know in the music and the rain that mere dead fidelity or some heart-shattering split wasn't in our future ... Only let it all be placed along Lake Shore Drive, and let me think of it all with Allie, in the music, with the car wheeling by gracefully on a glistening night—just after I've been so frightened in the air that I couldn't contemplate the contemplation of a sound.⁵

With all of these excerpts and examples in mind, it is not difficult to see how DLSD has been romanticized both historically and in recent memory. However, in recent years some have opted to challenge DLSD's historically positive presence in Chicagoans' psyche. One example of this trend comes from AICP-certified urban planner Ray Delahanty, who runs the YouTube channel CityNerd with an audience of 244,000. He ranked DLSD as number 1 in his popular

³ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive: Urban America's Most Beautiful Roadway* (Chicago, IL: Chicago's Books Press, 2010).

⁴ *When Harry Met Sally...*, Comedy, Drama, Romance (Castle Rock Entertainment, Nelson Entertainment, Nelson Entertainment, 1989); *The Thing About Harry*, Comedy, Drama, Romance (Full Paige Productions, Nitelight Entertainment, 2020). 1. Reiner's Harry and Paige's Harry refer to very different Harrys, of course. 2. Reiner's scene on DLSD drew ridicule from Chicagoans who noticed that it was filmed incorrectly, with Harry and Sally driving northbound on DLSD after leaving the University of Chicago campus when they would have had to drive southbound to begin their 18-hour journey to New York City.

⁵ Patrick Creevy, *Lake Shore Drive* (Macmillan, 1992).

video titled “10 Waterfront Freeways That Need to Go,” and argued that DLSD’s surface-running, highrise-adjacent path “maximize[s] the noise, the air pollution, and the physical barrier from the lakefront.”⁶ Spurred from the urbanist debates surrounding Delahanty’s video, the popular blogging arm of the 501(c)(3) nonprofit Chicagoland Streets Project, Streetsblog Chicago, applauded Delahanty’s analysis and concluded that “it’s about time Chicagoans stop letting the massive lakefront highway stand as a nationally-known embarrassment for our city.”⁷ This popular criticism of DLSD stems from a recent, grassroots, nationwide sentiment to put the needs of its citizens before those of the automobile. The underlying motivation behind this push is the idea that car-centric infrastructure—with particular emphasis on expressways—is antithetical to the livability of cities.⁸

While the more informal, primarily media-driven, arms of the movement are the unofficial backbone of New Urbanism’s publicity team, the official members of CNU and their efforts to promote New Urbanist theory and scholarship also play a pivotal role. This nonprofit 501(c)(3) organization has provided professional planning education and community advocacy for over 30 years.⁹ With a total membership body of over 2,600—consisting of planners, engineers, government officials, activists, and historic preservationists—and 19 regional chapters spread across the country, CNU is unified behind one driving goal: “We build places people love.”¹⁰ Their annual convention in May hosts over 1,600 professionals in cities across America

⁶ Ray Delahanty, *Highway Engineering Madness: 10 Waterfront Freeways That Need to Go (North America Edition)*, 2022, 00:15:34, https://www.youtube.com/watch?v=RK0_zh7B-H4.

⁷ John Greenfield, “City Nerd Calls DuSable LSD the Worst Waterfront Highway in North America,” Blog, Streetsblog Chicago, December 1, 2022, <https://chi.streetsblog.org/2022/11/30/city-nerd-calls-dusable-isd-the-worst-waterfront-highway-in-north-america>.

⁸ Andrew Faulkner et al., “CREATING LIVABLE INFRASTRUCTURE: THE CONNECTOAKLAND VISION TO RECONNECT NEIGHBORHOODS AND CONNECT CITIES THROUGH FREEWAY REMOVAL,” *Journal of Green Building* 11, no. 2 (March 1, 2016): 1–21, <https://doi.org/10.3992/jgb.11.2.1.1>, 21.

⁹ Congress for the New Urbanism, “Who We Are,” Text, CNU, 2024, <https://www.cnu.org/who-we-are>.

¹⁰ Congress for the New Urbanism, “Who We Are.”

advertising workshops, speaker events, project collaborations, and interdisciplinary strategies for planning cities and towns according to the New Urbanist tenets.¹¹

With the growing popularity of New Urbanism and its followers' calls to abolish DLSD, why has the city been so slow to act? After all, Chicago is no stranger to abrupt lakefront infrastructure change following the dramatic overnight runway disabling and subsequent demolition of Meigs Field airport in 2003 to clear land for Northerly Island Park. One possible answer could be that Chicagoans—who are famously resistant to even changing names like Sears Tower to Willis or Lake Shore Drive to DLSD—are protective of what they view as an iconic part of the city.¹² According to North Side Congresswoman Janice Schakowsky (IL-9), Chicagoans “feel a sense of ownership and entitlement about our lakefront” and feel that “nothing is considered more sacred.”¹³ Erma Tranter, President of Friends of the Parks (a group partially responsible for landscape beautification on DLSD on the South Side), credits the resistance to her organization's beautification proposal for DLSD on the North Side to sparse funding opportunities and a lack of political will to generate more.¹⁴ She also cites a complete community distrust of any change to the lakefront, as they feared change would bring further expressway development northward, as it did with the failed U.S. Steel development in South Chicago.¹⁵ With a more evangelizing tone, Dan McCaffery, the developer behind that U.S. Steel site project, highlights the raw power of DLSD as a symbol:

When we make presentations about our former US Steel site, I don't allow anyone to call it Route 41 anymore. It is Lake Shore Drive. When you drive down there Lake Shore Drive is just “God given.” I must tell you that both God and Mayor Daley gave it, because from McCormick Place south it was once just a road. ... [In South Chicago] we

¹¹ Congress for the New Urbanism, “Annual Congress,” Text, CNU, 2024, <https://www.cnu.org/what-we-do/congress>.

¹² Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*.

¹³ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 196.

¹⁴ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 199–202.

¹⁵ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 198–199.

are trying to get it made into two pairs of roads ... because, God willing, there is going to be so much traffic that there won't be a choice but to have two roads.¹⁶

To him, DLSD is not just the “gorgeous” roadway many see it as, but instead a holy icon from which to garner legitimacy for his development. Ultimately, his development failed, but it is notable that the only portion of it that was realized is the all but abandoned stretch of DLSD in South Chicago, complete with the markings for cross streets that never came to be (appx. x). These testimonies can only begin to describe why Chicagoans are so wary of change to their lakefront and, by extension, DLSD. It is also possible that these feelings are a reason for a history of minimal interventions to DLSD from the city and sparse presence in academic literature. These lacking interventions have historically manifested in a relationship of denial between Chicago’s urban planners and DLSD. For example, in the 1972 *Lakefront Plan of Chicago*, DLSD’s characterization as a parkway is most commonly justified by the 40-45 mile per hour speed limit (which remains today).¹⁷ Also cited are the 11-foot wide lanes (1 foot shorter than interstate expressway standards) and the presence of extensive landscaping.¹⁸ They conclude that, in order to keep DLSD as they describe it, no more change should occur.¹⁹ Planners in the 2003 *Chicago Central Area Plan* partially echoed this sentiment.²⁰ They barely touched on DLSD itself, but emphasized the need for improved landscaping and new bridges along its southern route.²¹

More recently, there have been pushes to completely transform DLSD, the most established of which is Redefine The Drive. This infrastructure development group has been

¹⁶ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 182. (1) Dan McCaffery refers to DLSD as “Lake Shore Drive” in this excerpt because this interview took place ~11 years before the expressway was renamed.

¹⁷ City of Chicago and Richard J. Daley, *The Lakefront Plan of Chicago* (City of Chicago, 1972), 25.

¹⁸ City of Chicago and Richard J. Daley, *The Lakefront Plan of Chicago*, 23–25.

¹⁹ City of Chicago and Richard J. Daley, *The Lakefront Plan of Chicago*.

²⁰ Chicago Plan Commission, *The Chicago Central Area Plan: Preparing the Central City for the 21st Century [Final Report]* ([Chicago: City of Chicago Dept. of Planning and Development], 2003), <https://catalog.lib.uchicago.edu/vufind/Record/8154726>.

²¹ Chicago Plan Commission, *The Chicago Central Area Plan*, 102, 87.

working with the CTA, IDOT, CDOT, Park District, and (most notably) Federal Highway Administration since the early 2010's to reimagine the northern half of DLSD.²² Their main focus is on moving traffic through the area more efficiently, rebuilding decaying infrastructure like tunnels and revetments, and providing more park land to the North Side lakefront.²³ However, without any mention of environmental impacts, noise pollution, or public health impacts in their statement of purpose, they embody much of what CNU President and former Mayor of Milwaukee, John Norquist warned of. He claims that DLSD is locked in a “constant fight” between the engineers focused on improving vehicle speeds and “reform-minded” planners that want a boulevard instead.²⁴ He claims that “If IDOT had its way, [DLSD] would be a freeway, and all of [DLSD] would look like it does at McCormick Place.”²⁵ At the state level, however, a group of Illinois State Representatives have recently proposed a bill that would urge CDOT and IDOT to be “creative and forward-thinking” and redesign DLSD to be a “true boulevard” that takes into account multimodal transportation for “pedestrians, cyclists, public transit users, and drivers, to emphasize green urban mobility.”²⁶ As of May 2, 2024, the resolution was adopted by the Illinois General Assembly House of Representatives in a unanimous vote.²⁷

With a struggle between these modernist and post-modern urban planning philosophies, this research seeks to understand what, if any, effect DLSD has on the livability of the

²² Redefine The Drive, “Project Description,” *NDLSD* (blog), accessed May 4, 2024, <https://northdusablelsd.org/about/project-description/>.

²³ Redefine The Drive, “Purpose and Need Statement” (Redefine The Drive: North DuSable Lake Shore Drive, December 19, 2014), https://northdusablelsd.org/Archive/pdf/2014-12-19_PurposeAndNeed_PostedVersion.pdf.

²⁴ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 188.

²⁵ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 188. (1) At McCormick Place, DLSD interchanges with the Stevenson Expressway. This is the only place where DLSD directly interacts with the U.S. Interstate Highway System.

²⁶ Kam Buckner, “Lake Shore Drive Redesign,” Pub. L. No. HR0438 (2024), <https://www.ilga.gov/legislation/fulltext.asp?DocName=&SessionId=112&GA=103&DocTypeId=HR&DocNum=438&GAID=17&LegID=150654&SpecSess=&Session=>, 3.

²⁷ Kam Buckner, “Lake Shore Drive Redesign.”

neighborhoods it touches. One useful framework for determining what aspects of livability to choose from is presented by the New Urbanist movement. New Urbanism is an emerging school of urban planning theory that promotes density, diversity, social/economic contact, and the exchange of ideas.²⁸ New Urbanists covet cities and neighborhoods that have high densities, multi-modal mobility options, a mix of land/building uses, and accessible (generally car-free) public spaces as part of a desire to hit the backspace button on the mid-20th-century modernist era of urban design.²⁹ Using New Urbanism as a metric for city livability has been explored in the popular realm already, with its dominance of “armchair urbanist” platforms (a collection of largely informal, internet-based discourse on urban planning issues) leaving audiences captivated by the movement’s tenets. Examples of this public popularity include the private Facebook group “New Urbanist Memes for Transit-Oriented Teens” with 229,000 members and the YouTube video essay channels “RMTransit” and “City Beautiful” with 283,000 and 673,000 followers respectively.³⁰

ii. The History of DLSD

Many modern Chicagoans are enamored of the story of Potter Palmer’s Lake Shore Drive. The epic creates in one’s imagination the image of an elderly businessman, jumping from bed in his 1880s nightgown, struck with a lightbulb (or, more likely, the period-appropriate gas lantern) idea: a pleasure drive to accompany his newly constructed, castle-like, lakefront mansion. The story goes that, as many rich men do both then and now, Palmer got his wish as

²⁸ Emily Talen, *New Urbanism and American Planning: The Conflict of Cultures*, 1st edition (New York: Routledge, 2005), 1.

²⁹ Sonia A. Hirt, “Premodern, Modern, Postmodern? Placing New Urbanism into a Historical Perspective,” *Journal of Planning History* 8, no. 3 (August 1, 2009): 248–73, <https://doi.org/10.1177/1538513209338902>, 251.

³⁰ Emily Orenstein, Jonathan Marty, and Juliet Eldred, “New Urbanist Memes for Transit Oriented Teens,” Social Media Platform, Facebook.com, accessed February 21, 2024, <https://www.facebook.com/groups/whatwouldjanejacobsdo/>; Reece Martin, “RMTransit,” Video Streaming Platform, Youtube.com, accessed February 21, 2024, <https://www.youtube.com/@RMTransit>; Dave Amos, “City Beautiful,” Video Streaming Platform, Youtube.com, accessed March 9, 2024, <https://www.youtube.com/channel/UCGc8ZVCsrR3dAuhvUbkBToQ>.

the earlier established Lincoln Park Commission agreed on a joint venture for construction with Palmer's neighborhood coalition and so was born Chicago's beautiful DuSable Lake Shore Drive.³¹ In reality, the story of The Lake Shore Drive—as it was known at its inception—is much more interesting, and any good faith research of the roadway must present at the very least a brief overview to accomplish its goals effectively.

The story of DLSD is one of two different roadways that eventually merge into one: Lake Shore Drive on the North Side and Leif Erikson Drive on the South Side. Beginning with the Lincoln Park Commission's pleasure drive through its aptly named new park completed in 1875, the first stretch of what would become DLSD quickly became a popular tourist attraction, causing the values of Palmer Potter's and other wealthy lakefronters' estates to skyrocket.³² DLSD became a highly desirable feature of the area for the well-to-do Chicagoans moving north from Prairie Avenue after the Chicago Fire.³³ For decades following construction in the late 1800s, DLSD largely remained true to its roots as a pleasure drive as it expanded along the North Side's coast.³⁴ Figure 1 shows the roadway as it was in 1905, the wooden pedestrian path and its neighboring roadway are reminiscent of a boardwalk, rather than an expressway.

³¹ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive: Urban America's Most Beautiful Roadway* (Chicago, IL: Chicago's Books Press, 2010), 14.

³² Joseph Kearney and Thomas Merrill, *Lakefront: Public Trust and Private Rights in Chicago* (Ithaca, NY: Cornell University Press, 2021), 137–148; Julia Bachrach, "Section 106 Historic Properties Identification Report - Federal Undertakings in and Adjacent to Jackson Park Cook County, Illinois," May 7, 2018, [chicago.gov/content/dam/city/depts/dcd/supp_info/jackson/hpi-report.pdf](https://www.chicago.gov/content/dam/city/depts/dcd/supp_info/jackson/hpi-report.pdf), Section 1.0, Pg. 9.

³³ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*.

³⁴ Kearney and Merrill, *Lakefront: Public Trust and Private Rights in Chicago*, 218.



Figure 1: *Lake Shore Drive, Lincoln Park, Chicago ILL.* Lake Shore Drive in 1905, from The Chicago Tribune.³⁵

DLSD's inclusion by Daniel Burnham in his famous 1909 Plan for Chicago popularized the idea of a waterfront "Outer Park Boulevard" intended to be a scenic drive with frequent curves and manicured landscaping, like a drastically slimmed-down version of the expressway we observe on Chicago's South Side today.³⁶ It was the 1871 plan by Olmsted and Vaux, however, for the system of parks constructed by the South Park Commission including Jackson Park, Washington Park, and the Midway Plaisance that is actually responsible for the idea of DLSD.³⁷ Olmsted and Vaux's vision for DLSD was built by the 1880s and consisted of a narrow

³⁵ *Lake Shore Drive, Lincoln Park, 1905, Photo, 1905, Library of Congress, galleries.apps.chicagotribune.com/chi-131219-flashback-vintage-lake-shore-drive-pictures/.*

³⁶ Louis Willie, *Forever Open, Clear, and Free: The Struggle for Chicago's Lakefront* (Chicago, IL: The University of Chicago Press, 1991), 84.

³⁷ Julia Bachrach, "Section 106 - Jackson Park," Section 2.0, Pg. 18

promenade and paved beach, which was later expanded after the World’s Columbian Exposition to match their vision for a “primary feature” that allowed “broad views of the Lake.”³⁸ These dreams became a reality in 1930 when the southern portion of DLSD was opened as a 4-lane roadway (fig. 2), with the northbound lanes named after Leif Erikson and the southbound lanes after Christopher Columbus.³⁹



Figure 2: *The Scene Looking South from 39th Street over Lake Shore Drive.* Leif Erikson Drive in May of 1930 after opening for traffic. From the Chicago Tribune.⁴⁰

From this, the stories of both “The Lake Shore Drive” on the North Side and “Leif Erikson Drive” on the South Side became intertwined with those of the lakefront parks and

³⁸ Julia Bachrach, “Section 106 - Jackson Park,” Section 2.0, Pg. 18.

³⁹ City of Chicago, “Shoreline History” (City of Chicago, 2024), chicago.gov/dam/city/depts/cdot/ShorelineHistory.pdf.

⁴⁰ Chicago Tribune, *The Scene Looking South from 39th Street over Lake Shore Drive in May 1930 after It Had Been Opened to Traffic.*, 1930, Photo, 1930, Vintage Lake Shore Drive, <http://galleries.apps.chicagotribune.com/chi-131219-flashback-vintage-lake-shore-drive-pictures/#chi-lsd20south39th-20130312>.

neighborhoods. Following the initial late 19th century extension of DLSD by Potter Palmer's group of neighbors and the use of landfilling by engineers for creating Lincoln Park, planners for future DLSD extensions saw an opportunity: building in the lake and selling the submerged land to finance construction.⁴¹ Figures 3 and 4 show images of DLSD's extension eastward from its 1875 original position (fig. 3) to around its current state constructed in 1927 and featuring a greatly expanded beachfront thanks to land reclamation (fig. 4).



Figure 3: *Lake Shore Drive South of Lincoln Park*. DLSD in 1920, before expansion, from the Chicago Tribune⁴²

⁴¹ Kearney and Merrill, *Lakefront*.

⁴² Chicago Tribune, *Lake Shore Drive South of Lincoln Park*, 1920, Photo, 1920, Vintage Lake Shore Drive, <http://galleries.apps.chicagotribune.com/chi-131219-flashback-vintage-lake-shore-drive-pictures/#chi-lsd20oaknorth-20080213>.



Figure 4: *Lake Shore Drive, Looking North from the Drake Hotel*. DLSD during expansion (1927) with referenced photo overlay, from the Chicago Tribune.⁴³

As the roadway expanded, and with the nationwide upward trends in automobile-centric street planning, DLSD slowly began to morph from a boulevard into the expressway we see today.⁴⁴ Drivers infamously ignoring the 45 mile per hour speed limit, encouraged by straightened sections, giant interchanges with I-55 (the Stevenson Expressway), and grade separation from local traffic outside of The Loop.⁴⁵ The two Lake Shore Drives were unified when President Franklin D. Roosevelt cut the ribbon on a double-decker draw bridge across the

⁴³ Chicago Tribune, *Lake Shore Drive, Looking North from the Drake Hotel*, July 5, 1927, Photo, July 5, 1927, Vintage Lake Shore Drive, <http://galleries.apps.chicagotribune.com/chi-131219-flashback-vintage-lake-shore-drive-pictures/#chi-lsd20drake.jp-20130814>.

⁴⁴ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*.

⁴⁵ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*.

Chicago River in 1937, constructed with funds from the Works Progress Administration.⁴⁶ Further conversion of DLSD into a limited-access expressway included projects in the 1930s and 1940s through Lincoln Park.⁴⁷ The Drive's final northward extension, though, was completed with the Hollywood Avenue Extension in 1954 (fig. 5).



Figure 5: DLSD's Hollywood Avenue Extension during (early 1950s, left, from the Chicago Historical Society) and after (1958, right, from the Chicago Tribune) construction.⁴⁸

Various improvements to ensure traffic flow continued during the 1960s, which featured major repairs, resurfacing, widening, and the elimination of clover-leaf interchanges on the North Side.⁴⁹ The infamous "S-Curve" on the South Bank of the Chicago River, just before the bridge, was softened as well in a project that freed up land for the modern high-rise district on the New East Side and lasted from 1972 well into the 1980s.⁵⁰ One of the most recent large changes to

⁴⁶ Julia Bachrach et al., "Section 106 Historic Properties Identification Report: North Lake Shore Drive Phase I Study E. Grand Avenue to W. Hollywood Avenue" (Redefine The Drive: North DuSable Lake Shore Drive, October 2022), 106, Redefine The Drive, <https://northdusablelsd.org/Archive/pdf/2022-10-30-IDOT-FINAL-record-copy-HPI/NLSD%20Section%20106%20Final%20HPI%20Report.pdf>.

⁴⁷ Julia Bachrach et al., "Section 106 – North Lake Shore Drive," 39.

⁴⁸ Julia Bachrach et al., "Section 106 – North Lake Shore Drive," 41.

⁴⁹ Julia Bachrach et al., "Section 106 – North Lake Shore Drive," 52.

⁵⁰ Julia Bachrach et al., "Section 106 – North Lake Shore Drive," 52.

DLSD was its rerouting west of the Field Museum after the closure of the Meigs Field Airport on what is now Northerly Island and the creation of the Museum Campus in 1997, leaving DLSD more or less in its current state as of 2024.⁵¹

While fascinating, this brief history notably lacks any mention of typical events seen with many 20th-century urban expressways including the purchasing of large swaths of land through eminent domain, sweeping demolitions, and the initial top-down support of federal and state governments as was done for the Dan Ryan Expressway only a few miles west.⁵² It also did not serve as a divisor between communities to enforce segregation due to its waterfront location. Finally, its surrounding population density speaks volumes to the present-day implications of DLSD; no other roadway in the city has such an uninterrupted stream of high-rises and amenities. These quirks preempt the curiosity behind this project's desire to explore what, if any, impacts on livability DLSD has on the neighborhoods it touches.

iii. DLSD and its Tradeoffs

“From rats on up to riches, fifteen minutes you can fly.

Pretty blue lights along the way, help you right on by.

...

Running south on Lake Shore Drive heading into town.

Just slippin' on by on LSD, Friday night trouble bound.”

- Aliotta Haynes Jeremiah (1971).⁵³

⁵¹ City of Chicago, “The Museum Campus,” accessed April 4, 2024, <https://www.chicago.gov/content/city/en/sites/museum-campus-working-group/home/the-museum-campus.html>.

⁵² Historic Aerials, *1952 Historic Aerial Photographs of 150 W Garfield Blvd, Chicago IL* (Chicago, IL: NETRONLINE, 1952), Historic Aerials, <https://www.historicaerials.com/viewer>; Historic Aerials, *1962 Historic Aerial Photographs of 150 W Garfield Blvd, Chicago IL*, Aerial Photograph (Chicago, IL: NETRONLINE, 1962), Historic Aerials, <https://www.historicaerials.com/viewer>.

⁵³ Aliotta Haynes Jeremiah, *Lake Shore Drive* (Spotify: Big Foot Records, 1971), <https://open.spotify.com/track/46MX86XQqYCZRvwPpeq4Gi?si=3e45e3e30c714b94>.

There is perhaps no better characterization of DLSD as a series of tradeoffs than those lyrics from the 1971 song *Lake Shore Drive*. On one hand, the lyrics emphasize the speed and convenience that DLSD provides for drivers trying to quickly (within an incredibly optimistic 15 minutes) get from one side of the city to another. While this roadway’s ability to ferry Chicago’s drivers up and down the lakefront at breakneck speeds (usually well above the posted 45 miles per hour) is well known, one benefit that gets less attention is its impact on the Chicago Transit Authority’s bus system. Several bus routes on both sides of the city—including the #J14, #6, #28, #10, and #2 on the South Side and the #135, #136, #146, #147, and #148 on the North Side—use the expressway as an alternative to traditional bus rapid transit services, with buses running express from various neighborhoods into downtown.⁵⁴ The #J14 “Jeffery Jump” service is the flagship route for CTA BRT services. It includes transit-oriented traffic lights (giving buses advanced green lights in some places), painted bus lanes, unique vehicle wrapping and branding, improved bus shelters, and more to provide more equitable public transit services to the Far South Side.⁵⁵ In this case, DLSD provides a valuable transportation resource that cannot be overlooked.

On the other hand, the line “From rats on up to riches, fifteen minutes you can fly” appears to be an allusion to Chicago’s notorious North Side/South Side racial and socioeconomic divide. With this in mind, the door opens for discussion on how DLSD may be harming Chicagoans. The health impacts of urban freeways have been widely studied across the globe.⁵⁶

⁵⁴ Chicago Transit Authority, *System Map* (Chicago Transit Authority, 2024), <https://www.transitchicago.com/maps/system/>.

⁵⁵ Chicago Transit Authority, “Jeffrey Project,” CTA, 2012, <https://www.transitchicago.com/jefferyproject/>.

⁵⁶ Gabe Samuels and Yonah Freemark, “The Polluted Life Near the Highway: A Review of National Scholarship and a Louisville Case Study,” The Urban Institute, November 2022, <https://www.urban.org/research/publication/polluted-life-near-highway>; Doug Brugge, John L. Durant, and Christine Rioux, “Near-Highway Pollutants in Motor Vehicle Exhaust: A Review of Epidemiologic Evidence of Cardiac and Pulmonary Health Risks,” *Environmental Health* 6, no. 1 (December 2007): 1–12, <https://doi.org/10.1186/1476-069X-6-23>; Tegan K. Boehmer et al., “Residential Proximity to Major Highways - United States, 2010,” *MMWR Supplements* 62, no. 3 (November 22, 2013): 46–50.

Tegan K. Boehmer et al. found that racial and ethnic minorities are more likely to suffer from various expressway pollution-induced non-asthma respiratory illnesses and fatal cardiovascular diseases because they disproportionately reside within 150 meters from expressways (where the pollution is greatest).⁵⁷ Doug Brugge et al. produced a wide-scoped compilation of global health outcomes from living near expressways. These include finding that pollutants like Ultrafine Particles (UFPs), Black Carbon, CO and NO_x are elevated near expressways, with the highest concentrations being located at 30 meters away.⁵⁸ They also found that those who live within 200 meters of an expressway are at significantly increased risk for cancer and respiratory illnesses.⁵⁹ Other scholarship has also attributed high levels of air pollution containing Black Carbon and No_x to vehicles on urban freeways, with “substantial reductions” after freeways were either rerouted or replaced with boulevards.⁶⁰

While the global findings on expressway health impacts are staggering, there is only one study that can speak specifically about DLSD’s emissions to contextualize the aforementioned potential public health impacts. Researchers at the Illinois Institute of Technology studying UFP concentrations in Chicagoland found that DLSD emits less UFPs overall than its inland neighbor, the Dan Ryan Expressway.⁶¹ The researchers believe that this is due to a ban on heavy commercial vehicles on DLSD because those vehicles emit 100 times more UFPs than cars.⁶² While the concentrations of UFPs are found to be lower overall for DLSD, the study’s data shows that UFP concentrations measured beside DLSD are 8,000 particles/cm⁻³ above ambient

⁵⁷ Tegan K. Boehmer et al., “Residential Proximity to Major Highways,” 46–50.

⁵⁸ Doug Brugge et al., “Near-Highway Pollutants in Motor Vehicle Exhaust,” 1–12.

⁵⁹ Doug Brugge et al., “Near-Highway Pollutants in Motor Vehicle Exhaust,” 1–12.

⁶⁰ Regan F. Patterson and Robert A. Harley, “Effects of Freeway Rerouting and Boulevard Replacement on Air Pollution Exposure and Neighborhood Attributes,” *International Journal of Environmental Research and Public Health* 16, no. 21 (November 2019): 4072, <https://doi.org/10.3390/ijerph16214072>.

