



Transit-Oriented Development and Zoning in Cities with High-Frequency Transit

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June, 2023

Introduction

This report examines transit-oriented development (TOD) policy and zoning code in Twin Cities municipalities with current or planned high-frequency transit. It provides an overview of common elements and unique approaches to TOD-supportive zoning ordinance, and it also analyzes to what degree TOD-supportive zoning is deployed near

high-frequency transit in the 20 cities analyzed. This report also explores what barriers there are to building more TOD, zoning's significance as a barrier, and what measures can be taken to encourage more TOD. This report builds upon the work of the TOD office report [Comprehensive Land Use Planning in High Frequency Transit Corridors](#).¹

Executive summary

- Research indicates that TOD-supportive zoning code is an important factor in creating more TOD.
- TOD-supportive zoning code with the right amount of flexibility can be challenging to design.
- Many of the most TOD-supportive zoning ordinances in Twin Cities municipalities were created with the support of grant funding, directly or indirectly. Financial support is a key strategy to encourage more TOD-supportive zoning ordinance.
- The percentage of land zoned to allow TOD varies widely between different transitway corridors. Between 19% and 35% of the land within walking distance of planned LRT Extension stations, planned or existing BRT/ABRT stations, and high-frequency local bus lines is zoned to allow TOD. Over 50% of the land within walking distance of active LRT lines is zoned to encourage or allow TOD.
- For many fixed-route transit stations, the land immediately adjacent to the station is zoned for TOD, but much of the other land within a ½ mile of the stations often is not. For some fixed-route transit stations, very little or no land is zoned to permit TOD by-right.
- Subdivision code and TOD-supportive platting are as important as zoning code in supporting TOD. Code that allows the creation of parcels and street grids that are right-sized for TOD is a key component.
- Efforts outside ordinance are crucial as well – land banking when possible, comprehensive planning and station area planning that makes support for TOD clear make a difference in supporting TOD.

Background and area of interest

High-Frequency Transit continues to expand in the Twin Cities; two existing light rail transit (LRT) lines, three existing arterial bus rapid transit (arterial BRT) lines, and one existing bus rapid transit (BRT) line will be complemented by two new BRT routes, two new Arterial BRT routes, and two new LRT extensions over the next decade. Table 1 names these 11 fixed-route transit lines, their type of service and their opening year. This table also

lists the cities along each route that were analyzed in this report. (See the Methodology and Limitations section on page 10 for more information on report inclusion criteria.)

The third section of this report discusses the challenges of building TOD, and contextualizes zoning among this list of challenges. This section is drawn from interviews with city planners and developers who have worked to create TOD-supportive zoning or TOD projects.

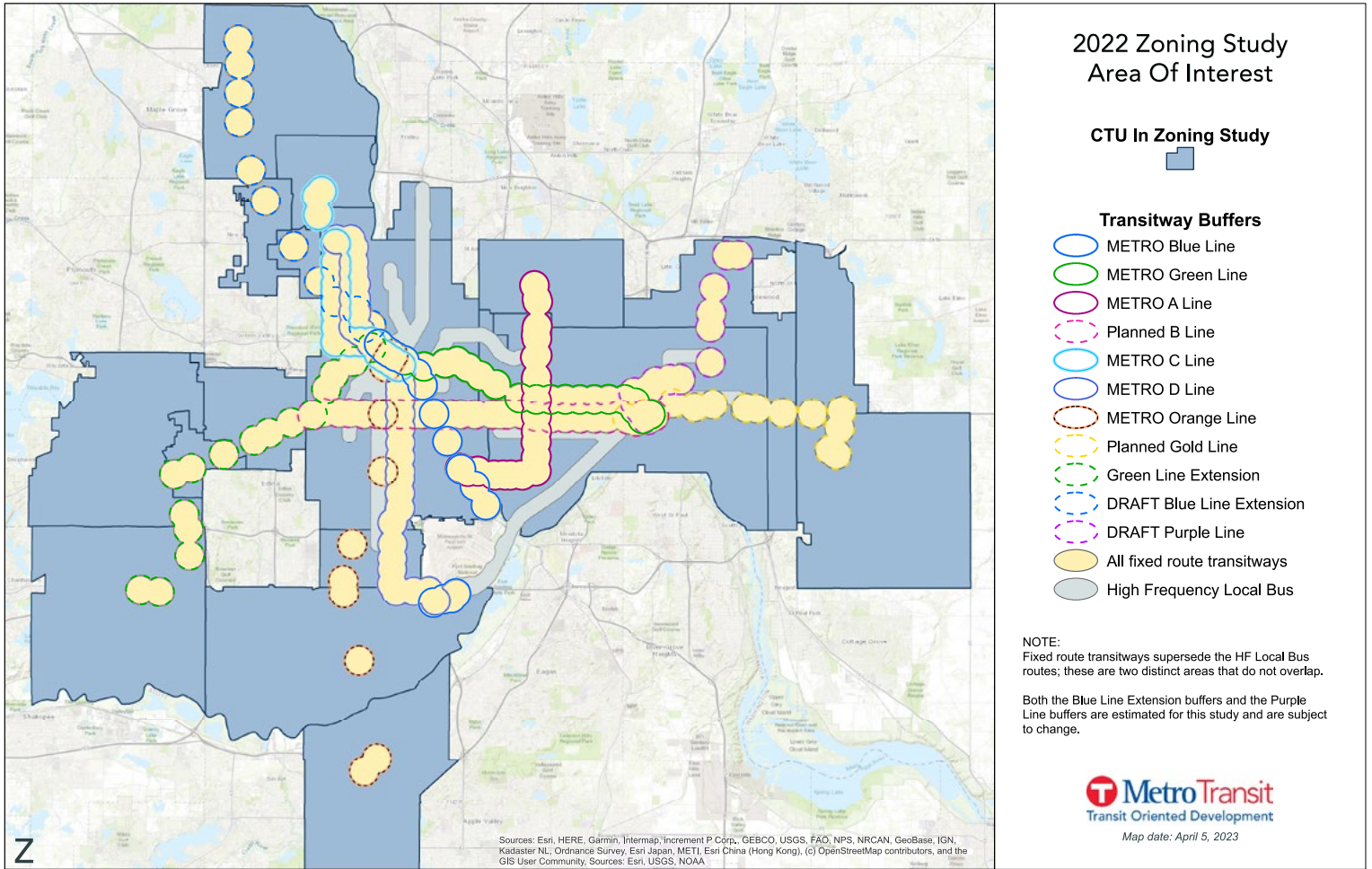
Table 1: High Frequency Fixed-Route Transit Routes and their Respective Cities

Transit Route	Type of Transit	Year Opened	Cities on High Frequency Transit Routes
Blue Line	LRT	2004	Minneapolis, Bloomington
Green Line	LRT	2014	Minneapolis, St. Paul
A Line	ABRT	2016	Minneapolis, St. Paul, Falcon Heights, Roseville
C Line	ABRT	2019	Minneapolis, Brooklyn Center
Orange Line	BRT	2021	Minneapolis, Richfield, Bloomington, Burnsville
D Line	ABRT	2022	Brooklyn Center, Minneapolis, Richfield, Bloomington
B Line	ABRT	2024	St. Louis Park, Minneapolis, St. Paul
Gold Line	BRT	2025	St. Paul, Maplewood, Oakdale, Woodbury
Green Line Ext.	LRT	2027	Minneapolis, St. Louis Park, Hopkins, Eden Prairie
Blue Line Ext.	LRT	2028-2030	Minneapolis, Robbinsdale, Crystal, Brooklyn Park
Purple Line*	BRT	TBD	St. Paul, Maplewood

“Metro Transit defines High Frequency as service every 15 minutes (or better) throughout most of the day on weekdays and Saturdays.”² High frequency local bus routes (2, 3, 6, 10, 11, 18, 54, 63, 64) are not listed on Table 1 but are included in this study as well. Two municipalities included in the study area of interest are not listed on Table 1 because they are served by high-frequency local

bus routes but are not yet served by a fixed-route high-frequency transitways; Columbia Heights is served by Route 10 and Lauderdale is served by Route 3.

* Note: Route and cities listed not yet final



Map 1 is an image of the High Frequency Transit routes highlighted in this report. The cities along these High Frequency Transit corridors use comprehensive planning to implement Metropolitan Council policies to build TOD within a ½ mile radius of transit stations. This report will use the Met Council’s definition of TOD: “walkable, moderate to high density development served by frequent transit with a mix of housing, retail, and employment choices designed to allow people to live and work without need of a personal automobile.”³

The Thrive MSP 2040 Regional Development Guide⁴ and the Transportation Policy Plan⁵ establish policies for density based upon Community Designations that include minimum density for the city as a whole and minimum density at station areas based on type of transit service. This policy requirement applies to areas that the city has identified in its comprehensive plan for new development or as candidate locations for redevelopment. The Comprehensive Land Use Planning report found that “All but two of the 22 cities have guiding land uses with densities that exceed the Metropolitan Council

requirements noted above” in their comprehensive plans.⁶ This report will explore how cities have implemented this policy in their zoning code.

The first section of this report examines research into the relationship between zoning ordinance and the feasibility of TOD, as well as which design features are central to TOD and how those features are typically regulated in zoning ordinance.

The second section of this report examines zoning code of 20 cities that host high-frequency transit corridors. It also contains an analysis of zoning maps and the current zoning within high-frequency transit corridors.

The third section of this report discusses the challenges of building TOD, and contextualizes zoning among this list of challenges. This section is drawn from interviews with city planners and developers who have worked to create TOD-supportive zoning or TOD projects.

Literature review

The impact of zoning and regulation on TOD

Researchers have examined factors that encourage or discourage transit-oriented development. The following literature review looks at several studies that explore and quantify the influence of municipal zoning on whether or not TOD occurs in transit corridors.

This report focuses on the high-frequency transit corridors in the Twin Cities, a network that is made up of both LRT and BRT lines. Three studies that focused on LRT lines or stations, one study that focused on BRT lines or stations, and one study that focused on TOD broadly regardless of mode were included in this review to ensure all the applicable transit types were represented.

Evidence strongly suggests zoning affects TOD

In the first paragraph of the introduction to the Institute for Transportation & Development Policy 2013 report *More Development for your Transit Dollar*,⁷ the authors assert: “There is sufficient evidence that metro or subway systems, if coupled with zoning changes and other government interventions, can effectively concentrate new urban growth in transit-oriented locations.” The executive summary goes on to state: “Government support for TOD is the strongest predictor of success. A government that sees potential in a site for development can provide a range of support from regulatory changes to financing to marketing of the area. There is nearly a direct correlation between the level of TOD investment and the strength of government support. If a government does nothing to support TOD along the transit corridor, there will be no TOD impact.”

In research focused on rail, a 2018 study of five central Los Angeles Metro rail stations that opened between 1993 and 2003, authors Schuetz, Giuliano, and Shin concluded that “incompatible zoning and related land-use policies may constrain growth near stations.”⁸ The results of their case study comparisons showed that “zoning can impede station-oriented redevelopment if it limits TOD-compatible uses, restricts height or density too much, or creates excess uncertainty in the development process. Whether zoning constitutes a binding constraint on development depends on the written rules, implementation by public officials, and political pressure from constituents.”

In a study of another related topic, Thrun, Leider, and Chiqui in 2010 studied nearly 4,000 municipal jurisdictions to explore the relationship between vehicle

ownership rates and TOD zoning.⁹ Each jurisdiction was categorized as either having a TOD district or not having a TOD district. This report did not focus on just LRT or BRT but was wide-ranging and ultimately included both since it was limited by municipality size rather than specific regions or transit corridors. Their results indicated that “jurisdictions with TOD zoning had significantly higher percentages of occupied housing with no vehicle than those without TOD zoning. TOD zoning was associated with significantly higher rates of public transportation to work ... and active transportation to work.” They concluded that “communities that have or are considering developing public transit infrastructure may want to modify their zoning codes to include TODs.” This report does not specifically investigate whether having a TOD zoning district or overlay district lead to TOD, but its results imply that cities with TOD districts did see resulting TOD, allowing residents in those cities to not own a vehicle and commute via transit or active transportation. One limitation of this report is that it did not elaborate on how the determination of whether a zoning district was TOD or not was made, so it is not clear what zoning district features specifically resulted in these differences in resident travel habits.

