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# Addressing Accessibility and Equity Along Transitways: Toward a Mixed Methods Toolkit—Part 2

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# ADDRESSING ACCESSIBILITY AND EQUITY ALONG TRANSITWAYS: TOWARD A MIXED-METHODS TOOLKIT

## PART 2

### FINAL REPORT

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## EXECUTIVE SUMMARY

This report presents a mixed-methods toolkit intended to aid community members and transit planners in assessing the equity and accessibility issues related to planned transitways and to facilitate more robust community engagement as part of the transit design process. The tools reported on here apply to any type of transit in any location, but we developed them as part of an analysis of three planned bus rapid transit (BRT) lines in the Twin Cities: the B Line in Hennepin and Ramsey counties, the Rush Line in Ramsey County, and the Gold Line in Ramsey and Washington counties.

The research includes an evaluation of 56 digital platforms of use in community engagement efforts, with an assessment of each platform according to 21 criteria in a searchable spreadsheet. The mixed-methods toolkit that resulted from this research contains four components:

- Mapping
- Contextualizing
- Evaluating
- Engaging

As the diagram below shows, these four components exist in a continuous cycle, with some tools needing to be used before another tool gets deployed.

Five separate tools comprise the toolkit:

- Transit and Urban Design Flashcards
- Station Area Mapping
- Experiential Mapping
- Station Area Evaluation
- 3-D Visualization

Each chapter in this report examines a particular tool: what it does, why it is needed, who might use it, and how, when, and where to use it. The tools work independently of each other, but they also complement each other as part of a community engagement process. The tools also work remotely as well as for in-person settings, on digital platforms as well as in print, and asynchronously as well as synchronously. And to ensure equitable access, the tools all use common words and photographs to help those who may have little or no experience with transit planning understand the concepts and convey their ideas and concerns.

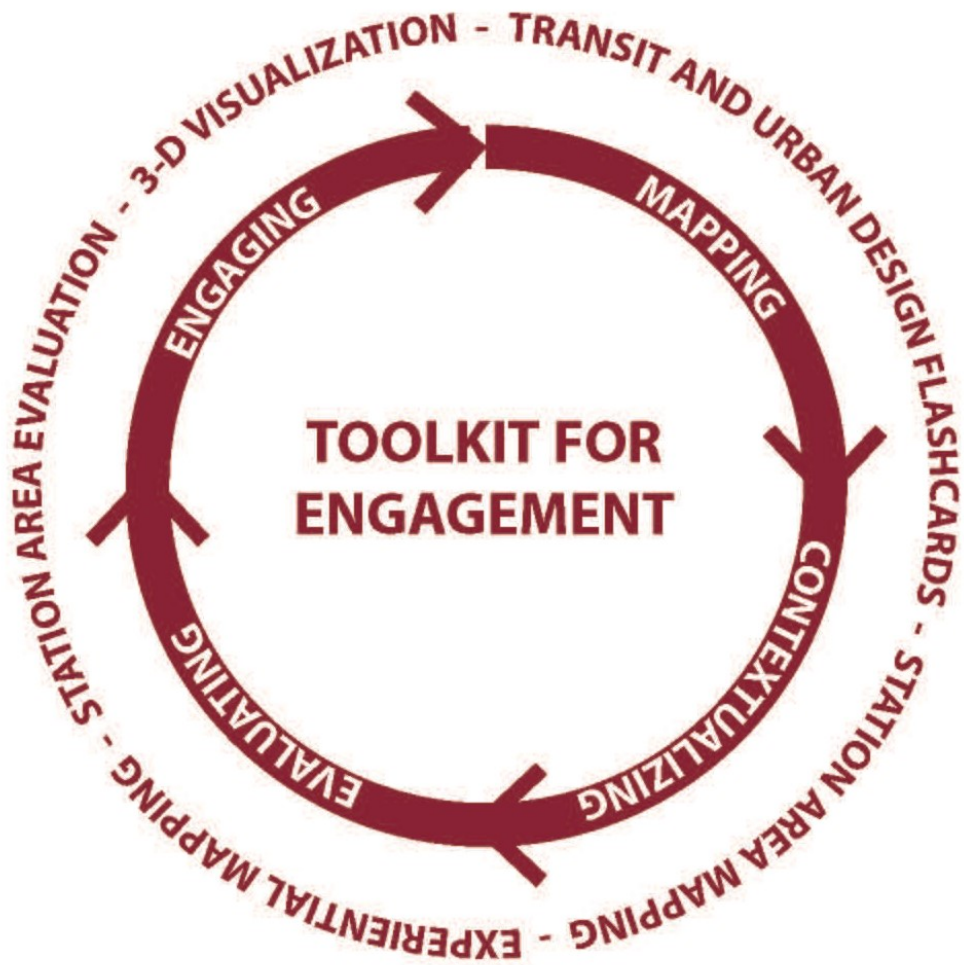


Figure ES.1. Research components and tools diagram

## CHAPTER 1: INTRODUCTION

This research investigated access to healthcare, schools and grocery stores in proposed arterial transitway corridor lines in Hennepin, Ramsey and Washington counties. It developed a mixed-methods toolkit by combining accessibility impact analysis and qualitative tools to inform community engagement efforts that benefit underrepresented groups and people of color, who face barriers to accessing necessities and getting to specific places.

The research used key destinations (healthcare clinics, grocery stores, and elementary and high schools) to analyze their accessibility to and from planned transitways, applying both quantitative and qualitative methods. This project expanded the understanding of equity in accessibility research by looking at factors affecting the everyday lived experience of transit users and developed evaluation criteria to help ensure that transit users have the greatest access and the best possible experience reaching key destinations.

The project had three implementation phases.

1. The first phase involved conducting the accessibility analysis of station areas along arterial transitway corridor lines in Hennepin, Ramsey and Washington counties (B Line, Rush Line, and Gold Line). We mapped routes to key destinations and evaluated the challenges transit users might face reaching those destinations, focusing on the lived experience of people and where public works improvements might improve the safety, security, and accessibility of transit users, especially those populations who are most transit dependent.
2. The second phase involved evaluating more than 50 digital platforms of possible use in transitway community engagement. This phase of work differed from what was originally proposed because the COVID-19 pandemic made it difficult and impossible to engage community members and transit riders. These digital platforms each have strengths and weaknesses, but all of them allow for a greater diversity of participants in the community engagement process.
3. The third phase involved the development of tools that community members, transit planners and municipal public works staff can use in determining what might be done to ensure the best possible experience of transit riders in reaching a bus rapid transit (BRT) station as well as key destinations from each station. These tools also provide a simple way of understanding how all of the elements in the physical environment work together to improve accessibility. The various tools in the toolkit — what each involves, why it was developed, who might use it, and how, when, and where it might be used — are described in the following chapters.

### 1.1 HOW TO USE THESE TOOLS

Community engagement needs to involve community members from the very beginning of a planning process. Too often, transportation professionals make decisions and prepare designs with only minimal community input and then show a couple of options at community meetings when it is too late for community members to have any real impact or make any substantive changes.

As a result, many people become wary of planning processes and even resistant to the proposals that emerge from them.

These tools allow planners to engage communities much earlier in the process by:

- Providing people with digital platforms that enable them to have their voices heard throughout the process
- Giving them the terminology, they need to participate in conversations
- Showing them what they should expect in terms of the quality of the public realm
- Enabling them to evaluate and score the options that are available to them
- Allowing them to mark up and comment on existing and proposed conditions
- Visualizing what different alternatives might look and feel like once realized

The following lists who, what, where, when, why and how each tool fits into that engagement process:

Contextualizing:

- Community Engagement Digital Platforms (Chapter 2)
- Transit and Urban Design Flashcards (Chapter 3)

Mapping:

- Station Area Mapping (Chapter 4)
- Station Area Mapping — Street View Experience (Destinations) (Chapter 4)

Engaging:

- Experiential Mapping (Assets Mapping) (Chapter 5)

Evaluating:

- Station Area Evaluation (Chapter 6)
- 3-D Visualization (Chapter 7)

## CHAPTER 2: COMMUNITY ENGAGEMENT DIGITAL PLATFORMS

The first step in a community engagement process involves deciding how to interact with community members. The traditional method of face-to-face meetings remains a valid way of engaging stakeholders in a transit project, but that also creates inequities and a lack of access for the many people who cannot or will not attend such meetings for various reasons. As a result, the voices of certain people who have the time and means to attend meetings have an outsized influence.

At the same time, we found very little comparative information on the digital platforms available to engage communities remotely, something that the COVID-19 pandemic made even more apparent, since no face-to-face meetings were possible during the time of this research project. As a result, we decided to conduct a comparative evaluation of the 56 digital platforms currently available for community engagement.

The accompanying spreadsheet lists the platforms we evaluated along with the criteria we used in our assessment. Those criteria came from our research into the platforms' advertised capabilities as well as from conversations those who participated in and led community engagement processes. The spreadsheet includes links to the platforms' websites and is searchable by platform, showing the capabilities of each.

For each platform, the spreadsheet indicates the type of platform, a description of it, its cost, the platform's target demographics, and its security protocol, along with a comments section.

The spreadsheet is also searchable according to a number of platform capabilities, dividing them into two categories:

- Categories related to the platform's usability by the public and by the entity or enterprise leading the engagement process, and
- Categories related to financial and data management, including budgets, mapping, and indicator tracking.

### 2.1 HOW TO USE COMMUNITY ENGAGEMENT DIGITAL PLATFORMS TOOL

- WHO: Planners can use various digital platforms to reach the greatest number of community members, who may have a variety of digital capacity and ways of engaging. Community members can also help determine which platform works best for them, depending upon the devices and connectivity that they have. The tools should account for a multitude of demographics (young, old, tech savvy or not) and a variety needs: (visualization, multi-lingual, video)
- WHAT: Online engagement platforms should be able to host meetings as well as give people access to meetings. The platforms also need to work seamlessly with in-person meetings happening either synchronously or asynchronously.

- **WHERE:** The engagement platforms allow for online access to the planning process from any location that has Internet connection. That, in turn, expands the boundaries of a community and it can include people with relevant knowledge of or interest in a place, even if they no longer reside there.
- **WHEN:** The determination of what digital platform to use needs to happen at the beginning of the planning process, prior to the community’s engagement and ideally, with the community’s involvement in selecting the right platform.
- **WHY:** Considering the effects of COVID-19 and the inability of in-person meetings to include all voices, the spreadsheet of digital platforms provides a starting point for planners seeking to expand their online engagement.
- **HOW:** The capabilities of the various platform range widely, and all have websites that provide more detailed information on how to use a particular platform, with access to tech support if needed.

Platform	Platform Type	Platform Description	Platform Cost
*Platforms are organized by platform type. Platform types are ordered alphabetically.	Describes type of platform. Categories include Podcast Platform, Engagement Platform, Open Data, Interactive Mapping, Social Media, Survey Platform, City Intelligence Platform, Video Participation,	Includes descriptions and some capabilities as described on website. Note that the descriptions are a summary and do not contain full capabilities. Visit site for further details.	Cost of platform. Note that pricing varies by platform. It can be monthly, per project, etc. and may vary by size. <b>Follow link above for first of two pricing sheets.</b>
LiveStories	City Intelligence Platform	Data collection, analysis, and profiling of local community needs. Covers wide range of topics. Involved with front-end visualizations, dashboard, and monitoring tools as well as back end collection and analysis. Operates differently depending on community needs. Consultation involved.	\$589 starting price. Contact for more details and customization.
MindMixer	City Intelligence Platform	MindMixer is an idea creation and brainstorming platform, including map and survey options. It allows users to: <ul style="list-style-type: none"> <li>• Propose and comment on new ideas</li> <li>• Earn points for participation</li> <li>• See results that rise to the top</li> </ul> Tool by mySidewalk**	Contact vendor for pricing details.
mySidewalk	City Intelligence Platform	<b>MindMixer Solution</b> <b>Community engagement platform</b>	Contact vendor for pricing details.