⁶¹ Sheng Xiang et al., “Concentration of Ultrafine Particles near Roadways in an Urban Area in Chicago, Illinois,” *Aerosol and Air Quality Research* 18, no. 4 (2018): 895–903, <https://doi.org/10.4209/aaqr.2017.09.0347>.

⁶² Sheng Xiang et al., “Concentration of Ultrafine Particles near Roadways in Chicago,” 898

levels of 11,000 particles/cm⁻³, well within the elevated range used by near-expressway health outcome studies.⁶³ The impacts of DLSD traffic on other aforementioned pollutants, however, are missing from their study, and further research specific to DLSD is required to make strong conclusions regarding expressway exposure-based health outcomes. However, as UFP concentrations are still significantly elevated compared to the ambient environment near DLSD, the potential impact on public health remains a serious concern for the thousands of Chicagoans living nearby.

While DLSD's presence on the lakefront is shown to be a great asset for mobility, its contrasting public health and pollution impacts emphasize the tradeoffs Chicagoans endure by keeping the status quo. Only by taking into account all three of these factors can any potential modification or removal of DLSD be adequately justified. By using these figures to inform design decisions undertaken as part of this project's reimagining of DLSD, the vision proposal is only strengthened.

III. Literature Review

i. Introduction

By seeking to understand the complex realities of livability on Chicago's lakefront relating to the under-researched DLSD, a wide variety of theories and concepts must be defined and justified. This section aims to provide a brief overview of scholarly discourse surrounding several concepts key to this research including livability, New Urbanism, and the Urban/Rural Transect Theory (Transect). The goal is to provide the reader with a thorough understanding of New Urbanism's context, its influences on the specific aspects of livability chosen for this

⁶³ Sheng Xiang et al., "Concentration of Ultrafine Particles near Roadways in Chicago," 899; Gabe Samuels and Yonah Freemark, "The Polluted Life Near the Highway: A Review of National Scholarship and a Louisville Case Study," The Urban Institute, November 2022, <https://www.urban.org/research/publication/polluted-life-near-highway>.

research, and background to justify the use of its principles and ideas as a lens through which to view DLSD. Another goal is to preface the discussion of freeway removal through the concept of boulevardization, drawing on examples from other American cities. This begins with a brief introduction to livability, covering previous academic explorations of the term. Next follows an extensive discussion of New Urbanism necessitated by its novel use case in this research. It starts with an overview of New Urbanism's history—covering the establishing actions and works of Jane Jacobs as the movement's de facto parent. After that, a discussion of the movement's standing in academic circles will take place to address both the movement's strengths and many critiques. This will articulate some of the debates between CNU members and skeptical academics. Subsequently, there will be a discussion of the Urban/Rural Transect and its pertinence to DLSD. A review of the New Urbanist resources and literature on the Transect and its zone-based urban forms (T-Zones) leads to helpful, pre-done classifications for neighborhoods and road types bordering DLSD. The second part of this literature review covers the concept of boulevardization as both a part of New Urbanism through Transect theory and as an appropriate methodology for the vision that punctuates this project as part of the discussion.

ii. Livability

What is livability? The answer, even in scholarly circles, is often dependent on the person being asked. According to Michael Fein in his research on livability policy after the establishment of expressways, the term tends to surround what the author believes a “good city” looks like.⁶⁴ One example of this opinion lies with former U.S. Secretary of the Department of Transportation (DOT) Ray LaHood, who proposed new DOT policies that focus on livability, not the traditional car-centrism, as the primary focus for development.⁶⁵ To LaHood, livability meant

⁶⁴ Michael R. Fein, “Realignment: Highways and Livability Policy in the Post-Interstate Era, 1978–2013,” *Journal of Urban History* 40, no. 5 (September 1, 2014): 855–69, <https://doi.org/10.1177/0096144214533295>, 855.

⁶⁵ Michael R. Fein, “Realignment,” 855.

“being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park—all without having to get in your car.”⁶⁶ Taking a more abstract approach to this concept, Andrew Falkner et al. emphasize that livability is born from millennia of urban planning tradition, with cycles of trial, failure, optimization, and evolution leading to cities that “maximize the efficiency of economic exchange, cultural interchange, and infrastructure by minimizing distance.”⁶⁷ There has also been interesting livability research surrounding more opinion-based testimony of livability, with Carolyn McAndrews and Wesley Marshall’s research on the livability of arterial roads.⁶⁸ They concluded that, on a scale of “vibrant” (promoting livability) to “sketchy” (hindering livability), neighborhood residents’ perception of arterial roads does not tend to unilaterally declare one continuous roadway as either good or bad, instead identifying areas of both at different points along the same stretch.⁶⁹ While all of these approaches differ in their methodology, the caveat stipulated within Fein’s research—that any quantification or description of livability must go beyond a simple list of “best practices”—is particularly important for this research.⁷⁰

To provide a unifying framework for this research, complete with expert-curated definitions of what measurable variables regarding livability may be, I draw upon the New Urbanist movement. While, in many cases, New Urbanism historically presents as a similar “best practices” guide that Fein warns about, the combination of guiding principles with measurable variables that this research uses to measure livability is, in the case of New Urbanism and waterfront freeways, a novel one. Another motivation for choosing New Urbanism for this

⁶⁶ Michael R. Fein, “Realignment,” 855.

⁶⁷ Faulkner et al., “CREATING LIVABLE INFRASTRUCTURE,” 21.

⁶⁸ Carolyn McAndrews and Wesley Marshall, “Livable Streets, Livable Arterials? Characteristics of Commercial Arterial Roads Associated With Neighborhood Livability,” *Journal of the American Planning Association* 84, no. 1 (January 2, 2018): 33–44, <https://doi.org/10.1080/01944363.2017.1405737>.

⁶⁹ Carolyn McAndrews and Wesley Marshall, “Livable Streets, Livable Arterials?”, 34.

⁷⁰ Fein, “Realignment,” 864.

analysis is its recent popularity as an urban planning movement among both planners and activists.

iii. The Roots of New Urbanism and the Anti-Modernist

To understand why New Urbanism may be an appropriate framework for livability, one must look back to the movement's conceptual roots: an organized opposition to the modernist philosophy of urban renewal. In 1961, New York City urban planning and architecture activist Jane Jacobs published one of the most influential works in American urban planning literature: *The Death and Life of Great American Cities*.⁷¹ Within, it describes the struggle between modernist planners and the anti-modernist activists led, in part, by Jacobs. The modernist style in the age of urban renewal (ca. 1960) that Jacobs sought to combat was characterized by monolithic developments, so-called "skyscrapers in a park."⁷² These developments have been associated with rising crime and violence, with feelings of fear driving the general public's avoidance of the area.⁷³ These developments were largely inspired by the 1922 work *Ville Contemporaine* (Contemporary City, fig. 6) and 1925 *Plan Voisin* for Paris (fig. 7) created by modernist architect Charles-Édouard Jeanneret (Le Corbusier).⁷⁴

⁷¹ Jane Jacobs, *The Death and Life of Great American Cities* (New York, NY: Random House Inc.'s Vintage Books, 1992).

⁷² Gene Callahan and Sanford Ikeda, "The Career of Robert Moses: City Planning as a Microcosm of Socialism," *The Independent Review* 9, no. 2 (2004), 259.

⁷³ Gene Callahan and Sanford Ikeda, "The Career of Robert Moses, 259.

⁷⁴ Alexi Ferster Marmot, "The Legacy of Le Corbusier and High-Rise Housing," *Built Environment (1978-)* 7, no. 2 (1981): 82.

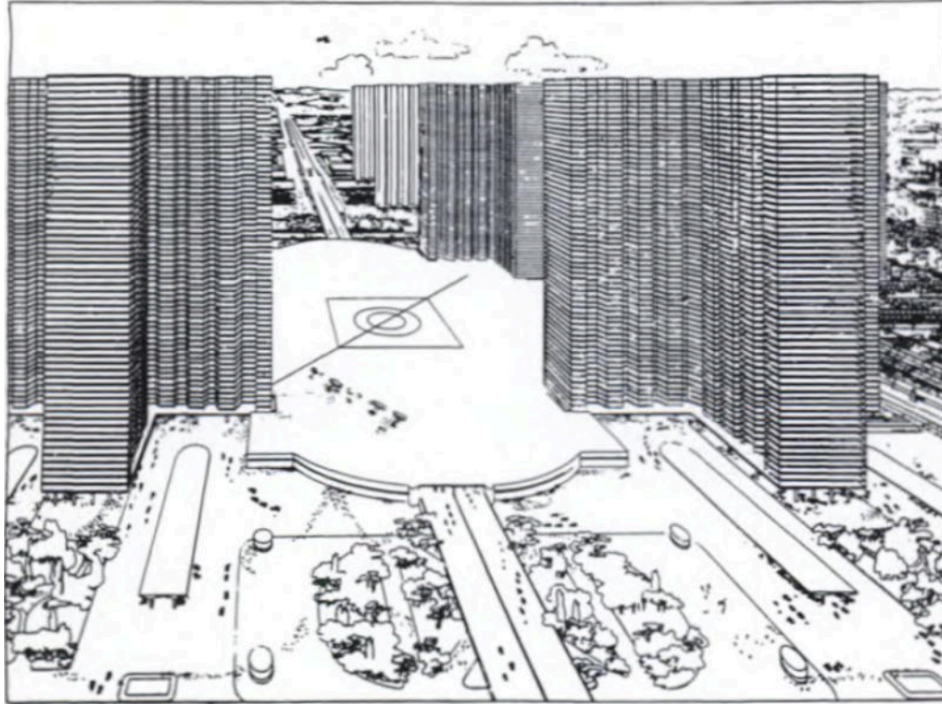


Figure 6: *The Central Office Towers of Le Corbusier's Ville Contemporaine with its Transport Interchange*, from John R. Gold's *The Experience of Modernism*.⁷⁵



Figure 7: *The Voisin Plan for Paris*, from John R. Gold (1997).⁷⁶

⁷⁵ John R. Gold, *The Experience of Modernism: Modern Architects and the Future City, 1928-53* (Taylor & Francis, 1997), 41.

⁷⁶ John R. Gold, *The Experience of Modernism*, 43.

Both Corbusian plans feature an extensive network of superhighways separating large blocks centered on monolithic, cruciform buildings. The *Ville Contemporaine*, which became Le Corbusier's claim to fame, was criticized due to its deification of factory-like efficiency, sterility, and intended segregation of economic classes.⁷⁷ The *Plan Voisin* "caused outrage" during its display at the *Pavillon de l'Esprit Nouveau* during the 1925 Paris World's Fair because of its conceived "obliteration" of architectural heritage and civic life in the city's tight-knit neighborhoods.⁷⁸ Le Corbusier justified these schemes with his hatred of the traditional city street; a key ideological difference between Le Corbusier and Jacobs. Jacobs advocated for livable, human-scaled streets that prioritized social interaction, such as those she found in Boston's alleged slum, the North End, which she described as "the healthiest place in the city."⁷⁹ Le Corbusier, on the other hand, saw things differently:

[The Peresian street] is the street of the pedestrian of a thousand years ago, it is a relic of the centuries: it is non-functioning, an obsolete organ. The street wears us out. It is altogether disgusting! Why, then, does it still exist?

Quoted in Fyfe (2006).⁸⁰

Well before Jacobs published *Death and Life*, modernist plans and philosophies (including Le Corbusier's) that favored cities and streets with factory-like efficiency were already being adopted by American planners. One of the most well-known of these was New York's Robert Moses. During his multi-decade tenure as New York City's chief urban planner, he often boasted of his projects in language not dissimilar to Le Corbusier. Moses stated that he was "building wide parkways and expressways ... [and that] trolley tracks are being ripped up all over town to promote the flow of traffic."⁸¹ To him, as he proudly admitted on camera, "Cities

⁷⁷ John R. Gold, *The Experience of Modernism*, 42.

⁷⁸ John R. Gold, *The Experience of Modernism*, 44.

⁷⁹ Jane Jacobs, *Death and Life*, 8–10

⁸⁰ Nicholas Fyfe, *Images of the Street: Planning, Identity and Control in Public Space* (Routledge, 2006), 48.

⁸¹ Robert A. Caro, *The Power Broker: Robert Moses and the Fall of New York*, later Printing edition (New York: Vintage, 1975), 896. 1. Moses held several additional consecutive titles (twelve at the height of his power) at both the state and local level throughout his career.

are created by and for traffic. A city without traffic is a ghost town.”⁸² Moses hated the street and the city in the same fashion as Corbusier, and both men were characterized by a shared fervor to destroy in order to save.⁸³

Moses’ heavy use of the bulldozer prefaced each of his development projects, and he became the trendsetter for a movement that—with the construction of freeways alone—led to the destruction of 27,000 dwelling units per year.⁸⁴ As a result of his policies, multiple neighborhoods across New York City were bulldozed for freeway projects including the infamous Brooklyn/Queens and Cross-Bronx Expressways in what became the first network urban freeways in the world—all accomplished by displacing countless people suffering from poverty.⁸⁵ However, this exodus from the demolished neighborhoods did not solve the problems of poverty nor rectify the subjective list of issues that led to slums. Instead, it led to a new and vicious cycle in which communities would be razed, former residents would move next door, and Moses—wielding the full support of the federal and state governments—would demolish the neighborhoods yet again.⁸⁶ At the cycle’s zenith in the 1960s, Moses and similar figures across the nation destroyed 1 in every 17 buildings.⁸⁷ These modernist planners attempted to solve the problems of the city by scrapping the built environment to begin entirely anew; to destroy in order to save.

As modernist trends took root on the East Coast, so too did they flourish in Chicago. One such project was the Congress (now Eisenhower) Expressway, which—under the direction of

⁸² *The American Experience: New York*, Streamed Film, Historical Documentary (PBS, 1999), 01:22:30, https://www.pbs.org/wgbh/americanexperience/films/new-york/#film_description.

⁸³ Nicholas Fyfe, *Images of the Street: Planning, Identity and Control in Public Space* (Routledge, 2006), 46–50.

⁸⁴ Francesca Russello Ammon, *Bulldozer: Demolition and Clearance of the Postwar Landscape*, Illustrated edition (New Haven London: Yale University Press, 2016), 5.

⁸⁵ Callahan and Ikeda, “The Career of Robert Moses,” 259.

⁸⁶ Callahan and Ikeda, “The Career of Robert Moses,” 259.

⁸⁷ Callahan and Ikeda, 259; Ammon, *Bulldozer*, 5. 1. Former, usually impoverished, members of razed communities would often move to wealthier neighborhoods, oftentimes causing these communities’ affluent residents to flee.

modernist planners who upscaled Daniel Burnham's 1909 plan for a Congress Street parkway, led to the demolition of over 1,000 buildings and relocation of more than 3,000 bodies from cemeteries in the freeway's path.⁸⁸ When it was dedicated in December of 1955, it was the first "superhighway" to split Chicago in two, plowing its way through the city from the west suburbs all the way downtown.⁸⁹ Figure 8 shows the freeway's path of destruction as it looked in 1951.⁹⁰ The Congress also notably played a hand in the extension of DLSD, which was, for the most part, built on a path that avoided any large-scale demolitions. Portions of the waterfront freeway were extended into the lake by using the rubble from the many buildings razed for the Congress Expressway as landfill.⁹¹

From the rubble of these renewal projects emerged the anti-modernists in stark opposition to a perceived war being waged on American cities. Jane Jacobs' premier work that documented this opposition movement began by outright stating that "this book is an attack" on the modernist principles of urban planning.⁹² To her and her followers (including today's New Urbanists) the construction of urban freeways and top-down renewal projects are "not the rebuilding of cities,"

⁸⁸ John R. Schmidt, *On This Day in Chicago History* (Arcadia Publishing, 2014), 15.

⁸⁹ John R. Schmidt, *On This Day in Chicago History*, 15.

⁹⁰ William Deluga, *Congress Expressway Construction*, June 29, 1951, Photo, 4900x8550, June 29, 1951, Chicago Sun-Times, Chicago History Museum, <https://images.chicagohistory.org/search/>.

⁹¹ Neal Samors and Bernard Judge, *Chicago's Lake Shore Drive*, 119.

⁹² Jane Jacobs, *Death and Life*, 3.



Figure 8: Congress Expressway land clearance in 1951, looking west from the Main Post Office. *Congress Expressway Construction*, by William Deluga, from the Chicago History Museum.⁹³

but instead “the sacking” of them.⁹⁴ She slams the Corbusian projects executed by Robert Moses as a fundamental misunderstanding of her belief that a poor community’s wealth is not tied up in property, but instead made through the everyday, wholesome interactions between neighbors, strangers, families, and passersby on the street.⁹⁵ Furthermore, her observations of neighborhoods divided by urban freeways as victims of border vacuums that bleed both the

⁹³ William Deluga, *Congress Expressway Construction*, June 29, 1951, Photo, 4900x8550, June 29, 1951, Chicago Sun-Times, Chicago History Museum, <https://images.chicagohistory.org/search/>.

⁹⁴ Jane Jacobs, *Death and Life*, 4.

⁹⁵ Jane Jacobs, *Death and Life*, 392–401. 1. These principles, core to Jacobs’ ideology, led to her famous concept of “eyes on the street” (an idea hinging on the neighborhood residents’ plentiful, watchful eyes) as a mechanism for safety and placemaking.

neighborhood itself and those that surround it dry of liveliness remain a salient point in New Urbanism even sixty years later.⁹⁶ This clash of modernists vs. anti-modernists birthed the numerous aptly named postmodern urbanist movements that eventually united under New Urbanism. The process of this unification and the debates behind it will be discussed in the following sections.

iv. The New Urbanist Debate

In a form not dissimilar to the relationship between knowledge of neoliberalism and experience of broader capitalism for the public, nearly everyone has encountered the principles of New Urbanism in their daily lives under different names. The movement is the parent to several offshoot groups that take the broader framework of New Urbanist principles and apply them to specific, localized issues. A prime example is the group Bike Grid Now, which advocates for constructing more fully protected bike lanes across Chicago to make streets more equitable for non-car modes (a key tenet of New Urbanism). Broader examples of New Urbanist thought have also gained traction in recent years, manifesting in some cases as overarching concepts for good city design. One of the most salient of these big-picture concepts is that of the 15-minute city, where the residents of a theoretical city have all necessities for daily life located within a 15-minute walk or bike ride.⁹⁷ The tenets of the 15-minute city include proximity, density, diversity, digitalization, human-scale design, flexibility, and connectivity; all concepts that fit squarely within the realm of New Urbanist values for livable cities.⁹⁸ There is an entire world of popular movements big and small that, while unique in their foci, are nonetheless the offspring of New Urbanist thought. Ironically, this is exactly the issue that early New Urbanists

⁹⁶ Jane Jacobs, *Death and Life*, 257–69.

⁹⁷ Amir Reza Khavarian-Garmsir, Ayyoob Sharifi, and Ali Sadeghi, “The 15-Minute City: Urban Planning and Design Efforts toward Creating Sustainable Neighborhoods,” *Cities* 132 (January 1, 2023): 104101, <https://doi.org/10.1016/j.cities.2022.104101>.

⁹⁸ Amir Reza Khavarian-Garmsir et al., “The 15-Minute City.”

in the 1990s sought to correct by combining historical beliefs and goals that all American urbanists commonly held across movements.⁹⁹ Regardless of its state of unity, Emily Talen best summarizes the overall goal of urbanism (which, given the movements' nearly identical goals, is generally synonymous with New Urbanism): maximizing interaction, the exchange of ideas, social and economic contact, and promoting density.¹⁰⁰ This "essence of urbanism" will provide the groundwork for analyzing how DLSD as an urban expressway impacts the livability of the neighborhoods around it through a spatial analysis of related data such as walk/bike/transit scores and Census Block Group population density.

However, some scholars claim that the New Urbanist movement has become too similar to the heavy-handed, eminent-domain-using modernists that they have sought to destroy. One of these is Sonia Hirt, who sought to place the New Urbanist movement on the timeline of urban planning history.¹⁰¹ She claims that to provide the mixed-use, walkable, and effectively pre-modern neighborhoods they desire, New Urbanist planners use force to implement their changes where they can.¹⁰² While this criticism is valid, some New Urbanists argue that their pattern of development is more popular than many realize. However, they often see their plans for increasing livability through the densification of communities and promotion of multimodality (access to multiple mobility modes including walking, cycling, and taking transit) sabotaged, defamed, or outright thwarted by public opposition from the Not In My Backyard (NIMBY) movement. This movement tends to dominate development conversations in cities such as San Francisco where housing for mid-to-low-income people (another key goal of the

⁹⁹ Emily Talen, *New Urbanism and American Planning: The Conflict of Cultures*, 1st edition (New York: Routledge, 2005), 1.

¹⁰⁰ Emily Talen, *New Urbanism and American Planning*, 41. 1. While Talen's arguments in *New Urbanism and American Planning* revolve around "urbanism," she clarified to me in person that urbanism and New Urbanism are, in her eyes, the same thing (even going so far as to say she has advocated for "dropping" the word "new" from the movement's title).

¹⁰¹ Hirt, "Premodern, Modern, Postmodern?"

¹⁰² Hirt, "Premodern, Modern, Postmodern?", 268.

New Urbanist livable city) is desperately needed yet overwhelmingly opposed by local NIMBYs who skew wealthy, white, and elderly.¹⁰³ In response to critiques like Hirt's and in light of the NIMBY domination of urban (re)development conversations, Cliff Ellis claims that most New Urbanist planning discussions attempt to use charrettes and public lectures on New Urbanist theory to engage more stakeholders than is typically allowed through standard community meetings.¹⁰⁴ Similarly, Robert Steuteville argues that these critiques are merely knee-jerk reactions to the breadth of changes proposed by New Urbanist developments that, especially when being analyzed from many angles and by different groups, challenge just as many visions of the status quo.¹⁰⁵ Emily Talen also throws her hat into the ring by sympathizing with those reluctant to top-down planning, but simultaneously asserting that the problems of modernism (i.e. a singular, guiding vision) are what led to over-control.¹⁰⁶ To her, the better integration of different "cultures" within the New Urbanist movement is what will best address the weaknesses of the movement as a whole.¹⁰⁷ Effectively, this unification may allow for a more community-focused, environmentally conscious movement that still allows substantial developments to get built. Yet, despite these disputes, New Urbanism still reigns supreme over the American planning world and, in part to veer away from these valid critiques, has produced a semi-unified framework for its city design style: the Urban/Rural Transect.

¹⁰³ Georgina McNee and Dorina Pojani, "NIMBYism as a Barrier to Housing and Social Mix in San Francisco," *Journal of Housing and the Built Environment* 37, no. 1 (March 1, 2022): 555, <https://doi.org/10.1007/s10901-021-09857-6>; Laurie Volk and Todd Zimmerman, "Thirteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 125.

¹⁰⁴ Cliff Ellis, "The New Urbanism: Critiques and Rebuttals," *Journal of Urban Design* 7, no. 3 (October 1, 2002): 281–2, <https://doi.org/10.1080/1357480022000039330>.

¹⁰⁵ Robert Steuteville and Philip Langdon, *New Urbanism: Comprehensive Report & Best Practices Guide*, 2001st-2002 ed., expanded and completely updated ed. (Ithaca, N.Y: New Urban Pub, 2001), chap. 25, pg. 5, <https://catalog.lib.uchicago.edu/vufind/Record/4596983>.

¹⁰⁶ Emily Talen, *New Urbanism and American Planning*, 278.

¹⁰⁷ Emily Talen, *New Urbanism and American Planning*, 281.

v. *The Urban/Rural Transect*

The relationship between the rural and the urban has become increasingly muddled in recent decades, especially in the United States, as cities began to expand beyond their historic limits courtesy of modernist-planned freeways and cheap cars.¹⁰⁸ Ever-increasing suburbanization driven by the automobile created the beginnings—and maintains the epitome—of sprawl in the late 20th to early 21st century through inertia, legislative gridlock, and the habits of planning and public opinion.¹⁰⁹ Following the advent of New Urbanism and post-modern urban planning, the urban/rural Transect theory sprung forth as an application of ecological theory to categorize and define human (rather than animal) habitats.¹¹⁰ This led to the systematic classification of commonly encountered landscapes in urban planning ranging from Yosemite to Midtown Manhattan. Peter Calthorpe touts the Transect as a clarifier, bringing a formal and definitive approach to the (as previously established) conflict-prone movement.¹¹¹ It aims to unify those who choose to live in rural and urban areas through a mutual understanding of how their environments fit together and are inherently connected by a flow of resources amid suburban sprawl that encroaches on both.¹¹² The Transect is divided into 7 tiers: natural (T1), rural (T2), sub-urban (T3), general urban (T4), urban center (T5), urban core (T6), and special district (which will be excluded due to its unique nature). Except for the latter, these zones steadily increase in density with their respective T-number. The distribution of these zones may vary, but many urban areas tend toward a patchwork distribution rather than the concentric

¹⁰⁸ Joseph F. C. Dimento and Cliff Ellis, *Changing Lanes: Visions and Histories of Urban Freeways*, First Edition (Cambridge, Mass: Mit Pr, 2012), 209–210.

¹⁰⁹ Joseph F. C. Dimento and Cliff Ellis, *Changing Lanes*, 210.

¹¹⁰ Robert Steuteville and Philip Langdon, *Best Practices Guide*, chap. 1, pg. 5.

¹¹¹ Peter Calthorpe, Lars Lerup, and Robert Fishman, eds., *New Urbanism: Peter Calthorpe vs. Lars Lerup*, Michigan Debates on Urbanism, v. 2 (Ann Arbor : New York: University of Michigan ; Distributed by Arts Press, 2005), 16, <https://catalog.lib.uchicago.edu/vufind/Record/5667221>.

¹¹² Robert Davis, Andres Duany, and Elizabeth Plater-Zyberk, “The Lexicon of the New Urbanism” (Duany Plater-Zyberk & Company, 2014), DPZ CoDesign, 9, <https://www.dpz.com/wp-content/uploads/2017/06/Lexicon-2014.pdf>.

circles one may imagine. Figure 9 depicts two artistic examples of transects in Richmond, Virginia, and Sarasota, Florida, beautifully illustrated by Dover-Kohl & Partners and Michael Morrissey.¹¹³

At the crux of this project’s first methodological approach for measuring livability is the notion that single-use, low-density built environments with higher-speed roadways are characteristics of T-2 and T-3, and that mixed-use, high-density areas with low-speed streets are for T-4, T-5, and T-6.¹¹⁴ The types of roadways that are appropriate for each zone have also been conveniently defined by New Urbanists in a companion piece to their lexicon compendium. In this short “module” (as they call it given the piece’s role as an educational tool for New Urbanist planners), a non-exhaustive yet still broad-spanning collection of street types—complete with ideal speed limits, appropriate locations within the Transect code, and measurements on everything from curb radii to planters—makes it incredibly easy to effectively judge both old and new roadways against New Urbanist norms.¹¹⁵ This project will put these to good use in its vision proposal, with the codebooks allowing for the streamlining of roadway characterization to ground later analysis and methodology.

vi. Why Obey New Urbanism?

While the dreams of dense, walkable cities touted by New Urbanists are appealing to many (and less so for others), there has been recent debate about what the consequences of rejecting New Urbanist principles and theories like the Transect look like. In *Our Urban Future*, Emily Talen and Sabina Shaikh describe just that.¹¹⁶ Their analysis is grounded in the view that

¹¹³ Brian Falk and Andrés Duany, eds., *Transect Urbanism: Readings in Human Ecology* (Novato, Calif. ORO Editions, 2020).