Practitioners also believe zoning affects TOD

In a 2013 survey of 27 global cities, city and transportation planners interviewed by authors Cervero and Dai¹⁰ ranked the effectiveness of a variety of TOD implementation tools. Zoning incentives and density bonuses broadly were considered by survey respondents to be the second most effective tool to produce TOD along BRT. In terms of the most effective barriers to TOD, zoning restrictions only ranked 13th, but was given an average rating of 3.27 on a scale of 1 to 5, with 5 being the strongest barrier. The biggest barrier per these researchers’ survey, was the lack of dedicated funding for TOD. This paper was focused on examining whether BRT should be seen as having the same development potential as LRT. The researchers argue that it should, and also illuminate how zoning can be a barrier or boon for BRT TOD just as it can for LRT TOD.

In the 2016 paper *Developers’ Perspectives on Transit-Oriented Development*, authors Guthrie and Fan interviewed Twin Cities developers to study their perspective on what encourages TOD.¹¹ This study pre-dates BRT in the Twin Cities and so is limited to TOD on LRT. Guthrie and Fan found that “Recommendations for promoting transit-oriented development include reforming zoning and development regulations, broadening the focus of TOD to include frequent bus routes, providing greater certainty of future transit improvements.” As of

the interviews in 2012, “Twin Cities developers see current development regulations (such as single-use zoning, low density limits, and high parking minimums) as limiting them from building profitably near transit. A TOD zoning district, in which a developer can build a true TOD project (desired development) by right...would help level the playing field” [italics theirs.] Specifically, developers stated they preferred higher allowable densities to increase potential return on investment and reduced parking minimums to reduce costs.

Interviews with city planners and developers conducted for this report confirmed these study results. Practitioners interviewed for this study generally characterized zoning code ordinance as important to encouraging TOD. Practitioners emphasized that having zoning that encourages or enables TOD is important both to protect land in important areas and is important to indicate to developers what type of development will be encouraged. Practitioners also have an impact by raising awareness of the need for more dense, walkable environments.

Limits of zoning as a determining factor

As many of the studies referenced in this section pointed out, zoning isn't the only determinant of whether TOD will occur on a transit line. Schuetz, Giuliano, and Shin caution that “TOD-friendly zoning alone is not sufficient to spur development.”¹² A number of factors work together to encourage or discourage TOD.

Challenges of studying zoning

Schuetz, Giuliano, and Shin also highlighted the challenges of studying this topic: “This research also highlights some important measurement issues. In the sample neighborhoods, both new development and zoning are extremely difficult to measure accurately. The complexity of zoning has long challenged empirical researchers; even basic questions of what uses are permitted and at what density may be difficult to ascertain. Most quantitative analyses of real estate markets use sales prices from observed transactions or new building permits.”¹³ The limitations the complexities of zoning code impose on quantitative analysis will be discussed in other sections of this report as well.

Zoning that encourages TOD

If a city's zoning is a major factor in encouraging or discouraging TOD, what does TOD-supportive zoning look like? Many organizations define TOD broadly. The Institute for Transportation and Development Policy TOD Standard report includes access to local services, access to parks and playgrounds, and housing and business preservation as criteria for its rating of TOD. While broader features

could be considered, this investigation focuses on zoning that encourages TOD as defined by the Met Council: “Transit-Oriented Development is **walkable, moderate to high density** development served by frequent transit **with a mix of housing, retail, and employment choices** designed to allow people to live and work without need of a personal automobile.”¹⁴ Zoning can require, allow or prohibit each of these facets. We'll also list two other types of regulation that impact the feasibility of TOD: **form-based code** and **reduced vehicle parking minimum requirements**.

When zoning ordinances were first created and implemented in the first half of the 20th century, one core goal of the ordinances was separating noxious land uses from residential areas, which was generally achieved by restricting zones to a single land use, i.e. residential, industrial, etc.¹⁵ Another was to prohibit alternative housing styles or non-residential uses on land with single-family, detached homes.¹⁶ Most cities in the United States have zoning code that retains these distinctive features, often referred to as Euclidian zoning, which generally create development patterns that are more auto-oriented than transit-oriented. The features described below are departures from common zoning code features in many American municipalities.

Medium-to-high density

Zoning code that allows for TOD must allow for appropriate density. The Met Council calls for different housing densities based on community designations. Calculating how many units per acre zoning code will allow can be very complicated, since many different pieces of code (height limits, building bulk limits, and minimum lot square footage-to-unit number ratios, for instance) all interact to limit building size and allowable unit numbers. To allow for a simpler measure, for the purposes of this report, we will consider zoning code density appropriate if it allows at least three stories in mixed-use buildings (one story of commercial and two stories of housing) for cities designated urban, suburban, and suburban edge. We will consider zoning code density appropriate if it allows at least five stories in mixed-use buildings (one story of commercial and four stories of housing) for cities designated urban center.

Density is generally thought of as housing density, (for example, dwelling units/acre,) but in an appropriately mixed-use TOD block or station area, employment density could also be considered. Appropriate housing and employment density are necessary for TOD to be possible.

Walkable

Transit within walking distance is fundamental to TOD, and

these three criteria tend to reinforce each other – density (above) and mixed use (below) are important components of walkability. But other requirements or features of zoning code can encourage or discourage pedestrian-oriented building, block, and neighborhood design as well. Some examples include requirements that building entrances be oriented towards the street, architectural requirements around windows and building articulation that make streets feel friendlier, minimum building street frontage, or requiring connections to existing sidewalks or trails – these requirements or features could positively impact walkability. For the purposes of this analysis, our criteria will be a requirement or strong encouragement of street-facing (pedestrian-oriented) entrances (as opposed to parking lot/parking garage-facing entrances.)

Mixed-use

As referenced above, most cities in the United States have Euclidean zoning code, which is by definition use-based with each zoning district only allowing for one type of land use, prohibiting mixed uses. TOD-supportive zoning allows or requires mixed-use buildings, or, at the very least, mixed-use blocks.

Form-based code

Form-based code emphasizes governing built form rather than use. Form-based code contains five main elements: “1) a plan or map of the regulated area designating the locations where different building form standards apply; 2) specifies elements in the public realm, like sidewalks, travel lanes, on-street parking, street trees, and furniture; 3) building standards controlling the features, configurations, and functions of buildings; 4) a clearly defined and streamlined application and project review process; and 5) a glossary to ensure the precise use of technical terms.”¹⁷

This type of code organizes districts by physical form (like building size and height) rather than by land use (like residential vs. commercial.) A benefit is that this can “foster predictable build results and a walkable public realm,” according to Form Based Code Institute executive director Tocarra Nicole Thomas.¹⁸ Form-based zoning code or code that incorporates form-based elements can help to encourage TOD by prescribing dense, walkable development more pointedly than a zoning scheme that only prescribes specific land uses.

There are not very many instances in American cities of zoning code that is purely form-based and fully incorporates all five elements of form-based code. Many modern code updates include elements of form-based code but are not “purely” form-based. For the purposes of this analysis, the form-based elements we will look for will be focused on building standards, and how the

code describes the limits or requirements that dictate required or allowed building form and size. Traditional zoning code tends to encourage low density, auto-oriented development in part by focusing on creating minimum building setbacks that create big yards and widely spaced buildings. Form-based zoning code tends to encourage buildings that are built closer to the street and designed around pedestrian use and experience. Code that uses more of these elements: build-to lines, number of floors minimums/maximums, and percentage of built site frontage will be considered form-based for this assessment. Code that uses more of these elements: units/acre, FAR, setbacks, maximum building heights, will not.

Reduced vehicle parking minimum requirements

Off-street vehicle parking minimum requirements demand buildings contain certain numbers of off-street parking spaces per dwelling unit and/or based on building square footage, and often require more parking spaces than will be needed by residents/customers/employees. Forcing buildings to dedicate a large proportion of their square footage to car storage limits a parcel’s potential for density. Reducing or eliminating parking minimum requirements allows buildings to contain more housing and/or commercial space, increasing the potential for density on a given parcel. Code that allows a development to build less than one parking space per residential unit will be considered TOD-supportive zoning.

Case studies from other communities

Denver, CO

Denver has a hybrid of traditional and form-based zoning standards.¹⁹ Use is regulated using broad categories with the intention of minimizing the need for discretionary use permits. There are building form standards for each district and the code uses visuals to illustrate standards. It also has an explicitly stated intention to balance “conservation and development” and “guide the city’s prosperous future.”²⁰

Buffalo, NY

Buffalo adopted a form-based zoning code, also known as the Buffalo Green Code, and eliminated parking minimum requirements in 2017. The new Green Code has encouraged reuse of historic building stock²¹ and the city’s population has increased for the first time in 70 years.²²

Charlotte, NC

Charlotte adopted a unified development code (UDO), a type of zoning code that includes all development-related regulations (like zoning and subdivision regulations) in

one ordinance in 2022. Traditional zoning code splits different development-related topics across chapters. In its new code, Charlotte created a TOD zoning district with four sub-districts, allowing different heights and levels of density based on proximity to transit and ridership levels for nearby stations. Economic impact studies predict the more density- and TOD-supportive UDO will generate greater development potential and provide greater capacity for growth.²³

Equity and affordability

In a recent Equity in Zoning policy guide produced by the American Planning Association (APA), the APA states that creating a guide was necessary because while zoning laws are “often facially neutral,” many standard, common zoning laws also “perpetuate inequitable planning policies.” The first two recommendations to promote equity in zoning in this guide are “ZONING DISTRICT POLICY 1. Establish new residential zoning districts or amend existing residential districts to allow more types of housing by right,” and “ZONING DISTRICT POLICY 2. Establish new mixed-use zoning districts or allow a wider mix of residential and non-residential uses in existing zoning districts.”²⁴

The first criteria in the Transportation section of the Equitable Development Principles Scorecard produced by The Alliance scores new projects by whether the “Development is people-focused, minimizing car-oriented design by providing and increasing safe, attractive, and convenient access to pedestrian, bicycle, bus and

rail transit, and zero-emission car sharing systems.”²⁵ Increasingly, organizations like the APA and The Alliance argue that modifying our zoning codes to allow more types of homes in more places and de-centering car-oriented design is a way to further equity.

Like racial and economic inequity, housing affordability is also an urgent problem in the Twin Cities region, and creating more affordable housing could be a key way to further equity. One way a city’s zoning code and regulatory scheme can affect affordability is by having clear rules and processes to make design and permitting less time-consuming – and therefore less expensive – for developers. For this reason, TOD-supportive zoning and the clear and concise zoning code types recommended in this report can have a positive impact on housing affordability.

This is not to claim that clear and concise zoning code and permitting processes are enough to make housing affordable, however. A variety of strategies and policies are important to help ensure the housing added to communities includes affordable units, ensuring that the benefits of TOD are available to all residents. A true survey of these policy options and their impacts is beyond the scope of this report, but it bears stating that ensuring affordable housing production is included in new developments is a necessary piece of encouraging equitable TOD.