**Figure 2.1: Spreadsheet excerpt.**

The following list the platforms according to each category:

- **Free:** completely cost-free for resident and enterprise use.
- **Accounts required by residents** in order to participate in any functions provided by the platform.
- **Accounts required by the enterprise** in order to use the tools provided by the platform. Platforms may be free for an enterprise but require an account.
- **Multilingual capabilities,** including a built-in feature for one or more languages beyond English, with an indication if the platform is powered by Google translate. Google translates all platforms

independently, with “powered by” indicating greater specificity. The spreadsheet includes the following notations for all languages spoken by more than 0.2% of the population in Minnesota:

- a. Spanish = sp
  - b. Hmong = hm
  - c. Vietnamese = vi
  - d. Chinese = ch
  - e. French = fr
  - f. Russian = ru
- **Public comment** as a venue for participants to record their opinion, which is different from chat or conversation features.
  - **Community conversations and idea generation**, with a method of dialogue between residents and enterprises as well as between residents, but not related to the ability to record information by video.
  - **Mobile-device friendly**, formatted so that use mobility is as seamless or better than the desktop version.
  - **Stakeholder engagement**, including all kinds of engagement with vested parties with more than a single resident. Engagement is unique to each platform depending on the tools offered.
  - **Surveys**, with the ability to create a questionnaire with a variety of possible responses.
  - **Photo narratives and analysis**, allowing for the uploading of photos that can be shared with interested parties.
  - **Video participation**, allowing for the participation of residents/stakeholders in discussions.
  - **Video streaming**, with content sent in compressed form over the Internet and displayed by the viewer in real time.
  - **Podcasts**, with a digital audio file able to be made available publicly on the internet or for download.
  - **Transit specific**, with the platform specifically geared to transit engagement, although the tools available vary among the different sites.
  - **Real-time reporting**, with the immediate analysis and description of business processes or incoming data as they occur. Varies by site depending on what is being reported on.
  - **Mapping/Spatial Capabilities**, with the ability to map data or read GIS mapping files.
  - **Scenario Analysis** conducted to analyze the impacts of possible future events on the system performance by taking into account several alternative outcomes.
  - **Indicator Tracking**, allowing for the tracking of indicators in a monitoring and evaluation plan.
  - **Participatory Budgeting**, creating a method by which residents and stakeholders can engage in municipal/project budgeting.
  - **Data Management**, relating to acquiring, validating, storing, protecting, and processing data to ensure the accessibility, reliability, and timeliness of the data for its users. Data varies by tools provided by platform.

No one platform meets all of the above criteria. Among the 56 platforms evaluated, the only criteria met by all of the platforms is **free for residents**, and all but four of the 56 require an **enterprise account**. After that, the platforms have a great variety of capabilities: 40 allow for **community conversations and idea generation**, 33 allow for **public comment**, 30 allow **stakeholder engagement**, and the numbers in each category go down from there.

Which platform is best depends upon the goals of community and those leading the engagement process. The above criteria – being free to residents and allowing community conversations and idea generation, public comment, and stakeholder engagement – seem fundamental and something that every community process might want. But other platforms are designed with particular uses in mind.

There are only three platforms, for example, that focus specifically on transit applications, which seem ideal in the context of this research, although none of the three allow for photo analysis, video streaming, or podcasting, and therefore, limits the means by which to engage a community. There are also platforms, such as Zoom, that have broad capabilities across multiple criteria of stakeholder engagement but have no financial or data management capabilities. Platforms, like Community Viz, are strong on the financial and data management side, however weaker on the engagement side.

There is no one, right platform, but a lot of diverse choices and options among them all.

## CHAPTER 3: TRANSIT AND URBAN DESIGN FLASHCARDS

Prior to engaging a community in conversations about transitway options, residents and local business owners need to understand the terms frequently used to describe the physical features related to transitways and urban design more generally. With that in mind, we developed a set of twenty “flashcards” that can be either printed out, with text on one side of the card and the keyed photo for each on the other side, or made available digitally as a side-to-side image, as shown below.

How these flashcards get used, when and where and by whom, depends upon the situation. We recommend they be available at every meeting, since there are always new people joining engagement events, whether in person or remotely, and the flashcards ensure that everyone has the same basic understanding of the terms being used and ideas being discussed. The cards use simple, easily understood words to describe each feature, and we recommend that they be translated into the languages that might be prevalent in a particular community.

The cards also show best-case examples of each issue. We thought it important that communities not only understand the meaning of technical terms, but that they also see what is possible and what they should expect from the public-realm investments being made in transitways and the immediate surroundings of station areas. In that way, the cards can also be used by transit planners and public-works staff to show a municipality and its leaders what constitutes best practices.

There are 20 cards are divided into two categories: (1) Transit-related cards, with text in a maroon color, and (2) Urban design-related cards, with text in a teal color. To aid those in a community for whom reading might be a challenge, we have also developed a set of icons for each of the cards that also let community members see how these issues interconnect, with every place involving several issues at the same time. The key terms are in bold in each text, with a numbered key that shows what the terms look like and where they are in the accompanying photograph. The 20 card categories are:

<p>Transit-related cards:</p> <ul style="list-style-type: none"><li>• Transit Definitions</li><li>• Accessibility and Maintenance</li><li>• Intesections</li><li>• Sidewalks</li><li>• Streets</li><li>• Bicycle Lanes</li><li>• Bicycle Parking</li><li>• Transit Types</li><li>• Transit Stops</li></ul>	<p>Urban Design-related cards</p> <ul style="list-style-type: none"><li>• Urban Design Definitions</li><li>• Street Furnishings</li><li>• Street Lighting</li><li>• Street Planting</li><li>• Car Parking</li><li>• Right-of-Way</li><li>• Green Spaces</li><li>• Transit-oriented Development (TOD)</li><li>• Density</li><li>• Land Use</li><li>• Zoning</li></ul>
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### 3.1 HOW TO USE TRANSIT AND URBAN DESIGN FLASHCARDS TOOL

- WHO: Community members are the intended primary users of the flashcards, which have been developed to bring everyone’s knowledge and understanding of basic transit and urban design terminology and applications up to a level that allows for useful input.
- WHAT: The 20 flashcards developed here – 11 related to broader urban design concepts and 9 to specific transit terminology – are the beginning of what could be a larger pack of information of use in community engagement. For example, we did not develop any flashcards related to vehicle types, transportation regulations, or types of funding, which might be useful additions to what is here.
- WHERE: The flashcards are meant to be used in community meetings, for distribution at in-person meetings or accessed online as part of digital engagement.
- WHEN: The cards should be distributed at or before the start of the engagement process and should be available at all subsequent meetings to ensure that community members who might have missed earlier gatherings has the same level of basic knowledge in order to participate usefully in discussions.
- WHY: The goal of the flashcards is to create a shared understanding among community members, who may have different levels of knowledge about transit and urban design, and to empower stakeholders to become co-designers in the planning process as much as possible.
- HOW: The flashcards can be printed, two-sided, for distribution at in-person meetings or distributed as a pdf to those participating online. The icon stickers can also be printed on sticky paper, for adhering to physical maps or images during in-person meetings or provided as digital icons as part of the annotation feature of many platforms.



Figure 3.1: Flashcard key

### TRANSIT DEFINITION

We can divide transportation into two general categories, that which is **PRIVATELY** and **PUBLICLY** owned and operated. Transit falls into the second category, typically owned and operated by public agencies for use by paying customers who share the vehicle with others. Transit is typically found in **CITIES, SUBURBS, and SMALL TOWNS** that have enough density of population to make that shared, public service viable. There are a variety of types, from **ON-DEMAND SERVICES** available for people otherwise unable to access transit to **REGULARLY SCHEDULED SERVICES** that typically followed fixed routes, with established stops.

Transit includes not just the vehicles themselves, but the infrastructure that supports it (roads, rails), that accommodates passengers (stops, stations), that provides for other modes of transportation (cars, bikes), and that gives people access to the transit (sidewalks, intersections).

LANGUAGE OF DESIGN TRANSIT

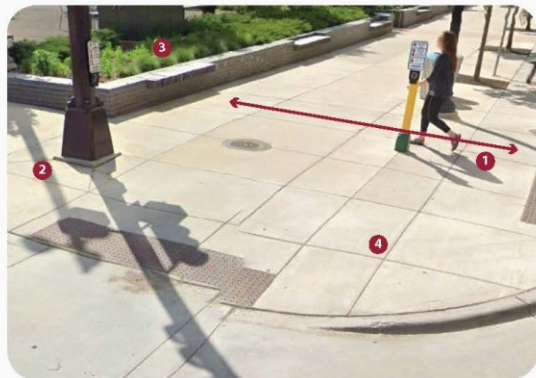


LANGUAGE OF DESIGN TRANSIT

### ACCESSIBILITY & MAINTENANCE

The Americans for Disability Act (ADA) has made access to facilities a priority, although the ADA typically focuses on eliminating physical barriers in new or renovated facilities. Just as important to access challenges in the larger environment, whether the result of a lack of maintenance or updating of the public realm. The accessibility and maintenance of the public realm also has an impact on the experience of transit users. **1. LEVEL SIDEWALKS, 2. REGULAR TRASH PICKUP, 3. TENDING TO THE LANDSCAPE,** and the **4. ABSENCE OF DEBRIS** or other obstacles in the path of pedestrians are all important in ensuring adequate accessibility and maintenance.

LANGUAGE OF DESIGN TRANSIT



LANGUAGE OF DESIGN TRANSIT

### INTERSECTION

Often the most dangerous part of accessing transit involves crossing streets and traffic lanes in order to get to and from a station. Every station needs to have **1. CLEAR CROSSWALKS** with **2. SIGNALLED INTERSECTIONS** and **3. ADEQUATE TIME** to cross the street. Ideally, intersections near transit stops need to have **4. PLACES FOR PEOPLE TO STAND** while waiting to cross, working **5. PEDESTRIAN SIGNALS** that people of various abilities can sense, and **6. ADEQUATE VISIBILITY** so that drivers can see people waiting to cross or walking or biking through an intersection. Intersections also need to be **7. WELL DRAINED** to minimize splashing and well plowed to reduce snow piles getting in the way of pedestrians. Intersections are the most important nodes in our transportation infrastructure and so they need to be well designed and regularly maintained.

LANGUAGE OF DESIGN TRANSIT



LANGUAGE OF DESIGN TRANSIT

Figure 3.4: Intersection flashcard

## SIDEWALK

Sidewalks have many roles to play. They must accommodate pedestrians, who move at one speed, but they also have to handle window shoppers who move slowly and café diners who are stationary. At the same time, sidewalks often have to handle bikes and scooters moving at a faster pace, while keeping everyone safe.

Sidewalks, too, frequently have planters and shading trees, as well as street furniture such as benches, mailboxes, and newspaper boxes, all of which create obstacles to people walking or riding by. Sidewalks need to have sufficient width to accommodate all of those tasks, which rarely happens, and yet there are few public spaces more heavily used and highly valued.

Sidewalks can be divided into three zones; **1. BUILDING ZONE**, which includes the area in front of adjacent buildings; **2. PEDESTRIAN**, an unobstructed area for pedestrians to move freely; and **3. AMENITY ZONE**, which includes plantings and furniture.

LANGUAGE OF DESIGN TRANSIT



LANGUAGE OF DESIGN TRANSIT



## STREETS

Streets exist as a hierarchy of types and follow a variety of patterns, from tree-like arrangements that have trunk lines that support branching roadways and ending in cul-de-sacs to grid-like arrangements that have main streets and side streets with multiple ways to move through the system. In general, the primary streets that handle the greatest volume of traffic are called **1. ARTERIAL STREETS**, which often have more than one lane in each direction, turn lanes at key intersections, and sometimes medians dividing the opposing traffic flows. **2. COLLECTOR STREETS** typically feed the arterials, gathering traffic from side streets and feeding into the arterials, often at signaled intersections. **3. NEIGHBORHOOD/LOCAL STREETS** have slower traffic, narrower lanes, and stop-signs at intersections. And **4. SHARED STREETS**, called "woonerfs," mix cars, pedestrians, and bicycles, in narrow, slow-speed rights-of-way.

LANGUAGE OF DESIGN TRANSIT



LANGUAGE OF DESIGN TRANSIT



## BICYCLE LANE

As bikes have become an important form of transportation, a variety of lanes types have emerged to accommodate them. The most common is the **1. SHARED LANE**, with the bikes traveling in a marked lane within or next to the vehicular lanes. Shared lanes are the easiest and least expensive to install, but present the greatest hazard to bicyclists. A more secure version is the **2. DEDICATED BIKE LANE**, divided off from vehicular traffic by surface markings or barriers like **3. BOLLARDS** or **4. CURBS**. Dedicated lanes can be on both sides of a two-way street or as a **5. TWO-WAY TRACK** on one side of the road, which further increases the safety and the speed of bicyclists. The most secure is a **6. DEDICATED BIKE TRAIL**, in which bicyclists do not have to share the right-of-way with motorized vehicles.

LANGUAGE OF DESIGN TRANSIT



LANGUAGE OF DESIGN TRANSIT



**BICYCLE PARKING**

Transit planning needs to consider the parking of bikes as well as cars, given the increasing use of bikes in many areas. Planning of bike parking is important, in part, because bicyclists may otherwise lock their bikes to railings, signs, or even benches or trees, which can cause damage or create a nuisance. The most common parking solution are **1. BICYCLE RACKS**, ideally located in a convenient location out of the flow of pedestrian traffic. As bike sharing has become more common, some cities now also provide striped, **2. BICYCLE PARKING LOTS** with racks or stations. In structured parking garages, where there a number of bike commuters, **3. BICYCLE LOCKERS** or **LOCKED CAGES** are sometimes provided. Finally, covered or structured **4. BICYCLE PARKING GARAGES** can be found in areas with intense bike usage, often near major train stations.