¹¹⁴ Robert Davis, Andres Duany, and Elizabeth Plater-Zyberk, 10–21.

¹¹⁵ Duany Plater-Zyberk & Co. et al., *Complete Streets Thoroughfare Assemblies SmartCode Module*, Version 9.2 (Center for Applied Transect Studies, 2022), <https://transect.org/docs/CompleteStreets.pdf>.

¹¹⁶ Sabina Shaikh and Emily Talen, *Our Urban Future: An Active Learning Guide to Sustainable Cities* (The MIT Press, 2023).

American cities are characterized by the scars of modernist planning, the history of which has been described in previous sections. This historic pivot in the American urban built form toward sprawl, characterized by low density housing, ample parking, auto-oriented uses, and high-speed roads, became the primary issue for New Urbanists today. Sprawl, to one degree, is more generally defined as the placement of urban amenities (like large shopping malls) in rural places and rural amenities (like expressways) in urban places.¹¹⁷ In the real world, this “inappropriate” distribution is exemplified by a Dollar General and K-12 school campus in the forest of unincorporated Jefferson County, Missouri ([appx. X.ii](#)) and DuSable

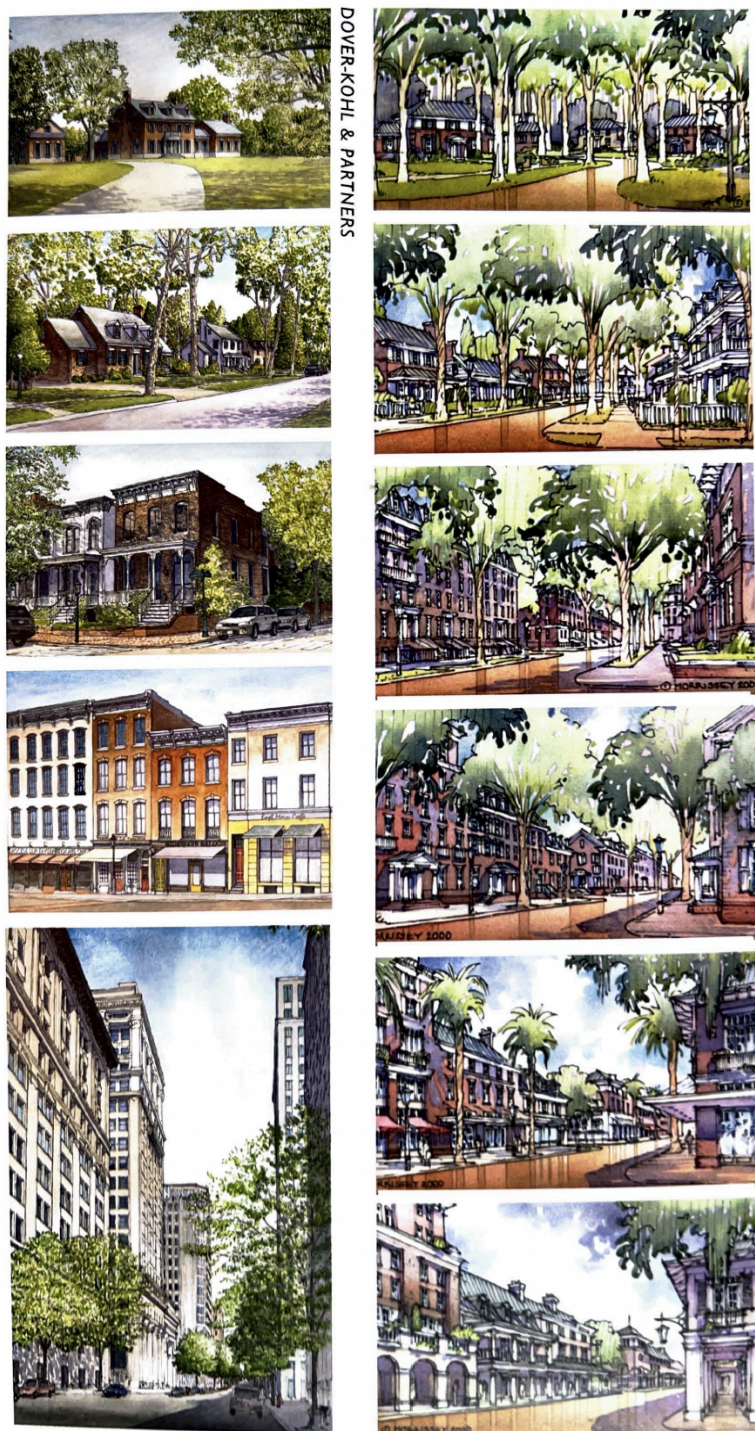


Figure 9: Illustrated Transects of Richmond, VA (left) and Sarasota, FL (right). Illustrations by Michael Morrissey and Dover-Kohl & Partners as shown in Falk’s *Transect Urbanism*.¹¹²

¹¹⁷ Sabina Shaikh and Emily Talen, *Our Urban Future*, 25.

Lake Shore Drive in Chicago.¹¹⁸ According to Talen and Shaikh, this practice is “unsustainable because it wastes land, destroys habitat, necessitates car dependence, and makes nonautomotive forms of travel like transit difficult if not impossible.”¹¹⁹ Within the sprawl mindset, one fails to understand the limitations of both rural and urban living by striving for a solution where they are simultaneously living close to nature and benefitting from city services in a suburbanization scheme that drives disinvestment in urban cores.¹²⁰

vii. Using the New Urbanist Lens

Despite internal disagreements and semi-vague frameworks, the New Urbanists have managed to create a loose coalition of factions united behind one overarching goal: fostering both density and diversity to create neighborhoods that people “loathe to leave.”¹²¹ This unity is documented in the CNU’s charter which underscores the movement’s key tenets at the block, neighborhood, and regional level. This charter has proven useful for the creation of a New Urbanist lens through which to view localized issues such as DLSD. This lens primarily draws from sections of the charter dealing with the neighborhood and block, as these are the most appropriate scales for the granularity of the urban form being analyzed. These chosen New Urbanist tenets carefully exclude those that had broader implications for metropolitan regions or had no particular meaning in the context of Chicago’s lakefront developmental history. They are the following:

- (1) Compactness, pedestrian friendliness, and a mix of uses must be present.¹²²

¹¹⁸ Sabina Shaikh and Emily Talen, *Our Urban Future*, 26.

¹¹⁹ Sabina Shaikh and Emily Talen, *Our Urban Future*, 25.

¹²⁰ Sabina Shaikh and Emily Talen, *Our Urban Future*, 25.

¹²¹ Jonathan Barnett, “What’s About the New Urbanism?,” in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (United States: McGraw Hill, 2013), ebook 27–8.

¹²² Elizabeth Plater-Zyberk, “Eleven,” in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 109.

- (2) Activities for daily living should be within walking distance.¹²³
- (3) There must be a broad range of housing types allowing for a large variety of incomes, ages, and races.¹²⁴
- (4) Transit corridors should be properly planned and expressways should not displace investment from existing urban centers.¹²⁵
- (5) Dense, mixed-use buildings should be within walking distance of public transit.¹²⁶
- (6) Civic, institutional, and commercial uses (including schools) should be appropriately sized and embedded within communities to allow for walking/cycling to them.¹²⁷
- (7) A range of parks, large and small, should be spread throughout communities.¹²⁸
- (8) Development must accommodate automobile traffic while simultaneously respecting the pedestrian and public space.¹²⁹
- (9) Public spaces should be designed to be of shared use.¹³⁰

These perspectives are reflections of the broader New Urbanism movement's ideology which echoes the anti-modernist design movement from which the movement got its start. Namely, these assert the New Urbanist desire to covet cities and neighborhoods with high-density, multi-modal mobility options, a mix of land/building uses, and accessible

¹²³ Walter Kulash, "Twelve," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 117.

¹²⁴ Laurie Volk and Todd Zimmerman, "Thirteen," 125.

¹²⁵ John Norquist, "Fourteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 137.

¹²⁶ William Lieberman, "Fifteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 145.

¹²⁷ Elizabeth Moule, "Sixteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 153.

¹²⁸ Thomas Comitta, "Eighteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 171.

¹²⁹ Tony Hiss, "Twenty-Two," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 201.

¹³⁰ Thomas Low, "Nineteen," in *Charter for the New Urbanism*, ed. Emily Talen, 2nd Edition (New York: McGraw Hill, 2013), 181.

(generally car-free) public spaces.¹³¹ Over the past few decades, the followers of the movement have worked to establish it as the most prominent school of urban planning and design in the United States.¹³² This has led to hundreds of neighborhoods that follow the best practices of planning—as outlined in the CNU Charter—created through, in some cases, built-from-scratch construction, adaptive reuse of existing buildings/environments, or a mix of both.¹³³ The construction of neighborhoods that adhere to these core principles along with the adaptation of older neighborhoods to fit them has built upon research and theories bearing the movement's name and left a framework worth using to examine neighborhood, city, and regional-level urban planning issues as working for or against the broader goal of the New Urbanist city. This human-centric framework is what this research will build upon to explore how the existence of DLSD on Chicago's lakefront affects livability. These resulting impacts will then, in combination with this foundational academic grounding regarding DLSD's future, be built upon to create a more equitable and transect-sensitive reimagination of DLSD for the sake of making Chicago's lakefront more livable.

viii. Boulevardization: Examples from Other Cities

Chicago is not the only city to have its waterfront caught up in a battle between people and cars. Yet, unlike some other U.S. cities, Chicago has not historically explored plans to remove its waterfront expressway. In 1974, the city of Portland, Oregon, pioneered a progressive urban planning approach to freeway removal by demolishing the Harbor Drive freeway to replace it with a park.¹³⁴ [Appendix XI.i](#) contains aerial footage from 1970 and 2024 which emphasizes the drastic change. Following the completion of this removal project, 37 acres of

¹³¹ Hirt, "Premodern, Modern, Postmodern?", 262–5; Thomas Low, "Nineteen," 181.

¹³² Hirt, "Premodern, Modern, Postmodern?", 248.

¹³³ Hirt, "Premodern, Modern, Postmodern?", 248.

¹³⁴ Norman Garrick, Jason Billings, and University of Connecticut, "Case Studies of the Access and Mobility Impact of Freeway Removal," January 1, 2013, <https://rosap.nrl.bts.gov/view/dot/26135>, 6.

parkland were created and property values nearby increased 7% more compared to the city at large over the following decades.¹³⁵ New York City also famously removed its waterfront freeway following its partial collapse and subsequent closure in 1973.¹³⁶ The West Side Highway ran along the Hudson River with 140,000 vehicles traveling up and down the viaduct daily at its height.¹³⁷ This case is particularly damning to those who argue that Chicago could never be the same without DLSD, as the daily vehicle count of the West Side Highway exceeds the 2024 traffic count of DLSD's busiest section by 4,000 vehicles.¹³⁸ Ultimately, the City of New York decided to leverage its unique situation by improving the still-existing street that the West Side Highway was built over and demolishing the elevated structure. They modified the street to have wide, landscaped medians, a bike path, general aesthetic improvements, and a riverfront park with construction lasting from 1993–2001.¹³⁹ The closure of the thoroughfare also led to a 53% reduction in vehicular traffic in the area, likely due to drivers shifting to alternate routes or transport modes.¹⁴⁰ Today, an estimated 17 million people per year visit the Hudson River Park, enabled by the creation of a more accessible, multimodal corridor.¹⁴¹

One of the most studied examples of freeway removal, however, comes from San Francisco's Embarcadero Freeway. At 5:04 p.m. on October 17, 1989, the San Andreas fault erupted 56 miles south of San Francisco.¹⁴² The resulting 6.9 magnitude earthquake was felt as far away as San Diego and western Nevada, killing 63, injuring 3,757, and displacing over

¹³⁵ Norman Garrick and Jason Billings, "Impact of Freeway Removal", 6.

¹³⁶ Norman Garrick and Jason Billings, "Impact of Freeway Removal", 7.

¹³⁷ Norman Garrick and Jason Billings, "Impact of Freeway Removal", 7.

¹³⁸ Illinois Department of Transportation, *Getting Around Illinois Annual Average Daily Traffic Counts*, Web Map (Illinois Department of Transportation, 2024), <https://www.gettingaroundillinois.com/Traffic%20Counts/index.html>.

¹³⁹ Garrick, Billings, and University of Connecticut, "Case Studies of the Access and Mobility Impact of Freeway Removal", 7.

¹⁴⁰ Norman Garrick and Jason Billings, "Impact of Freeway Removal", 7.

¹⁴¹ The Hudson River Park Trust, "About Us," Hudson River Park, 2024, <https://hudsonriverpark.org/the-park/waterfront-transformation/>.

¹⁴² California Geological Survey, "The 1989 Loma Prieta Earthquake," California Department of Conservation, 2024, <https://www.conservation.ca.gov/cgs/earthquakes/loma-prieta>.

12,000.¹⁴³ The disaster’s direct destruction caused about \$6.8 billion in damages and significantly disabled the Bay Area’s infrastructure, with the Bay Bridge being unusable for over a month and the Embarcadero Freeway taking heavy damage.¹⁴⁴ The tragedy caused by the Loma Prieta Earthquake forced policymakers and planners in San Francisco to reconsider the city’s relationship with elevated freeways like the Embarcadero. Despite the fact that two of the three options the city considered involved freeway reconstruction, San Francisco sided with the majority of its citizens’ wishes and demolished the Embarcadero to build a boulevard in its place.¹⁴⁵ The near decade-long construction project transformed the city’s waterfront, with iconic landmarks like the Ferry Building being reconnected to the city after decades of separation. Robert Cervero et al. include historic photos of the area before (top) and after (bottom) the project’s completion (fig. 10).

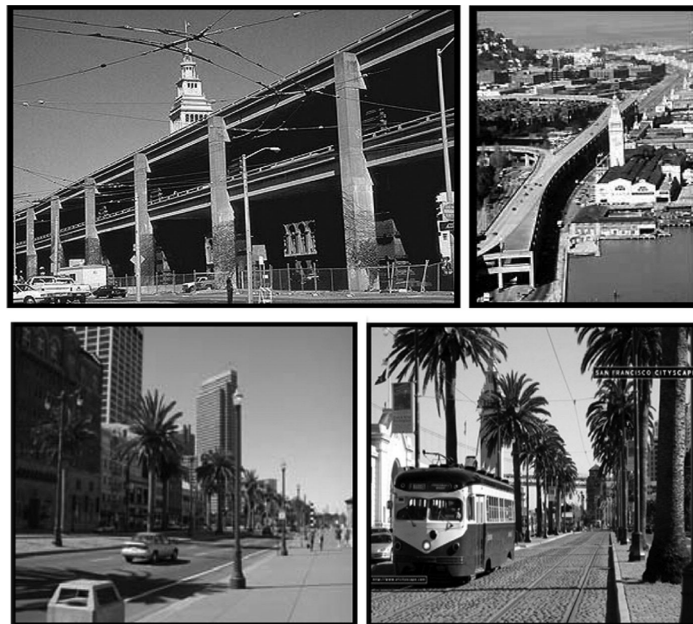


Figure 10: *The Embarcadero Expressway vs. Embarcadero Boulevard.*¹⁴⁶

¹⁴³ California Geological Survey, “The 1989 Loma Prieta Earthquake.”

¹⁴⁴ California Geological Survey, “The 1989 Loma Prieta Earthquake.”

¹⁴⁵ Robert Cervero, Junhee Kang, and Kevin Shively, “From Elevated Freeways to Surface Boulevards: Neighborhood and Housing Price Impacts in San Francisco,” *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 2, no. 1 (March 1, 2009): 31–50, <https://doi.org/10.1080/17549170902833899>, 35.

¹⁴⁶ Robert Cervero et al., “From Elevated Freeways to Surface Boulevards”, 36.

Embarcadero Boulevard, as it is known today, is a shining example of how to build streets for multi-modal uses, effectively creating livability from a hostile environment. The project balanced multiple vehicle lanes with wide sidewalks, ample street lighting, trees, plazas, and public art.¹⁴⁷ The San Francisco Municipal Railway (MUNI) also operates several bus and rail lines on the corridor which both enhances mobility through their modern light rail system and provides public amenities through the operation of near-century-old streetcars on the same tracks. This transformation from an auto-centric freeway into a human-centric street is a process that I call boulevardization, and its effects on the livability of city streets speak for themselves.

While these freeway removal projects are certainly widespread and have lasting, measurable impacts, how do they relate to the questions of livability that frame this research? While the notion that a neighborhood is generally more livable (even just in the most colloquial sense) when it does not sit directly in the shadow of an expressway is quite intuitive, the work of Raymond A. Mohl directly links freeway removal and the tenets of New Urbanism that this research uses to measure livability.¹⁴⁸ He claims that freeway removal has become the ideal solution for New Urbanist planners and supporters concerned with the increasingly dilapidated state of American freeways (which are still being used even years past their intended service lives).¹⁴⁹ He also gives credit to the CNU's Highways to Boulevards Initiative as a key example of the New Urbanist way to popularize freeway removal projects via internet-based platforms—a system that has grown all the more prominent with the previously discussed rise of YouTube New Urbanists.¹⁵⁰ The official stance of the CNU's Initiative revolves around four pillars that aim to maximize the benefits to livability that local communities receive from removing their

¹⁴⁷ Robert Cervero et al., “From Elevated Freeways to Surface Boulevards”, 36.

¹⁴⁸ Raymond A. Mohl, “The Expressway Teardown Movement in American Cities: Rethinking Postwar Highway Policy in the Post-Interstate Era,” *Journal of Planning History* 11, no. 1 (February 1, 2012): 89–103, <https://doi.org/10.1177/1538513211426028>.

¹⁴⁹ Raymond A. Mohl, “The Expressway Teardown Movement in American Cities”, 93.

¹⁵⁰ Raymond A. Mohl, “The Expressway Teardown Movement in American Cities”, 98.

freeways. They emphasize that plans for freeway removal or alteration should start and end with the community and minimize the displacement of “legacy families” that have called the area home for years—sentiments seeking to address the long history of heavy-handed, expressway-first policy from the modernist planning era.¹⁵¹ Also key to their philosophy is ensuring that boulevards are designed with truly multi-modal (and primarily human-centric) intentions to fully eliminate freeway conditions.¹⁵²

The ever-growing presence of freeway removal in the New Urbanist psyche is also grounded in the Transect theory. With the previously discussed literature providing classification systems for appropriate roadway types dependent on a given T-Zone, it is quite easy to determine how New Urbanist theorists believe a roadway in any particular context should function both physically and aesthetically to foster a livable built environment. In the case of DLSD, the Complete Streets Module proves to be quite a convenient tool for imagining a new roadway that adheres to New Urbanists’ guidelines. According to that module, the appropriate thoroughfare roadways according to New Urbanists for T-5 and T-6 (the categorization for the densely populated and highrise-heavy built environment that occupies the vast majority of DLSD’s path) are boulevards whose well-documented standards will make an appearance in the vision proposal for DLSD later on.¹⁵³ For ease of examination and comparison, Figure 11 shows the diagrams from this free, publicly available module.¹⁵⁴

¹⁵¹ Ben Crowther, “Four Principles for a Federal Highways to Boulevards Program” (Congress for the New Urbanism, 2021),

https://www.cnu.org/sites/default/files/CNU_Four%20Principles%20for%20a%20Federal%20Highways%20to%20Boulevards%20Program_2021.pdf, 5, 8.

¹⁵² Crowther, “Four Principles for a Federal Highways to Boulevards Program,” 8.

¹⁵³ Duany Plater-Zyberk & Co. et al., *Complete Streets Module*, 13.

¹⁵⁴ Duany Plater-Zyberk & Co. et al., *Complete Streets Module*, 13.

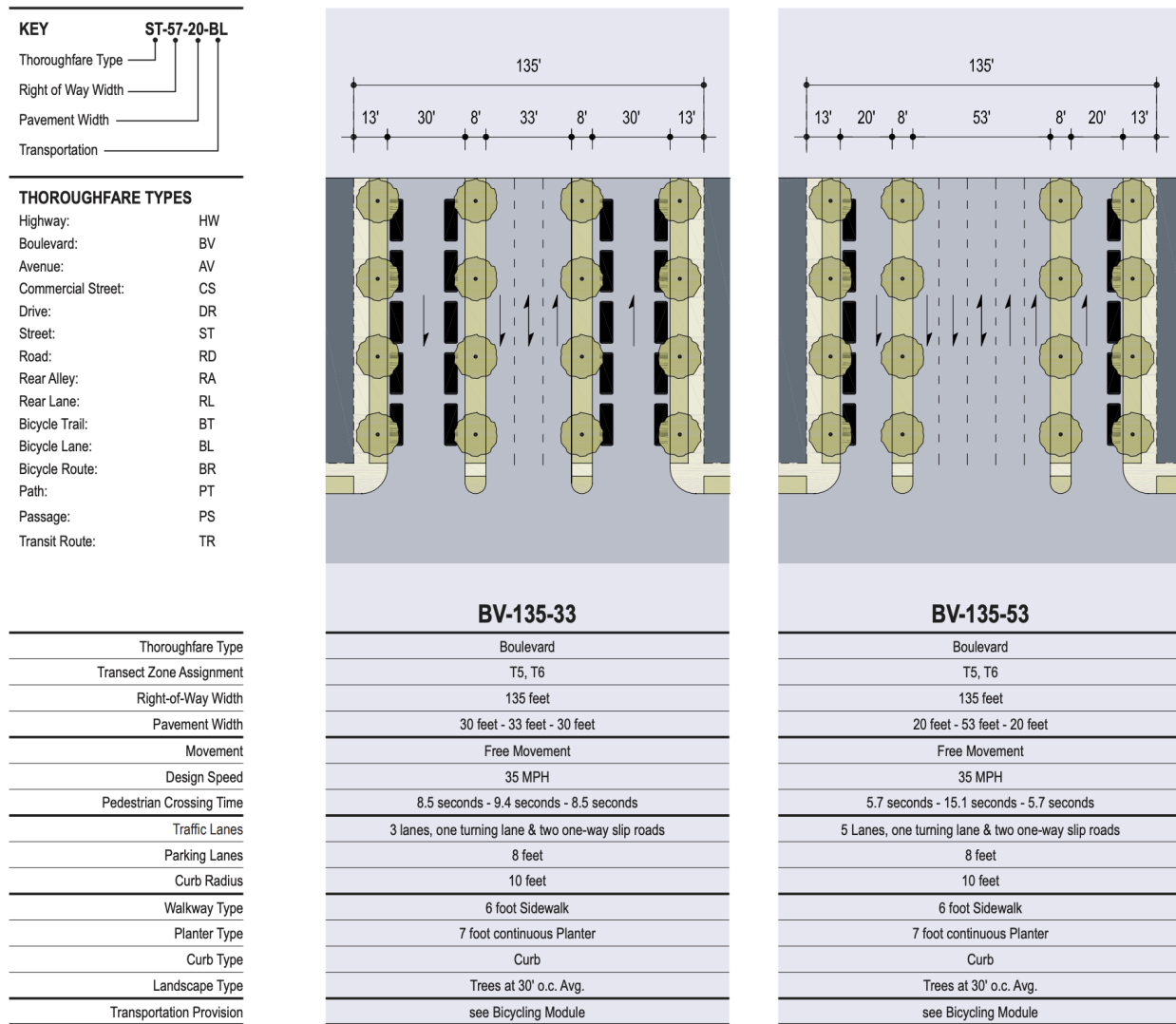


Figure 11: *Boulevard Types* from *Complete Streets Module* (2022).¹⁵⁵

The notable differences between urban freeways and boulevards could hardly be more widespread. Differing design choices include speed limits, lane widths, and (most starkly) landscaping. In this example, there are always four rows of tree-based planters, which have been shown to improve driver safety (with tree-lined streets leading to lower speeds) and create a more livable, healthy, and economically vibrant neighborhood.¹⁵⁶ These street trees already make an appearance on DLSD in The Loop neighborhood, where the freeway’s morphology

¹⁵⁵ Duany Plater-Zyberk & Co. et al., *Complete Streets Module*, 13.

¹⁵⁶ Jody Naderi, Byoung-Suk Kweon, and Praveen Maghelal, “The Street Tree Effect and Driver Safety,” *ITE Journal on the Web* 78 (January 1, 2008): 69–73, 72.

nearly resembles a Transect-obeying boulevard (with it being disqualified by its 12+, uninterrupted lanes).

Allan Jacobs' *Boulevard Book* provides an excellent theoretical background behind creating successful boulevards, and freeway removal projects using boulevardization may consider these theories in conjunction with the aforementioned New Urbanist guidelines to effectively maximize gains in livability. The theories behind the creation of similar guiding boulevard examples will prove quite important for any future boulevardization approach. For example, the creation of boulevards must be cognizant of the street grids that they run through as they make up a broad ecosystem of grids within a city.¹⁵⁷ On another note, to be successful, these streets must be designed so that no one mode of transportation is favored over another to create a balanced, multipurpose street.¹⁵⁸ This aligns quite well with the principles of New Urbanism described in previous sections, namely number 8 which calls for the accommodation of cars but not at the expense of other modes.¹⁵⁹ One part of both the boulevard-building Complete Streets Module and examples described by Allan Jacobs that does not mesh as nicely with the generally pedestrian-space-first New Urbanist ideal is the large amount of on-street parking that each boulevard contains (in some cases up to 60 feet, as shown in fig. 11). A. Jacobs, however, makes an interesting case for added parking on the local-access streets, claiming that—even in famously car-light European contexts like Passeig de Gràcia in Barcelona—parked cars double as separators between the pedestrian and auto realms and natural traffic calmers leading to lower speeds and, a more livable streetscape.¹⁶⁰

¹⁵⁷ Allan Jacobs, *The Boulevard Book: History, Evolution, Design of Multiway Boulevards* (Cambridge, MA: Massachusetts Institute of Technology, 2003), 206.

¹⁵⁸ Allan Jacobs, *The Boulevard Book*, 206.

¹⁵⁹ Tony Hiss, "Twenty-Two," 201.

¹⁶⁰ Allan Jacobs, *The Boulevard Book*, 120.

The lessons learned from this scholarship could present themselves in interesting ways for a theoretically redesigned DLSD. This could look like increased transit space through bus lanes (or even light rail), concrete-buffered protected bike lanes, and wide sidewalks to create a completely new type of corridor—one that is vastly more multimodal. To the earlier point of connectivity with the greater grid, the boulevardization could also integrate with each city block, creating a crossing point for increased lakefront park accessibility.

ix. Literature Review Summary

Throughout this review, the literature points toward a loose confederation of urban theories, practices, and ideas that are bound together by goals of density and diversity. By providing valuable context of New Urbanism's history, struggles, and key tenets related to DLSD, the ideological lens is formed through which this project seeks to understand how DLSD impacts livability. Additionally, by pulling together educational planning resources such as the Complete Streets module and the Transect discourse, a framework for focusing on whether DLSD in its form is appropriate given its surrounding context is built. Following a brief overview of New Urbanism's preferred method for righting the wrongs of urban freeways, boulevardization, the process of reimagining the roadway can begin. All of this scholarship grounds the goal of this research to understand the issues of accessibility, change in livability, and aesthetics as DLSD impacts the lakefront public amenity that all Chicagoans and tourists enjoy.

IV. Data and Methods

How does DLSD impact the livability of the communities and built environments it touches? Does DLSD's wall-like structure create an inaccessible, unlivable lakefront? These questions are explored through the two methodological approaches at the core of this research.