TOD zoning and policy in the Twin Cities

TOD zoning elements in Twin Cities zoning code

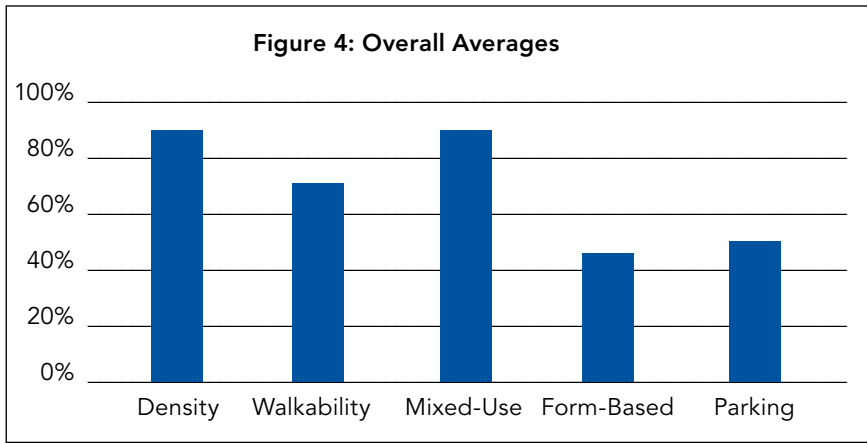
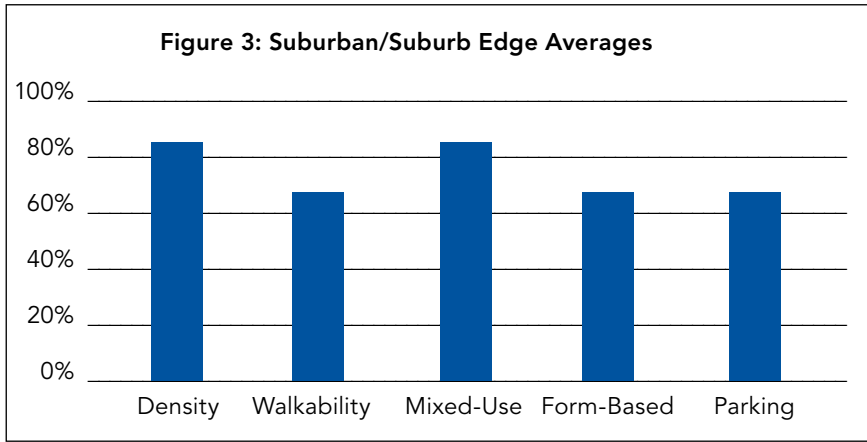
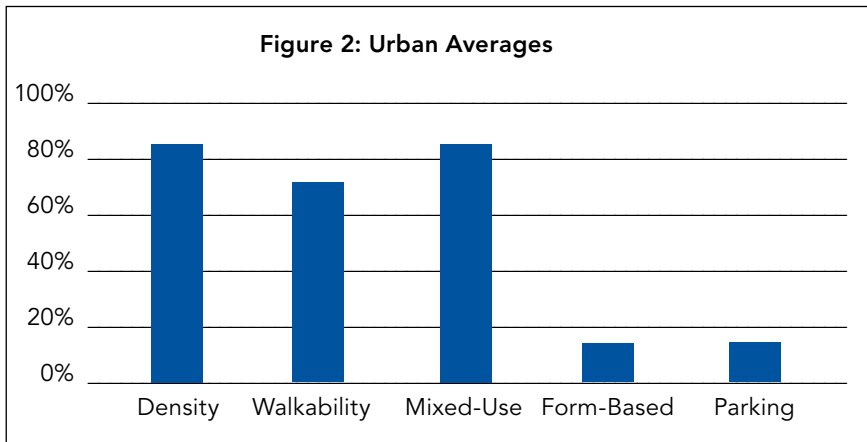
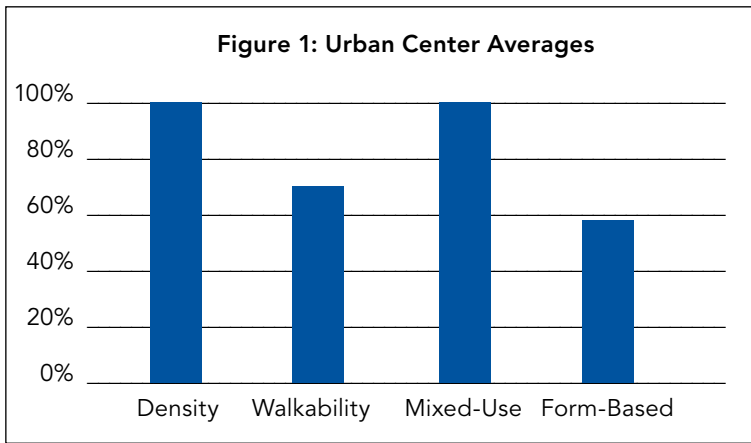
The previously referenced, American Planning Association Equity in Zoning Policy Guide states, “In many states plans are only advisory, while zoning is the law. Even in those states that mandate comprehensive or land use planning and require that zoning be consistent with those plans, there is always a gap between the aspirational language of the plan and what parts of that vision become the law governing development and redevelopment of property.”²⁶ In the Metro Transit TOD Office’s previous report on Comprehensive Land Use Planning, it was found that all cities with high-frequency transit “address transit in their comprehensive plans and most call out TOD specifically. TOD is often defined and goes beyond density considerations to address design and type of

uses.”²⁷ This section will explore how those land-use categories and plans have been incorporated into zoning ordinance.

Most cities in the Twin Cities that have existing or planned high-frequency transit have at least one zoning district that allows or requires some, if not all, of the TOD elements of appropriate density, walkability, a mix of uses, form-based code features, and low or no vehicle parking minimum requirements. Some elements are more common in the Twin Cities than others. The table below is the result of an analysis of the most TOD- friendly zoning district(s) or overlay districts in each of the cities analyzed, and shows what percentage of cities in each 2040 Thrive Community Designation category used each element in their zoning code. It also shows what percentage of cities overall used each element in their zoning code.

Table 1: High Frequency Fixed-Route Transit Routes and their Respective Cities

Thrive 2040 Community Designation	Cities Included	Appropriate Density	Walkability	Mixed-Use	Form-Based Code	Low-No Parking Min. Requirements
Urban Center Average	Columbia Heights, Hopkins, Minneapolis, Richfield, Robbinsdale, St. Louis Park, St. Paul	100%	71%	100%	57%	71%
Urban Average	Bloomington, Brooklyn Center, Crystal, Falcon Heights, Lauderdale, Maplewood, Roseville	86%	71%	86%	14%	14%
Suburban and Suburban Edge Average	Brooklyn Park, Burnsville, Eden Prairie, Minnetonka, Oakdale, Woodbury	83%	67%	83%	67%	67%
Overall Average	All	90%	70%	90%	45%	50%



Density and mixed-use were the most common elements to be present in zoning ordinance. Form-based-inspired code and low/no parking minimum requirements were less common. Overall, fewer than half the municipalities in the Twin Cities within the study area have form-based code elements or a mechanism to require fewer than one structured parking space per residential unit – these TOD-supportive elements have not been adopted very broadly in the Twin Cities. Interestingly, form-based code features and low/no parking minimum requirements were more common in TOD-supportive code in urban center, suburban, and suburban edge communities than in urban communities.

It bears stating that different cities take very different approaches to encouraging TOD in their zoning ordinance, including creating TOD and/or mixed-use zoning districts, TOD overlay districts, or districts specific to a certain transit station or redevelopment site. And some cities don't have zoning code that is TOD-supportive but do use planned unit development ordinance or grant variances to create and permit TOD projects. However, research has demonstrated that zoning that does not allow TOD by-right can be a barrier to TOD, and it is informative to examine where zoning that allows TOD by-right has been deployed.

Another important thing to note is the relationship between the designations "TOD" and "mixed-use." Some cities name their TOD-supportive zoning districts TOD districts, some name them mixed-use districts. Some have both. In this small sample size, cities that named one or more of their districts "TOD" had a slightly higher number of the assessment criteria, on average, than those that didn't. But there were also several cities that didn't use "TOD" in their district names that deployed all or nearly all the TOD-supportive zoning elements from our criteria. In practice, mixed-use development and TOD can and often do have a lot of similar design features and goals. One advantage of labeling a district mixed-use is that that district can more logically be deployed in other areas that aren't as close to transit but that still may be an appropriate site for mixed-use development. Broadly speaking, this report found that zoning districts designed to encourage mixed-use development and neighborhoods were generally also TOD-supportive.

Unique approaches: Twin Cities zoning code case

Oakdale

The City of Oakdale's TOD zoning districts, The Helmo Station Planned Unit Development and the Greenway Station Planned Unit Development (both stations on

the METRO Gold Line bus rapid transit project, which is currently under construction) are districts specifically for the Helmo and Greenway Gold Line station areas, rather than districts that can be deployed anywhere in the city. In June 2017, Oakdale started working on station area plans for both stations, and then adopted much of those plans as zoning ordinance.²⁸

This unique approach means the districts are specifically tailored to the two areas. They include maps of the station area with illustrations of which building types are desired on different parcels and blocks around the station. During the station area planning for Helmo Station, the city also created parcels sized for the development type the city prefers, creating a grid of parcels sized for the desired development. This unique approach creates a fairly complete vision for a mixed-use, walkable neighborhood for both stations.

Hopkins

The City of Hopkins adopted new development code in 2022, replacing prior zoning ordinance.²⁹ The new code has 12 mixed-use zones categorized into mixed-use, residential-office, residential mix, employment mix, and industrial sub-districts. Seven specific building types are allowed in the 12 zones. Generally speaking, zoning code is text only, with grids and occasional diagrams. Hopkins' code, however, includes photos illustrating real-life examples of each building type, diagrams showing allowable lot coverage/setbacks, and simple, clean tables explaining building and design standards. The advantage of this is clear visuals that clarify the types of buildings allowed and desired in each district.

St. Louis Park

St. Louis Park currently has a Mixed-Use zoning district with two sub-districts.³⁰ Like many TOD/Mixed-Use zoning districts in the Twin Cities, it uses build-to zones, required built site frontage ratios, and number of stories to govern building design standards rather than older mechanisms like floor-area-ratio, height limits, and setbacks.

Unlike a lot of other cities, its minimum parking requirement is fairly low. One parking space/unit is required, and the total parking spaces required can be reduced by up to 10% if a new building has a Transportation Demand Management plan or if the parcel is within ¼ mile of high-frequency transit service. Additionally, street parking can count toward parking spaces. These regulations allow buildings to reserve less space for parking than more restrictive traditional zoning regulations.

The city also rewards inclusion of specific features like affordable units, affordable commercial space, public

gathering spaces, and travel demand management strategies with density bonuses, to encourage development of buildings with these features. Another unique feature of St. Louis Park's zoning code is a de-emphasis on separating land uses. One of the sub-districts in the Mixed-Use district actually requires a mix of uses. And nearly all the other zoning districts, even the older, non-mixed-use districts, have been updated to allow multiple uses. This relaxation of land use separations allows for greater diversity of development, creating more walkable neighborhoods.

Brooklyn Center

Brooklyn Center's unified development ordinance was recently passed into ordinance, replacing the previous zoning ordinance.³¹ It combines the platting and zoning ordinances into one chapter, creating simplified code that gives code users a more complete picture of what the size and scale of parcels and development will look like. Another unique feature of this code is the parking ordinance. Shared parking is also encouraged, and parking spaces on an adjacent property can count towards parking spaces for a development. For multi-family developments, the ordinance also lists two parking spaces/unit as the maximum allowed parking spaces, rather than requiring a minimum parking space ratio. The ordinance also specifies that a zoning administrator will determine the minimum number of parking spaces on a case-by-case basis. This new ordinance creates much more flexibility for developers to build less parking than is traditionally required, paving the way for more TOD.

The new zoning code also contains five mixed-use sub-districts, allowing much more mixed-use development than the previous zoning code, one of which is specifically a TOD sub-district.

Minneapolis

Minneapolis is in the process of overhauling its zoning code to bring it into compliance with its 2040 comprehensive plan.³² The plan called for substantial changes to what land uses and building types were allowed in parts of the city, including the elimination of single-family zoning. Instead of including built-form design guidelines within its zoning districts, which is the more common ordinance design, the City of Minneapolis created a built-form overlay that encompasses the entire city. So the ordinance that governs building bulk and housing density is separate from the ordinance that governs allowable uses. This unique system allows for more flexibility, allowing the city to apply different built-form design guidance and parcels that have the same zoning/land use designation and vice versa.

Zoning designations for land near transit

City zoning maps indicate what land has been assigned to each zoning district, including TOD-supportive zoning districts. For this report, an ArcGIS analysis was run to determine what land within a ½ mile of a transitway station (LRT, ABRT or BRT) or within a ¼ mile of a high-frequency local bus route is currently zoned within a TOD-supportive districts or overlay.

Our analysis also looked at how much land within this same buffer was zoned exclusively for detached, residential single-family homes. According to a Star Tribune analysis, 73% of residential land in the Twin Cities within the boundaries of the regional sewer system is zoned for single-family homes only, a development style that discourages or prohibits many of the features that encourage TOD. This analysis also examined what land within a ½ mile of a transitway station (LRT, ABRT, or BRT) or within a ¼ mile of a high-frequency local bus route is currently zoned for single-family homes only.

Methodology and limitations

Zoning shapefiles were collected from municipalities to conduct this analysis. See individual transitway maps in the Appendix for data sources. For municipalities without GIS data, parcels with TOD or single-family zoning were manually created using publicly available zoning maps. Each municipality maintains zoning data differently; data sets exist in many different projections, with widely different attributes – some maintained, others remain unpopulated. Total acreage of TOD-supportive zoning districts, single-family only zoning districts, and all other zoning districts was calculated within each transitway buffer. Land included in the high-frequency local bus category consists of that within a ¼ mile of a high-frequency local bus line, exclusive of any land within the ½ mile fixed-route transitway buffer.

For the METRO Blue Line LRT Extension the transitway corridor was based on the current route proposal. For the METRO Purple Line BRT, this analysis examined the corridor from Union Depot Station in St. Paul to Maplewood Mall Transit Center in Maplewood.