LANGUAGE OF DESIGN TRANSIT

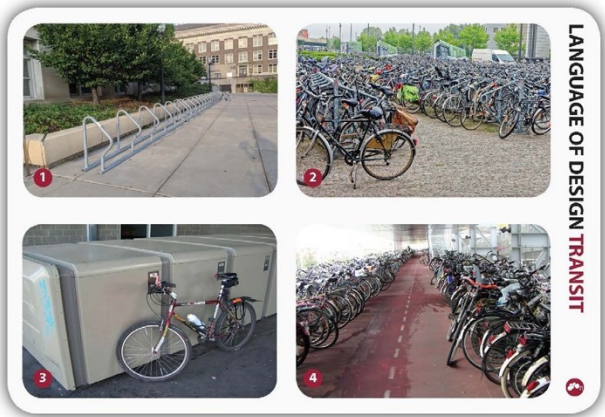


Figure 3.8: Bicycle parking flashcard

**TRANSIT**

Buses are the most common form of transit, with **1. BUS RAPID TRANSIT (BRT)** as their higher-speed version. BRT often have dedicated lanes and/or signal control of traffic lights, pre-board fare collection, fewer stops and high-quality, at-grade or elevated stations. The closest train-like version is the **2. STREETCAR, TRAM or TROLLEY**. About the size of a bus, a streetcar has fixed rails and otherwise many of the same features of BRT in terms of speed and capacity. **3. LIGHT RAIL TRANSIT (LRT)** often involves overhead electrical wires, dedicated rights-of-way, and larger, connected cars that allow them to accommodate a much greater number of people and to move riders more quickly along the route. **4. COMMUTER RAIL** is typically for longer-distance commuting between urban and suburban areas, operating at high speeds on dedicated rail lines, with the greatest ridership capacity.

LANGUAGE OF DESIGN TRANSIT

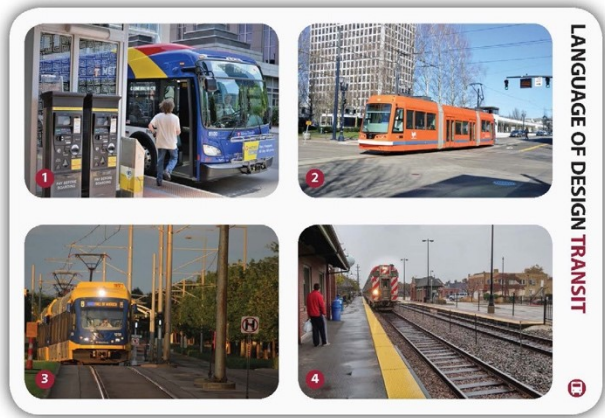


Figure 3.9: Transit flashcard

**TRANSIT STOP**

We can divide transit stations into two types – **1. AT-GRADE STOPS** and **2. ELEVATED PLATFORMS**. Both types have many of the same needs: places for people to **3. SIT OR STAND**, a **4. SHELTER** to protect people from the elements, **5. LIGHTING** to ensure people's safety and visibility, and **6. INFORMATION** about the schedule and status of the transit service. There may also be **7. MACHINES** that enable riders to purchase tickets in advance of boarding the vehicle. For at-grade stops, if the sidewalk is **8. UNEVEN or POORLY DRAINED**, it can create tripping or slipping hazards, and if the curb is **9. CRACKED or MISSING**, it can create tripping or falling hazards. These issues also matter on elevated platforms, which need to be well lit and with a **10. NARROW-ENOUGH GAP** between the platform and vehicle to ensure the safe access or egress of riders.

LANGUAGE OF DESIGN TRANSIT



Figure 3.10: Transit stop flashcard

**STREET FURNITURE**

Street furniture includes **1. BENCHES, 2. LIGHTING, 3. BIKE RACKS, 4. FENCES, 5. RECEPTACLES, and 6. PLANTERS**, as well as the elements of sidewalk cafes such as **7. TABLES, 8. CHAIRS, and 9. SHADING STRUCTURES**, such furniture must accommodate a variety of needs and physical abilities on the part of people. This is especially important for transit riders, who often walk to and from stations and their destinations. A well-furnished street has ample seating that is located in a safe and convenient location; parking for bikes and other modes of transportation to meet pedestrians' diverse needs; planters and trees that provide shade and visual variety. The lack of such furnishings in much of the public realm shows a lack of understanding of and funding for the transit riders' experience.

LANGUAGE OF DESIGN URBAN DESIGN

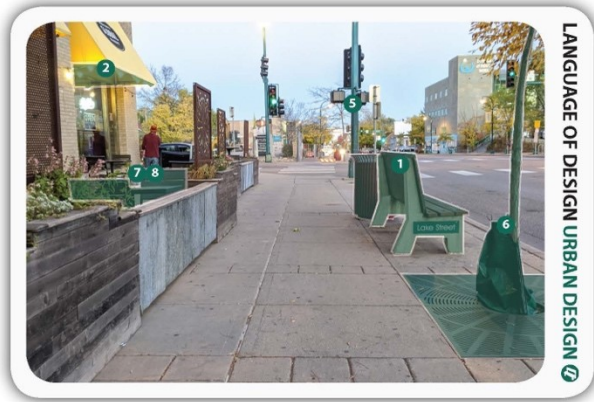


Figure 3.12: Urban definition flashcard

**URBAN DESIGN DEFINITION**

Urban design encompasses everything we experience outside of buildings: the **STREETS and SIDEWALKS, LANDSCAPES and OPEN SPACES, UTILITIES and INFRASTRUCTURE, and TRANSIT and TRANSPORTATIONS** systems that we move through daily. Urban design doesn't just happen in cities. Suburbs, small towns, and rural areas all have these same elements to varying degrees and all are just as "designed" as the densest urban area. While they partner with engineers and planners on the location and layout of systems or districts, urban designers focus more on the lived experience of people on the ground: do they feel safe and secure in a place, can they find their way to their destination, are they impeded from getting there, and is it a comfortable and pleasant route? Those questions have guided the following flashcards.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.11: Street furniture flashcard

**STREET LIGHTING**

Street lighting is often designed for the visibility needs of drivers, which is frequently inadequate for the safety and security of pedestrians going to and from transit stations to their destinations. While transit stations may have the illumination needed for safe waiting, the sidewalks and streets in the area around them may make transit riders uncomfortable if there are too many **1. DARK SECTIONS, 2. HIDING PLACES, or 3. WALKING HAZARDS** that pedestrians cannot see. A well-lit street should have **4. CONTINUOUSLY ILLUMINATED SIDEWALKS AND INTERSECTIONS**, with good color rendering that does not distort the color of people and objects.

LANGUAGE OF DESIGN URBAN DESIGN

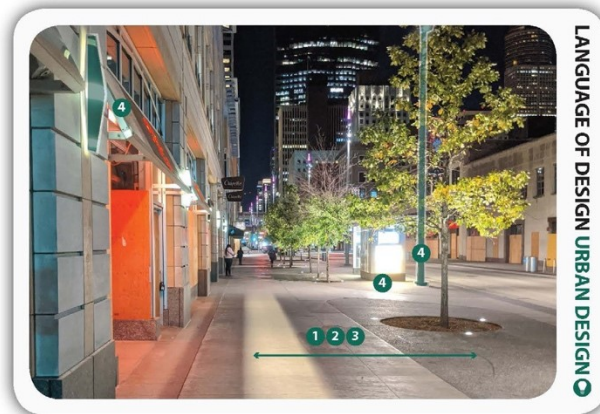


Figure 3.13: Street light flashcard

**STREET PLANTING**

Plant life along streets needs to be highly durable to accept the challenging conditions of occupying sidewalks, boulevards, and medians. From impacts from vehicles and pedestrians to pollution from cars and trucks, street plantings have a relatively short life span and they need to be easily replaced and carefully maintained.

Trees need to **1. PROVIDE SHADE**, **2. WITHOUT OBSTRUCTING TRAVEL** along the sidewalk or street, and **3. FRUIT BEARING SPECIES SHOULD BE AVOIDED** to minimize maintenance problems and pedestrian inconveniences. Continuous **4. ROOT TRENCHES** and **TREE GRATES** can provide the water needed for healthy growth, while **5. RAISED PLANTERS** are often necessary to keep smaller plants alive. While turf grass remains the most common street planting, use it only if it can be protected and maintained.

LANGUAGE OF DESIGN URBAN DESIGN

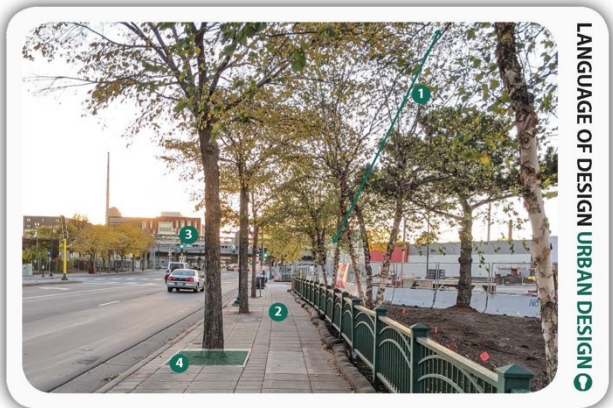


Figure 3.14: Street planting flashcard

**CAR PARKING**

Although transit serves people not using an automobile, the accommodation of cars remains an important issue for transit riders. There are generally three ways to handle parked cars. **1. ON STREET PARKING** typically occurs in denser communities without the space for off-street parking, but it often cannot address the needs of regular commuters because of time limits imposed on street parking. **2. STRUCTURED PARKING** in higher-density areas or at heavily used transit stops is the more expensive option for off-street parking. It is the most efficient in terms of land use, but also costs tens of thousands of dollars per stall. Where there is enough land, **3. SURFACE PARKING** is the default solution, although with the rise mobility services and the eventual decline in parking demand, alternative uses of parking spaces will become a major issue.

LANGUAGE OF DESIGN URBAN DESIGN

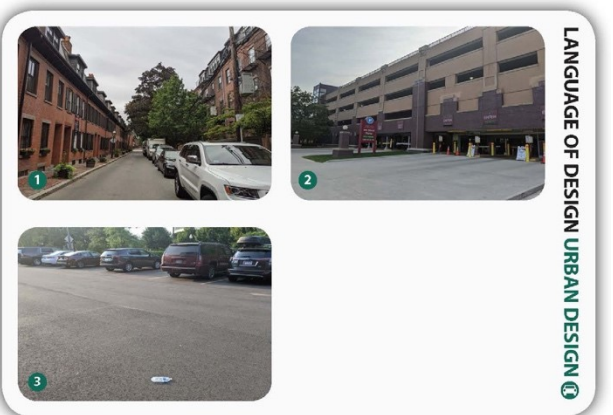


Figure 3.15: Car parking flashcard

**RIGHT OF WAY**

A right-of-way is the publicly owned space between private parcels of land, used for transportation and pedestrian circulation purposes. The typical right-of-way includes the **1. STREET** and the **2. SIDEWALK**, if one exists, as well as **3. PLANTED BOULEVARDS** with street trees in less dense locations. The right-of-way also consists of the **4. OVERHEAD WIRES** and **5. BELOW-GROUND SEWERS, PIPES, and CONDUITS** that serve the adjacent properties. While the local government has ultimate authority over the public right-of-way, there are other entities who participate in its operation and maintenance, from electric, water, and gas utilities to property owners who are expected to take care of the boulevard in front of their homes or businesses. While standards exist for the widths and turning radiuses of streets, the other infrastructure is less predictable in its location and in its repair and replacement.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.16: Right Of Way flashcard

**GREEN SPACES**

There are many different types of landscapes or green spaces related to transit. While dedicated, **1. PUBLICLY-OWNED** park land and the **PRIVATELY-OWNED** and maintained landscapes in residential districts are the two most common types of green spaces, there are a number of other types associated with our transportation system. The **2. BOULEVARDS** and **MEDIANS** along urban and suburban streets are one example of privately maintained, publicly owned green spaces. **3. ROUNDABOUTS** and **CLOVERLEAFS** also create green space, requiring public maintenance because of their inaccessibility. There are also hardscape spaces like **4. PLAZAS** and **PUBLIC SQUARES** that often have trees or planters, but they are more heavily used public places. For transit riders, green spaces can provide tree shade, visual relief, and lower temperature micro-climates, all of which makes the transit-riding experience more pleasant.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.18: Green spaces flashcard

**TRANSIT ORIENTED DEVELOPMENT (TOD)**

Transit Oriented Development or TOD is, as it sounds, a form of private real-estate development adjacent to and prompted by public transit investments. While transit primarily focuses on moving people efficiently and cost effectively, the location of transit routes and stations also has an impact on land value, attracting **1. HIGHER DENSITY** development than would otherwise occur there. Because people using transit often do not have an automobile immediately available, they also need a variety of **2. DESTINATIONS** within walking distance of a stop. As a result, TOD's typically have a mix of uses - **3. RETAIL, RESIDENTIAL, COMMERCIAL, and RECREATION** - within close proximity of each other and of a transit station. Such development not only increases a city's tax base, but also encourages people to use transit, helping justify the public investment.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.17: Transit-oriented development flashcard

**DENSITY**

One of the most misunderstood term in urban design is "density." Many people equate density with high-rise buildings, increased automobiles, and more traffic congestion, none of which is inevitably the result of higher density. Some of the densest cities, like Los Angeles or Paris, are mostly **LOW-RISE** or **MID-RISE CITIES** with only pockets of high-rise buildings. And in denser cities, the effectiveness and **CONVENIENCE OF TRANSIT** in transporting people reducing their need to own a car and to contribute to traffic congestion. It is important to distinguish between good and bad density. Bad density can bring some of the problems cited by opponents to it, but good density manages to increase the **ECONOMIC VIABILITY, DEMOGRAPHIC DIVERSITY, and URBAN VITALITY** of a place, while minimizing traffic and parking impacts and the shadows cast by tall buildings.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.19: Density flashcard

**LAND USE**

Land uses typically included in zoning codes involve the activities that occur on **PRIVATE PROPERTY** and on **PUBLIC LANDS**. Zoning rarely controls or determines what happens in the public right-of-way, which is treated as the circulation space between land uses rather than as a land use itself. That has affected how we think of the public realm: as a functional set of systems rather than as places themselves that accommodate human activities and not just the movement of vehicles and resources. Transit alters our perception of the public right-of-way as users spend uninterrupted time there, both accessing and riding transit. The routes riders take to their destinations to and from transit stops also support the idea that the public realm is a place to inhabit and interact, making it one of the most mixed-used land uses of all.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.20: Land use flashcard

**ZONING**

Zoning is a regulatory tool that municipalities use to control what private owners can or cannot do on their property. Historically, zoning regulations have determined what building functions are **ALLOWED** on public and private property, often with single uses in mind. This has led to the physical dispersal of activities, requiring greater transportation use and infrastructure to enable people to go about their daily lives and to access the goods and services they need. More recently, zoning has become more **INCLUSIVE**, allowing **MIXED USES** and **HIGHER DENSITY**, which also makes transit more viable and efficient. Zoning also determines parking requirements and other transportation-related land uses, which has both complemented and competed with transit, by enabling people to park near transit stops or encouraging people to drive rather than take transit.