In the first, I hypothesized that neighborhoods near DLSD would be less livability as defined by the New Urbanist framework than those that are further away. In the second, I predicted that DLSD would have large spaces between legal crossing points because of its freeway morphology, thus decreasing the area's livability by denying convenient pedestrian access to the lakefront parks. In this section, the methodology used to explore these hypotheses will be outlined.

The first approach relies on the aggregation of livability variables from the 2022 U.S. Census American Community Survey, City of Chicago, and Walkscore.com to the Census Block Group level. While acquiring data from the former two sources at the desired granularity was fairly straightforward, direct access to data from Walkscore.com was unfortunately locked behind a paywall. To acquire this data, I relied heavily on reverse geocoding of coordinates and manual data entry. Once this hurdle was overcome, I was able to conduct a thorough spatial analysis of these variables resulting in multiple maps to track how they changed depending on distance to DLSD and the lakefront.

The second approach also relied on the use of point-based GIS tools. To understand how barrier-like DLSD may be, I employed the OpenTripPlanner QGIS plugin to synthesize data for spatial analysis as opposed to gathering it from outside sources.¹⁶¹ This second set of methods hopes to uncover Transect violations and the existence and/or level of inaccessibility to Chicago's lakefront. Ultimately, these methods will provide viewpoints of DLSD's interactions with the built environment and people of Chicago at varying scales and from multiple angles. This diversity of methods and use of the geospatial analysis format will allow for more robust

¹⁶¹ OTP, "OpenTripPlanner 2," Open Source Trip Planner, OpenTripPlanner 2, 2023, <https://docs.opentripplanner.org/en/latest/>.

testing of the aforementioned hypotheses to help uncover patterns, trends, and answers relevant to the research questions being explored.

i. Neighborhood Livability Variables

Livability is a spectrum that every neighborhood in the world has a place on. Surely Chicago's pristine lakefront neighborhoods are no different. Yet, despite the glittering highrises and manicured landscapes, it is unknown whether DLSD (a roadway that defies the New Urbanist theories for fostering livability) plays any role, obvious or not, in the livability of bordering neighborhoods. To find out, the first approach taken by this research draws on the previously discussed New Urbanist literature to examine how variables important to livability—namely population density and multimodality—are distributed. To do this, I used QGIS to examine these variables' spatial distribution at the Census Block Group level in three, tripartite study areas.

In an attempt to shed light on the relationship between the New Urbanist values related to livability in a neighborhood and that neighborhood's level of exposure to DLSD, I used GIS to spatially analyze the following variables:

- Walkability (WSc)
- Bikeability (BSc)
- Transit Access (TSc)
- People Per Square Mile (Density)

WSc, BSc, and TSc come from the service Walk Score, a publicly available tool that uses a patented system to calculate a score for walkability, bikeability, and transit access at any given address.¹⁶² Population density comes from the U.S. Census 2022 American Community Survey

¹⁶² Walk Score, "Walk Score Methodology," Walk Score, accessed January 22, 2024, <<https://www.walkscore.com/methodology.shtml>>.

5-Year Estimates.¹⁶³ These variables were studied in three, unique study areas located across the city. Areas were selected based on their proximity to the lakefront, similarities in built form, and differing relationship to DLSD. This differing relationship may provide an interesting secondary comparison for how the observed variables are distributed in comparison to the level of DLSD interaction a neighborhood has, but it is not the main focus of this analysis.

Moving from north to south, the first study area (SA1) is located in Rogers Park/Edgewater, spanning from Birchwood Avenue (7500 North) to Granville Avenue (6200 North). In this area, Sheridan Road takes the place of DLSD as the main north/south artery. There is development on both sides of it, leading to a much more pedestrian-friendly environment compared to DLSD. The second study area, Lakeview (SA2), stretches from Belle Plaine Avenue (4150 North) to Barry Avenue (3100 North). This area has full exits off of DLSD at the major streets on the North and South ends only, giving it a unique neighborhood core that is insulated from much of the on/off traffic of DLSD. The third and final study area is in Hyde Park/Kenwood (SA3). This area's lakefront has a uniquely curvy shape, with the parkland and street network bulging out into the water as one approaches 55th Street. The area itself ranges from 45th Street (4500 South) to 58th Street (5800 South). This area's interface level with DLSD is also quite unique, with a stoplight intersection at 57th Street and two, southbound-only freeway exits at 51st Street and 53rd Street.

All three study areas span about 1.5 miles in length and depth for the broader shape, with a generous margin on all sides due to the erratic borders of Census Block Groups. Within each of these shapes, three zones are created by moving inland from the edge of the lakefront greenspace half a mile each. The Census Block Groups captured within this quarter-mile radius

¹⁶³ U.S. Census Bureau, American Community Survey, 2022 American Community Survey 5-Year Estimates, generated by Parker Otto using data.census.gov, (accessed December 4, 2023), <<https://data.census.gov/cedsci/>>.

circle (distributed from the top to the bottom of the study area's span) make up the zones that will be used for this analysis. An example of these sketches depicting the process used to create SA1 is shown in Figure 12. Similar sketches for SA2 and SA3 can be found in the appendix at [L.a](#) and [L.b](#) respectively.

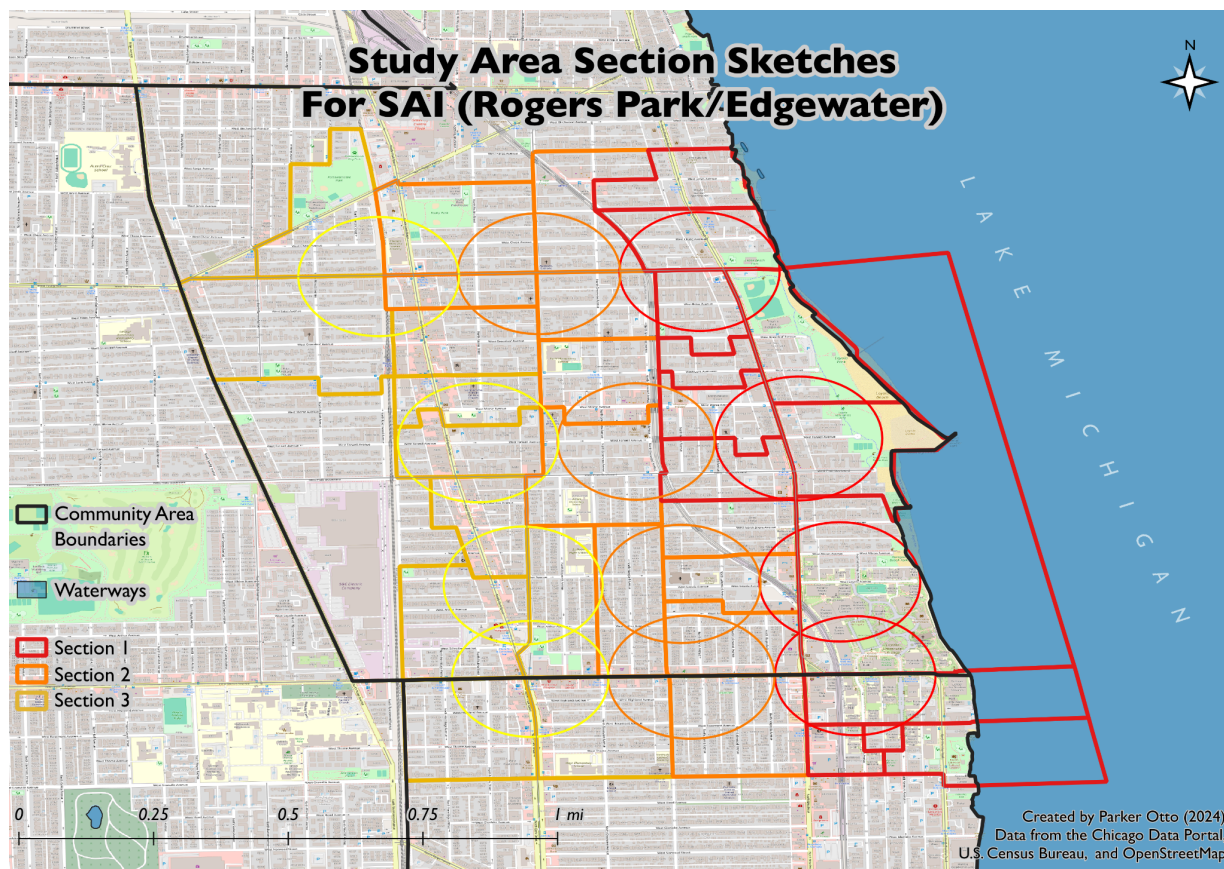


Figure 12: Study Area Section Sketch for Rogers Park/Edgewater

Within each of these Study Areas, variables were examined at two levels. The Study Area Section (SAS) level was the largest geographic unit used, spanning ~1.5 miles in north/south length and ~0.25 miles in westward width. Each Study Area contained a tripartite division consisting of combined Census Block Groups that resulted in 3 SASs numbered based on proximity to DLSD (with 1 being closest and 3 being furthest). For a diagram covering the creation of these units see the appendix. The second, more granular, geographic unit used for the

spatial analysis was the Census Block Group. These were analyzed within the boundaries of SASs but were not bound to neighboring values. They provided a much more nuanced look at variable distribution.

The study areas created by this process were used to create a series of maps and graphs with which any possible changes or trends in a neighborhood's livability within the study area can be observed. All visualizations were created using QGIS with the following layers being included to provide enhanced geographic context for ease of viewing: Chicago Community Area Boundaries, Chicago Waterways, and Chicago Major Streets.¹⁶⁴ The base map layer used OpenStreetMap Data available through the QGIS Quick Map Services plugin.

The population density data used in this critique comes from the 2022 5-year American Community Survey estimates.¹⁶⁵ I chose this data for my analysis because it was the most recent, reliable Census data available for public use at the Census Block Group level. The Walk, Bike, and Transit Scores were generated from walkscore.com and aggregated to the Block Group level for spatial analysis by inputting addresses located at each Block Group's center (which I obtained using the centroid tool in QGIS) to reverse-geocode its centroid coordinates.¹⁶⁶ After this manual data collection and aggregation, I used the resulting spatial data to determine each area's friendliness to multimodal transportation options in comparison to others around it.

I chose to use data from the service Walk Score because of its legibility, ease of access, and previously researched efficacy as "a reliable and valid tool" for measuring neighborhood

¹⁶⁴ City of Chicago, "Boundaries - Community Areas (current)," Chicago Data Portal, created Jan 6, 2013, updated Dec 12, 2023, <<https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-Community-Areas-current-/cauq-8yn6>> (Accessed January 24, 2024); City of Chicago, "Major Streets," Chicago Data Portal, updated August 28, 2011, <https://data.cityofchicago.org/Transportation/Major-Streets/ueqs-5wr6/about_data> (Accessed January 24, 2024); City of Chicago, "Waterways," Chicago Data Portal, updated December 12, 2023, <<https://data.cityofchicago.org/Parks-Recreation/Waterways/eg9f-z3t6>> (Accessed January 24, 2024).

¹⁶⁵ U.S. Census Bureau, American Community Survey, 2022 American Community Survey 5-Year Estimates, generated by Parker Otto using data.census.gov, <<https://data.census.gov/cedsci/>> (December 4, 2023).

¹⁶⁶ Walk Score, generated by Parker Otto using walkscore.com, <<https://walkscore.com>> (December 4, 2023).

walkability.¹⁶⁷ According to Walk Score’s methodology, any given address is assigned a score from 0–100 based on the walking distance to certain amenities. The amenities that Walk Score uses to rank its neighborhoods are schools, bars/restaurants, parks, grocery stores, shopping, errands, and centers of culture/entertainment.¹⁶⁸ By calculating the shortest walking distance between a given address and the closest establishment falling in any of the above categories, Walk Score assigns a grade to that address ranging from “Car-Dependent” to “Walker’s Paradise” on a scale that is defined in Figure 13.¹⁶⁹ To assign these points, Walk Score’s algorithm uses a decay function based on walking distance that grants maximum points in a category of the closest relevant amenity is within a 5-minute (0.25 mile) walk and 0 points once that amenity is located further away than a 30-minute (1.5 mile) walk.¹⁷⁰

Walk Score®	Description
90–100	Walker’s Paradise Daily errands do not require a car.
70–89	Very Walkable Most errands can be accomplished on foot.
50–69	Somewhat Walkable Some errands can be accomplished on foot.
25–49	Car-Dependent Most errands require a car.
0–24	Car-Dependent Almost all errands require a car.

Figure 13: The Walk Score Grading Scale.¹⁷¹

Bike Scores are calculated similarly, except instead of proximity to the errand-related amenities relevant to measuring WSc, it instead uses proximity to amenities that those on bikes find more convenient, covering bike lanes, hills, road connectivity to desirable destinations, and

¹⁶⁷ Lucas J. Carr, Shira I. Dunsiger, and Bess H. Marcus, “Validation of Walk Score for Estimating Access to Walkable Amenities,” *British Journal of Sports Medicine* 45, no. 14 (November 1, 2011): 1146, <https://doi.org/10.1136/bjism.2009.069609>.

¹⁶⁸ Walk Score, “Walk Score Methodology.”

¹⁶⁹ Walk Score, “Walk Score Methodology.”

¹⁷⁰ Walk Score, “Walk Score Methodology.”

¹⁷¹ Walk Score, “Walk Score Methodology.”

the bike-commuting mode share.¹⁷² While fewer overall variables go into calculating the 0–100 Bike Score (fig. 14), the methodology for assigning these scores is much more involved.¹⁷³ To determine an address’s score for bike lanes, their model uses OpenStreetMap to analyze every bike lane within a 1-kilometer radius of the origin, with shared paths (where bikes and cars are in the same lane) weighted at 1x, dedicated lanes weighted at 2x, and bike paths weighted at 3x.¹⁷⁴ To calculate destination connectivity, they use a distance-based model similar to that used for WSc.¹⁷⁵ They base their score for hills on the steepest grade within a 200-meter radius of the address according to national elevation data from the U.S. Geological Survey, with 0 points given to slopes steeper than 10% and full points for those under 2%.¹⁷⁶

Bike Score	Description
90–100	Biker's Paradise Daily errands can be accomplished on a bike.
70–89	Very Bikeable Biking is convenient for most trips.
50–69	Bikeable Some bike infrastructure.
0–49	Somewhat Bikeable Minimal bike infrastructure.

Figure 14: The Bike Score Grading Scale, chart from Walk Score.¹⁷⁷

Transit Scores take into account multiple variables including transit type (i.e. bus, light rail, metro, etc.), stop spacing, and frequency.¹⁷⁸ To determine the raw value of a transit route, they first multiply the service level (in weekly frequency) by mode weight (2x for rail, 1.5x for ferries, cable cars, and other miscellaneous modes, and 1x for bus) and then multiply that number by the result of a similar decay function to the one used for WSc based on the distance from a

¹⁷² Walk Score, “Bike Score Methodology,” accessed April 5, 2024, <https://www.walkscore.com/bike-score-methodology.shtml>.

¹⁷³ Walk Score, “Bike Score Methodology.”

¹⁷⁴ Walk Score, “Bike Score Methodology.”

¹⁷⁵ Walk Score, “Bike Score Methodology.”

¹⁷⁶ Walk Score, “Bike Score Methodology.”

¹⁷⁷ Walk Score, “Bike Score Methodology.”

¹⁷⁸ Walk Score, “Transit Score Methodology,” accessed April 5, 2024, <https://www.walkscore.com/transit-score-methodology.shtml>.

given address to the nearest transit stop on that route.¹⁷⁹ The grading scale for Transit Scores is depicted in Figure 15.¹⁸⁰

Overall, after aggregating all of these to the Census Block Group level, an average score was calculated and spatially observed to determine a Block Group's friendliness toward multimodality. I hypothesized that, while density would increase, walkability, bikeability, and transit access would all decrease as a study area gets closer to DLSD, leaving the areas closest to the freeway less livable than those further away. For the Census data and walk/bike/transit scores, these trends were mapped directly. All of these maps—save the examples relevant to data and methodology construction—along with the accompanying spatial analysis are present in the Results and Analysis section.

Transit Score®	Description
90-100	Rider's Paradise World-class public transportation.
70-89	Excellent Transit Transit is convenient for most trips.
50-69	Good Transit Many nearby public transportation options.
25-49	Some Transit A few nearby public transportation options.
0-24	Minimal Transit It is possible to get on a bus.

Figure 15: The Transit Score Grading Scale¹⁸¹

ii. DLSD and Lakefront Inaccessibility

DLSD is a roadway without a singular identity. In The Loop it has sidewalks and stop lights, in Lakeview its footprint narrows and its path hugs tight to the community's edge, and in Kenwood, its grade separations and soft curves are those of a typical freeway. The nuanced nature of roadways like this across humanity's habitats has been brought to light in the

¹⁷⁹ Walk Score, "Transit Score Methodology."

¹⁸⁰ Walk Score, "Transit Score Methodology."

¹⁸¹ Walk Score, "Transit Score Methodology."

postmodern planning world through the New Urbanist urban/rural Transect. There is perhaps nowhere else in Chicago more deserving of this scrutiny than DLSD. While Chicago's lakefront densities and building stocks do change, they often maintain similar transect codes as discussed previously in the literature review. Despite this, DLSD's changing morphologies emphasize stark violations of the Transect theory as its form as it, despite being somewhat better in certain places, consistently perpetuates the high speeds, wide lanes, and limited access hallmarks of an urban freeway. For this second exploration of DLSD's impact on livability, the framework set forth by *The Lexicon of the New Urbanism* and its companion *Complete Streets Module* was used to classify DLSD's morphologies as it snakes through the city's lakefront.¹⁸² To do this, the locations of DLSD crossings were chosen to compare the roadway to theoretical examples present in the literature. Once these were located, the features of both the roadway and the surrounding built environment at the given point were analyzed to determine DLSD's roadway morphology.

With the lakefront being Chicago's crown jewel and the city's historic declaration that the shoreline shall remain "forever open, clear, and free," accessibility to the network of parks and beaches by the public should be a top priority. It is common knowledge that crossing a freeway is far less pleasant than a neighborhood street, and the previous Transect analysis found that there are large swaths of land that are unsafe, inconvenient, or utterly impossible to cross outside of official bridges and tunnels. One can travel for half a mile or more before reaching a street that does not terminate at a dead end because of this wall-like roadway. This project's second methodological approach builds on this observation through the spatial exploration and visualization of the extent to which Chicago's lakefront parkland is locked behind DLSD. I

¹⁸² Robert Davis, Andres Duany, and Elizabeth Plater-Zyberk, "Lexicon"; Duany Plater-Zyberk & Co. et al., *Complete Streets Module*.

hypothesized that the spatial distribution of DLSD crossing points leaves portions of the lakefront inaccessible to many users due to large distances between crossings. I also expected to see these coverage areas decrease even further for residents of the South Side.

To conduct this analysis, I used QGIS to create a point layer displaying all crossings on DLSD. These points were plotted by hand by cross-referencing locations with Google Maps. Once the crossings were identified, a pedestrian walking isochrone analysis was undertaken to assess the spatial coverage of access to each crossing. The analysis used a series of isochrones calculated through the QGIS plugin OpenTripPlanner to simulate areas that pedestrians could reach within 5, 10, and 15-minute walks (which are usually attributed to 0.25 and 0.5 miles respectively).¹⁸³ The benefit of using isochrones over traditional distance-based circle buffers is that the former takes into account pedestrian paths and other infrastructure to make the walkshed more accurate, as opposed to the as-the-crow-flies method of the latter. Each isochrone was then placed in context with the greater lakefront area through several maps present in the Results and Analysis section. With the distribution of walksheds for providing coverage for lakefront users proving inadequate through these maps, this critique of DLSD's form provides an excellent segue into this project's vision to transform the roadway into a Transect-sensitive, livability-promoting, crossing-accessible boulevard.

iii. Overcoming Limitations

The main limitation of the methodologies used in this project centers around the choice of variables. Namely, the testing of quantifiable livability through a select few values (multimodality and population density). While these three variables are incredibly important tenets of New Urbanism as previously explored, they do not constitute all that is important to New Urbanists nor are they an all-encompassing measure of livability. While I would be able to

¹⁸³ OTP, "OpenTripPlanner 2."

provide far more definitive answers on whether livability values increase with distance from DLSD by testing for *every* variable put forth by CNU, to do so thoroughly within the bounds of a BA Thesis is—at the very least—unadvisable (if not impossible) given their sheer volume. As such, the main arguments that all factions of New Urbanists tend to agree on (density and multimodality) are explored through these specific lenses to keep the scope of analysis manageable. Despite not covering everything, the chosen variables are still valid arguments for New Urbanist principles and, under this academic scrutiny, should be able to provide an idea of how broader livability change may function on Chicago's lakefront. It also serves as a starting point for additional, similar research to be conducted featuring different variables.

V. Results and Analysis

How does livability at the neighborhood level change depending on how close it is to DLSD? How accessible are the lakefront parks for people on foot? To try and answer these questions I will present my results and analysis for each variable as it relates to livability across all of the study areas in the following pages. Each map is being used to search for spatial patterns for future research to explore, rather than statistical significance.

After gathering, cleaning, and visualizing the data, a series of visual summaries was produced to make it easy to compare changes in livability not just as distance from DLSD increased within one particular group, but also how the overall trends across the study areas compared to each other. Each summary has a consistent legend and data classification across study areas, and will be placed directly before the analysis of each variable so that they are close to the relevant prose and can be easily referenced.

i. Lakefront Neighborhood Population Density and DLSD/Lakefront Distance

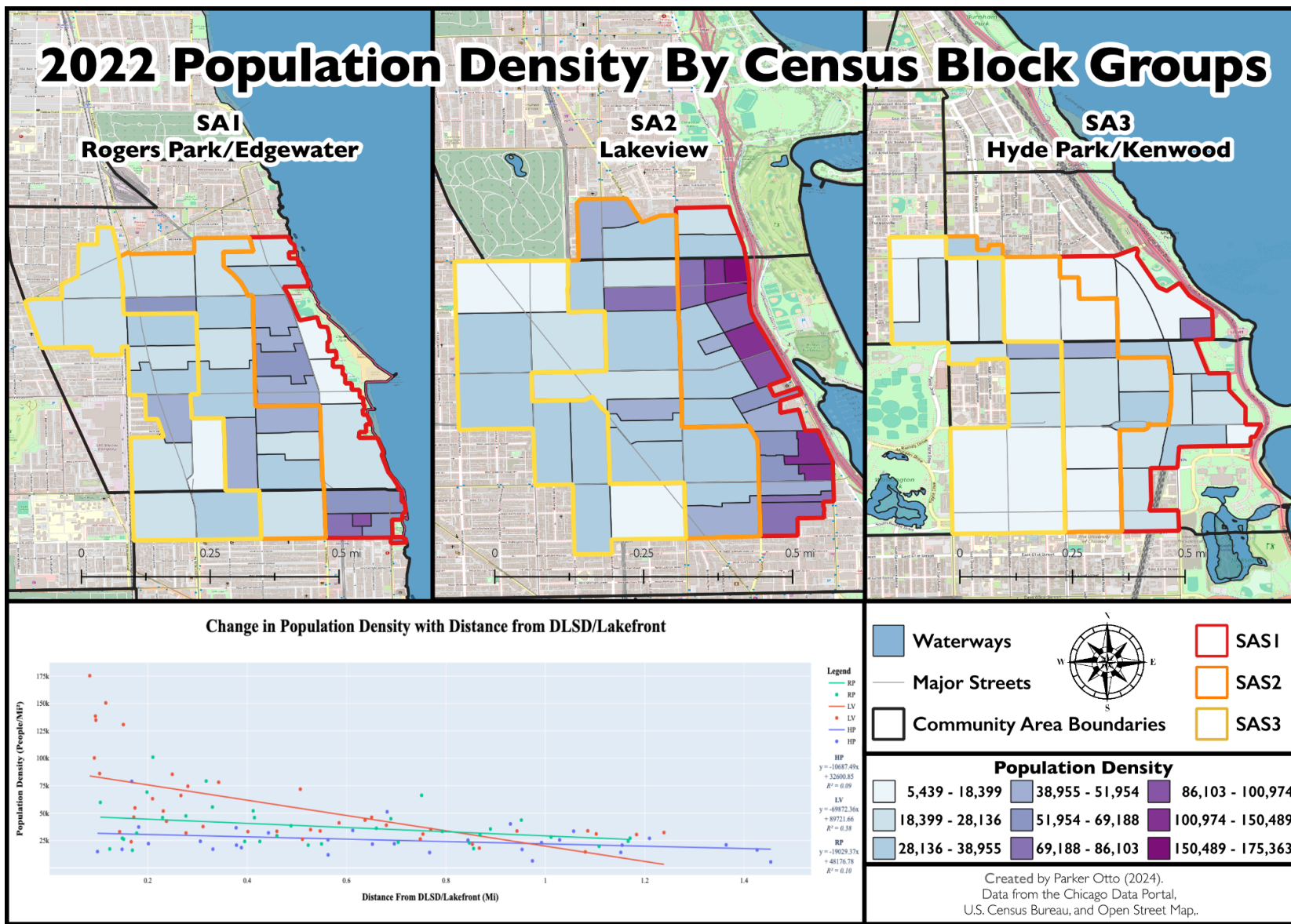


Figure 16a: Summary of Population Density and DLSD/Lakefront Distance Data.

Figure 16b: Graphed Change in Population Density with Distance from DLSD/Lakefront.

Figures 16a and 16b revolve around the distribution of population density as an aspect of livability based on how far from DLSD/the lakefront a Census Block Group and study area is. I initially hypothesized that density would decrease along with distance, given the larger presence of single-family homes and other low-density uses further inland. As fig. 16a shows, the map of SA2 is most in support of this claim, while those of SA1 and SA3 show clusters of high density Block Groups spread across each study area. SA1 shows a near-nonexistent change in density with distance, but does show a cluster of high-density Block Groups near Loyola University in the southeast corner. SA2 has the largest density decline with distance, which may be correlated with the westward shift in the built environment from a Transect T-6, highrise-packed lakefront to more low-rise T-5 and T-4 urban areas inland (see fig. 11).¹⁸⁴ SA3, on the other hand, shows a small decrease in density with distance, with an extension of relatively dense Block Groups in the central area moving westward from the lakefront, leaving pockets of low density to the north and south. However, an outright correlation between density and distance from the lakefront/DLSD cannot be determined based on visual interpretation of each map alone (especially in the case of SA1 and SA3).

In fig. 16b, the Block Group density data was plotted and each area assigned a trendline (SA1 in green, SA2 in red, and SA3 in blue). The spatial patterns previously observed in fig. 16a appear to hold, with density roughly decreasing as lakefront distance increases. These are further reaffirmed by the means and medians of block group population density contained within each study area section boundary (SAS1-3 in fig. 16a), as plotted in maps under [Appendix Section II](#). These show that the mean and median population density within each study area section tends to be higher in Section 1 (closest to the lakefront), moderate in Section 2, and low in Section 3.

¹⁸⁴ Google Earth Pro. "Lakeview 3D View." Accessed May 5, 2024.
<https://www.google.com/maps/@41.9243455,-87.6422016,2019a,35y,38.9t/data=!3m1!1e3?entry=ttu>.