Highway right-of-way, active railroad right-of-way, open water, large stormwater ponds, identifiable parks, cemeteries, large electrical substations, powerplants, flood walls, airport, and protected wildlife areas were all removed from the total zoned acreage examined within each transitway buffer. Any land that is not developable for other reasons may still be included in the total developable acreage for each transitway in this analysis (i.e. universities.)

Several cities that do have land within the transitway buffer have been excluded. Edina and New Hope each have a small sliver of land on the outer edge of one of the station areas, but since it was such a small proportion of the overall transitway, and because these cities don't have any current or planned high-frequency stations within their city boundaries, they were excluded from this analysis. Fridley has a small amount of land within the current high-frequency buffer area, but since the F Line is early in the planning process, Fridley and the F Line have been excluded from this analysis. Hilltop and Landfall were also excluded from this analysis because much of the land use is manufactured home parks (a type of affordable housing) and is not likely to be redeveloped. The Fort Snelling, Terminal 1, and Terminal 2 stations on the Blue Line also were excluded from this analysis because it is an 'unorganized territory' and Military Reservation with Federal interest in all land there.

Some parcels may have an existing use that does not conform to its current zoning district designation. For example, some schools are zoned single-family home-only zoning districts, or some parcels have a use or development type that is grandfathered in and/or is not technically allowed under its current zoning designation in the event of redevelopment. In these cases, the parcel was categorized based on its current zoning district per the municipality's zoning map rather than based on its current use or development type. Zoning data from multiple cities consist of large 'district' polygons, as opposed to maintaining data at the parcel polygon level. In these cases, zoning polygons were intersected with parcel polygons to remove non-developable land (i.e. highway right-of-way, open water, etc.) from the calculations. This intersection was necessary to calculate acres zoned for all cities consistently. In most cases, these large zoning polygons also do not align with parcel polygon boundaries, resulting in numerous insignificant sliver polygons that account for the tolerance level of error in this study.

Zoning districts that were considered TOD-supportive were districts that had a stated intention in the code of encouraging TOD and/or mixed-use development. Zoning districts that did not have a stated intention of encouraging TOD and/or mixed-use but that did encourage at least two of the TOD features outlined in the What Zoning Features Encourage TOD section were

also considered TOD-supportive. Parcels zoned Planned Unit Development were not counted in the TOD-supportive acreage even if the development itself could be considered TOD, since this zoning designation does not necessarily allow TOD by-right if the parcel were to be redeveloped.

Zoning districts were categorized as single-family-only if the zoning district prohibited attached and/or two- or multi-family dwellings. Zoning districts that allowed two- or multi-family dwellings, but which also had other regulations that would restrict most lots in the district from having anything two- or multi-family buildings were also considered single-family-only. Examples of restrictions were much higher minimum lot sizes for two- or multi-family dwellings as compared to minimums for single-family detached homes, or two- or multi-family dwellings requiring a conditional use permit while single-family homes are a permitted use.

City zoning ordinance is often updated and adapted, and several cities in the area of interest have recently or are currently updating their zoning code. This assessment is based on the zoning code in these cities as of the end of 2022. For instance, the Minneapolis Land Use Rezoning Study had not yet started when this analysis was run. If this analysis were to be performed again the Urban Neighborhood 3 zoning district would have been included as one of the TOD-supportive Minneapolis zoning districts, which would have altered the results slightly.

Percentage of land with TOD-supportive zoning or single-family-only zoning near high-frequency transit

Table 3 below displays the acreage along each high-frequency transitway zoned for TOD and zoned for single-family homes only. (Maps of each transitway's zoning, categorized into TOD-supportive zoning, single-family-only zoning, and other zoning districts are in the Appendix of this report.)

Table 3: TOD and Single-Family-Only Zoning Along Transitways

Transitway	Cities Included	TOD-Supportive Zoning	Single-Family Only Zoning	Other Zoning Districts
Metro Blue Line	Bloomington, Minneapolis	54.3%	0.5%	45.2%
Metro Green Line	Minneapolis, St. Paul	60.7%	12.6%	26.6%
Green Line Extension	Eden Prairie, Hopkins, Minneapolis, Minnetonka, St. Louis Park	23.8%	9.7%	66.5%
Blue Line Extension (Draft)	Brooklyn Park, Crystal, Minneapolis, Robbinsdale	24.0%	31.7%	44.3%
Metro A Line	Falcon Heights, Minneapolis, Roseville, St. Paul	21.9%	38.6%	39.6%
Metro B Line	Minneapolis, St. Louis Park, St. Paul	23.1%	13.2%	63.7%
Metro C Line	Brooklyn Center, Minneapolis	34.5%	8.1%	57.5%
Metro D Line	Bloomington, Brooklyn Center, Minneapolis, Richfield	25.4%	6.1%	68.5%
Orange Line	Bloomington, Burnsville, Minneapolis, Richfield	34.5%	15.1%	50.4%
Gold Line	Maplewood, Oakdale, St. Paul, Woodbury	18.6%	32.7%	48.7%
Purple Line (Draft, Partial)	Maplewood, St. Paul	33.2%	28.6%	38.2%
High-Frequency Local Bus 2022 Network*	Columbia Heights, Falcon Heights, Lauderdale, Minneapolis, Richfield, St. Paul	22.9%	21.2%	55.9%

The acreage included in this category was land within 1/4 mile of a high-frequency local bus line, exclusive of land that was within 1/2 mile of ABRT, BRT, or light rail stations.

The percentage of land zoned to allow TOD varies widely between different transitway corridors. Using the ½ or ¼ mile transitway buffer as a proxy for walking distance, between 19% and 35% of the land within walking distance of planned LRT Extension stations, planned or existing BRT/ABRT stations, and high-frequency local bus lines is zoned to encourage or allow TOD. More than 50% of the land within walking distance of active LRT lines is zoned to allow TOD.

For many transitways the percentage of land within walking distance of stations zoned to allow TOD is very low. For six of the 11 transitways analyzed, and for land along high-frequency local bus routes, 25% or less of the land within walking distance of stations is zoned to allow TOD by-right.

Proportion of land in downtown Minneapolis and downtown St. Paul appears to be the biggest contributing factor to for transitways with higher percentages of land with TOD-supportive zoning. Transitways with more stations in one or both of the downtowns have higher percentages of land with TOD-supportive zoning. Another pattern is that older routes appear to have more TOD than newer routes, which may be due to those municipalities simply having more time to adapt their zoning code.

Efforts many cities have undertaken to update their zoning code to allow for more TOD – especially for land adjacent to stations – is clear when looking at maps of the transitways. However, for many stations, land that is outside the area immediately adjacent to the station is often not zoned to allow TOD by-right. For some stations, very little or no land within walking distance of the station

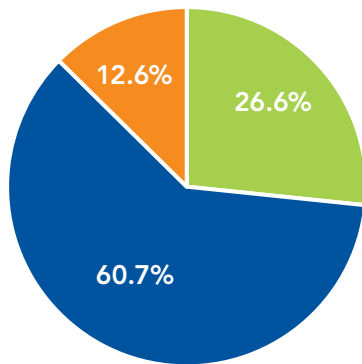
is zoned for TOD. Existing development patterns in some areas could make TOD challenging or unlikely in the near-term, but this is still worth noting.

For many of the transitways, a quarter or more of the land within walking distance of stations is zoned for single-family homes only, limiting the number of people who could live within walking distance of many high-frequency transit stations or lines. Minneapolis several years ago became one of the first major cities to eliminate single-family-only zoning, and transit lines with a high proportion of stations in Minneapolis predictably have the lowest percentage of land zoned for single-family homes only. Roseville has eliminated single-family zoning as well, although since there are fewer high-frequency stations in Roseville the impact of this is harder to detect in Table 3. The impact can be seen in the A Line map

in the Appendix, however. Single-family home-only is a dominant land-use category in the Twin Cities, and that is evident in this analysis – three of the transitways analyzed have more land zoned for single-family homes only than for TOD.

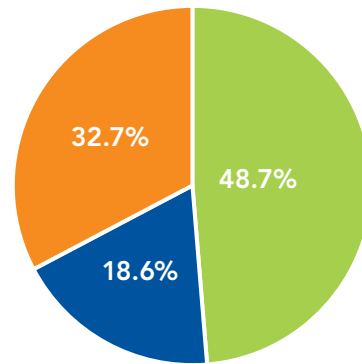
To visualize this data another way, the three Figures below (Figure 5, Figure 6, and Figure 7) show the proportions of land within the three categories in three different transitways. Figure 5: METRO Green Line is the transitway with the highest percentage of TOD-supportive zoning. Figure 6: METRO Gold Line is the transitway with the lowest percentage of TOD-supportive zoning. Figure 7: METRO A Line is the transitway with the highest percentage of single-family only zoning. Charts for each transitway are included in the Appendix of this report.

Figure 5: METRO Green Line



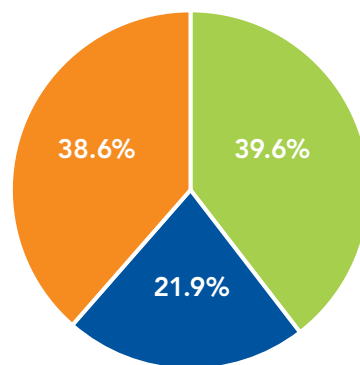
Other Districts (Green) | TOD-Supportive (Blue) | Single-Family Only (Orange)

Figure 6: METRO Gold Line



Other Districts (Green) | TOD-Supportive (Blue) | Single-Family Only (Orange)

Figure 7: METRO A Line



Other Districts (Green) | TOD-Supportive (Blue) | Single-Family Only (Orange)

Challenges to creating TOD-supportive zoning and to creating TOD

Interviews with planning and development practitioners revealed some of the barriers to creating TOD-supportive zoning, and also highlighted some of the biggest non-zoning-related barriers to creating more TOD. These factors are important to acknowledge to understand the full picture of how to encourage TOD.

Challenges in creating TOD-supportive zoning code

Complexity of designing regulation

Practitioners emphasized that zoning ordinance is complicated to write. Creating code with the “right amount of regulation,” which has specific enough design requirements to create buildings and neighborhoods with TOD features, but which is also flexible enough to be implemented on different parcels without needing variances, is difficult. In the words of one former planner, “There is no off-the-shelf TOD zoning ordinance anywhere. It doesn’t exist.” Somewhat frequently, cities use Planned Unit Development (PUD) ordinance to approve transit-oriented developments because the project wouldn’t be approved under the existing code without a lot of variances, sometimes even in cities that have zoning code designed to encourage TOD. PUD ordinance allows the city to essentially work out regulations specific to the project, but they can be more work for both city staff and developers, which can impact affordability.

Practitioners agreed that zoning code that allows TOD to be built by-right would be preferable, but in many instances creating zoning code that is detailed enough to encourage TOD but also flexible enough to not require variances is difficult to create. Specifically, height restrictions, side yard setbacks, inflexible mixed-use requirements, and parking requirements were cited as aspects of regulation that prevent TOD from being possible on a parcel, even in zoning code that is intended to be more TOD-supportive. One practitioner pointed out that it hasn’t been a norm for municipalities to “fit-test” code to test how a set of regulations impacts what is possible on different lot sizes, which can lead to zoning code that has restrictions and built-form regulations that ultimately prevent desirable developments from being built by-right.

Funding

Grant funding plays a big role in the creation of TOD-supportive policy and zoning. Some of the most

TOD-supportive codes in the Twin Cities were the result of Met Council-administered Livable Communities Act grant funding. Many others were partially created by grant funding. For several cities, Federal Transit Administration funds supported corridor planning for new transit lines, and this grant-funding corridor planning led to policies or plans that were ultimately adapted and adopted as zoning code. About half the cities that have TOD-supportive zoning code were able to do so because of grant funding, either directly or indirectly, and it’s not clear if they would have TOD-supportive zoning otherwise. Financial resources are an important factor in promoting TOD-supportive zoning, and ultimately supporting TOD.

Non-zoning barriers to creating more TOD

Subdivision code

Practitioners emphasized that having subdivision ordinance code that encourages TOD is as important to encouraging TOD as zoning code. A city’s subdivision ordinance is often separate from zoning ordinance, but it regulates important physical features like allowable block length. Having subdivision ordinance that encourages small, walkable blocks, is an important prerequisite to encouraging development with transit-oriented features. This is particularly important in cities or areas that don’t already have an established street grid or system with small blocks. In instances where small lots already exist, it can also be useful to have ordinance that allows lots to be combined to allow for a greater density of development than the existing land use. Ultimately, having subdivision ordinance that encourages lot sizes, block sizes, and street grids that are walkable will help encourage TOD.