LANGUAGE OF DESIGN URBAN DESIGN



Figure 3.21: Zoning flashcard

## CHAPTER 4: STATION AREA MAPPING

Community members want to see the impact of a transitway on their neighborhood and how transit will help them access the destinations they care about. With that in mind, we developed this station area mapping tool to enable community members to see where a station stop might go, what effect it might have on its immediate environment, and what the experience of reaching destinations like a clinic, grocery store, or school might be like.

This chapter illustrates the application of the tool in select station areas along the Rush, Gold, and B Lines, shown in the initial map below. We selected station stops in places where there either a sizable number of transit-dependent people live or where a number of key destinations existed, with the assumption that people would not have access to private vehicles to reach their goal. Based on those criteria, we studied one station area on the Rush Line stop, one on the Gold Line, and three on the B Line.

The tool locates the transit station stop on a Geographical Information System (GIS) map and draws a quarter-mile circle around it, which constitutes an easy walking distance for most people. The tool then indicates the various land uses and municipal boundaries within that circle and identifies nearby bus lines that people could connect to as well as the pedestrian, bicycle, and trail network within that quarter-mile radius. Key destinations, with the most direct route and their distance from the station stop in fraction of miles also get mapped.

Based on that mapping, the tool uses Google Streetview images and the icons from the flashcards as a way to highlight exists – or doesn't exist - along the routes to the key destinations. In in-person meetings, the icons can be printed on adhesive-backed paper to allow community members to apply the stickers to the photographs to make a point or start a conversation about needed public-realm improvements. Depending on the digital platform used, the icons can also be placed on the digital images.

The use of photographs and stickers can help ensure equitable access to community conversations by people who may have difficulty reading maps, for example, or who may not be able to speak or read English. Additionally, the ability of people to interact with this material by actively applying stickers on photographs improves their sense of participation and engagement.

In terms of what the following evaluations show, there are needed public-realm improvements at every station stop we examined. The Rush and Gold Line stops we studied have few sidewalks, lower densities than typically found around transit stations, and relatively long walks to some key destinations, along roads with fast-moving traffic. And two of the three B Line stops have some unpleasant environments for pedestrians, with sidewalks under highway overpasses and crosswalks in busy streets with a lot of turning traffic. Some of the destinations are also a long walk from the stop. We make these observations not to criticize the planning that went into these transitway routes and station locations, but to

emphasize the need for coordination between transit providers and municipalities to ensure that people have safe, secure, and pleasant experiences getting to or from transit stops.

#### **4.1 HOW TO USE STATION AREA MAPPING TOOL**

- WHO: This tool would primarily be used by transit planners and those preparing for community engagement, to map the existing conditions along a proposed line.
- WHAT: The tool shows the following information for the quarter mile radius around a proposed stop:
  - Land Use - to see existing assets in the area as well as potential for future growth
  - Transportation Network - to see intersecting bus and transit lines to facilitate connections
  - Pedestrian and Bicycle Network - to show the sidewalks and bicycle lanes already there and what is missing in and around a stop
  - Destinations - to map the primary destinations from a stop and to verify the importance of those or other destinations with community members
- WHERE: This tool can be used wherever the data exist to map the conditions within a quarter mile radius of a station area.
- WHEN: Ideally, the tool is used prior to engaging a community in order to communicate the existing conditions and to get community feedback on the accuracy of the information, the importance of particular destinations, and the priority of improvements to the transit users experience.
- WHY: The tool enables community members to understand a proposed line and station stop at a scale and in a way that they can understand. The quarter-mile radius is the distance that most people can comfortably walk or travel under their own power and so it focuses attention on the destinations and existing conditions that transit users would encounter when going to or from a transit stop.
- HOW: The maps use commonly available GIS data sets and can be easily imported into a GIS software, such as ArcGIS and QGIS.

#### **4.2 HOW TO USE STATION AREA MAPPING - STREET VIEW EXPERIENCE (DESTINATIONS) TOOL**

- WHO: This tool is helpful for both transit planners and community members to see the actual conditions, on the ground, that transit users will encounter to and from a station stop.
- WHAT: The tool contains sets of street view images from the perspective of someone walking to and from a destination and a station stop.
- WHERE: The tool is useful wherever there is a question of what matters most to transit users accessing stops and their destinations from them. The tool also allows transit planners to better understand what they are dealing with before engaging with the community about these issues.

- WHEN: To be most effective, the images should be prepared and mapped prior to engaging the community.
- WHY: The images provide a qualitative look at the station areas in ways that every community member can understand and in ways not always addressed in maps.
- HOW: The tool uses Google Maps to assess the fastest way from a stop to a destination and Google Earth street views to capture the experience of pedestrians along the way.

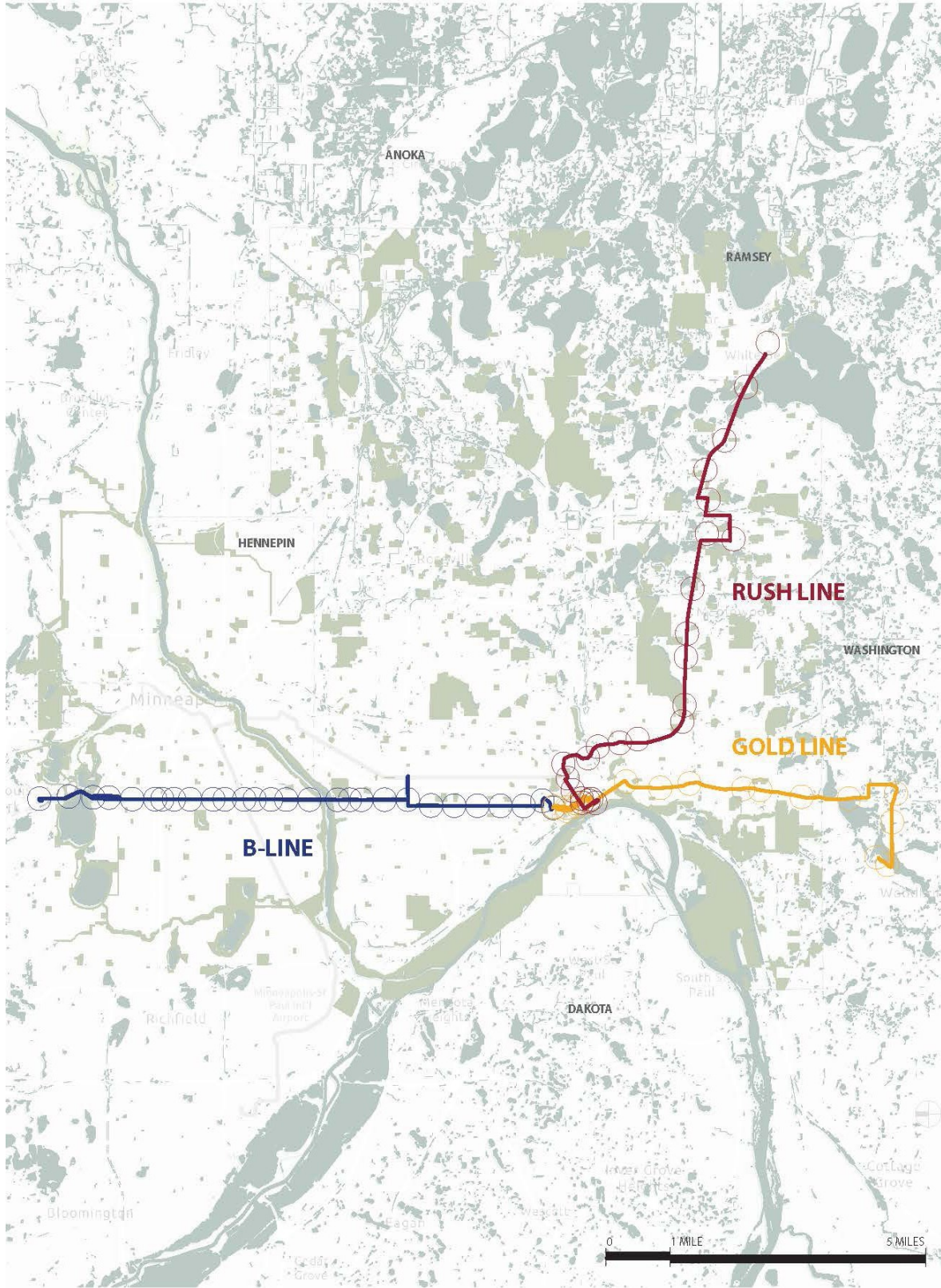
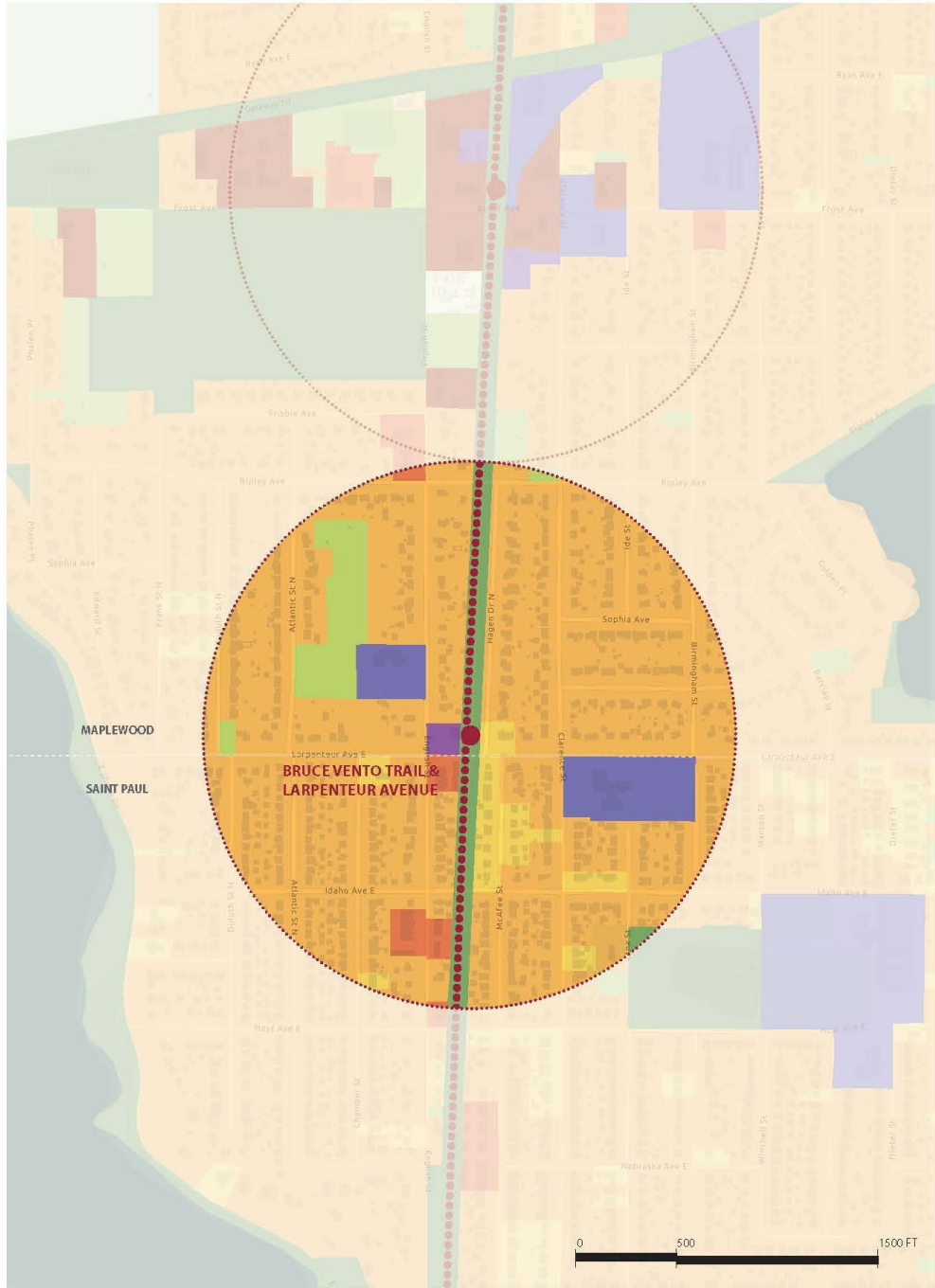