Ultimately, however, the trends shown in fig. 16b are not strong enough to imply any correlation between population density and distance from the lakefront/DLSD. While population density does decrease overall across study areas, the rate at which density decreases is vastly different in each. Additionally, the presence of clusters shown in fig. 16a near Loyola University for SA1 and along 53rd Street in SA3 suggest that outside variables are likely influencing the data. As such, more advanced methodology focused on identifying and controlling these confounding variables is required to determine any correlation between population density and lakefront distance.

b. Lakefront Neighborhood Walkability and DLSD/Lakefront Distance

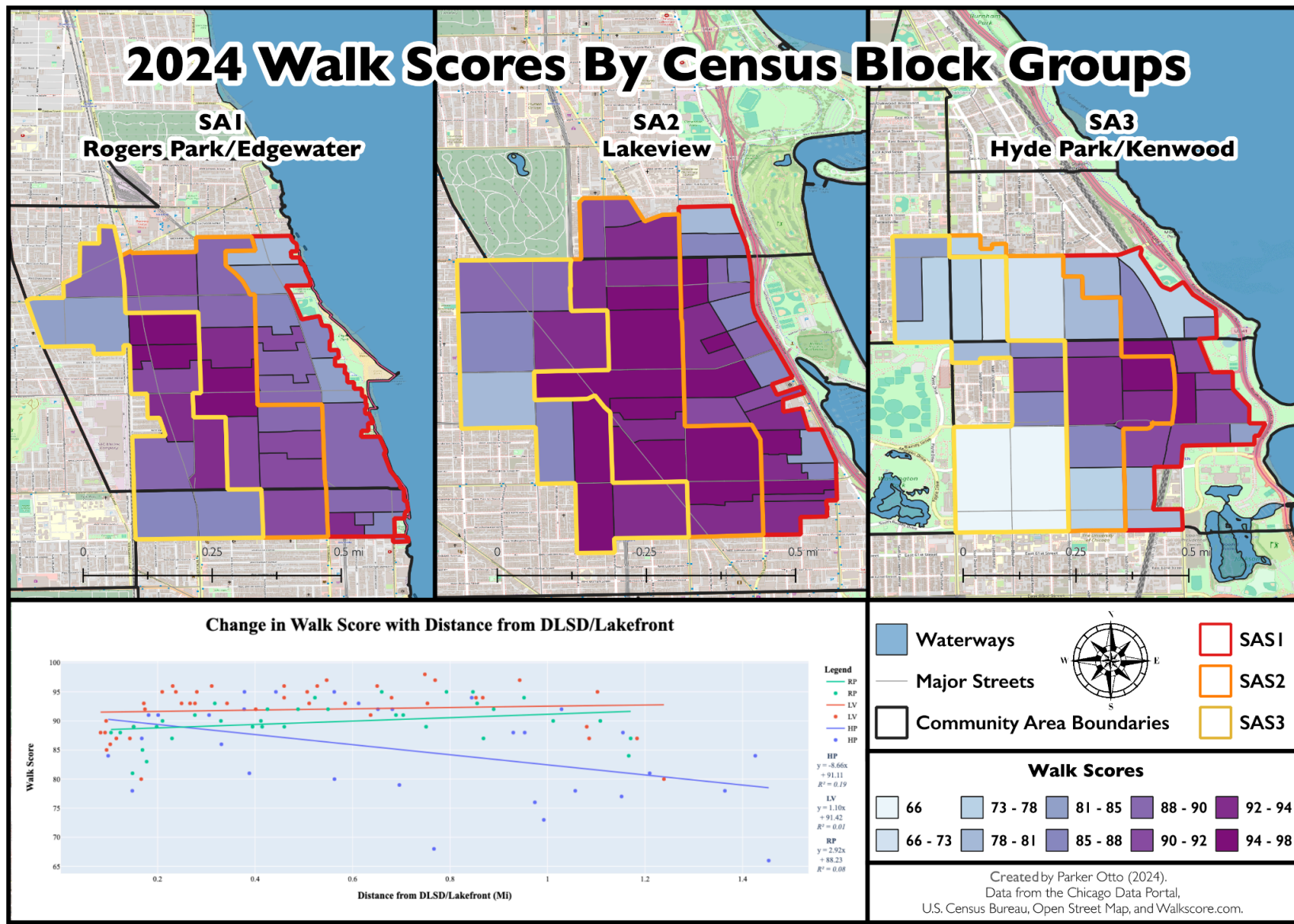


Figure 17a: Summary Maps of Walkability (A.K.A WSc or, Here Only, Walk Score) and DLSD/Lakefront Distance Data.
Figure 17b: Graphed Change in Walkability with Distance from DLSD/Lakefront.

The maps in Figure 17a and table in Figure 17b are used to explore the walkability (WSc) of each study area. My initial hypothesis was that Block Groups would be more walkable as distance from DLSD increased. The maps presented in fig. 17a do not completely support that initial hypothesis. Instead, it shows different values depending on the area, with SA3 showing a decrease in walkability with distance, SA2 barely increasing, and SA1 showing a larger, but still quite small increase along with distance from the lakefront. SA1 shows a cluster of very walkable Block Groups at its core, while SA3 exhibits the same phenomena with far greater intensity. Interestingly, the clustering of high WSc in SA1 and SA3 is difficult to discern from the chart in fig. 17b, emphasizing the usefulness of these maps for uncovering patterns. One possible explanation for this observation comes from SA3's developmental history. Much of SA3's built environment was demolished due to the perceived "blight" that followed increased density in the decades after 1950, with target areas moving westward from the Illinois Central Railroad (now Metra) tracks at Lake Park.¹⁸⁵ Many businesses were uprooted, residents displaced, and even the streets were rerouted, creating an environment that favored cars over pedestrians.¹⁸⁶ The areas that were not as touched by the renewal projects were located eastward, which still have the dense and diverse built environment that makes neighborhoods walkable and, consequently, more livable. These findings are also reflected in the variables' means and medians at the study area section level, with higher WSc inland in SA1 and SA2, but not SA3 (see [Appendix III](#) for maps). While the patterns and trends displayed by figs. 17a and 17b are

¹⁸⁵ South East Chicago Commission, *Composite of Blight Factors: Map 11* (The Hanna Holborn Gray Special Collections Research Center: South East Chicago Commission, 1954), The Hanna Holborn Gray Special Collections Research Center, <https://www.lib.uchicago.edu/collex/exhibits/university-chicago-centennial-catalogues/university-and-city-centennial-view-university-chicago/university-neighborhood/renewal-and-revival/>.

¹⁸⁶ Community Conservation Board: Central Hyde Park, *The Hyde Park Urban Renewal Plan, as of December 1960*, 1960, Hyde Park Kenwood Community Conference, <https://www.hydeparkhistory.org/urban-renewal-maps>.

interesting, more advanced methodology is required to establish a correlation between distance and WSc.

Upon closer inspection of the chart in fig. 17b, however, there appears to be a pattern of rapidly increasing WSc for the Block Groups located closest (< 0.2 miles) from the lakefront across study areas. This may have to do with the way that WSc is calculated and the types of development that DLSD promotes. As was previously established in the data/methods section, WSc is based entirely on distance to certain amenities.¹⁸⁷ One possible explanation for the lack of these amenities causing these sharp decreases is the inherently residential nature of Inner DLSD. As the frontage street (Inner Lake Shore Drive) is sandwiched between DLSD and lakefront highrises, it does not create an environment that would be friendly to the kinds of amenities that the Walk Score service relies on for its calculations (such as bars, restaurants, grocery stores, post offices, and more commercial real estate).¹⁸⁸ DLSD also, as will be shown in later analysis of the DLSD crossing accessibility maps, inflates the raw walk-time to access the only system of parks most of these neighborhoods have—as their algorithm takes into account the need to walk at times up to a quarter mile north, across a freeway entrance/exit ramp, and then another quarter mile south just to reach the park directly across from the origin point.

¹⁸⁷ Walk Score, “Walk Score Methodology.”

¹⁸⁸ Walk Score, “Walk Score Methodology.”

c. Lakefront Neighborhood Bikeability and DLSD/Lakefront Distance

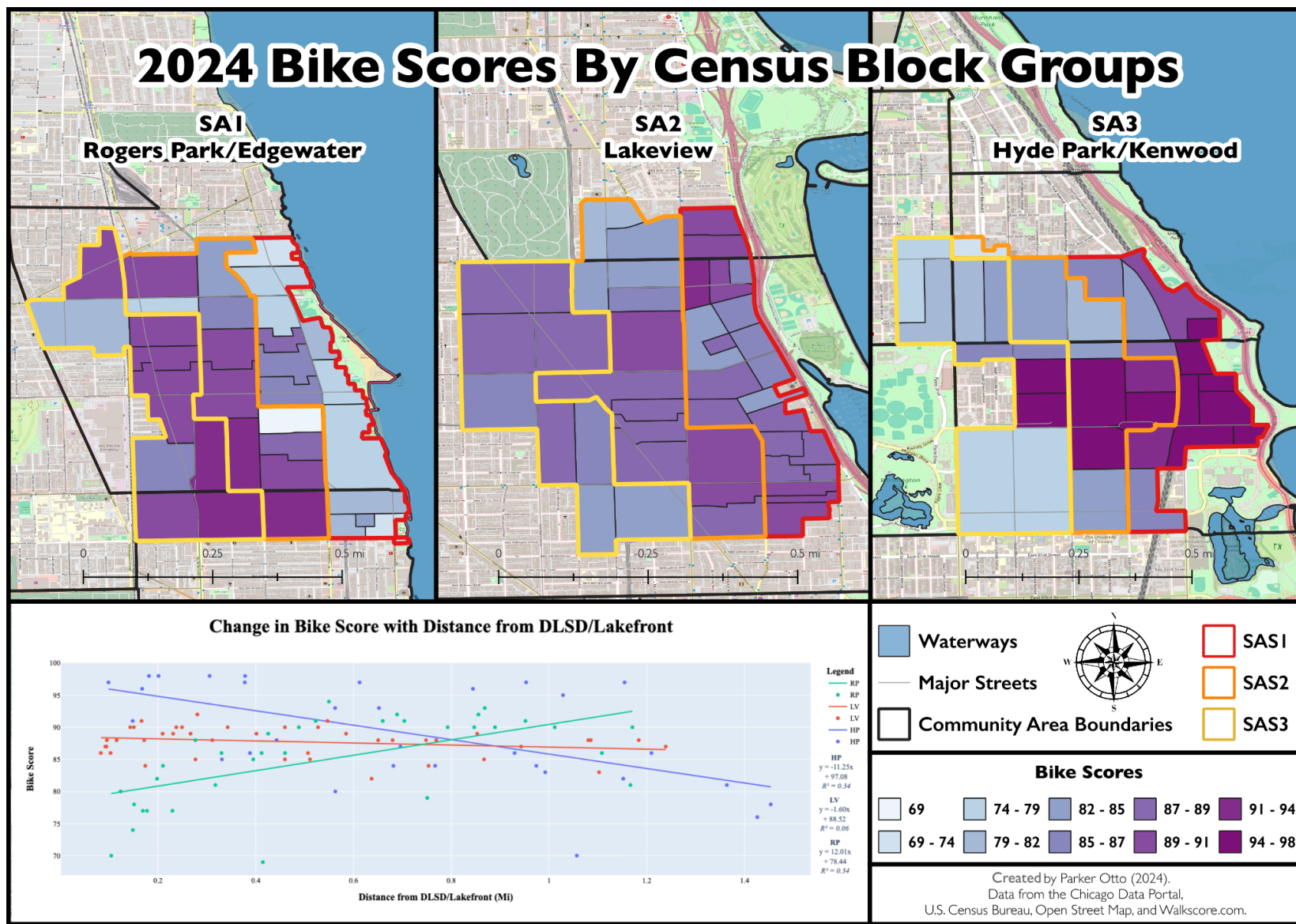


Figure 18a: Summary Maps of Bikeability (A.K.A. Bike Score or BSc) and DLSD/Lakefront Distance Data.

Figure 18b: Graphed Change in Bikeability with Distance from DLSD/Lakefront.

The maps in Figure 18a and table in Figure 18b are used to explore the bikeability (BSc) of each study area. Similarly to the previous variable of walkability, I hypothesized that bikeability (BSc) would increase along with distance from DLSD. However, as the data shows in Figures 18a and 18b, the trends are much more complex. The maps in Figure 18a show decreases in BSc with distance in SA2 and SA3 with a substantial increasing trend in SA1. Thus, with BSc, a potential trend that could be unique to neighborhoods bordering DLSD emerges. SA1 was chosen as a way to differentiate between trends in areas that border DLSD and those that do not. However, there is also a good reason to explain this observation. The famous Lakefront Trail bike path spans the entire length of DLSD, terminating alongside the freeway at Hollywood Avenue.¹⁸⁹ Its route largely follows DLSD and relies on the dredged parkland area for its right of way.¹⁹⁰ Due to the way BSc is calculated by the Walk Score service, fully separated routes like this one are weighted much higher than the commonly found “sharrows” (places where cars and bikes share a lane, commonly depicted by a bike symbol and arrow on the pavement) on many streets further inland.¹⁹¹ The main counter to this trend is shown above with the high-scoring 55th Street bike corridor being clearly visible in SA3 due to its protected bike lane. These findings are supported by the BSc means and medians at the study area section level, too, which show low values for lakefront BSc in SA1 and high ones at comparable distances from DLSD in SA2 and SA3 (see [Appendix IV](#) for maps).

SA2 as seen in fig. 17a also highlights an interesting pattern in BSc distribution, with the interior Block Groups bordering DLSD showing lower scores than those at the north and south ends. While there is a pedestrian underpass that leads to the bike path on the other side, the Walk

¹⁸⁹ City of Chicago, “Chicago Bike Map,” Chicago, IL: City of Chicago, 2023, https://www.chicago.gov/content/dam/city/sites/complete-streets/pdfs/2023ChicagoBikeMap_web.pdf.

¹⁹⁰ City of Chicago, “Chicago Bike Map”; Neal Samors and Bernard Judge, *Lake Shore Drive*.

¹⁹¹ City of Chicago, “Chicago Bike Map.”

Score service may interpret this type of crossing as more difficult for cyclists and, thus, assign areas near it lower scores than those with direct trail access like on Irving Park Road.¹⁹² Additionally, the cluster of low BSc values in the center of SA2 is located nearby areas shown in fig.15.a to have high population densities is co-located with an area that has low BSc, thus lowering a key metric to livability in one of the places that, according to the New Urbanist theory, needs it most.¹⁹³

Interestingly, similar to what was seen with plotted WSc points in fig. 16.b, fig. 17b appears to show a rapid uptick in BSc in SA1 and SA2 as distance from the lakefront approaches 0.2 miles inland. The appearance of this pattern between both WSc and BSc suggests that this scale may provide more significant results regarding WSc and BSc's relationship to lakefront distance, albeit at a much smaller scale than originally envisioned by this research. To understand whether that trend truly exists, or is just a product of these visualizations, however, is a potential topic for future research.

¹⁹² Walk Score, "Bike Score Methodology."

¹⁹³ Sabina Shaikh and Emily Talen, *Our Urban Future*, 63.

d. Lakefront Neighborhood Transit Access and DLSD/Lakefront Distance

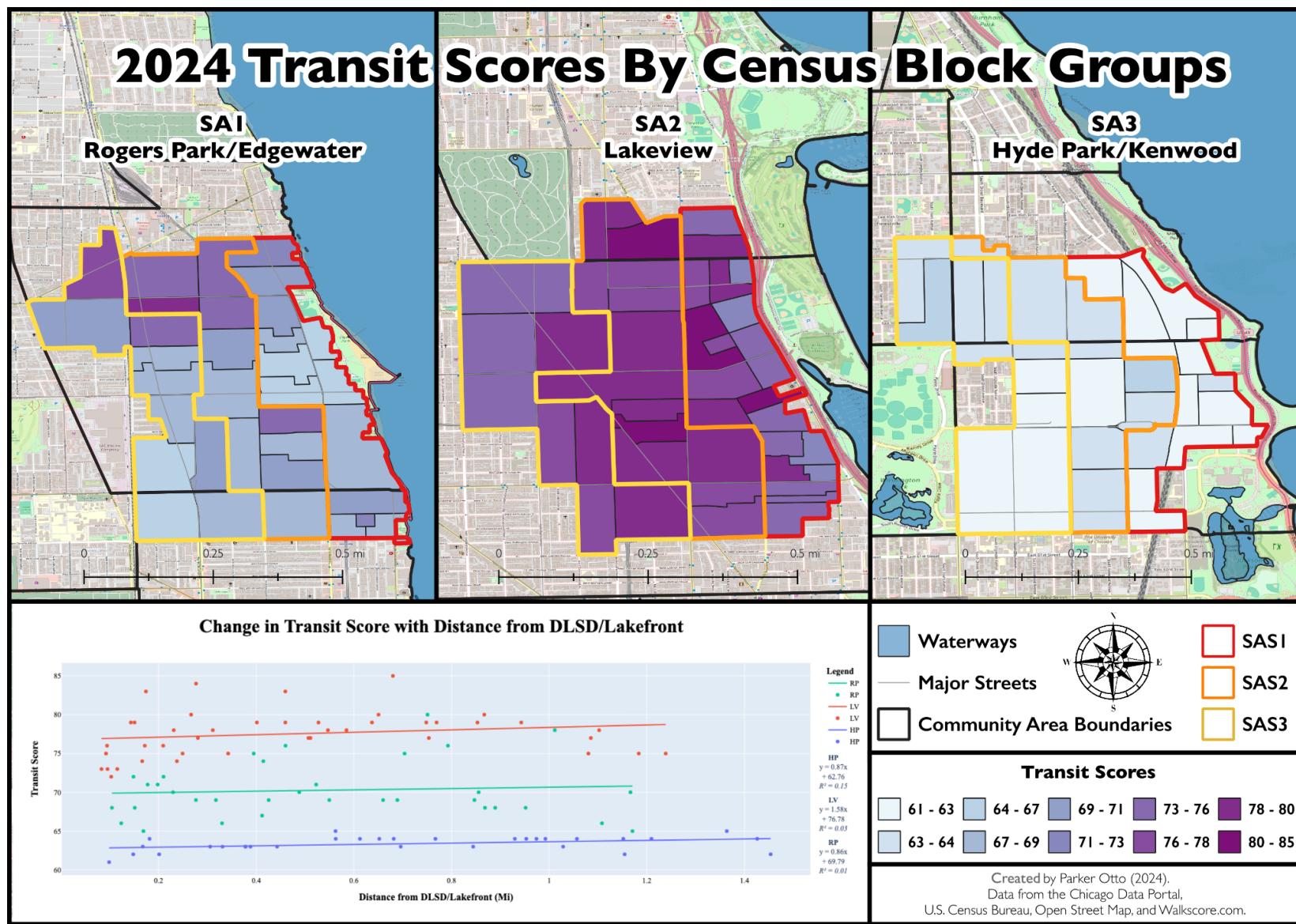


Figure 19a: Summary Maps of Transit Access (A.K.A. Transit Score or TSc) and DLSD/Lakefront Distance Data.

Figure 19b: Change in Transit Access with Distance from DLSD/Lakefront.

The maps in Figure 19a and table in Figure 19b are used to explore the transit access (TSc) of each study area. I hypothesized that, similar to the former two variables based on the Walk Score service, TSc would increase with distance from DLSD. In fig. 19a, the range of scores is incredibly prevalent, suggesting that SA1 and SA3 have far worse transit access than SA2. The stratification of trend lines and points in fig. 19b tells a similar story, with SA3 scoring far worse in TSc than SA1 and even worse so than SA2. The data in fig.19b also hints at a pattern of slight increases in TSc with distance from the lakefront. This pattern could possibly be related to the presence of rail transit corridors (the Red/Purple lines in SA1/2, and the Metra Electric District in SA3) located further inland.¹⁹⁴ The consistency of the increase could also speak to why this trend is seen in all study areas regardless of DLSD's presence.

When it comes to the TSc calculations that the Walk Score service uses, there is a possibility that transit access in SA1 and SA3 is undervalued, leading to lower TSc. This is because the calculation weights rail 2x higher than buses, which may lead to the undervaluing of many express bus networks present along the DLSD corridor (like the #6 and #146) that would otherwise be considered perfectly viable and convenient alternatives to rail.¹⁹⁵ Another potential factor impacting TSc on the lakefront could be the very thing that makes these express services so effective: their lack of stops. Walk Score uses a decay function as part of its calculation for whether a transit mode is more or less viable.¹⁹⁶ Thus, an express bus that only stops in one place at the very edge of the study area, completely bypassing the rest of the community, could play a role in the way TSc is distributed for bus lines when compared to more traditional examples (such as the #8 Halsted) that have stops at nearly every block further inland. SA3 does

¹⁹⁴ RTA, *Regional Transportation Authority System Map* (Chicago, IL: RTA, January 2023), <https://www.rtachicago.org/uploads/files/general/RTA-System-Map.pdf>; Walk Score, "Transit Score Methodology."

¹⁹⁵ Walk Score, "Transit Score Methodology."

¹⁹⁶ Walk Score, "Transit Score Methodology."

have such a bus in the CTA #10, which only stops at the Museum of Science and Industry before running express to The Loop¹⁹⁷ This devaluation of bus routes may be responsible for SA3's exceptionally low TSc values, as the neighborhood is served almost entirely by a network of buses in comparison to the 24/7 'L' service across multiple lines at the cores of SA1 and SA2.¹⁹⁸

The effect of rail transportation on TSc is highlighted extremely well with the means and medians of TSc per study area section (see [Appendix V](#) for maps). In each study area, the high values for both medians and means across study areas follow the rail corridors, leaving both the inland SAS3 and lakefront SAS1 sections as lows compared to SAS2. Interestingly, in SA3 the heightened TSc mean/median values are located on the western side of the Metra Electric District Tracks ([appx. V.c](#)). This may be a result of a local bus corridor padding TSc west of the tracks with its additional north/south, high-frequency routes on Lake Park Avenue including the #28 and #15. A similar bus corridor exists in to the east, too, on Hyde Park Boulevard, but that section is only served consistently by the #6 bus (with rush hour padding by the #28 rush hour Union Station express reroute).¹⁹⁹

With a closer look at the TSc data as plotted in fig. 19.b, a familiar pattern again begins to take shape. Just like what had been observed in fig. 18.b for BSc and fig. 17.b for WSc, there appears to be a rapid increase in TSc within each study area as Block Groups approach 0.2 miles inland from the lake. In this case, the point pattern is much more faint, but with knowledge of the WSc and BSc point patterns occurring in a similar range, there appears to be an emerging trend between multimodal livability variables and their distance from DLSD and the lakefront within 0.2 miles (322 meters). Recalling previously discussed literature on potential public health outcomes surrounding close proximity international urban expressways, several

¹⁹⁷ RTA, *Regional Transportation Authority System Map*.

¹⁹⁸ RTA, *Regional Transportation Authority System Map*.

¹⁹⁹ RTA, *Regional Transportation Authority System Map*.

researchers have placed the range of impact within this 0 to ~300 meter range.²⁰⁰ While the methodology undertaken by this research has not been able to draw substantial conclusions between WSc, BSc, TSc and distance from the lakefront, the data appears to suggest that there may still be a correlation between these variables of livability and distance from DLSD. Future researchers may wish to explore this observed pattern further using more sophisticated methods and a smaller analysis scale.

ii. DLSD Crossing Accessibility

Between every Chicagoan and the city's beloved lakefront parks and beaches, there is one boundary all have to overcome: DLSD. Whether it be by tunnel, bridge, or a walk across a minimum of 8 traffic lanes, more than 35.3 million people cross DLSD every single day including 21,000 at Oak Street, 9,000 at Ohio Street, and 8,000 at Division Street just on the North Side.²⁰¹ With the crossings of DLSD seeing such widespread use, this research seeks to understand how accessible the lakefront parks actually are. After all, a cornerstone of having a livable lakefront neighborhood is being able to access that namesake amenity in the first place.

The following pages contain three maps that seek to illustrate how time-consuming it may be to reach the lakefront parks from any given point on the western side of DLSD. Figure 20 shows places in Chicago that are within a 5-minute walk of an official DLSD crossing (bridge, tunnel, or crosswalk). Similarly, Figure 21 displays the same concept, but for a 10-minute walk. Figure 22 depicts coverage for a 15-minute walk. All areas contained inside the given shaded region can walk to a crossing point (red dot) within the allotted time for each

²⁰⁰ Gabe Samuels and Yonah Freemark, "The Polluted Life Near the Highway: A Review of National Scholarship and a Louisville Case Study," The Urban Institute, November 2022, <https://www.urban.org/research/publication/polluted-life-near-highway>; Doug Brugge, John L. Durant, and Christine Rioux, "Near-Highway Pollutants in Motor Vehicle Exhaust: A Review of Epidemiologic Evidence of Cardiac and Pulmonary Health Risks," *Environmental Health* 6, no. 1 (December 2007): 1–12, <https://doi.org/10.1186/1476-069X-6-23>; Tegan K. Boehmer et al., "Residential Proximity to Major Highways - United States, 2010," *MMWR Supplements* 62, no. 3 (November 22, 2013): 46–50.

²⁰¹ Redefine The Drive, "Purpose and Need Statement," 23–24.

map, as calculated by the OpenTripPlanner walking isochrone plugin for QGIS.²⁰² This open source tool allows for a much more realistic analysis of potential routes than a traditional circular walkshed, as it takes into account valid walking paths like sidewalks or trails.

Initially, I hypothesized that the current distribution of points to cross DLSD would be inadequate in that there would be gaps on the lakefront where Chicagoans could not reach a crossing within a 5-15 minute walk. Before analyzing any of the walking coverage areas, the general spatial distribution of crossing points shown in fig. 21 illustrates a clear imbalance between the city's North Side and South Side. Crossings from DLSD's terminus at Hollywood Avenue to Irving Park Road (the north end of SA2) appear to be spaced about every quarter mile (2 blocks) apart. By contrast, crossings on the South Side are spaced about half a mile (4 blocks) apart and large bridge crossings, which were constructed in the last 10 years to replace their near-century old counterparts, are located at 35th, 41st, and 43rd Streets. In line with my hypothesis, the 5-minute accessibility coverage depicted in fig. 20 is sparse. On the North Side, one large gap exists, but it is caused by DLSD's path on a narrow peninsula at Diversey Harbor which requires a long walk through Lincoln Park to get to. Figure 21 shows what appears to be improvements at the 10-minute scale, but while the North Side's coverage areas begin to significantly overlap with each other, the South Side's are slower to do so, except in Hyde Park. Figure 22 shows that the last gap (near the Stevenson Expressway interchange) has closed, indicating that it is one of the furthest locations bordering DLSD from a crossing.

²⁰² OTP, "OpenTripPlanner 2," Open Source Trip Planner, OpenTripPlanner 2, 2023, <https://docs.opentripplanner.org/en/latest/>.