Existing development, land use patterns, and land availability

Many practitioners highlighted current land use as a challenge in encouraging more TOD. Current owners of land that is not currently TOD need to be open to redevelopment opportunities, obviously, but as implied by the previous section on subdivision code, existing development is often car-oriented in the sense that it has large, wide blocks and street patterns that are not pedestrian-friendly. Both land availability and existing land use patterns are barriers to creating more TOD. Land banking, or the practice of the city or another public entity purchasing land to control re/development, was named by several practitioners as a tool that has been helpful in creating more TOD in the past, and a tool that would be

helpful if it could be used more often. Affordable housing developers, in particular, emphasized that land banking is crucial to allowing more affordable TOD.

Politics and NIMBYism

Another factor named by practitioners that can be a barrier is a community's political climate and public opinion. Different politicians place varying degrees of emphasis on encouraging TOD as a goal of their municipality generally. Allowing TOD or updating zoning code to make it more TOD-supportive, can similarly be low priority. Resident opposition to development, or NIMBYism, is another notorious barrier to development. Developers interviewed for this report cited several instances of projects prevented by anti-development residents who were able to challenge or prevent permit approvals because projects required variances or special approvals. The barriers often created by a community's political climate and NIMBYism makes implementing zoning that allows TOD by-right extremely important.

Development market

Practitioners pointed to the housing market as a barrier to TOD. A perceived lack of market for transit-oriented commercial or industrial development creates a barrier to TOD that would provide more walkable employment. Some planners found it hard to find developers interested in developing smaller-scale projects and that there is a tendency to want to build much larger buildings to reduce the cost per unit of construction, creating projects that have a bigger footprint and are less walkable. Similarly, some found it hard to find developers willing to design pedestrian-oriented projects with less parking than development has generally had in the past. Broadly speaking, it can be challenging to encourage development that is not car-oriented in its design due to decades of dominance by car-oriented development. More recently, higher interest rates and construction costs have made it more difficult to create a development that is profitable.

Prohibition of point access blocks

In the state of Minnesota, units in multi-family buildings over three stories are required to have full access to two stairways for fire code reasons. This requires any building over three stories to devote a lot of square footage to long hallways connecting every unit to two staircases, removing that square footage from bringing in rent and making the housing overall more expensive. In many European and Asian countries, "point access block" buildings are legal, allowing buildings with units that have access to only one staircase. The countries and regions that allow these styles of buildings don't see them result in fire safety issues. Allowing point access blocks could allow more

units in multi-family buildings and could reduce the cost of development, and therefore the cost of housing. This is a state-level regulation, but it is a barrier nonetheless.

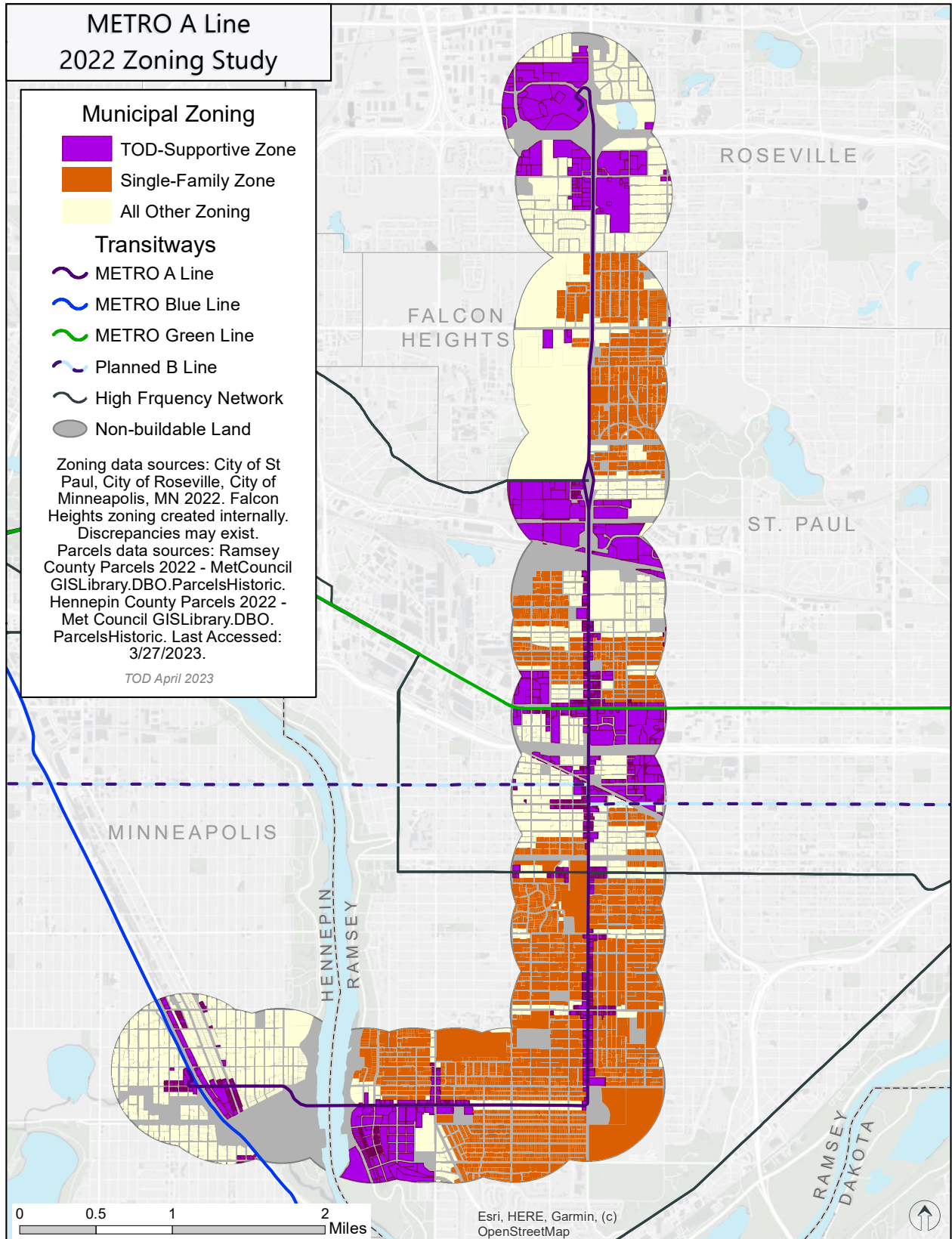
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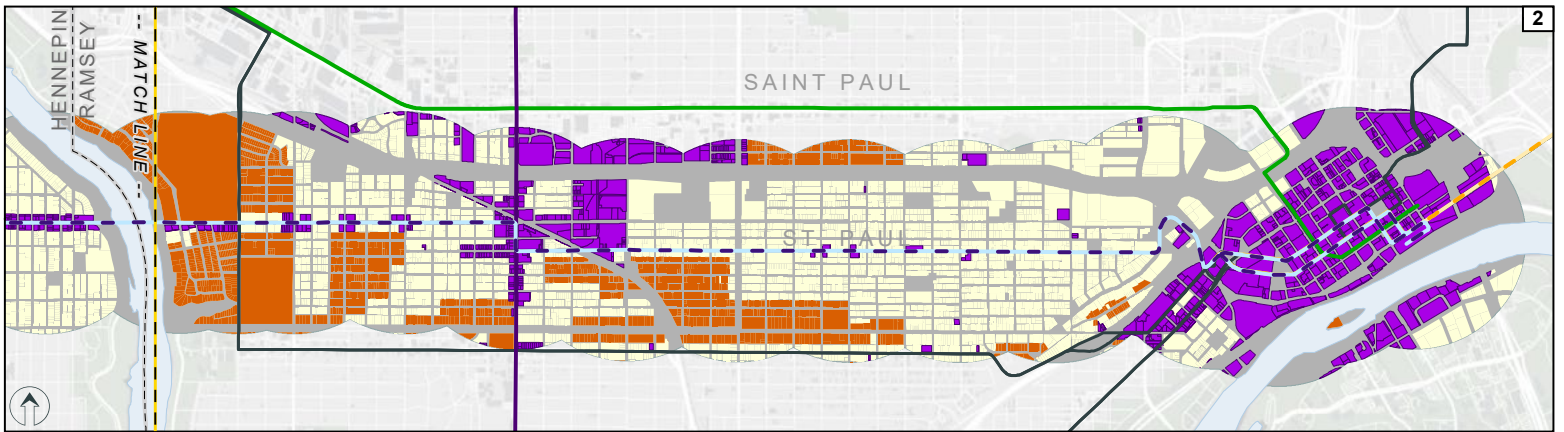
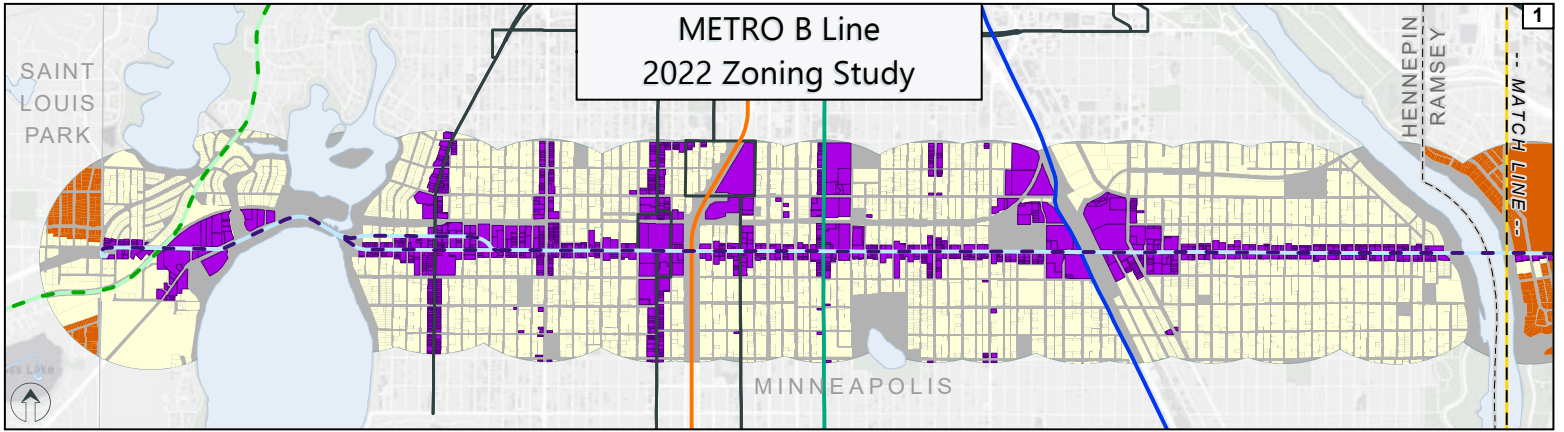
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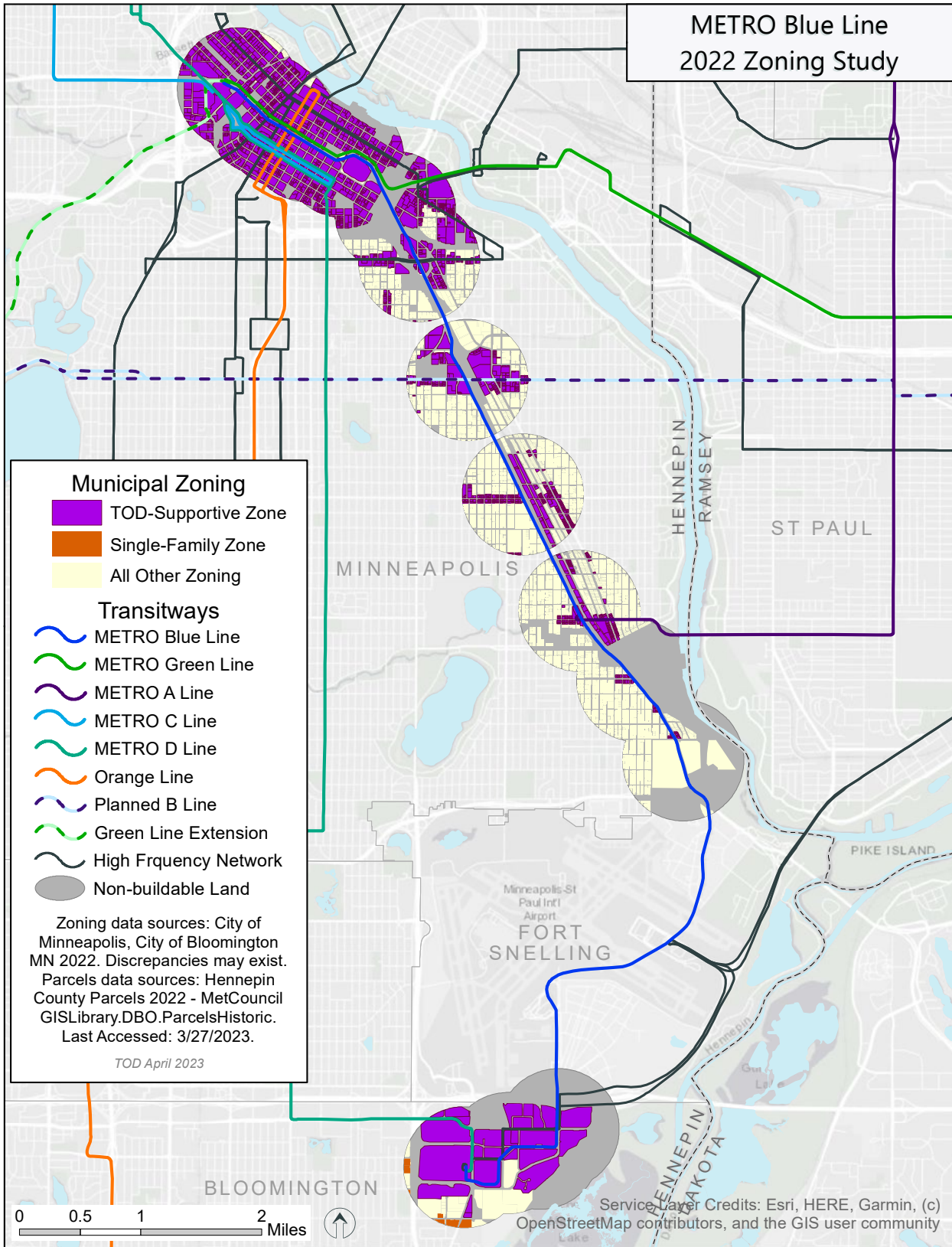
Appendix