Figure 4.1: Proposed BRT alignments



**LAND USE - RUSH LINE**

**RUSH LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- 1/4 MILE - WALKING RADIUS

**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**LAND USE**

- COMMERCIAL/RETAIL
- MIXED USE COMMERCIAL/RETAIL
- MULTIFAMILY
- MIXED USE RESIDENTIAL
- INDUSTRIAL
- INSTITUTIONAL
- OFFICE
- SINGLE FAMILY - ATTACHED
- SINGLE FAMILY - DETACHED

**Figure 4.2: Rush Line - land use**



**TRANSPORTATION NETWORK - RUSH LINE**

**RUSH LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- 1/4 MILE - WALKING RADIUS

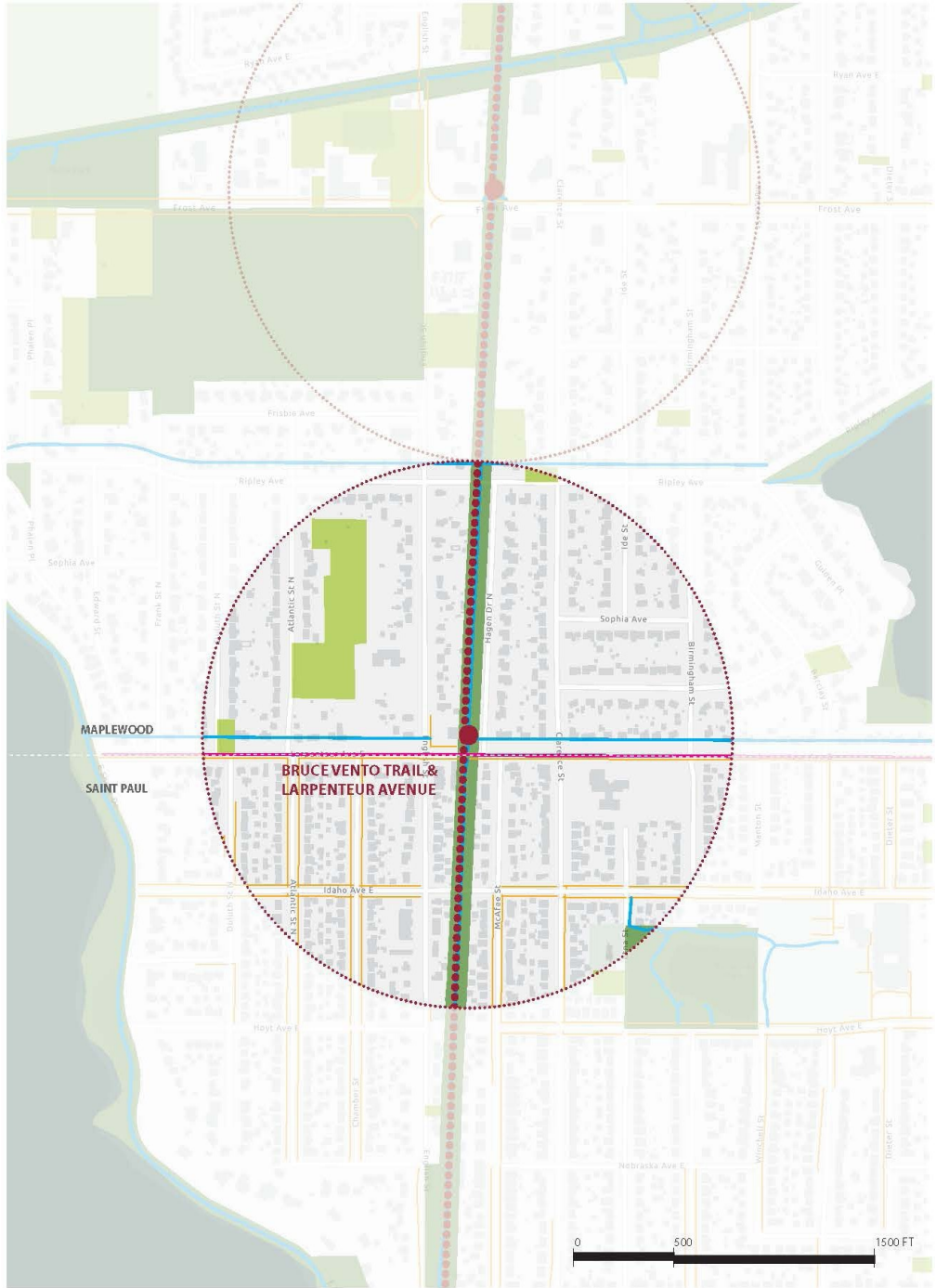
**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**TRANSPORTATION NETWORK**

- EXISTING BUS TRANSIT ROUTE (64 AND 64B)

**Figure 4.3: Rush Line - transportation network**



**PEDESTRIAN & BICYCLE NETWORK - RUSH LINE**

**RUSH LINE ALIGNMENT**

- ● ● PROPOSED ALIGNMENT
- PROPOSED STATION
- ⋯ 1/4 MILE - WALKING RADIUS

**PEDESTRIAN & BICYCLE NETWORK**

- PEDESTRIAN
- BIKEWAY
- TRAIL - PEDESTRIAN & BICYCLE

**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**Figure 4.4: Rush Line - pedestrian and bicycle network**



**DESTINATIONS - RUSH LINE**

**RUSH LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- 1/4 MILE - WALKING RADIUS

**CITY CONTEXT**

- - - CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**DESTINATIONS**

- A LAKE PHALEN COMMUNITY CHURCH
- B OUR REDEEMER LUTHERAN CHURCH
- C LAKE PHALEN

Figure 4.5: Rush Line - destinations

# A LAKE PHALEN COMMUNITY CHURCH



LARPENTEUR & ENGLISH



ENGLISH STREET



LAKE PHALEN COMMUNITY CHURCH

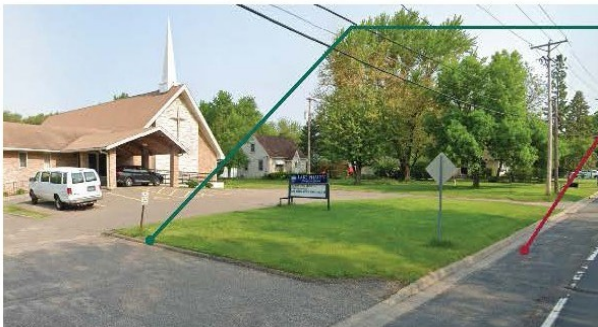
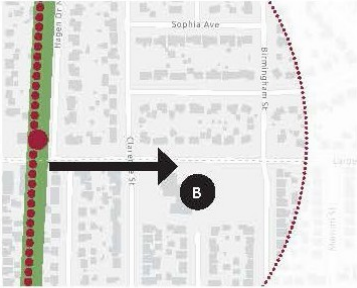


Figure 4.6: Rush Line - A destination route

**B OUR REDEEMER LUTHERAN CHURCH**



LARPENTEUR & BRUCE VENTO



LARPENTEUR & MCAFEE

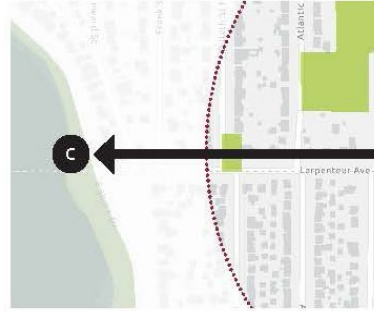


OUR REDEEMER LUTHERAN CHURCH



Figure 4.7: Rush Line - B destination route

**C LAKE PHALEN COMMUNITY CHURCH**



LARPENNEUR & CHAMBER



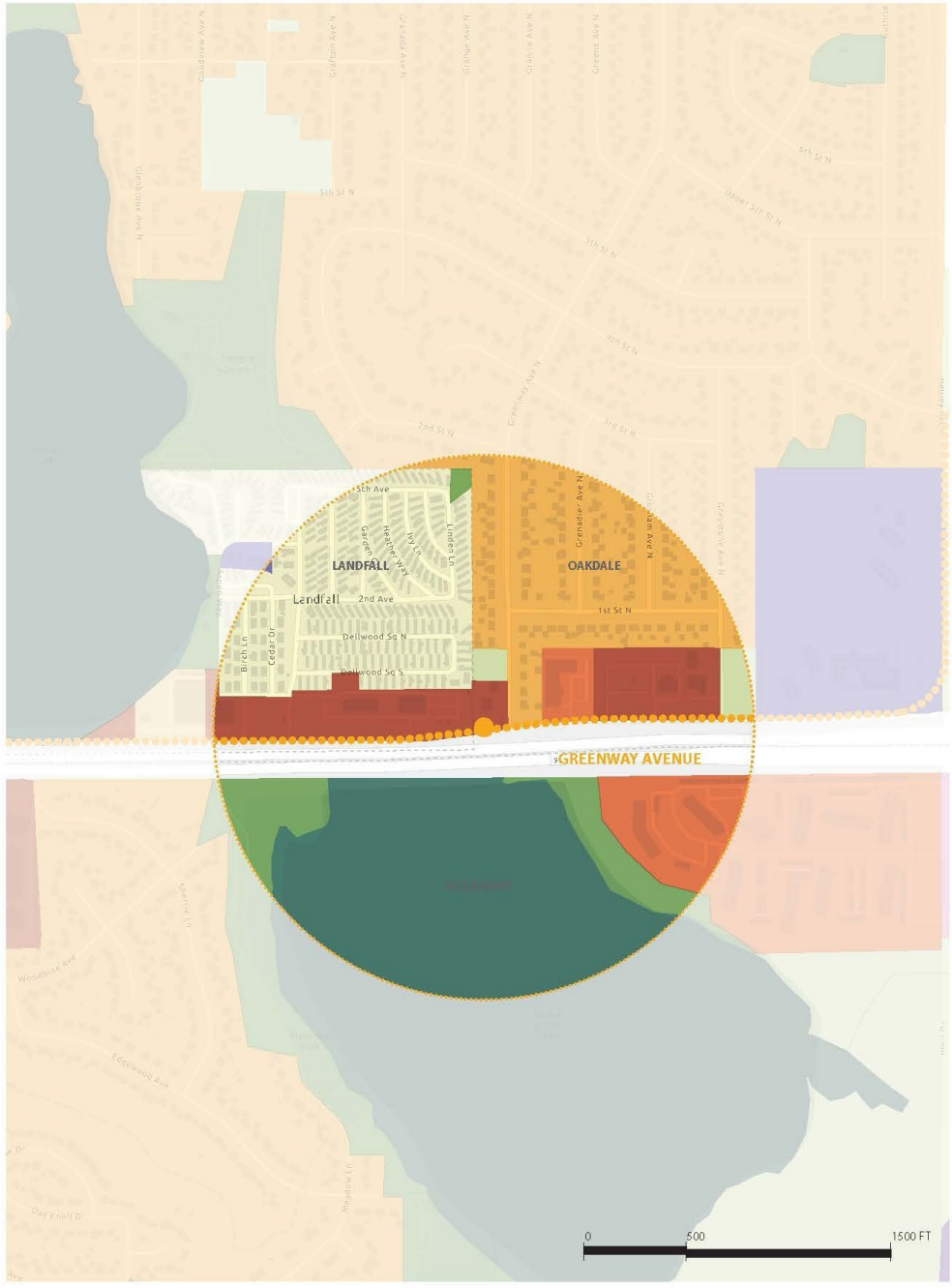
LARPENNEUR & ATLANTIC



LAKE PHALEN



**Figure 4.8: Rush Line - C destination route**



**LAND USE - GREENWAY AVENUE**

**GOLD LINE ALIGNMENT**

- ● ● ● PROPOSED ALIGNMENT
- PROPOSED STATION
- ● ● ● ● 1/4 MILE - WALKING RADIUS

**CITY CONTEXT**

- - - - - CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**LAND USE**

- COMMERCIAL/RETAIL
- MIXED USE COMMERCIAL/RETAIL
- MULTIFAMILY
- MIXED USE RESIDENTIAL
- INDUSTRIAL
- INSTITUTIONAL
- OFFICE
- SINGLE FAMILY - ATTACHED
- SINGLE FAMILY - DETACHED