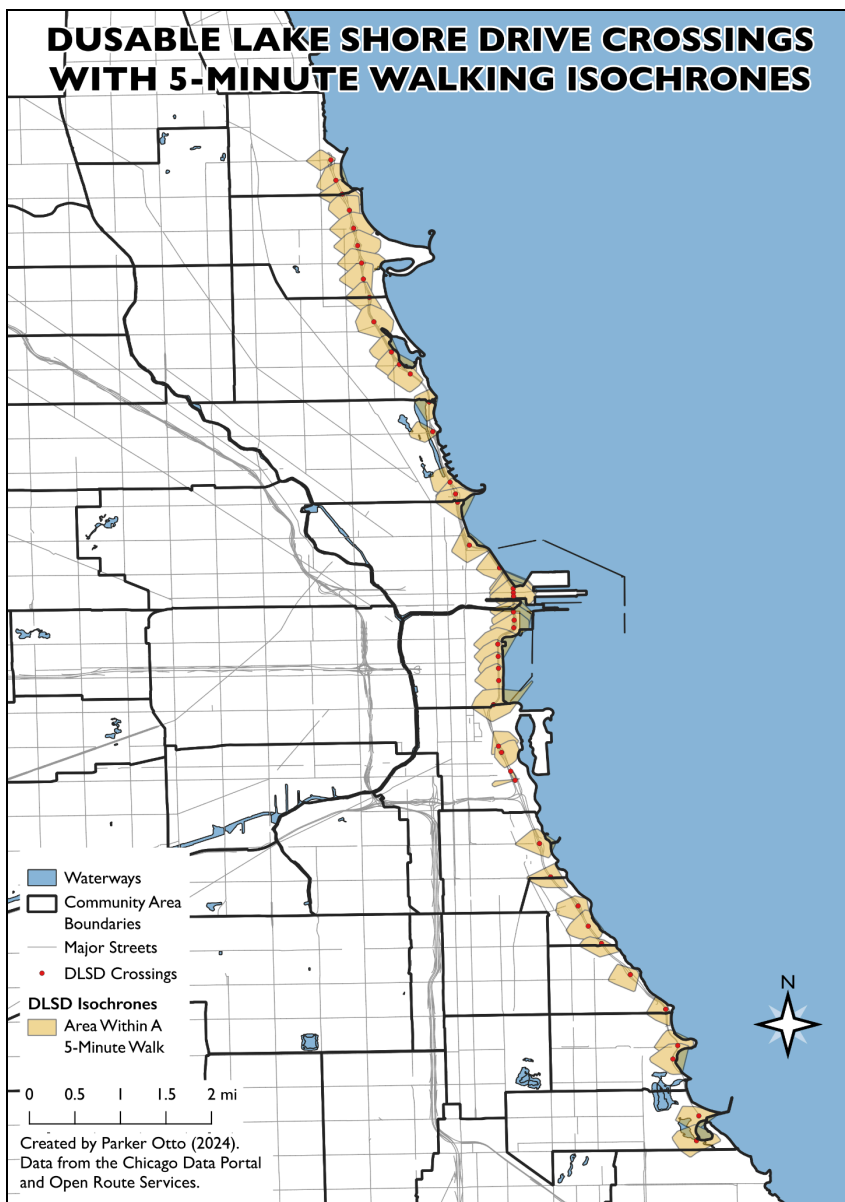


Figure 20: Areas Within a 5-Minute Walk of a DLSD Crossing.

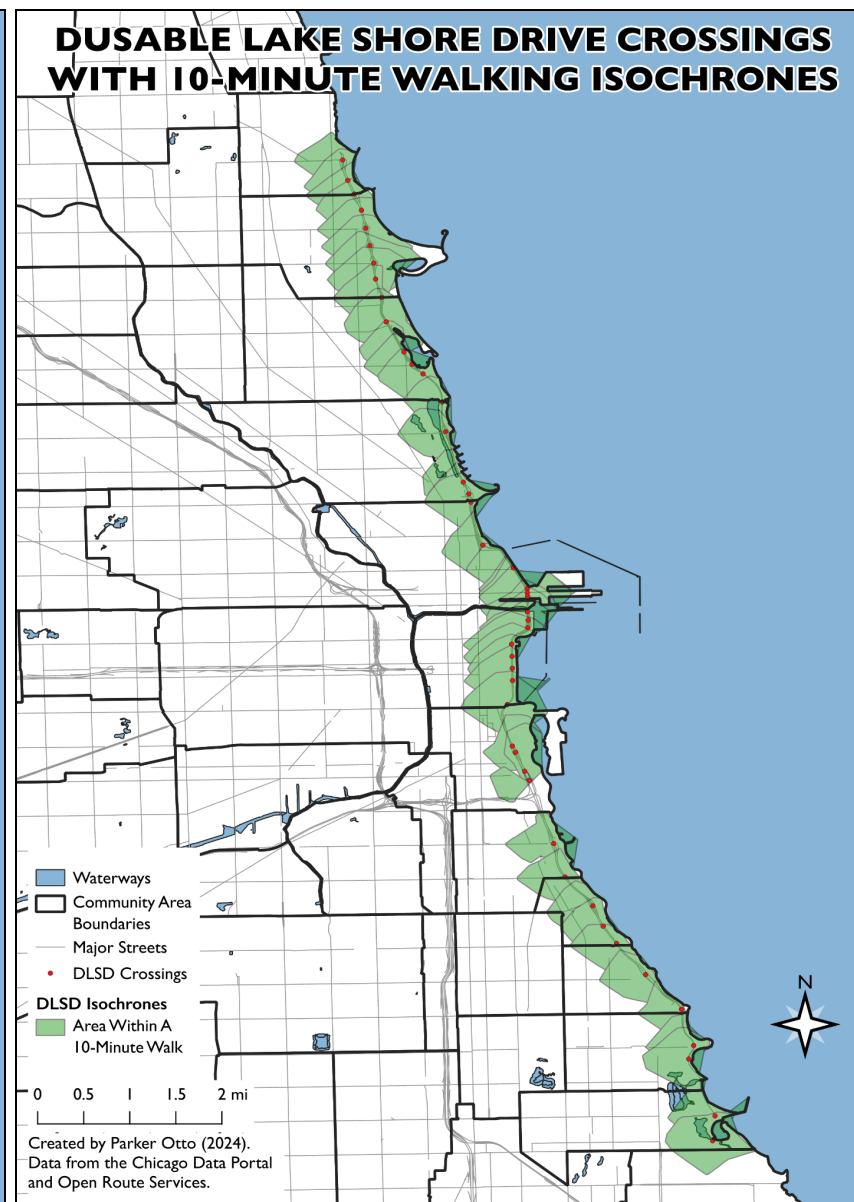


Figure 21: Areas Within a 10-Minute Walk of a DLSD Crossing.

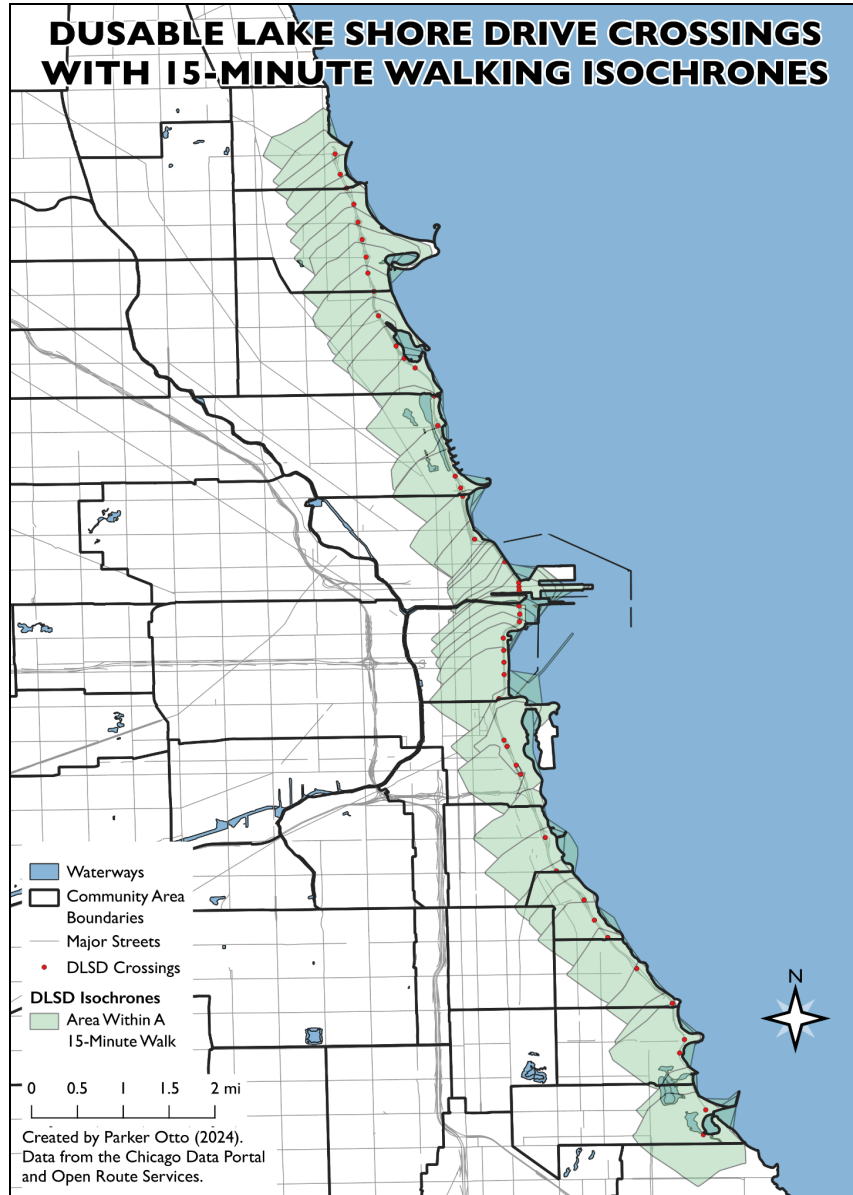


Figure 22: Areas Within a 15-Minute Walk of a DLSD Crossing.

The accessibility data for DLSD’s crossings reveals a stark reality: many South Side residents living on the lakefront face an inequitable barrier in accessing their lakefront spaces quickly and conveniently. Unlike their counterparts on the North Side, they contend with crossings spaced twice as far apart, severely limiting their options if a tunnel floods or a bridge closes. While a 10-minute detour may pose little inconvenience to some, it presents a significant disparity in convenience for South Siders.

Crossing DLSD itself has become an increasingly difficult task as a result of flooding, construction, and deterioration. In their survey of crossing infrastructure on the northern section of DLSD, the highway engineers at Redefine the Drive found that many underpasses flooded during rain, only 5 of 25 crossings were ADA compliant, and only 3 were considered in good, structural condition.²⁰³ On the other hand, the South Side has seen recent investment in large pedestrian bridges over DLSD and the Metra Electric District main line that are up to modern safety standards and ADA compliance, but subject users to different inconveniences. In the case of 43rd Street, users who wish to cross the bridge with the entrance/exit ramps must walk, bike, or roll nearly a quarter mile (2 full Chicago blocks) and up 25 feet in elevation to cross the span.²⁰⁴

Within this accessibility data for DLSD's crossings is a pattern of inaccessible lakefront space for South Side residents. Each crossing point is twice as far apart compared to stretches on the North Side, leaving South Siders without much choice for where to cross. While a 10-minute detour due to a closed bridge or flooded tunnel may not be an issue for some, North Side residents are afforded an unequal convenience of choice. While this may not be a problem for many young and/or able-bodied people, those who are not as fortunate are forced to cross distances that to them can seem insurmountable just to access the parks in front of their home, to the severe detriment to these peoples' experiences of their neighborhood's livability.

²⁰³ Redefine The Drive, "Purpose and Need Statement," 21, Exhibit 7.

²⁰⁴ Keith Privett et al., "CMAQ/TAP FY 2016-2020 CMAQ PROJECT APPLICATION BICYCLE FACILITY" (Chicago Metropolitan Agency for Planning, February 21, 2015), <https://www.cmap.illinois.gov/documents/10180/396493/BP01164125+Chicago+DOT-43rd+Lakefront+Trail+Access.pdf/7f4da953-07d4-47d1-ac68-9e14bfaf515>, 3.

VI. The Way Forward: DLSD Redefined

i. Introduction and Current State of DLSD

This project, motivated by a desire to understand an urban expressway's impact on Chicago's lakefront neighborhood livability, found that the most prominent inhibitor of that livability is DLSD denying equitable, easy access to lakefront parkland. I also found that walkability in areas directly adjacent to DLSD suffered likely due to the presence of the expressway preventing the development of non-residential use along the corridor, thus increasing travel time to amenities. Transportation access for the studied communities also suffered, with the express buses bypassing lakefront communities to offer a speedy trip downtown, lowering Transit Scores on the lakefront. Bikeability also showed interesting patterns in Lakeview, with the wide distance between DLSD exits (and, consequently, at-grade crossings for cyclists) causing a dip in BSc at the center of the study area. Interestingly, all of these variables—with patterns taken from looking beyond the broader trendline and focusing instead on the clustering of points themselves—show decreases in areas that tend to have higher population densities.

Why should anyone redesign DLSD? With these findings in mind, I attempted to reimagine what DLSD could look like to try and boost the livability of lakefront neighborhoods as much as possible. I drew inspiration from the current built form of both the roadway and the surrounding built environment during the design process, trying to increase multimodality and access to the lakefront parks. The standards set forth by the Complete Streets Module (previously referenced in Figure 9) also played a heavy role in my vision for DLSD. With this vision proposal, I hope to show Chicagoans that a future without DLSD—without its pollution, health impacts, noise, and barrier-like form—can exist. By illustrating a vision for DLSD that is informed by my findings above, this proposal aims to open the door for inspiring lakefront

communities to create their own alternative designs for the corridor, firmly in line with the New Urbanist desire for community-based expressway removal and retrofitting. The following pages contain my vision for DuSable Lake Shore *Boulevard*, with illustrations of DLSD at 3440 North DLSD in Lakeview and 4800 South DLSD in Kenwood before and after boulevardization created using Streetmix.

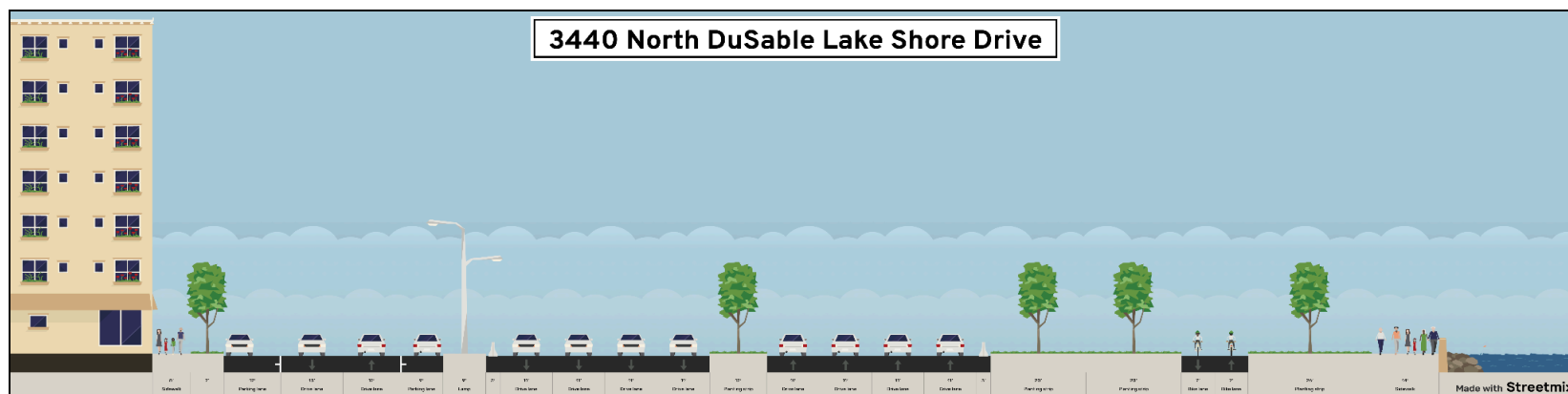


Figure 23: Current Section of DLSD at Hawthorne Place (3440 North).

Space Uses	Greenspace	Pedestrians	Bikes	Transit	Parking	Local	Express	Other	Total
<i>Before</i>	85'	22'	14'	0'	21'	25'	88'	15'	270'
<i>After</i>	80' – 98'	26'	24'	22' – 40'	32'	22'	44'	2'	270'
<i>% Change</i>	↓ 5.9% or ↑ 15.3%	↑ 18.2%	↑ 74.4%	N/A	↑ 52.4%	↓ 12%	↓ 50%	↓ 88.7%	N/A

Table 1: Measurements and Percent Change in Street Use Before and After Envisioned Boulevardization at Hawthorne Place.

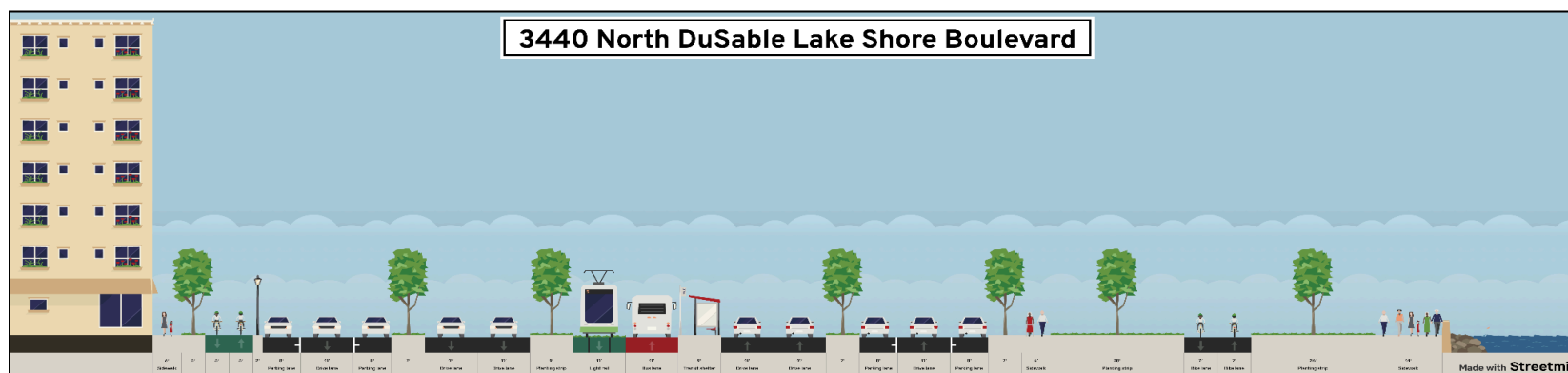


Figure 24: Boulevardized Vision for DLSD at Hawthorne Place (3440 North).

Both visualizations designed by Parker Otto (2024) using Streetmix and 2024 DLSD measurements from Google Earth Pro.

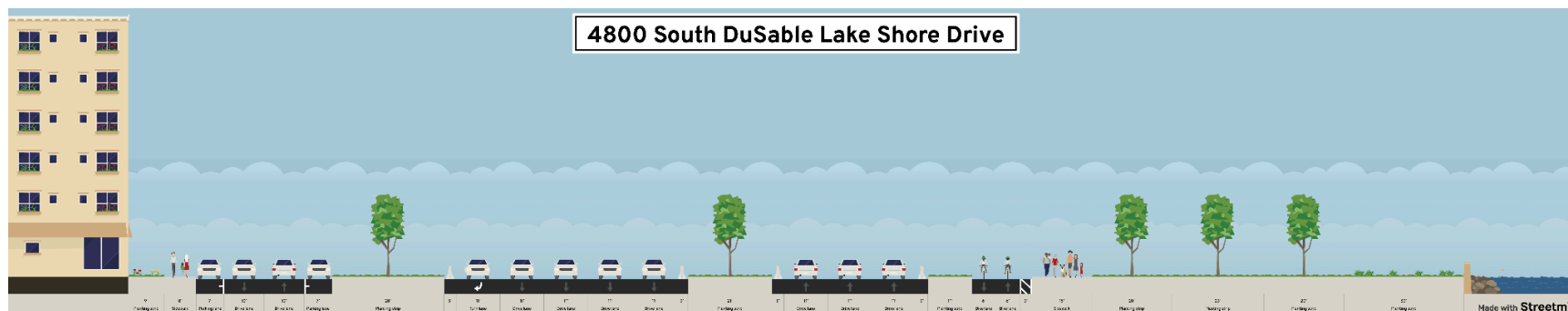


Figure 25: Current Section of DLSD at 48th Street (4800 South).

Space Uses	Greenspace	Pedestrians	Bikes	Transit	Parking	Local	Express	Other	Total
<i>Before</i>	162'	23'	12'	0'	14'	20'	88'	15'	334'
<i>After</i>	144' – 162'	29'	12'	22' – 40'	28'	24'	54'	3'	334'
<i>% Change</i>	↓ 11.1% or – 0%	↑ 26.1%	– 0%	N/A	↑ 100%	↑ 20%	↓ 38.6%	↓ 80%	N/A

Table 2: Measurements and Percent Change in Street Use Before and After Envisioned Boulevardization at 48th Street.

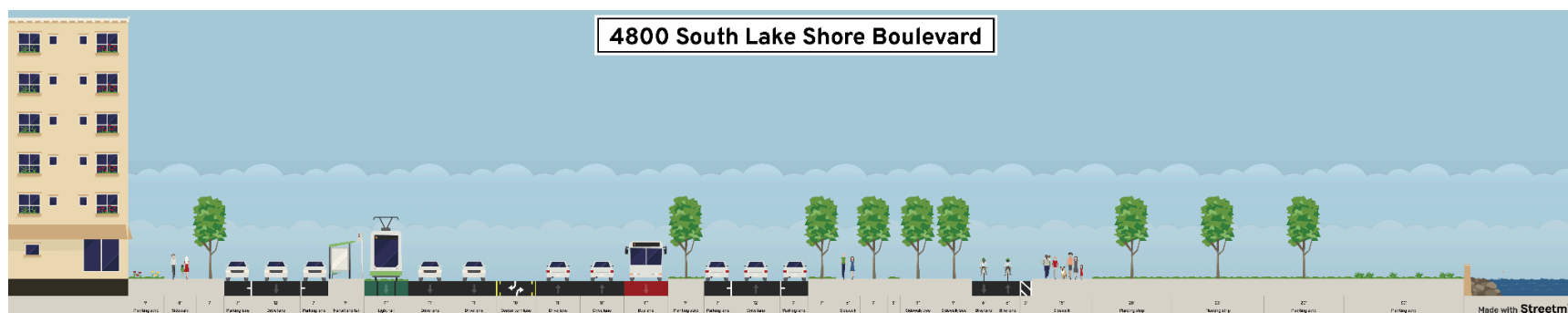


Figure 26: Boulevardized Vision for DLSD at 48th Street (4800 South).

Both visualizations designed by Parker Otto (2024) using Streetmix and 2024 DLSD measurements from Google Earth Pro.

ii. Design Choices

In my reimagining of DLSD, I drew heavily on the expressway removal option of boulevardization to bring Chicago's lakefront more in line with other post-waterfront expressway cities like San Francisco and New York City. Through this approach, I used the Complete Streets Module to get a rough estimate for the widths of planters and lanes and broad street layouts. The resulting boulevards, as shown above, boast large gains for pedestrians and cyclists while trying to maintain or increase greenspace. Lane widths for local traffic were, per Module suggestions, 12 feet wide and flanked by 7-foot parking lanes to reduce vehicle speeds.²⁰⁵ Express lanes on the boulevard had their widths maintained from the original DLSD design, as they were within the standard for such travel lanes given by the Module.²⁰⁶

At 3440 North Dusable Lake Shore Boulevard, cyclists, pedestrians, and transit riders benefit the most. Brand new bike lanes located close to the buildings are fully protected and at sidewalk height, allowing for cyclists to easily patronize businesses or visit residences up and down the corridor. This has the added benefit of drastically increasing BSc values on the lakefront, as every address on the boulevard will directly border the protected bike lane and receive full points from Walk Score's algorithm.²⁰⁷ Additionally, transit riders will see dedicated lanes for either buses or light rail running either straight down the middle of the boulevard (inspired directly by San Francisco's Embarcadero, which has the MUNI light rail at its center) or at the edges (inspired by traditional busways across the country), with stations at major intersections that would be replaced with tree-lined greenspace elsewhere. These dedicated lanes will, in theory, allow for not only maintaining the express bus network that relies on DLSD but also increase service to lakefront neighborhoods with the possibility of station stops every mile

²⁰⁵ Duany Plater-Zyberk & Co. et al., *Complete Streets Module*; Jacobs, *The Boulevard Book*, 120.

²⁰⁶ Duany Plater-Zyberk & Co. et al., *Complete Streets Module*, 13.

²⁰⁷ Walk Score, "Bike Score Methodology."

or so (similar in spacing to the CTA Red Line). Should the option of light rail be taken up rather than bus, an entirely new rapid transit line (which I call the Lake Shore Line) spanning the entire lakefront from Woodlawn to Edgewater and running on grass-covered tracks (similar to boulevards like Avinguda Diagonal in Barcelona) is possible. Increased service along with the speed improvements allowed by dedicated lanes will serve to increase TSc values along the lakefront, increasing that metric of livability. Both improvements to bike and transit infrastructure along with the lower speeds and easier crossings fostered by frequent breaks in vehicle space through planters attempt to emphasize human-centric design to create a robust pedestrian realm. Cyclists can easily transform into pedestrians just by hopping off their bikes. Transit riders, too, are usually pedestrians before and after their stop. By rethinking DLSD to foster all of these different modes of travel, the increase of pedestrian presence is bound to happen and, with all of this new traffic, business opportunities to cater to this new population are incentivized to open up. Once this happens, amenities may want to be located directly on the boulevard to take advantage of the good transit, foot traffic, and newly accessible parkland, which will prove beneficial to WSc based on the Walk Score algorithm.²⁰⁸

All of these improvements, too, are meant to tackle the problem of accessibility that DLSD in its current state exacerbates. By recreating the boulevard as part of the local street, rather than separated from it, the green space on the lakefront is all the more designated as a place for recreation, rather than being broken up by large swaths of strange middle ground. Signalized intersections in these proposals can be located at every half mile, or even every quarter mile (2 Chicago blocks) depending on the popularity of the lakefront attractions or population density nearby in a pattern very similar to how DLSD functions in The Loop. Overall, these concepts are just the springboards for Chicagoans who dare to dream of a different

²⁰⁸ Walk Score, “Walk Score Methodology.”

DLSD. With the findings of this research showcasing real livability concerns that come with having a lakefront expressway, it is up to the community to decide how they can palette this new information whether it means keeping the status quo or boulevardizing either sections of DLSD or the entire thing. The important part, by the tenets of New Urbanism and good faith urban planning, is that all change must come from the ground up.

VI. Conclusion

i. Summary

Based on the previous data analyses, I found that there were differing trends in variables distributed across study areas, resulting in largely inconclusive findings for neighborhood livability and distance from DLSD. Some spatial patterns existed, including increases in transit access and decreases in population density with distance, but these were not strong enough to establish a broader trend for lakefront livability. Walkability and bikeability had inconclusive relationships with distance from DLSD due to a high variability in data patterns across study areas. Results also suggested that a decrease in spatial scale may be necessary to uncover more conclusive trends regarding livability and DLSD distance. Data patterns from WSc, BSc, and TSc showed potential rapid increases in scores as Block Groups moved inland up to 0.2 miles from the lakefront. Lastly, I found significant gaps in pedestrian accessibility to lakefront parks (disproportionately located on the South Side) where DLSD crossings could not be reached within a 5-minute walk, with improvements at the 10-minute scale and 15-minute scales.

ii. Limitations and Future Research Opportunities

While quite extensive, these livability variables do not scratch the surface of what makes an urban area completely livable as a human habitat. However, the establishment of this foundational research that uses a New Urbanist lens to explore these variables as they relate to

DLSD provides a springboard for future research. Variables that were not considered, including public health outcomes (asthma rates, cancer rates, etc.) and pollution levels (noise, NO_x, CO₂, etc.), provide excellent quantitative choices for expanding the picture of how DLSD affects its surrounding neighborhoods. Additionally, further research could spatially map qualitative data regarding residents' perceptions of DLSD regarding the livability of their neighborhoods in a way following the precedents on arterial roads established by McAndrews and Marshall.²⁰⁹ Accessibility to the lakefront, and/or pedestrian safety in their neighborhoods tested against proximity to DLSD could also be spatially analyzed.