Transitway maps

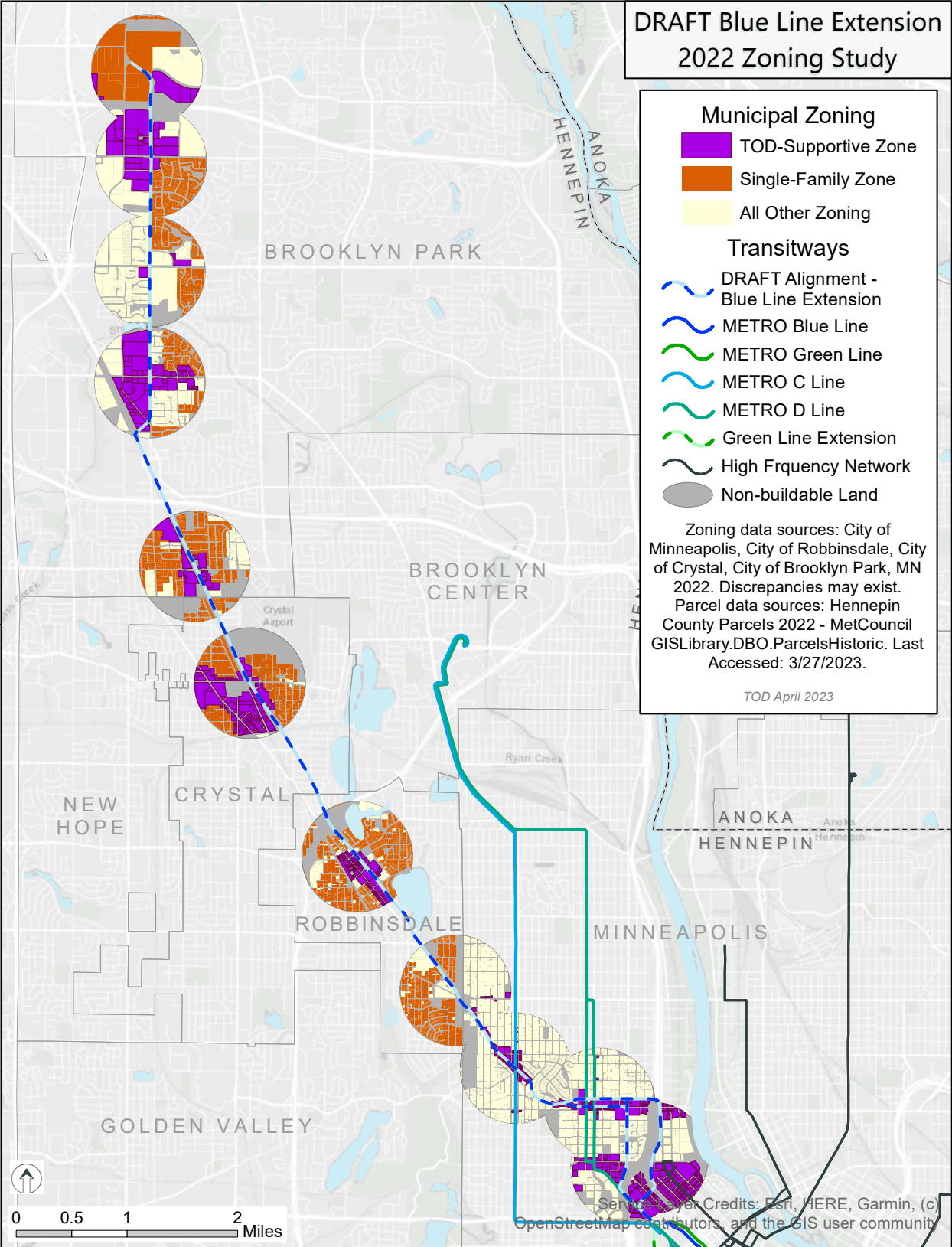




Municipal Zoning		Transitways		<p>0 0.5 1 2 Miles</p> <p>Zoning data sources: City of Minneapolis, City of Saint Louis Park, City of Saint Paul, MN 2022. Discrepancies may exist. Parcels data sources: Ramsey County Parcels 2022 - MetCouncil GISLibrary.DBO.ParcelsHistoric. Hennepin County Parcels 2022 - Met Council GISLibrary.DBO. ParcelsHistoric. Last Accessed: 3/27/2023. TOD April 2023</p>
TOD-Supportive Zone	Single-Family Zone	All Other Zoning		
	High Frequency Network	Planned B Line	METRO D Line	
	METRO Blue Line	METRO Green Line	Orange Line	
	METRO A Line	Planned Gold Line	Green Line Extension	
		Non-buildable Land		