**Figure 4.9: Gold Line - land use**



**TRANSPORTATION NETWORK - GOLD LINE**

**GOLD LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- 1/4 MILE - WALKING RADIUS

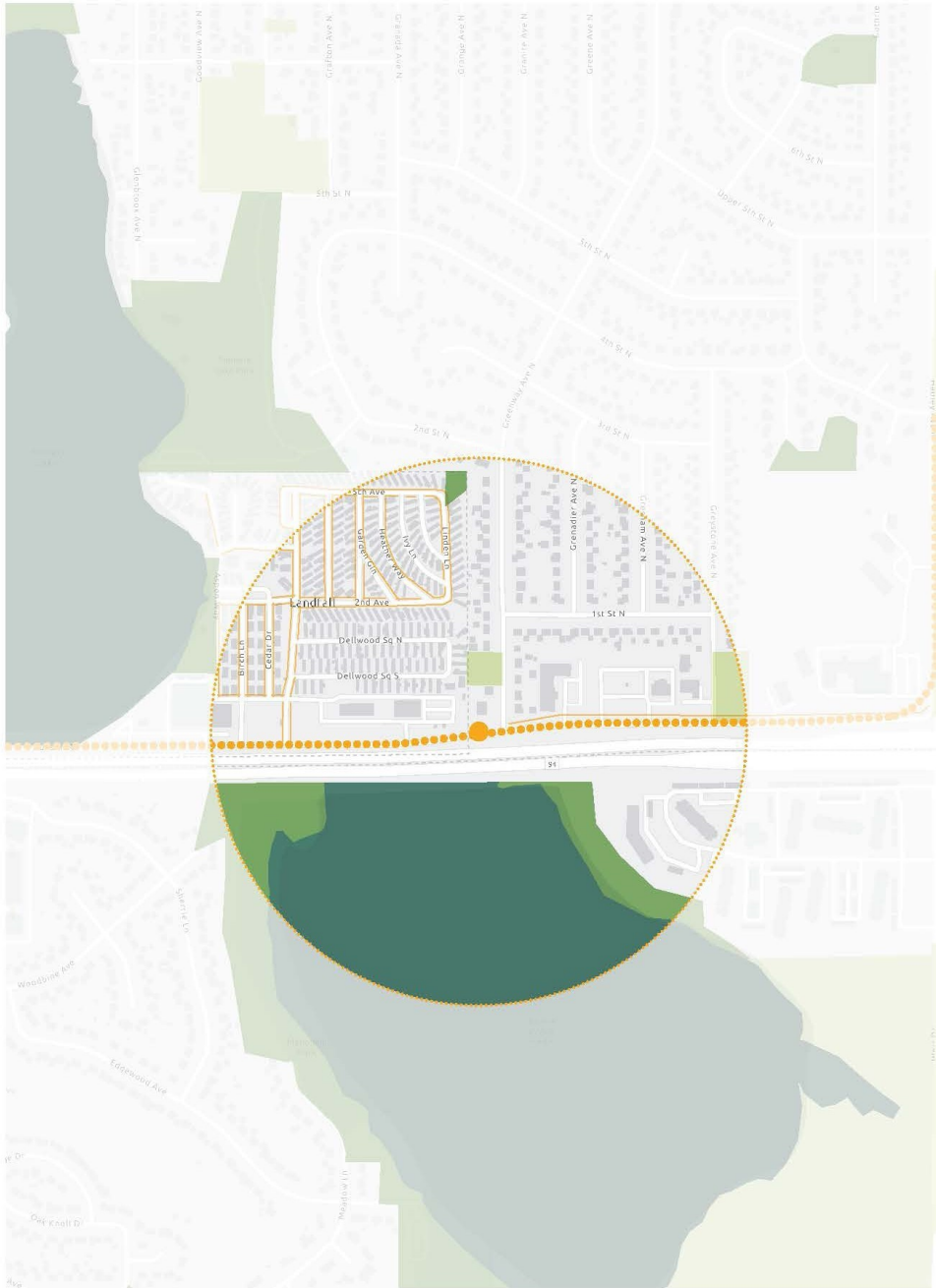
**TRANSPORTATION NETWORK**

- EXISTING BUS TRANSIT ROUTE (219)

**CITY CONTEXT**

- - - CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**Figure 4.10: Gold Line - transportation network**



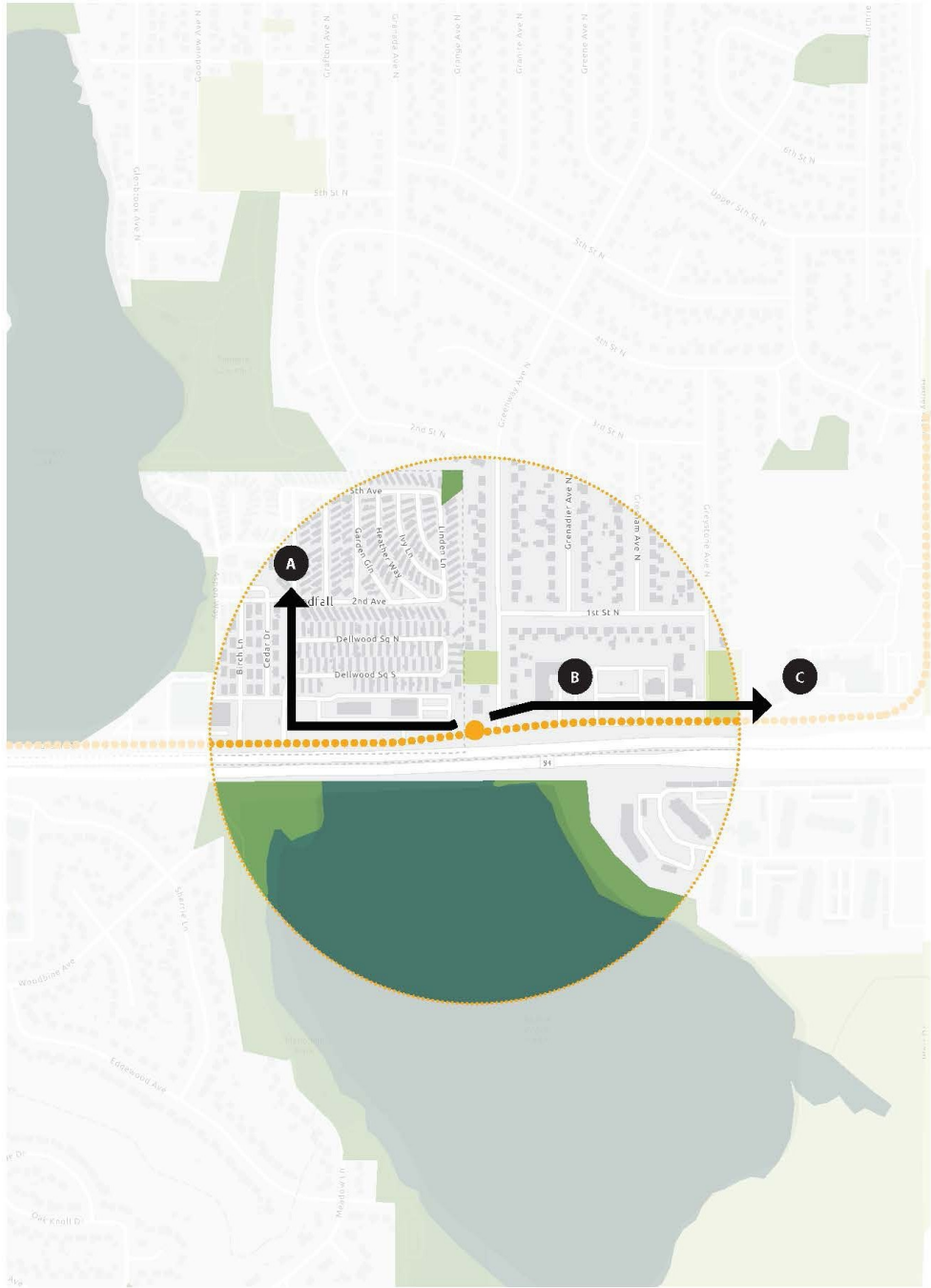
**PEDESTRIAN & BICYCLE NETWORK - GOLD LINE**

- GOLD LINE ALIGNMENT**
- PROPOSED ALIGNMENT
  - PROPOSED STATION
  - 1/4 MILE - WALKING RADIUS

- PEDESTRIAN & BICYCLE NETWORK**
- PEDESTRIAN
  - BIKEWAY
  - TRAIL - PEDESTRIAN & BICYCLE

- CITY CONTEXT**
- - - - CITY BOUNDARY
  - GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
  - WATER

Figure 4.11: Gold Line - pedestrian and bicycle network



**DESTINATIONS - GOLD LINE**

- RUSH LINE ALIGNMENT**
- PROPOSED ALIGNMENT
  - PROPOSED STATION
  - ..... 1/4 MILE - WALKING RADIUS

- CITY CONTEXT**
- CITY BOUNDARY
  - GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
  - WATER