Another opportunity for future research involves analyzing similar variables to the ones used in this project but adding the dimension of time. DLSD has gone through many changes in form and footprint over the years, and, employing census data, Sanborn Fire Insurance Maps, and recreating the methodologies of Walkscore.com, future researchers could observe how different shifts in DLSD's form affects New Urbanist-based livability metrics. Additionally, future research may opt to decrease the analysis scale of this project to further examine any potential relationships between walkability, bikeability, and transit access within 0.2 miles of the lakefront.

iii. Discussion

New Urbanism is clear that urban expressways would have negative consequences for the aspects of livability that I looked at (density, walkability, bikeability, and transit access). However, the data instead shows that each variable has different spatial distributions both within and across study areas. Plotting each variable in terms of distance from DLSD (or, in the case of Rogers Park, the lakefront) with larger trend lines that cover the entire study area shows almost no correlation, except for with density and DLSD distance in Lakeview only. It is only when

²⁰⁹ McAndrews and Marshall, "Livable Streets, Livable Arterials?"

looking very closely at the way the graphed points cluster that DLSD's impact on the livability variables can be seen (showing sharp decreases).

The takeaway here is that the application of the New Urbanist framework to measure DLSD's effect on neighborhood livability via the spatial distribution of measurable livability variables is, in the case of DLSD and the Chicago neighborhoods studies, limited. This is likely caused by what I call the "neighborhood" effect in which the unique historical development patterns and political climates of a given neighborhood lead to a built environment that appears resistant to the presence of DLSD. DLSD is also an outlier when compared to other urban freeways in that it does not separate two communities, it sits entirely on reclaimed land, and it has been treated by both designers (with narrower lanes than traditional freeways) and policymakers (with a 45 MPH speed limit) as if it is not the thing that it clearly functions as: a freeway. Where one would expect undesirability or decay in livability according to the arguments of New Urbanists, they instead find communities that have historically fought to live near the lakefront parks and continue to do so despite the established and observed factors of noise, air pollution, and inaccessibility—showcasing the value Chicagoans place upon lakefront living. With this increase in density, as was observed by Emily Talen, also comes increases in social diversity—a factor of livability according to New Urbanists that was not measured during this research.²¹⁰ By presenting broadly inconclusive trends for density, walkability, bikeability, and transit access concerning lakefront distance in the large study areas, this research emphasizes that—when measuring livability impacts—history must not be relegated to mere contextualization. Instead, it must play a pivotal role in the experiment's design and the process of gathering, weighting, and analyzing data.

²¹⁰ Emily Talen, "Neighborhood-Level Social Diversity: Insights from Chicago," *Journal of the American Planning Association* 72, no. 4 (December 31, 2006): 431–46, <https://doi.org/10.1080/01944360608976764>.

Where New Urbanist theory does hold up, however, is in terms of accessibility to the lakefront parkland as part of livability. While DLSD does not divide two neighborhoods (nor did it demolish them as part of its construction process) as is traditional with urban freeways in Chicago and elsewhere, it still divides Chicagoans from their coveted lakefront amenities including parks, beaches, promenades, sporting facilities, stadiums, and museums. The gaps observed in time-based accessibility to the parkland and amenities from lakefront neighborhoods reaffirm this claim. They also, through highlighting disproportionately large gaps in crossing points on the South Side, showcase the regional disparities between the City's highly segregated North and South Sides. Access to these amenities—especially given the prominence of the lakefront in Chicago's identity, the sheer size of the land, and the quality and volume of features involved—is an integral part of the livability of any lakefront neighborhood. The sole focus of the roadway on the movement of cars in both its historical development pattern and current state conflicts directly with the New Urbanist livability framework—which stipulates that multimodality (not car-centrism) is an integral part of designing human-scale, livable spaces. Many crossings of DLSD, too, were put in place as an afterthought, with the sole purpose of these breaks in expressway continuity being the auto-oriented connectivity benefits of a freeway-style exit. The lack of access and spatial inequities observed across DLSD's span shows the need for a community-based reimagining of DLSD, during which Chicago may follow the examples of many post-waterfront-freeway American cities before it. These are even strengthened by the persistence of livability variables across study areas, as their objectively high concentrations close to the freeway challenge any potential justification for the status quo.

The questions stemming from this research challenge Chicagoans to reconsider the tradeoffs of lakefront living. How much added noise and air pollution are they willing to subject

themselves to for a stroll along Pebble Beach to keep DLSD car-centric? How many potential new amenities and businesses are they willing to risk never opening for lack of easy waterfront access? How many new opportunities for low-carbon, public transportation corridors are they willing to pass up? How many miles are okay to walk to visit the lakefront parks directly facing their homes so that others can quickly pass by in vehicles? Does the answer change when considering the age and/or physical health of the person making the trek? At the end of the day, whether it be a boulevard, an expressway, or the same old status quo, the interpretation of this research and the future of DuSable Lake Shore Drive lies in the hands of the community.

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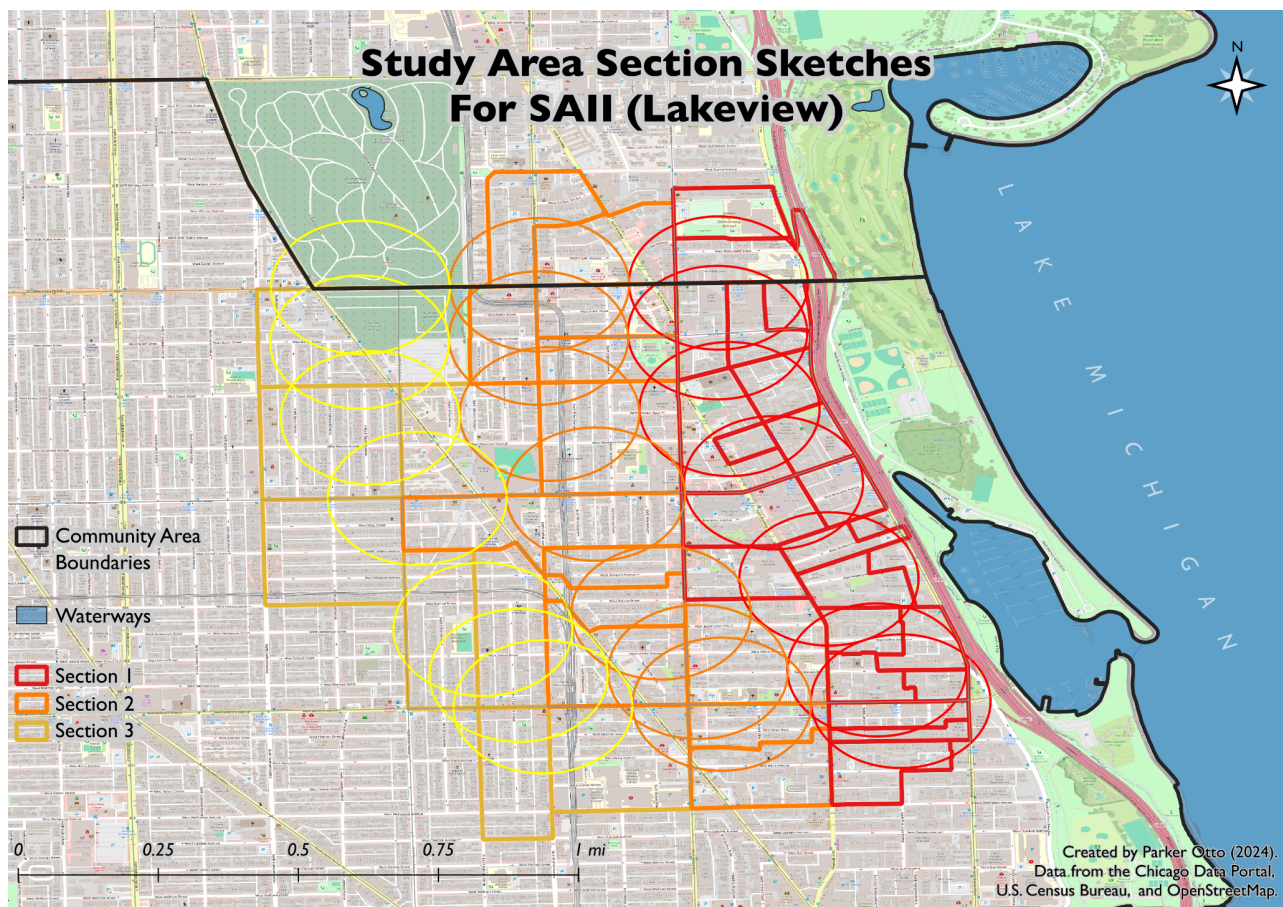
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Appendix

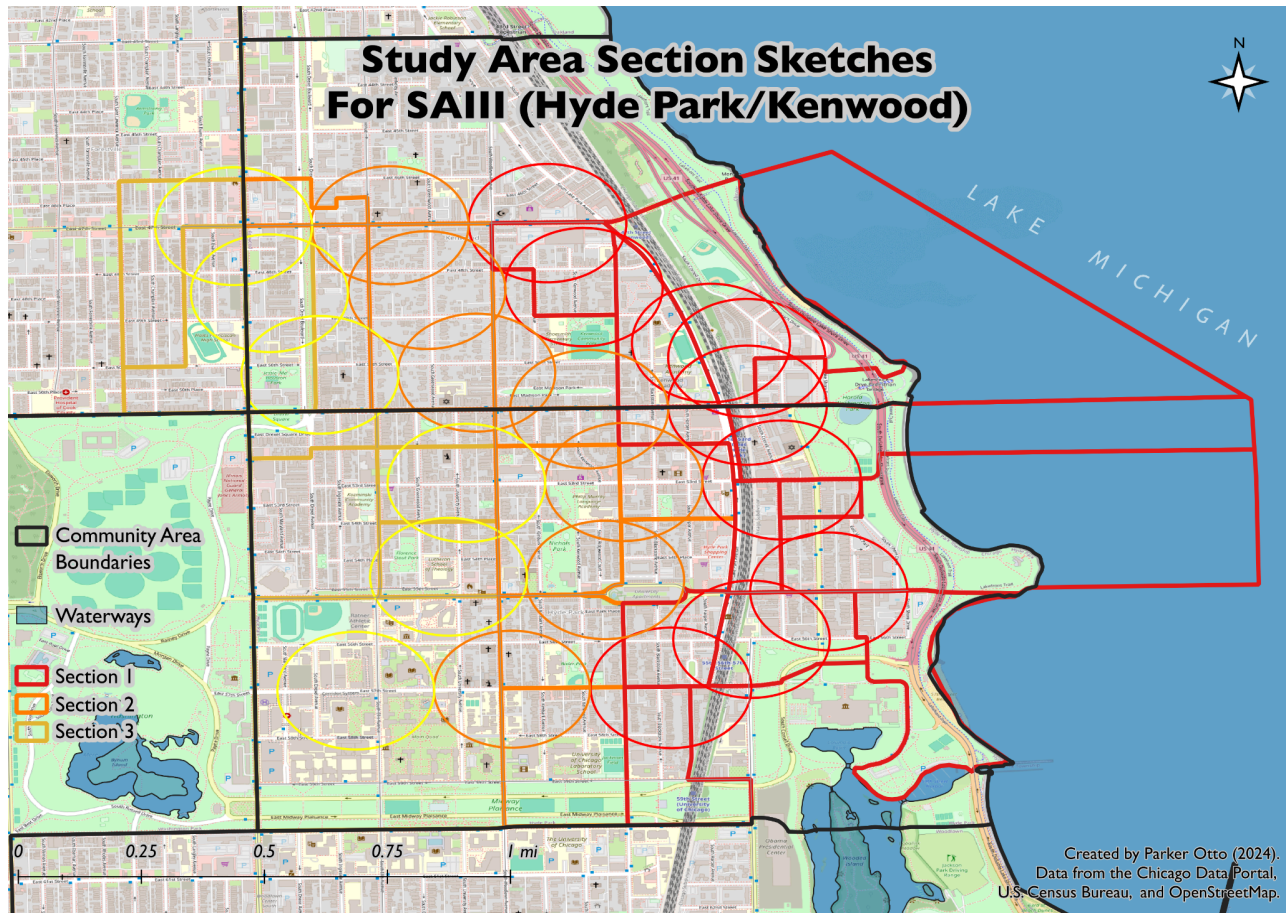
I. Study Area Sketch Maps

All maps were created using QGIS and/or Google Earth Pro. All maps contained data from the Chicago Data Portal which provided data for major street lines, waterways, and Community Area boundaries. Population data and Census Block Group boundaries came from the American Community Survey 5-Year Estimates through the United States Census website. Data for Walk, Bike, and Transit Scores are from walkscore.com. OpenStreetMap data was imported for use as a base map.