DRAFT Blue Line Extension 2022 Zoning Study



Municipal Zoning

- TOD-Supportive Zone
- Single-Family Zone
- All Other Zoning

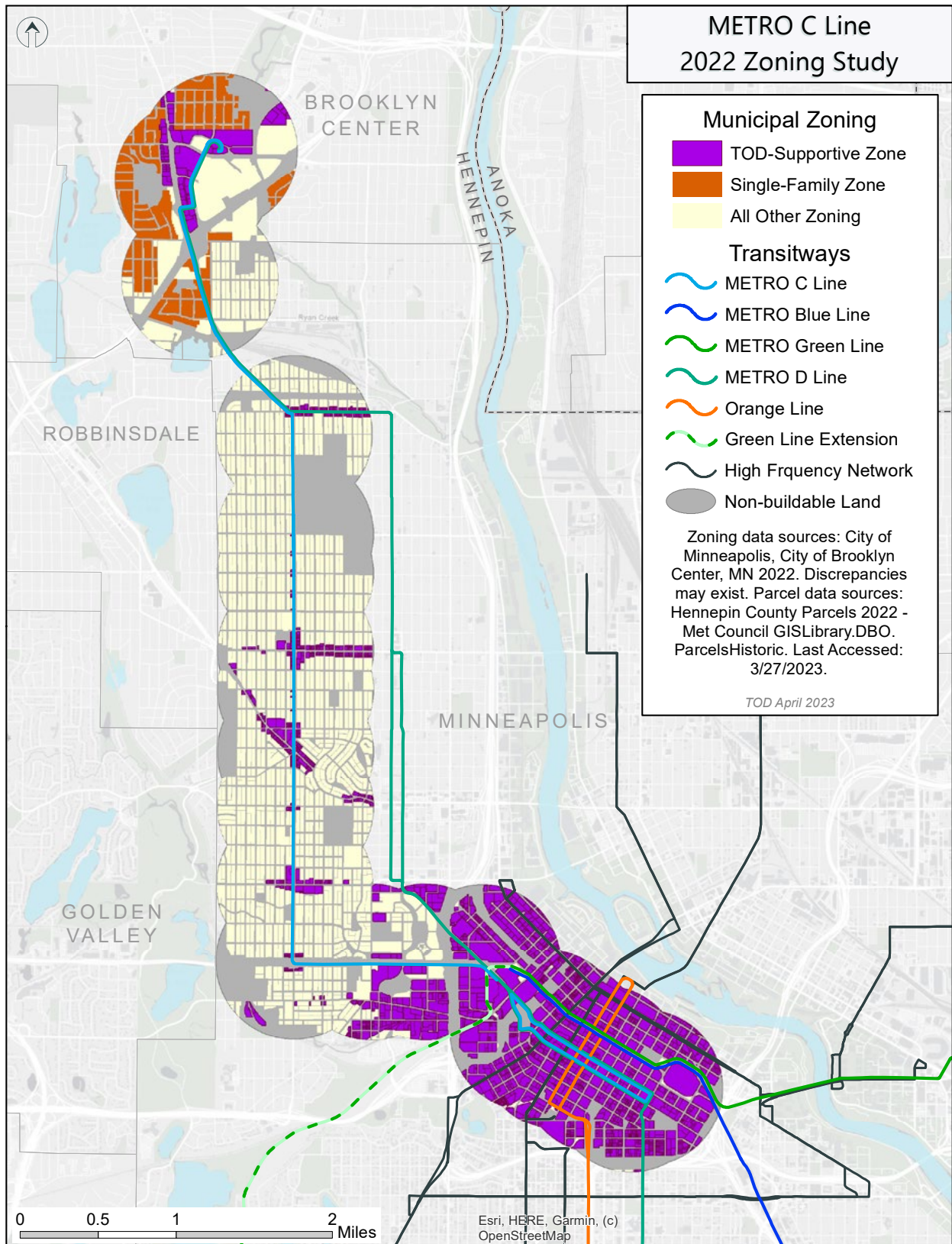
Transitways

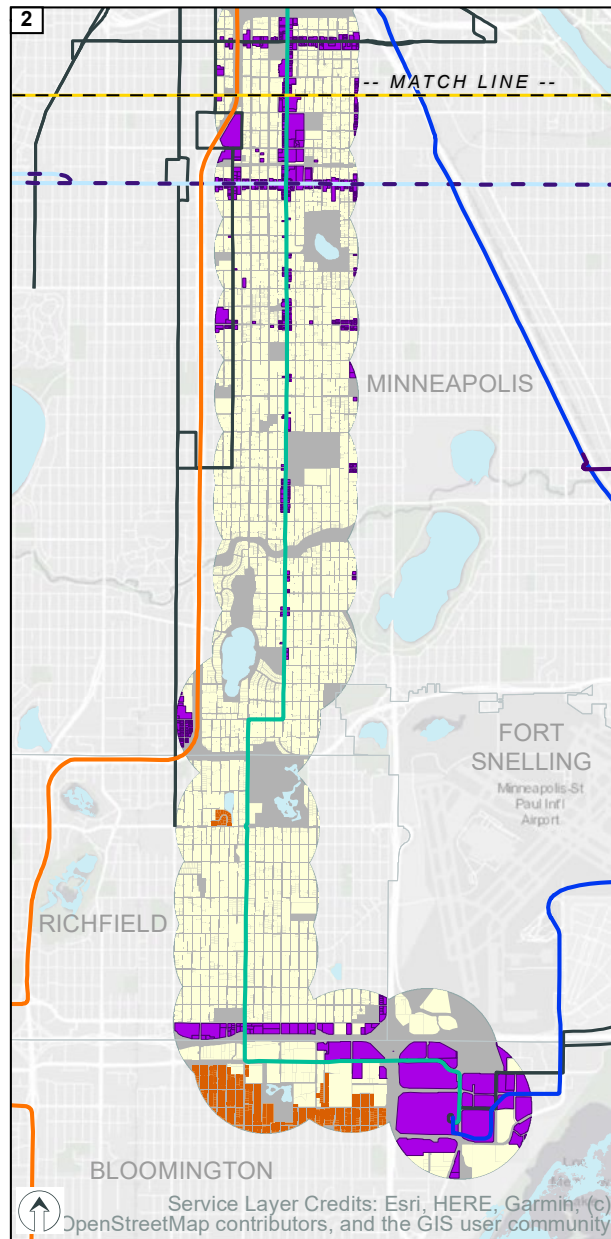
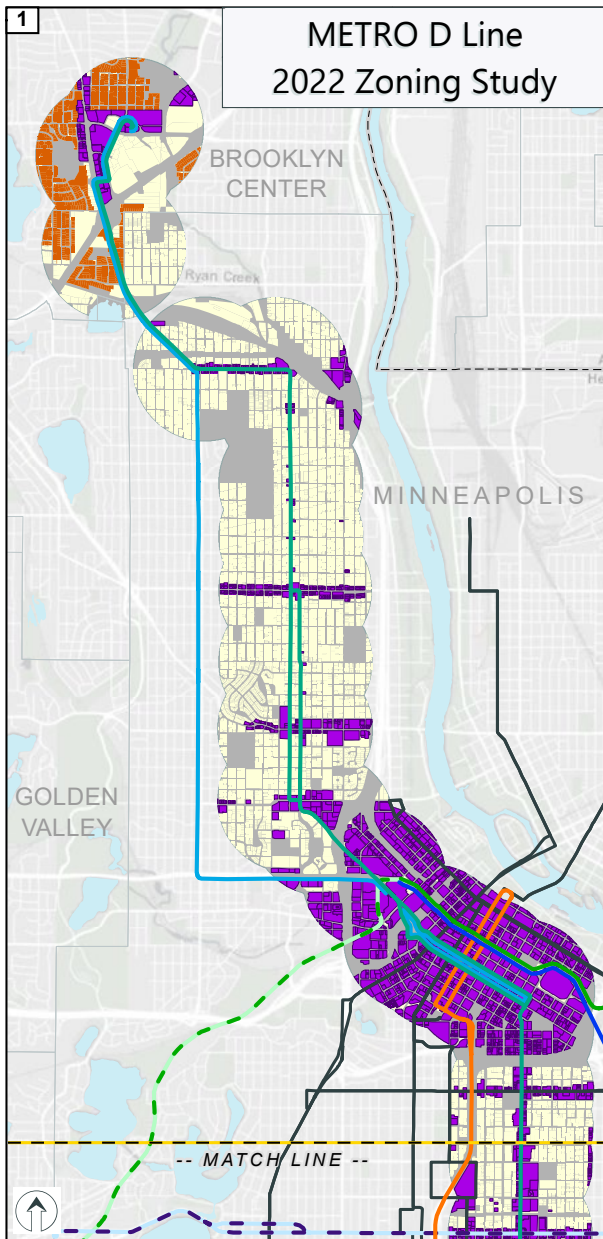
- DRAFT Alignment - Blue Line Extension
- METRO Blue Line
- METRO Green Line
- METRO C Line
- METRO D Line
- Green Line Extension
- High Frequency Network
- Non-buildable Land

Zoning data sources: City of Minneapolis, City of Robbinsdale, City of Crystal, City of Brooklyn Park, MN 2022. Discrepancies may exist.
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TOD April 2023

Service Provider Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

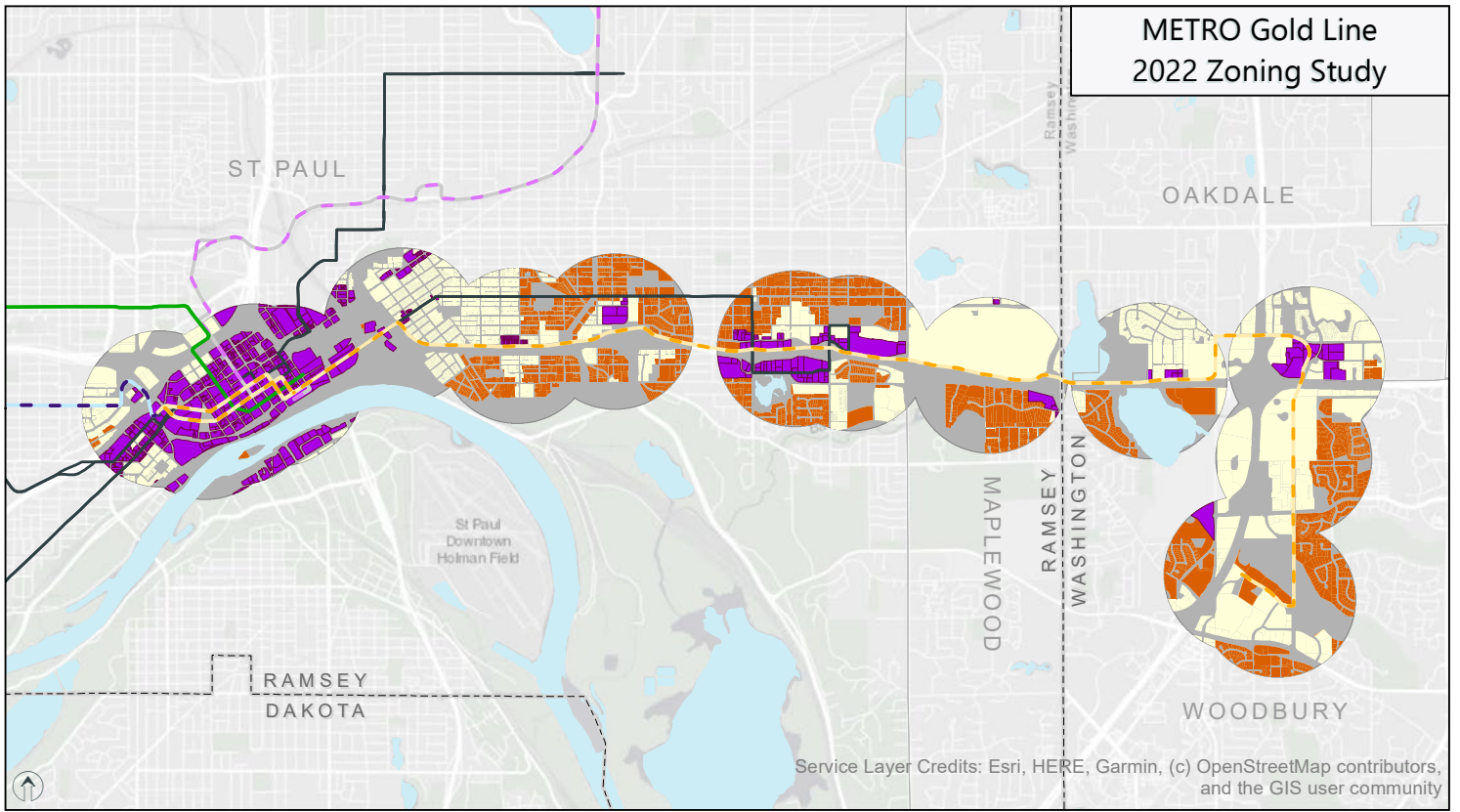




Municipal Zoning		Transitways		
	TOD-Supportive Zone		METRO D Line	
	Single-Family Zone		METRO Blue Line	
	All Other Zoning		METRO Green Line	
	High Frequency Network		METRO A Line	
	Non-buildable Land		METRO C Line	
			Orange Line	
			Planned B Line	
			Green Line Extension	

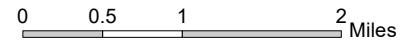
Zoning data sources: City of Minneapolis, City of Brooklyn Center, City of Richfield, City of Bloomington MN 2022. Discrepancies may exist.
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 TOD April 2023

METRO Gold Line 2022 Zoning Study



- Municipal Zoning**
- TOD-Supportive Zone
 - Single-Family Zone
 - All Other Zoning

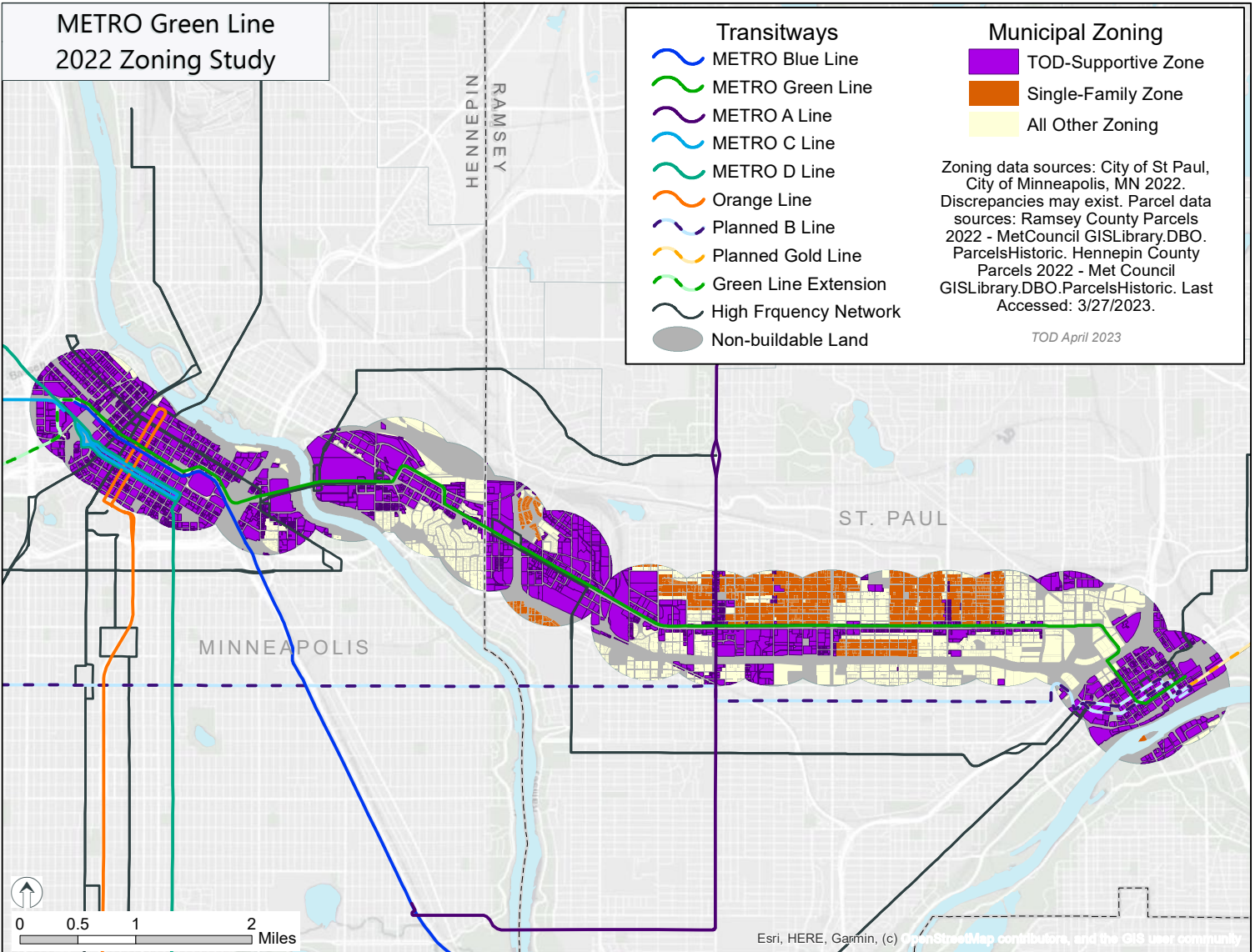
- Transitways**
- High Frequency Network
 - Planned Gold Line
 - METRO Green Line
 - Planned Purple Line
 - Planned B Line
 - Non-buildable Land



Zoning data sources: City of Saint Paul, City of Maplewood, City of Oakdale, City of Woodbury, MN 2022. Discrepancies may exist. Parcel data sources: Ramsey County Parcels 2022 - MetCouncil GISLibrary.DBO.ParcelsHistoric. Washington County Parcels 2022 - Met Council GISLibrary.DBO. ParcelsHistoric. Last Accessed: 3/27/2023.