- DESTINATIONS**
- A LANDFALL TERRACE
  - B PEACEFUL LIVING/LODGE
  - C APOSTOLIC BIBLE CHURCH

**Figure 4.12: Gold Line - destinations**

## A LANDFALL TERRACE



DELLWOOD & FIRST



DELLWOOD & 4TH



LANDFALL TERRACE



Figure 4.13: Gold Line - A destination route

## B PEACEFUL LIVING LODGE



### HUDSON & GREENWAY



### HUDSON



### OUR REDEEMER LUTHERAN CHURCH

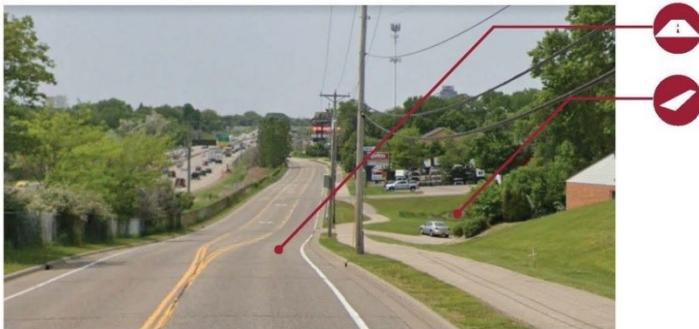


Figure 4.14: Gold Line - B destination route

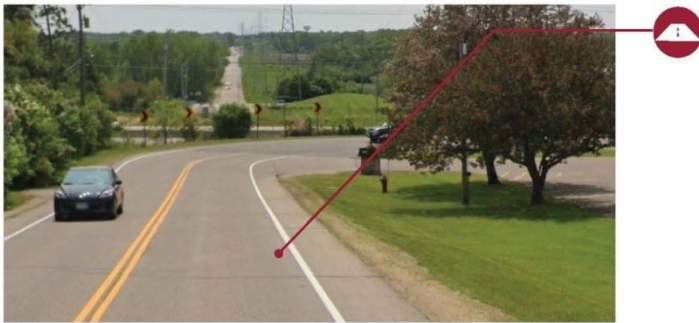
C APOSTOLIC BIBLE CHURCH



HUDSON & GREENWAY



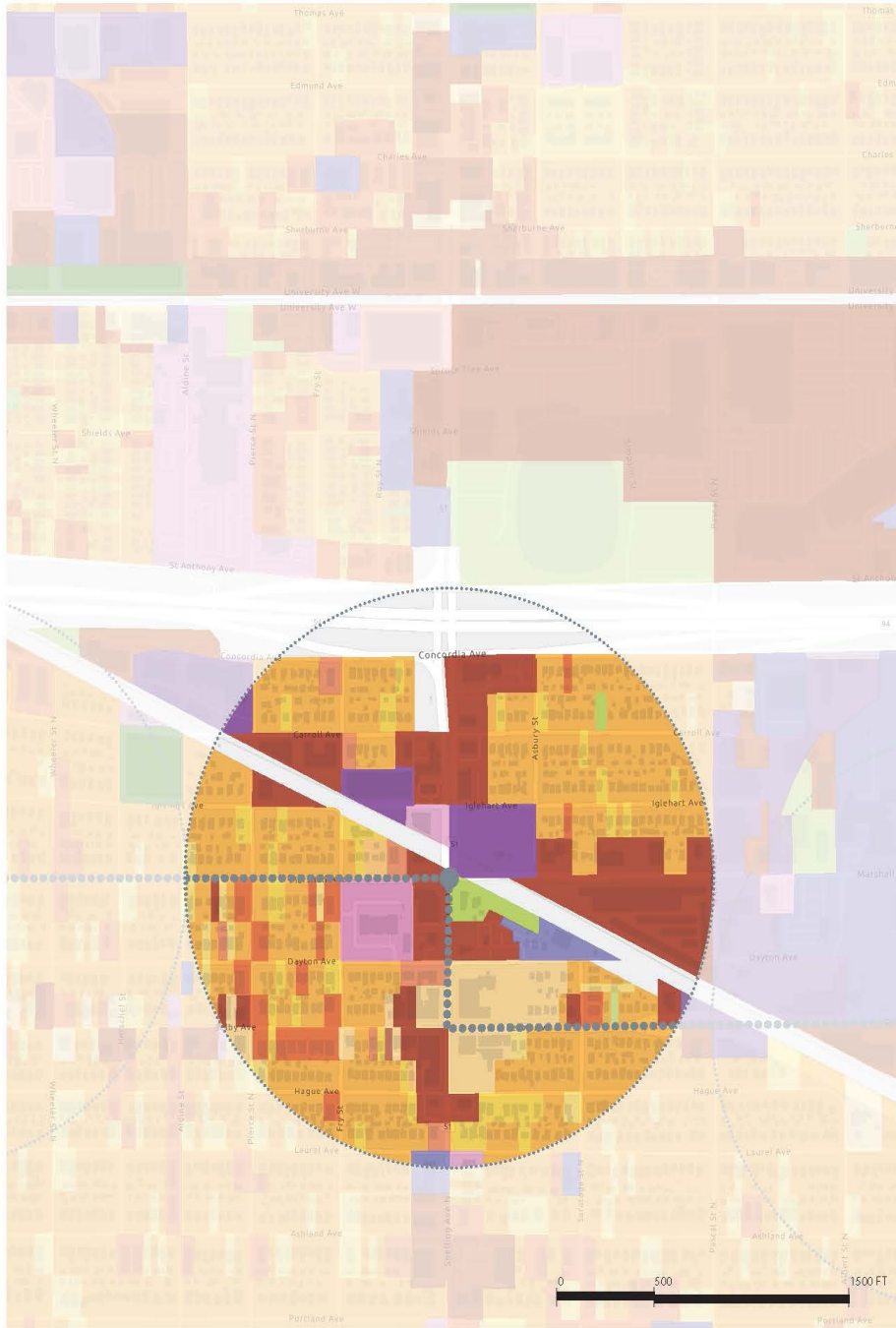
HUDSON & HADLEY



APOSTOLIC BIBLE CHURCH



Figure 4.15: Gold Line - C destination route



**LAND USE - B-LINE**

**RUSH LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- 1/4 MILE - WALKING RADIUS

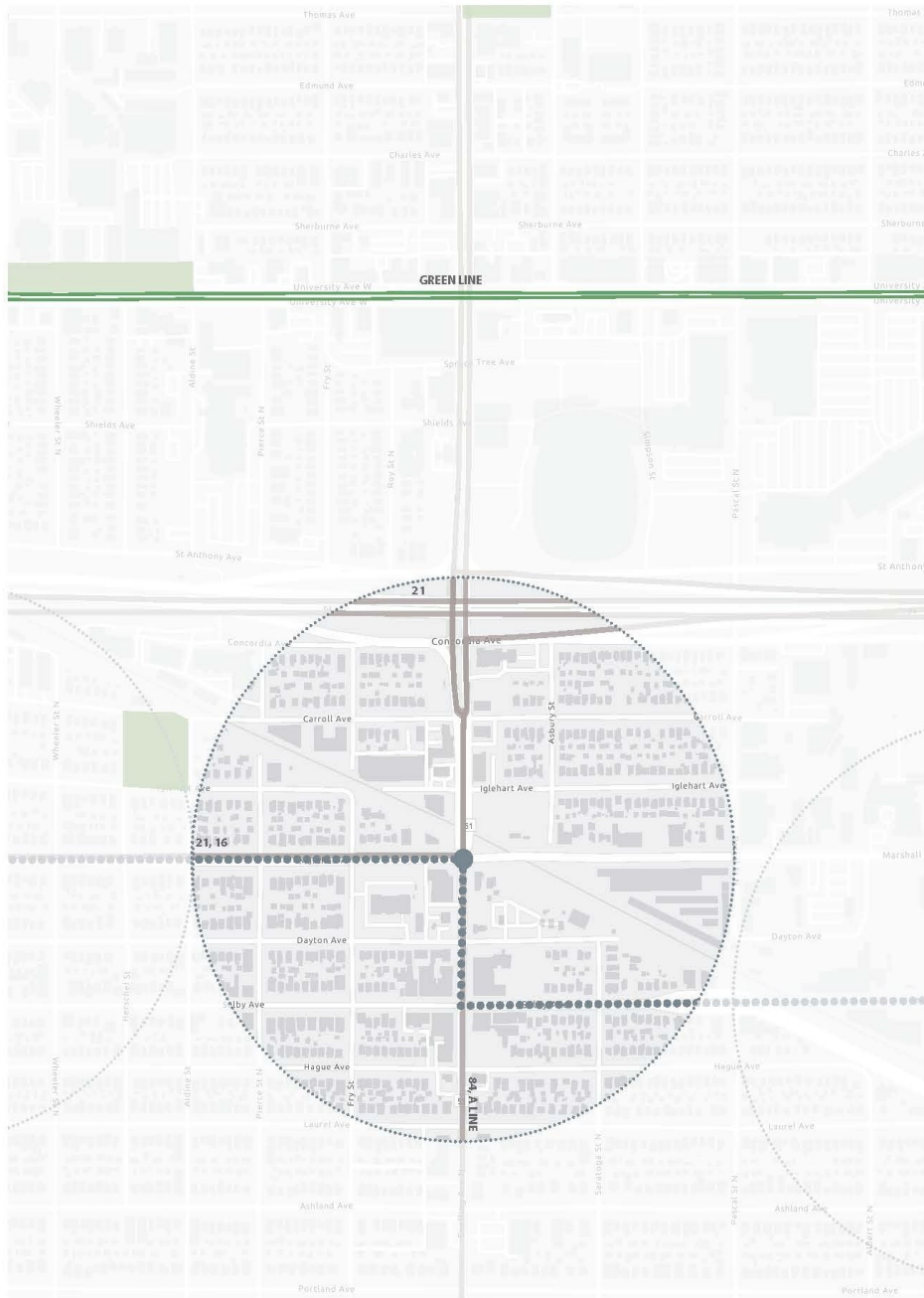
**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**LAND USE**

- COMMERCIAL/RETAIL
- MIXED USE COMMERCIAL/RETAIL
- MULTIFAMILY
- MIXED USE RESIDENTIAL
- INDUSTRIAL
- INSTITUTIONAL
- OFFICE
- SINGLE FAMILY - ATTACHED
- SINGLE FAMILY - DETACHED

**Figure 4.16: B Line - land use**



**TRANSPORTATION NETWORK - RUSH LINE**

**RUSH LINE ALIGNMENT**

- • • • PROPOSED ALIGNMENT
- PROPOSED STATION
- • • • • 1/4 MILE - WALKING RADIUS

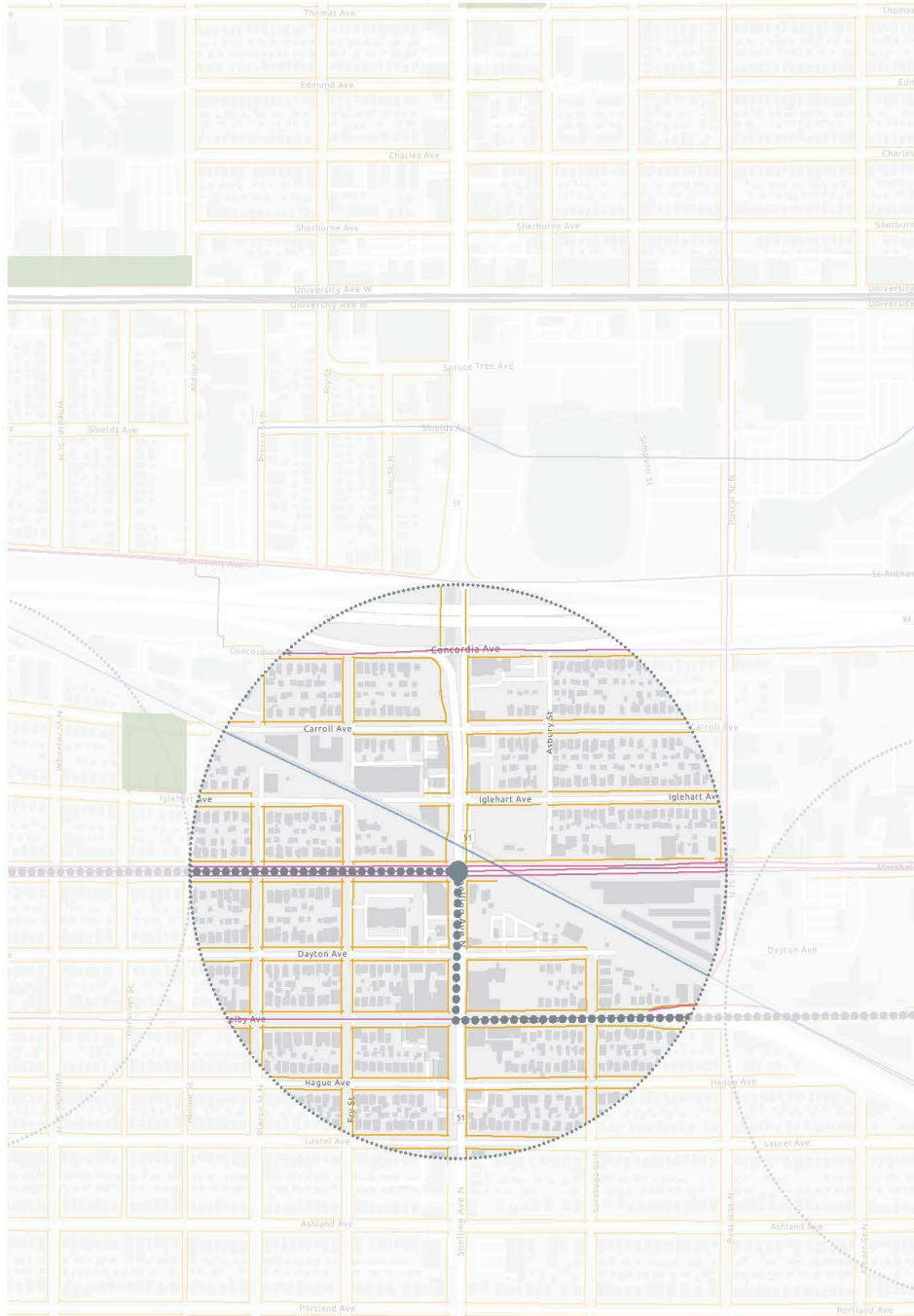
**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**TRANSPORTATION NETWORK**

- EXISTING BUS TRANSIT ROUTE (64 AND 64B)
- EXISTING LIGHT RAIL LINE (GREEN LINE)

Figure 4.17: B Line - transportation network



**PEDESTRIAN & BICYCLE NETWORK - RUSH LINE**

**RUSH LINE ALIGNMENT**

- • • • PROPOSED ALIGNMENT
- PROPOSED STATION
- • • • • 1/4 MILE - WALKING RADIUS

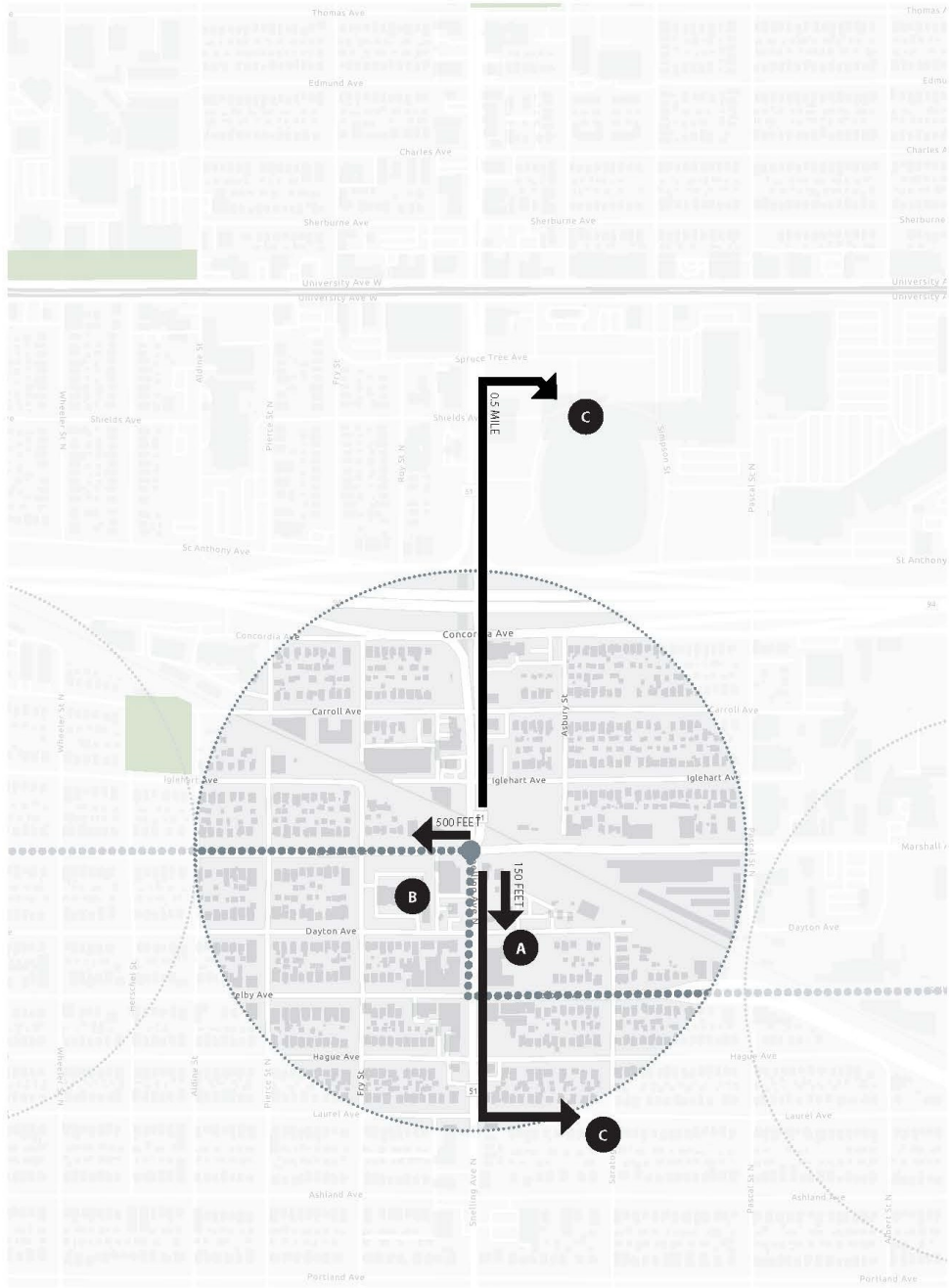
**PEDESTRIAN & BICYCLE NETWORK**

- PEDESTRIAN
- BIKEWAY
- TRAIL - PEDESTRIAN & BICYCLE

**CITY CONTEXT**

- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**Figure 4.18: B Line - pedestrian and bicycle network**