a. Study Area 2 (Lakeview) Classification Sketch

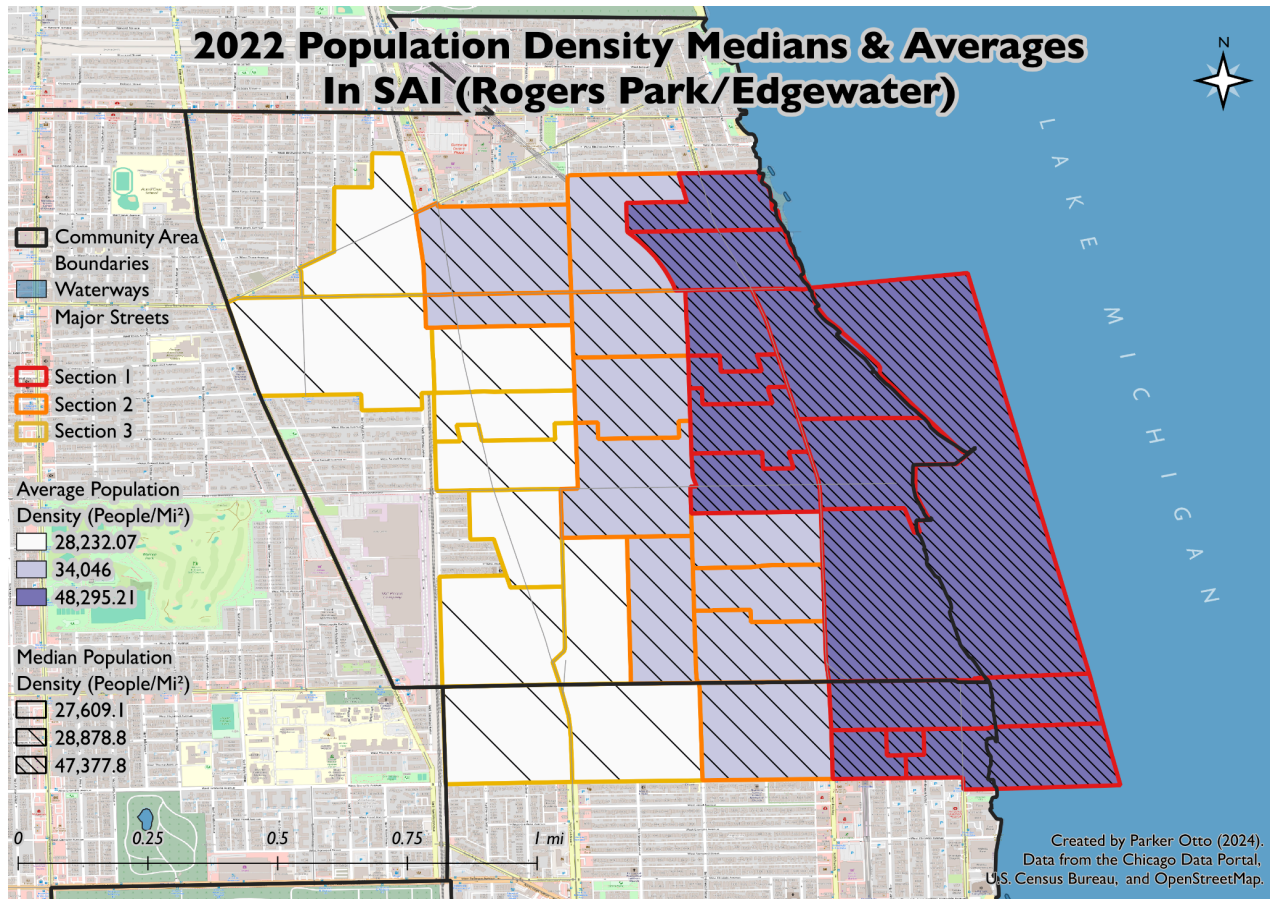


b. Study Area 3 (Hyde Park/Kenwood) Classification Sketch

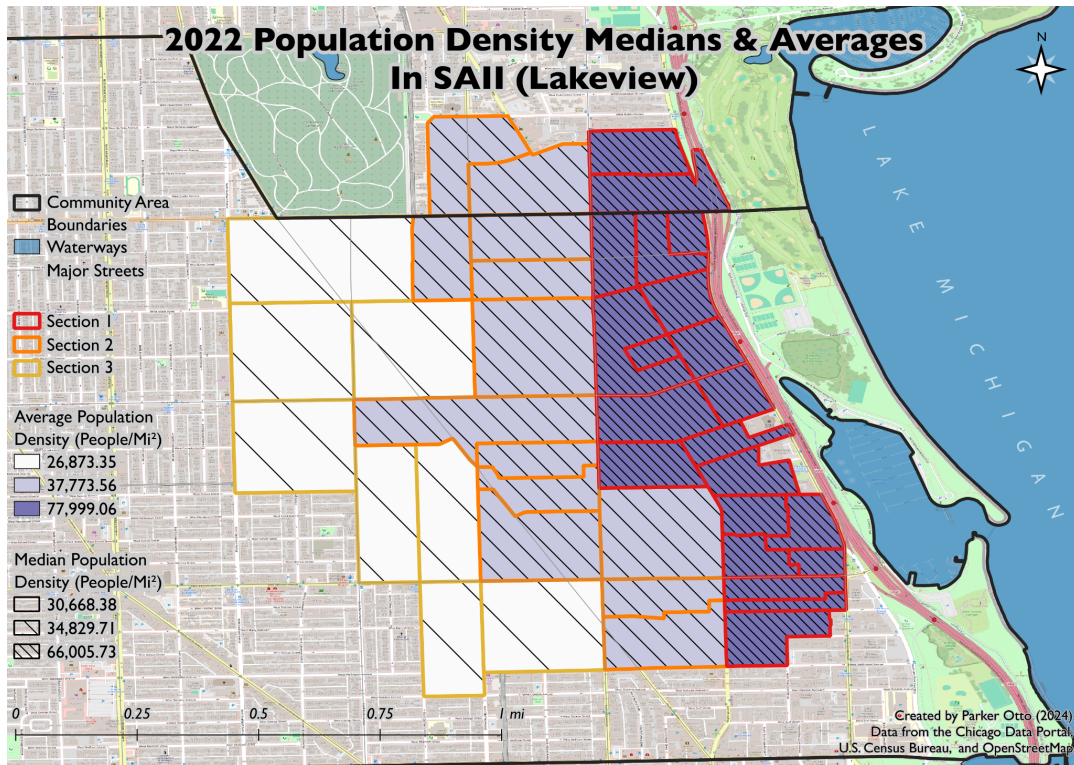


II. Population Density Mean/Median Maps

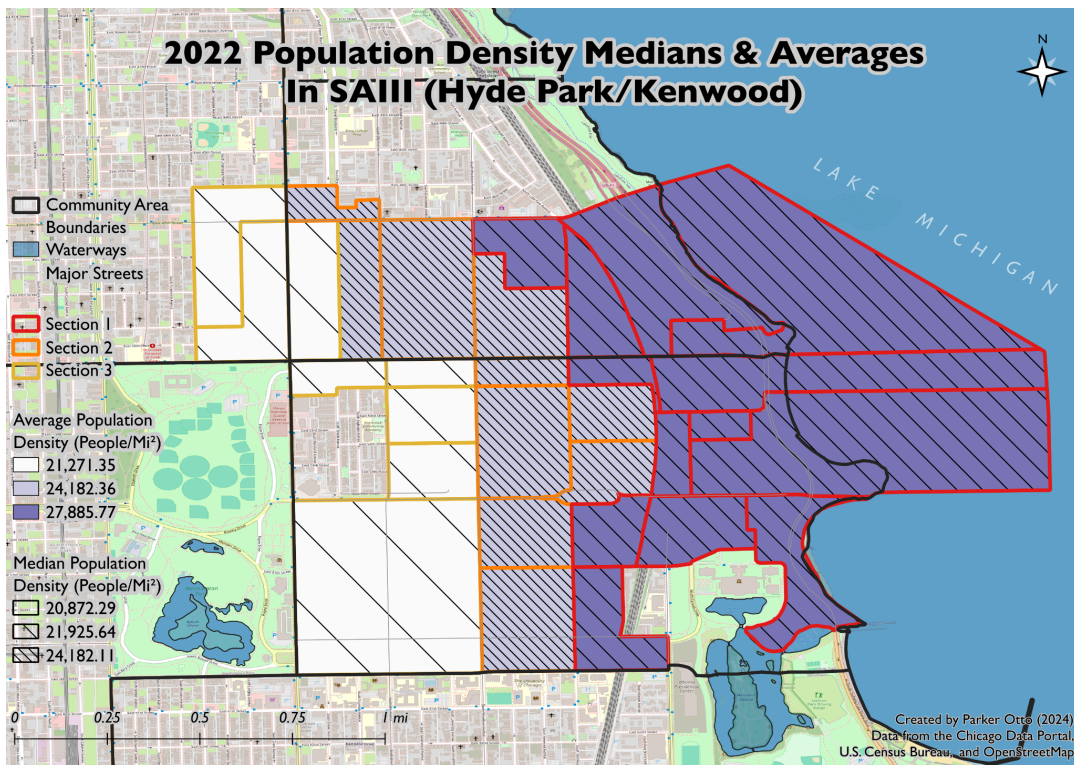
a. Study Area 1



b. Study Area 2

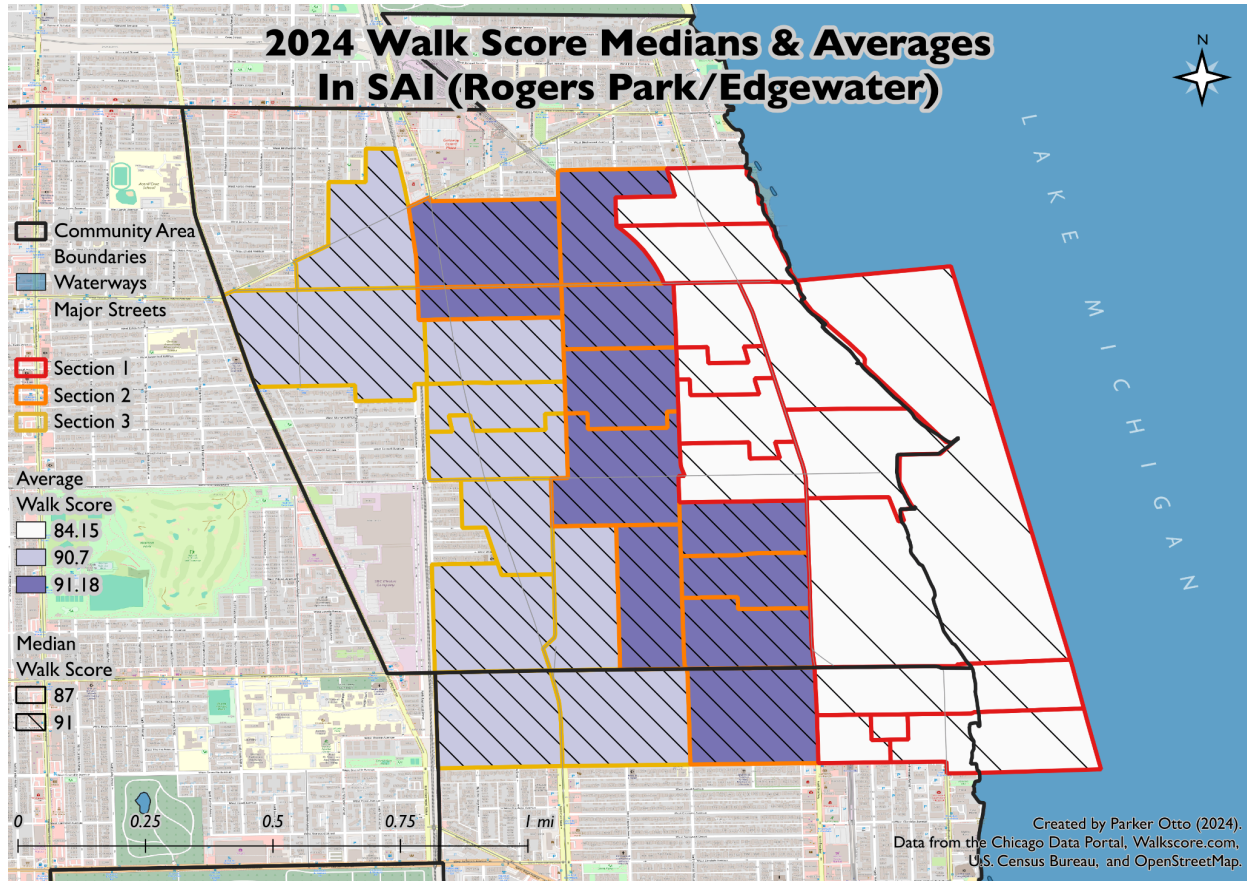


c. Study Area 3

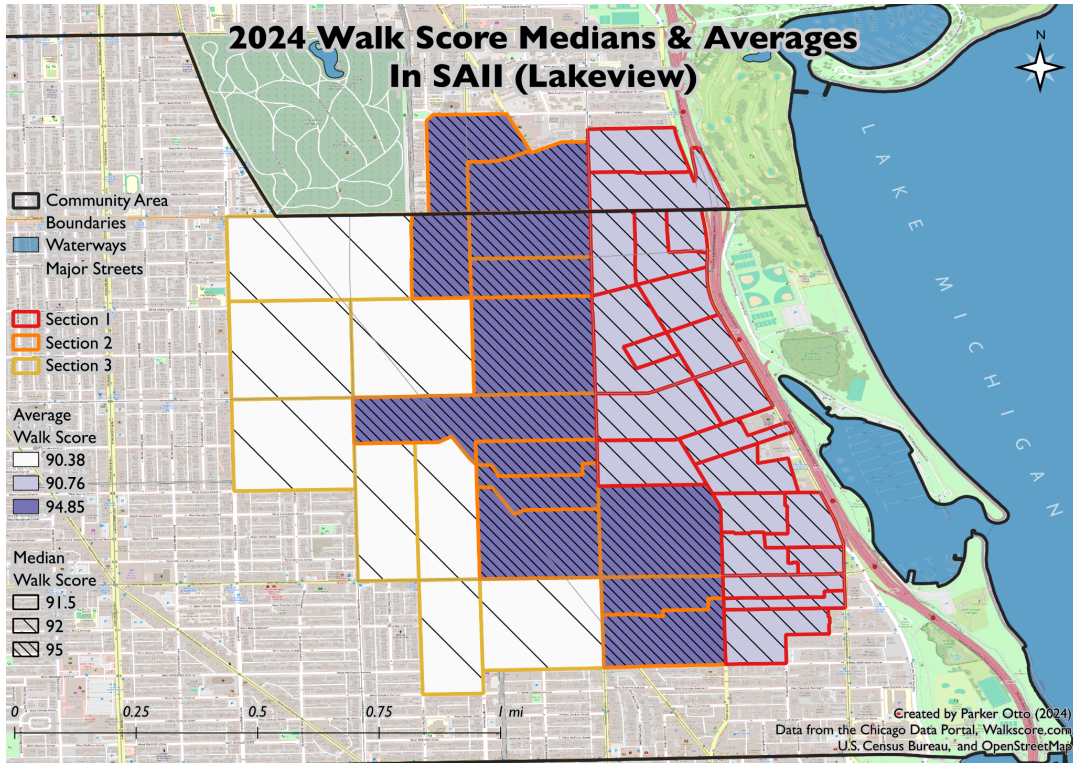


III. Walk Score Mean/Median Maps

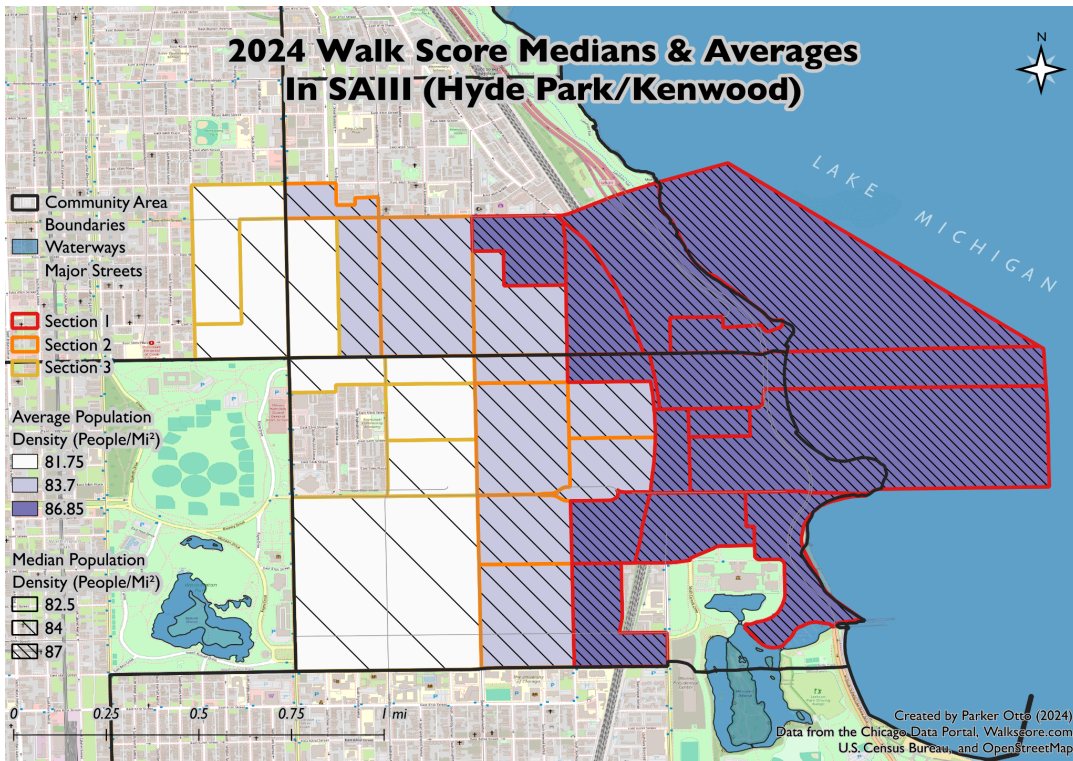
a. Study Area 1



b. Study Area 2

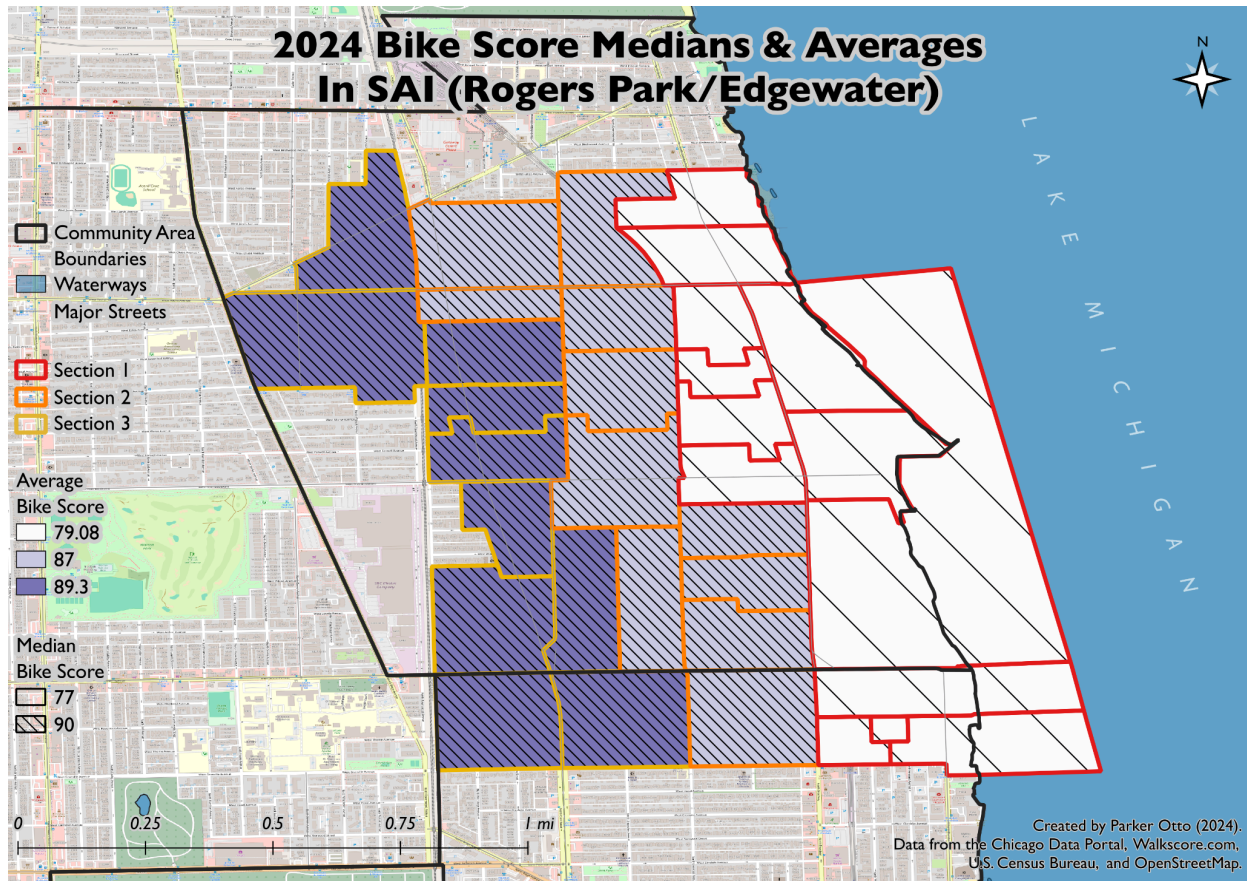


c. Study Area 3

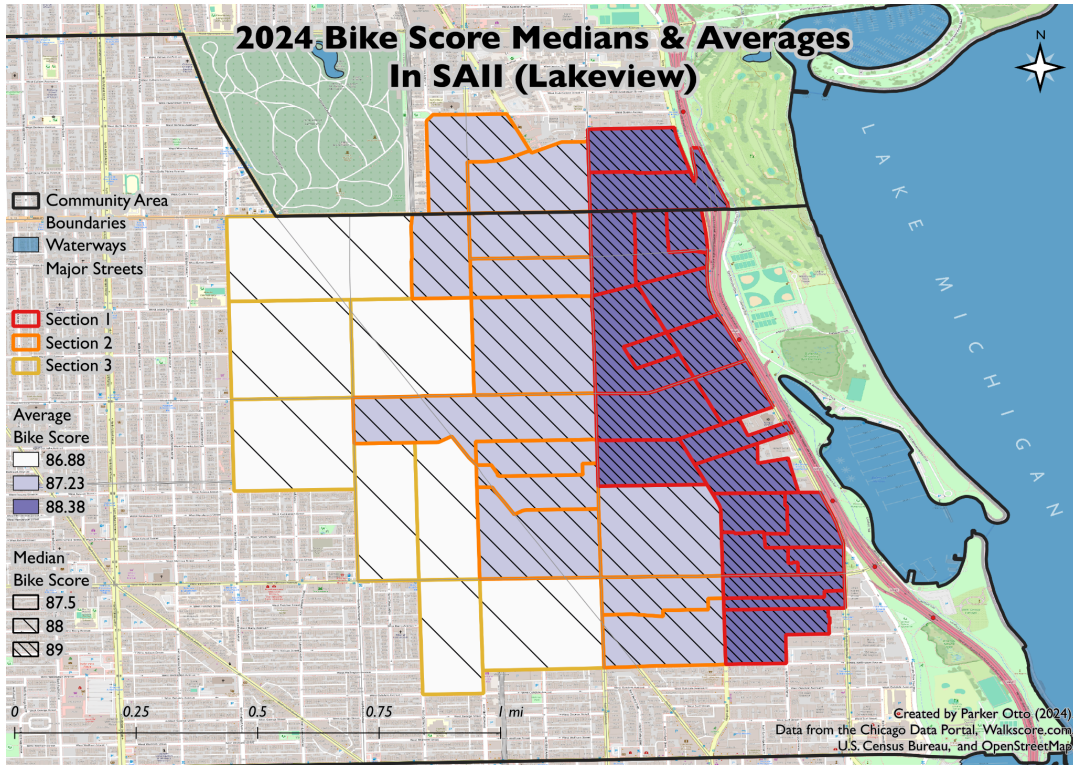


IV. Bike Score Mean/Median Maps

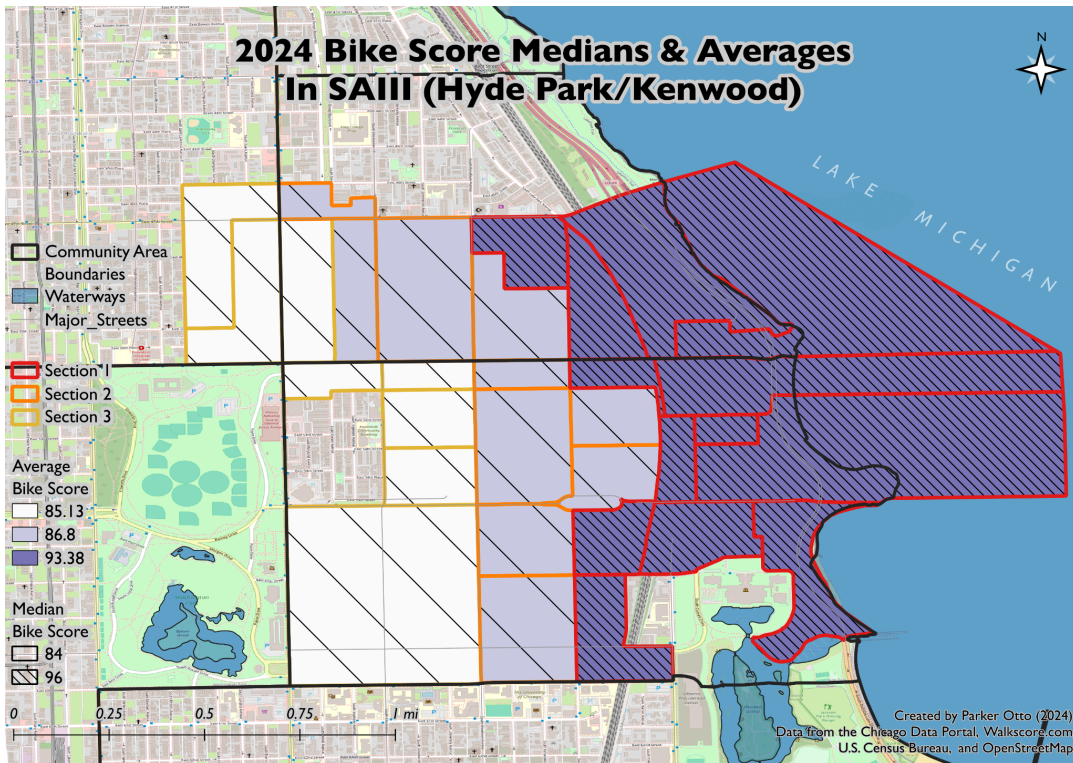
a. Study Area 1



b. Study Area 2

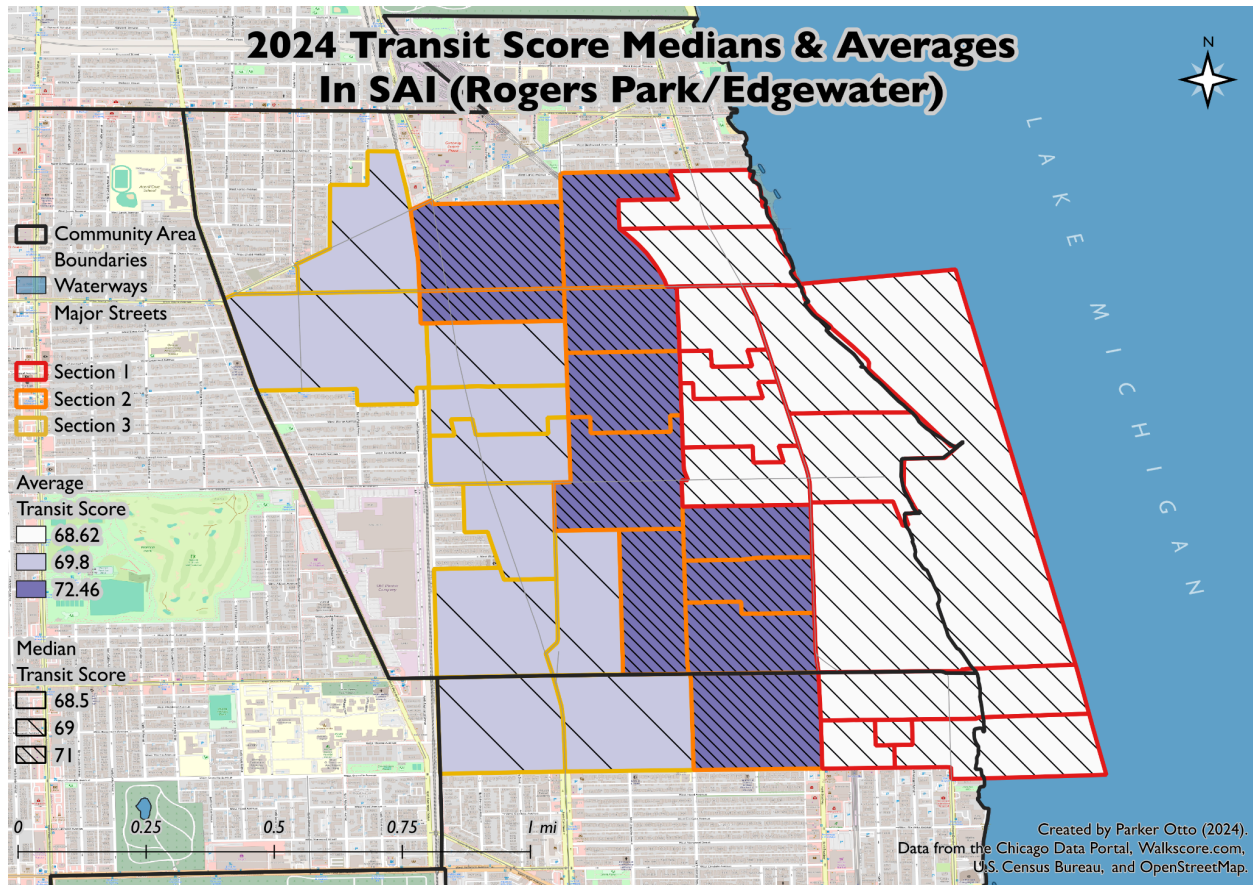


c. Study Area 3

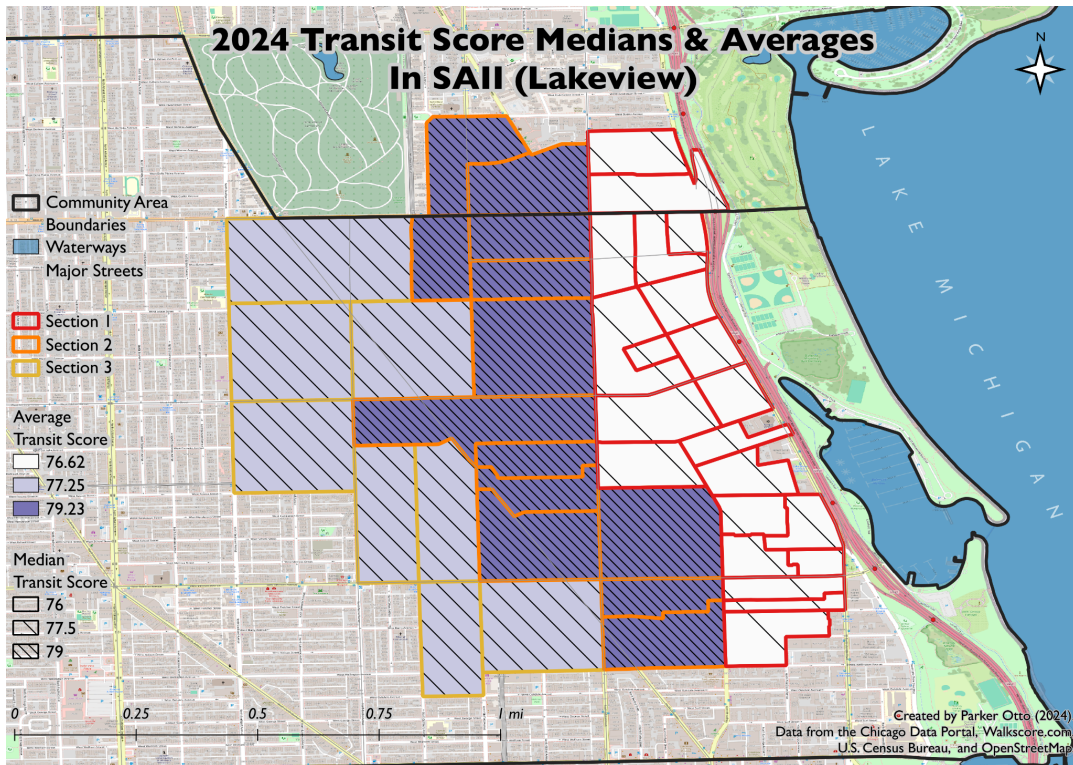


V. Transit Score Mean/Median Maps

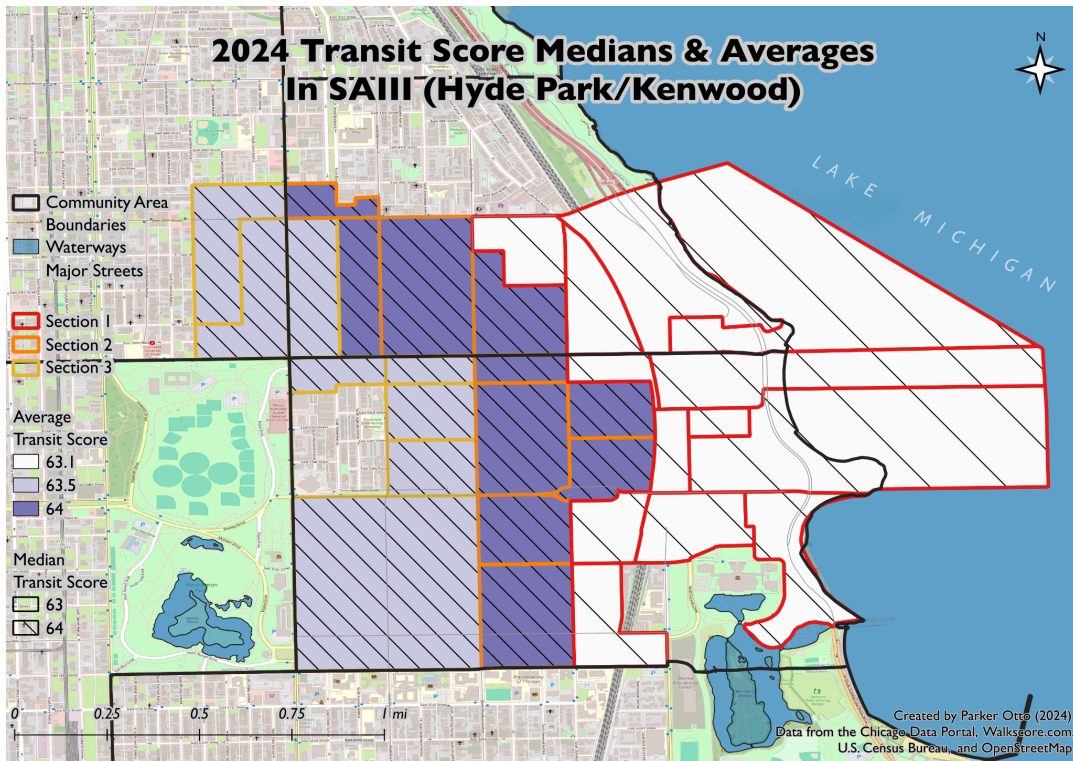
a. Study Area 1



b. Study Area 2



c. Study Area 3



X. Aerial and Satellite Imagery

i. Portland's Harbor Drive Before/After Photos

Photos are from Google Earth Pro with imagery of Portland's Harbor Drive freeway from 1970 (left) and 2024 (right, provided by Airbus).²¹¹



²¹¹ Google Earth Pro, "Portland's Harbor Drive", Accessed April 2, 2024, <https://www.google.com/maps/@45.5209262,-122.6680742,984m/data=!3m1!1e3?entry=ttu>.

ii. A Dollar General and K-12 Campus in Unincorporated Jefferson County, MO

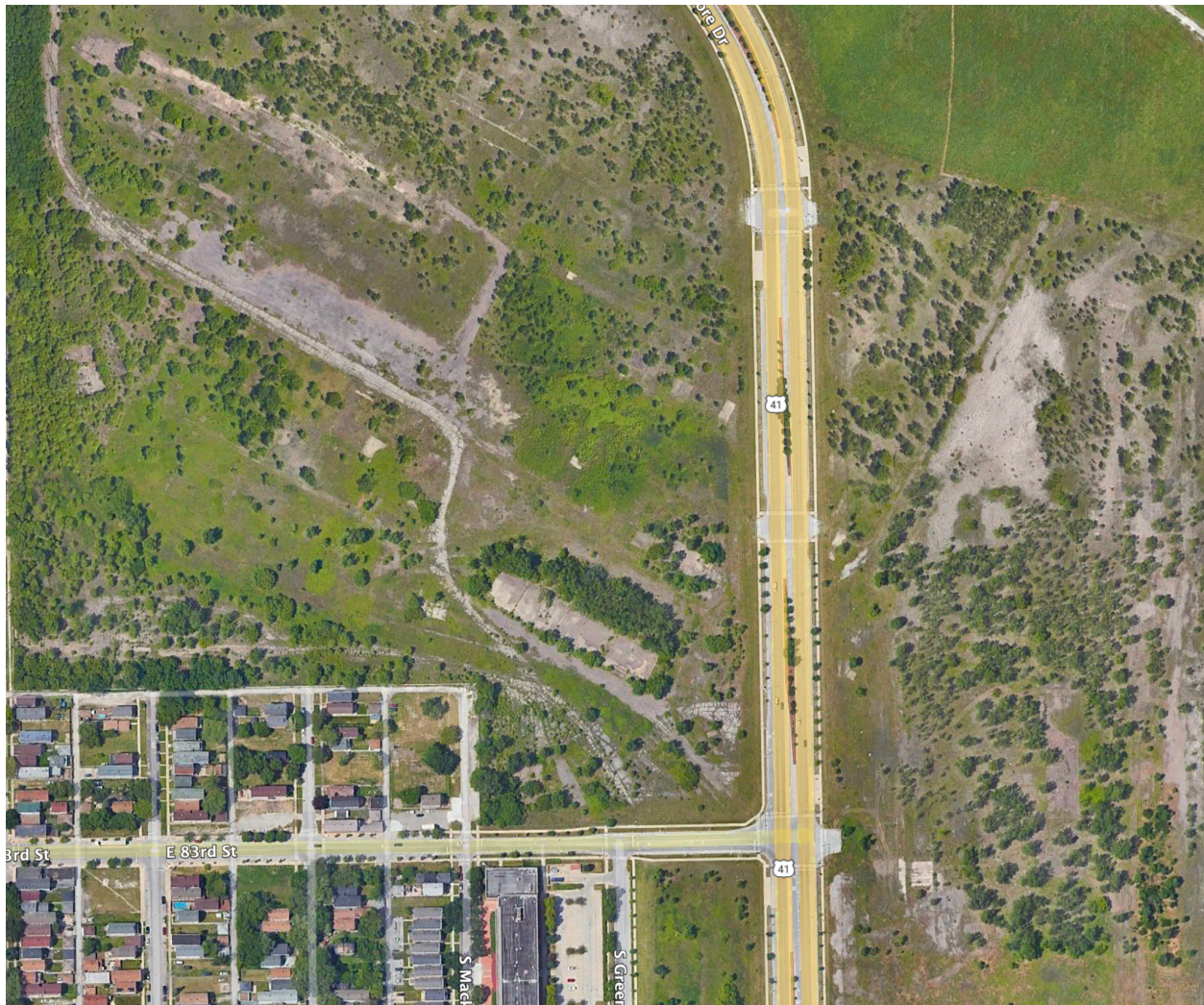
Photo from Google Earth Pro, image provided by Airbus (2024).²¹²



²¹² Google Earth Pro, “Unincorporated Jefferson County, Missouri”, Accessed May 3, 2024, <https://www.google.com/maps/@38.15674,-90.3435,1863m/data=!3m1!1e3?entry=ttu>.

iii. South DLSD In South Chicago: Remnants from the Failed U.S. Steel Site Development

Located at South DuSable Lake Shore Drive and East 83rd Street. Two of several phantom intersections can be seen on DLSD, constructed in preparation for now canceled extensions of East 82nd Street and East 81st Street. Photo from Google Earth Pro, imagery from 2022.²¹³



²¹³ Google Earth Pro, “South DLSD In South Chicago: Remnants from the Failed U.S. Steel Site Development”, Accessed May 5, 2024, <https://www.google.com/maps/@41.7470867,-87.5416508,884m/data=!3m1!1e3?entry=ttu>.

XI. Code Utilized

a. Google Sheets Reverse Geocoding

The following code was inputted into Google Sheets to allow for the batch processing of latitude/longitude data into a list of addresses compatible with search features on Walkscore.com.²¹⁴

```
function reverse_geocode(lat,lng) {
  Utilities.sleep(1500);

  var response = Maps.newGeocoder().reverseGeocode(lat,lng);
  for (var i = 0; i < response.results.length; i++) {
    var result = response.results[i];
    Logger.log('%s: %s, %s', result.formatted_address, result.geometry.location.lat,
    result.geometry.location.lng);
    return result.formatted_address;
  }
}
```

²¹⁴ Gabriel Rotman, answer to "Get City, State, Country from Latitude and Longitude in Google Sheets," Stack Overflow, December 23, 2014, accessed on 1<<https://stackoverflow.com/questions/27607092/get-city-state-country-from-latitude-and-longitude-in-google-sheets>>, (Licensed under CC BY-SA 3.0: <<https://creativecommons.org/licenses/by-sa/3.0/>>).