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METRO Green Line 2022 Zoning Study

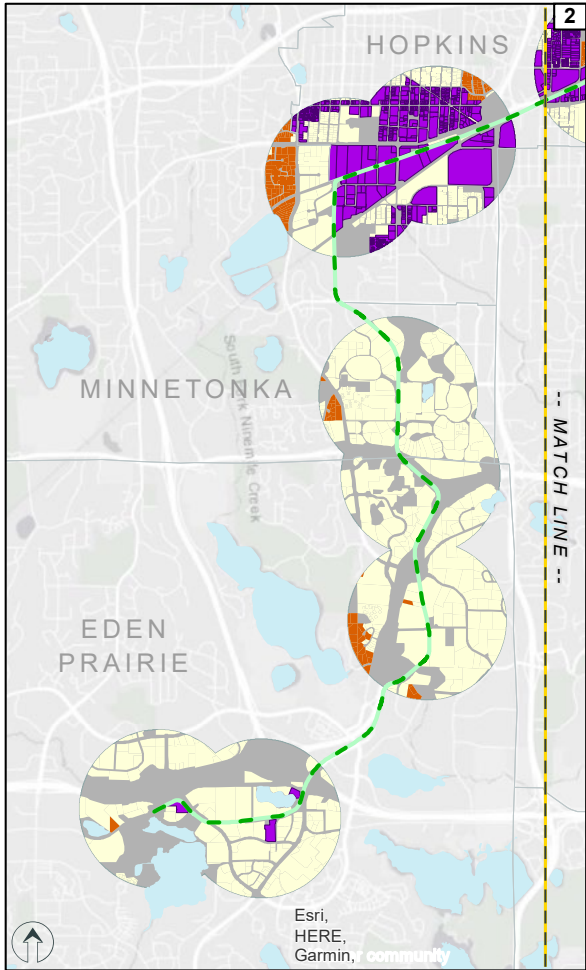
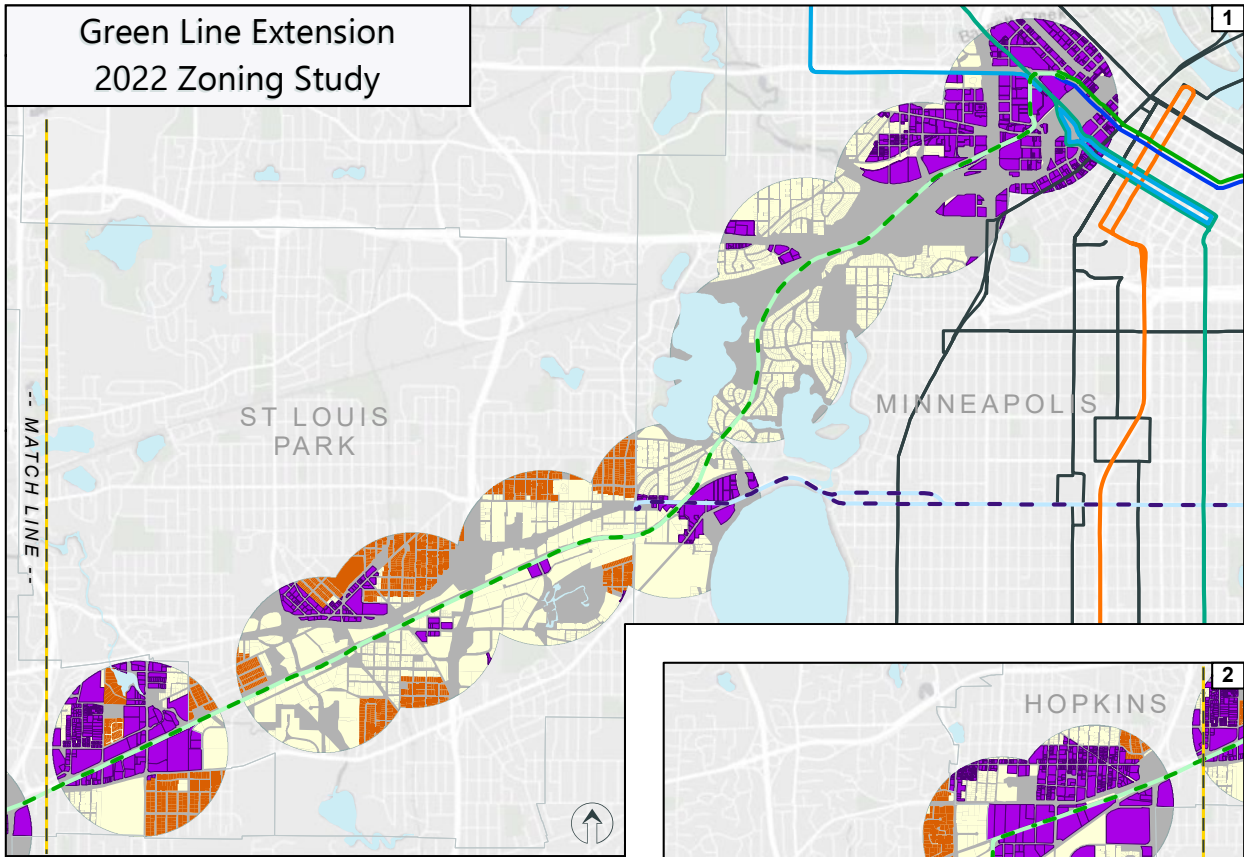


- Transitways**
- METRO Blue Line
 - METRO Green Line
 - METRO A Line
 - METRO C Line
 - METRO D Line
 - Orange Line
 - Planned B Line
 - Planned Gold Line
 - Green Line Extension
 - High Frequency Network
 - Non-buildable Land

- Municipal Zoning**
- TOD-Supportive Zone
 - Single-Family Zone
 - All Other Zoning

Zoning data sources: City of St Paul, City of Minneapolis, MN 2022. Discrepancies may exist. Parcel data sources: Ramsey County Parcels 2022 - MetCouncil GISLibrary.DBO. ParcelsHistoric. Hennepin County Parcels 2022 - Met Council GISLibrary.DBO.ParcelsHistoric. Last Accessed: 3/27/2023.
TOD April 2023

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Municipal Zoning

- TOD-Supportive Zone
- Single-Family Zone
- All Other Zoning

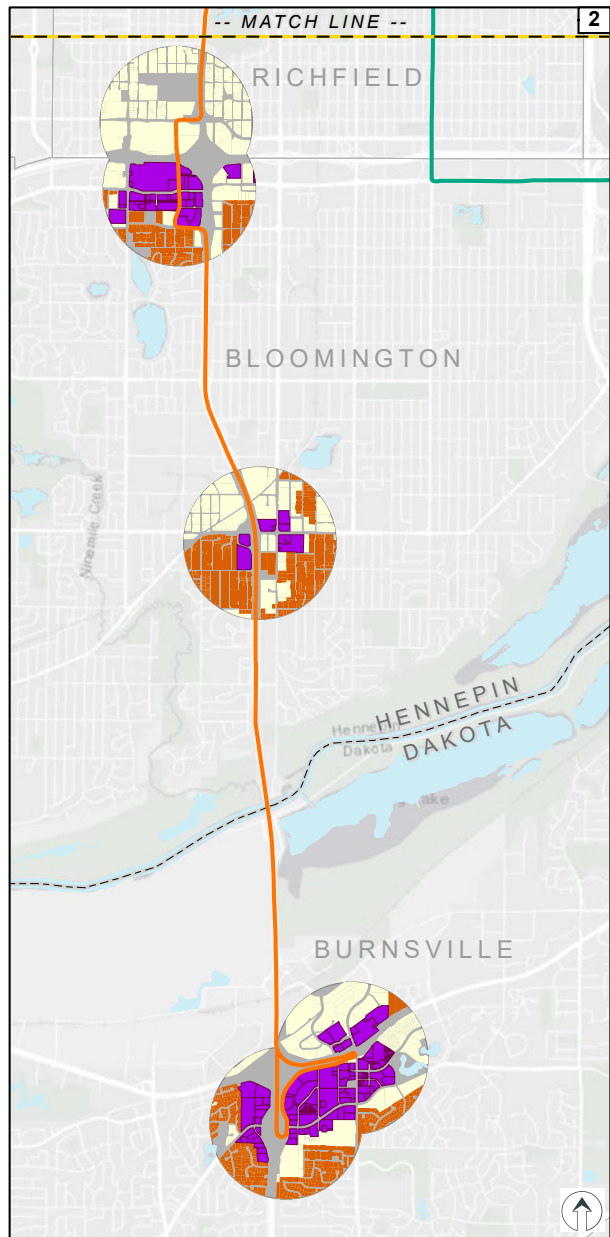
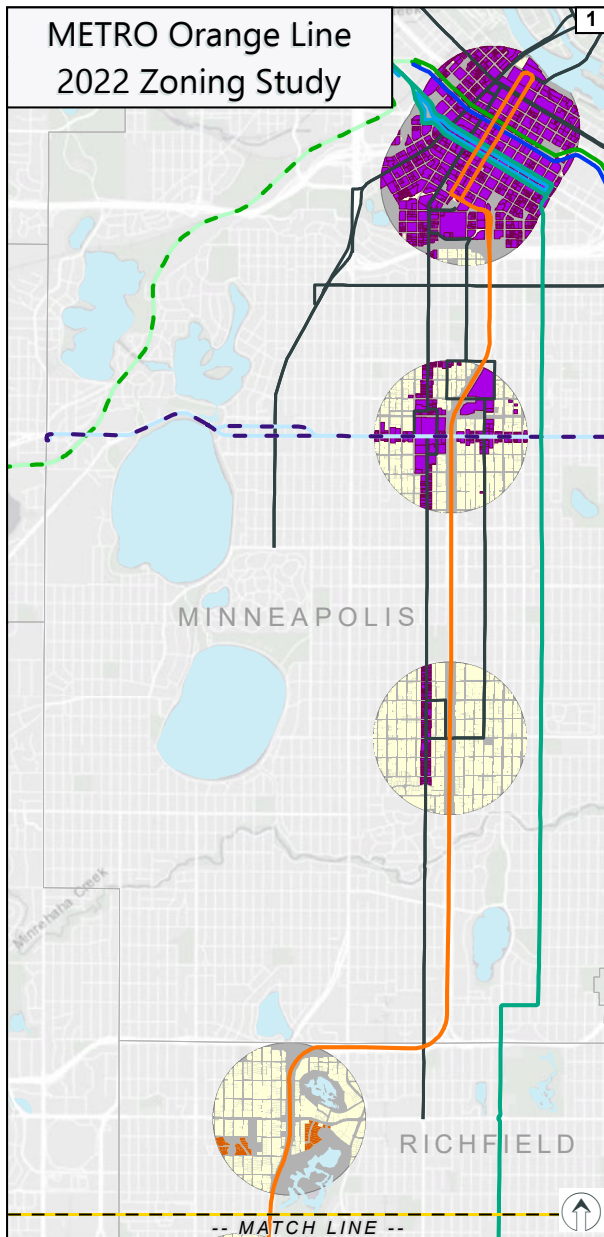
Transitways

- High Frequency Network
- Green Line Extension
- METRO Blue Line
- METRO Green Line
- METRO C Line
- METRO D Line
- Orange Line
- Planned B Line
- Non-buildable Land

Zoning data sources: City of Minneapolis, City of Saint Louis Park, City of Hopkins, City of Minnetonka, City of Eden Prairie, MN 2022. Discrepancies may exist. Parcel data sources: Hennepin County Parcels 2022 - Met Council GISLibrary.DBO. ParcelsHistoric. Last Accessed: 3/27/2023.

0 0.5 1 2
Miles

TOD April 2023



<p>Municipal Zoning</p> <ul style="list-style-type: none"> TOD-Supportive Zone Single-Family Zone All Other Zoning High Frequency Network Non-buildable Land 		<p>Transitways</p> <ul style="list-style-type: none"> Orange Line METRO Blue Line METRO Green Line METRO C Line METRO D Line Planned B Line Green Line Extension 		<p>0 0.5 1 2 Miles</p> <p>Zoning data sources: City of Richfield, City of Minneapolis, City of Bloomington, City of Burnsville, MN 2022. Discrepancies may exist. Parcel data sources: Hennepin County Parcels 2022 - MetCouncil GISLibrary.DBO. ParcelsHistoric. Dakota County Parcels 2022 - MetCouncil GISLibrary. DBO. ParcelsHistoric. Last Accessed: 3/27/2023. TOD April 2023</p>	
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Planned Purple Line 2022 Zoning Study

Municipal Zoning

- TOD-Supportive Zone
- Single-Family Zone
- All Other Zoning

Transitways

- Purple Line - DRAFT Alignment
- METRO Green Line
- Planned Gold Line
- Planned B Line
- High Frequency Network
- Non-buildable Land

Zoning data sources: City of St Paul, City of Maplewood, MN 2022.
 Discrepancies may exist. Parcel data sources: Ramsey County Parcels 2022 - MetCouncil GISLibrary.DBO.ParcelsHistoric.
 Last Accessed: 3/27/2023.

TOD April 2023