**DESTINATIONS - RUSH LINE**

**RUSH LINE ALIGNMENT**

- PROPOSED ALIGNMENT
- PROPOSED STATION
- ..... 1/4 MILE - WALKING RADIUS

**CITY CONTEXT**

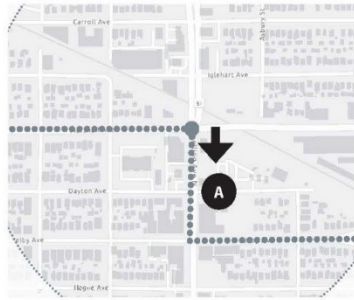
- CITY BOUNDARY
- GREEN SPACE - PARK, GOLF-COURSE, UNDEVELOPED
- WATER

**DESTINATIONS**

- A** WHOLE FOODS
- B** FAMILY TREE CLINIC/MINNESOTA FAMILY PLANNING
- C** HOLY TRINITY ETHIOPIAN ORTHODOX CHURCH
- D** ALLIANZ FIELD

Figure 4.19: B Line - destinations

# A WHOLE FOODS



## N DAYTON & SNELLING



## S DAYTON & SNELLING



## WHOLE FOODS

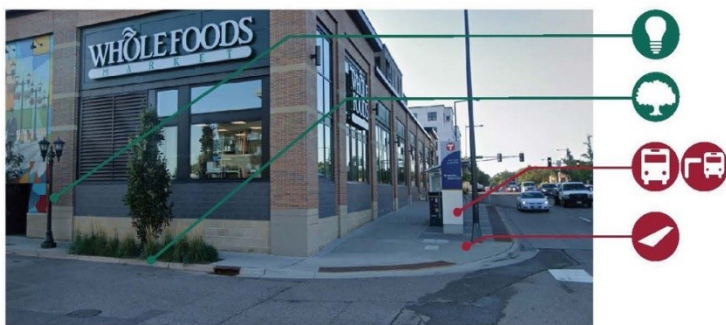
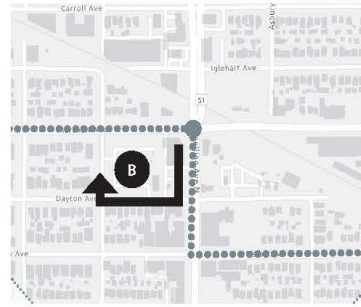
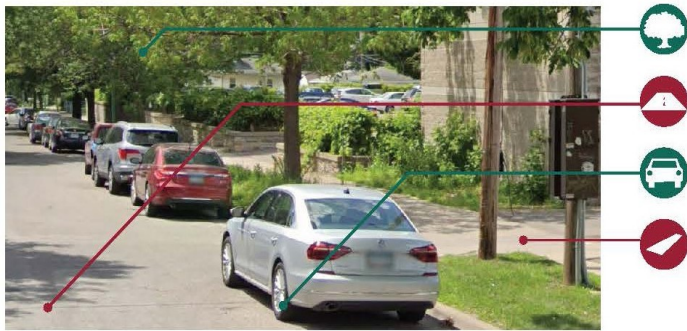


Figure 4.20: B Line - A destination route

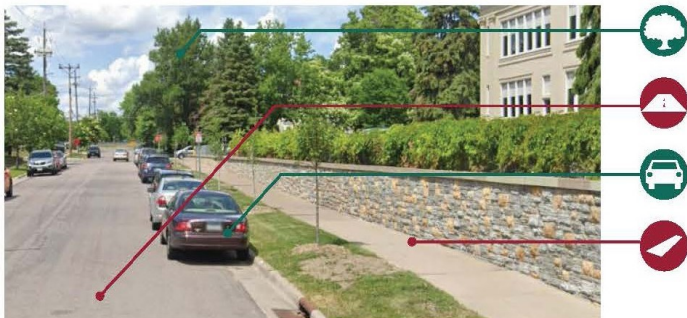
**B FAMILY CLINIC/MINNESOTA FAMILY PLANNING**



W DAYTON & SNELLING



DAYTON & FRY

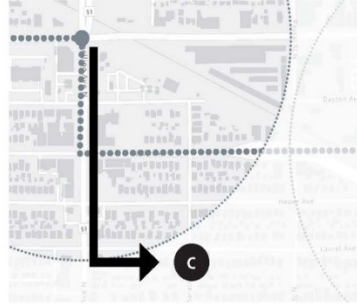


FAMILY CLINIC/MINNESOTA FAMILY PLANNING



Figure 4.21: B Line - B destination route

**C HOLY TRINITY ETHIOPIAN ORTHODOX CHURCH**



SNELLING & SELBY



SNELLING & LAUREL

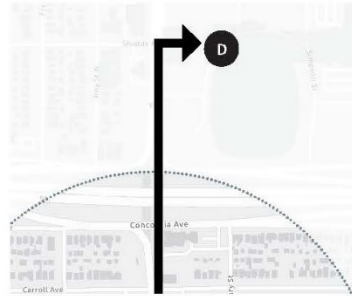


HOLY TRINITY ETHIOPIAN ORTHODOX CHURCH



**Figure 4.22: B Line - C destination route**

D ALLIANZ FIELD



MARSHALL & SNELLING



SNELLING & I-94



ALLIANZ FIELD



Figure 4.23: B Line - D destination route

## CHAPTER 5: EXPERIENTIAL MAPPING

One of the most important reasons communities need to be engaged in transitway planning is to tap the insights and local knowledge of the people who live and work in the places served by transit. With that in mind, mapping people’s experiences becomes a crucial part of the process. In face-to-face community meetings, that often happens with people marking and making notes on maps, and there are now digital tools that allow that same kind of annotation.

The following images show what that remote engagement might look like. We recommend the use of the icons as either adhesive-backed stickers for in-person meetings or pasted-in images in a digital platform. The icons not only relate back to the flashcards, but also provide a quick way for people to raise an issue or identify a problem worth discussing.

The examples shown here show a sample of what this might look like, using the B Line as a test case. We used the annotation feature of Zoom to create these images, in part because of Zoom’s widespread use as a digital platform for meetings, but there are a number of platforms available for use in this way. Of the 56 digital platforms we evaluated, 32 allow for public comment including the annotation of images, 30 enable stakeholder engagement with a variety of tools available, and 28 offer map annotation and storytelling.

Capturing the experiences of people through annotated maps and street views is a way to gather the stories behind the data. So often, planning decisions get made primarily based on the numbers: the relative cost of a route, the economic impact of a route on transit-dependent residents, increased access to jobs that a transit investment provides, and so on. Quantifying such benefits is important and even necessary as decision-makers weigh costs against the benefits of going in one direction or another.

What community engagement provides are the stories of peoples’ lived experiences in a place. People want to have opportunities to tell their stories and to know that those leading projects are listening and honoring those stories. Experiential mapping is a good way to elicit those qualitative aspects of a project, not only identifying particular issues, but also talking about where a community has been, where it is now, and where it hopes to go in the future. The more people are encouraged to tell those stories – whether verbally or as notations on a map or photography – the more engaged they will be and the more they will value the process and the end result.

### 5.1 HOW TO USE EXPERIENTIAL MAPPING (ASSETS MAPPING) TOOL

- WHO: While prepared in advance by transit professionals, this tool is intended to be used by community members, either in-person or remotely, to record their knowledge and ideas.
- WHAT: The tool offers a way for community members to engage in the transit design and planning process, simplifying the language with icons and using maps or perspective views that stakeholders can draw or comment on.

- WHERE: The tool works both in an in-person meeting or online, with the annotation features of platforms like Zoom or Miro.
- WHEN: After gathering information at the contextualizing and mapping stage, transit planners can use this tool in community engagement meeting to understand existing assets and to gather community members' ideas and priorities.
- WHY: This tool allows community members to be co-designers in the planning process and to be engaged earlier.
- HOW: The tool involves the use of markers and stickers on printed maps for in-person meetings or virtual stickers, annotations, and drawing tools available on many digital platforms.

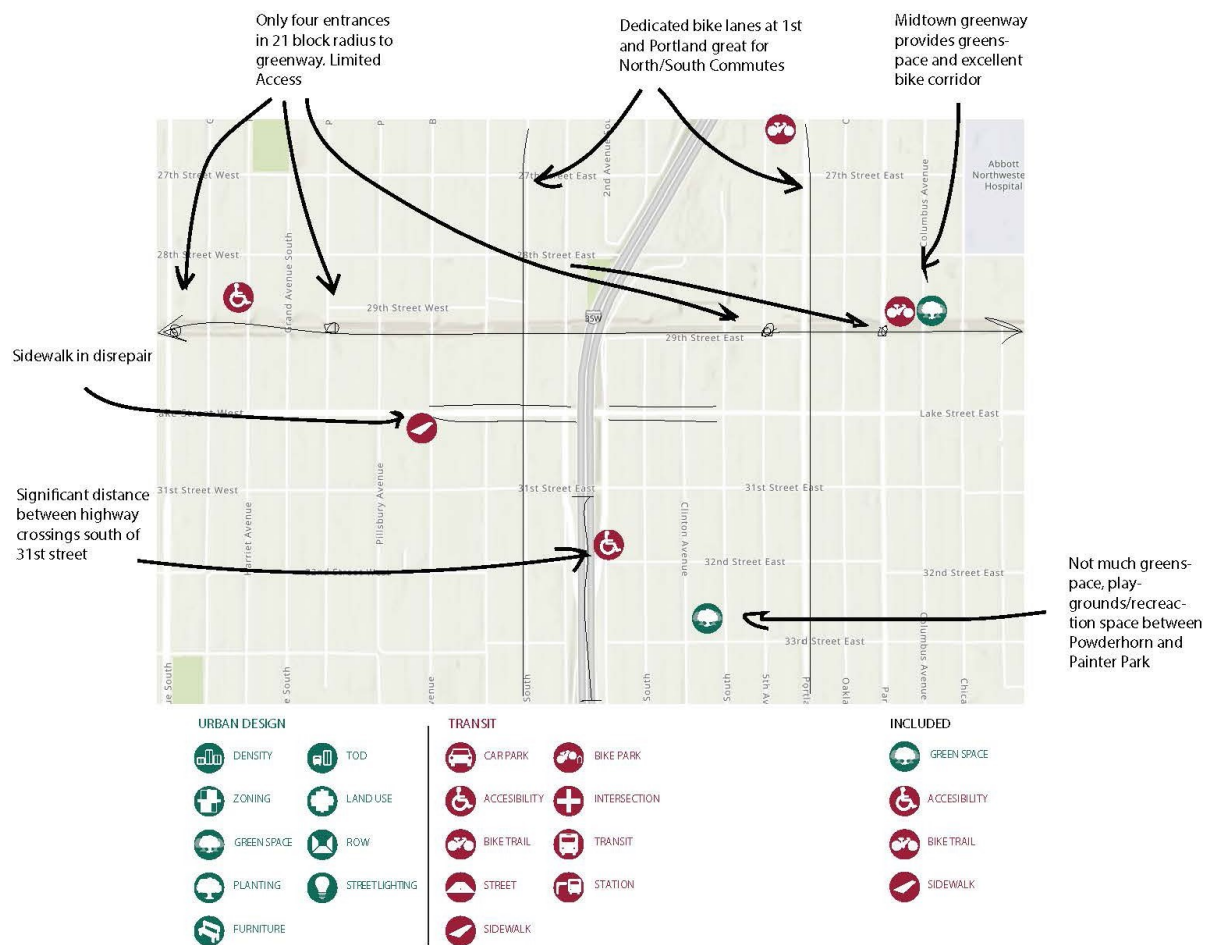
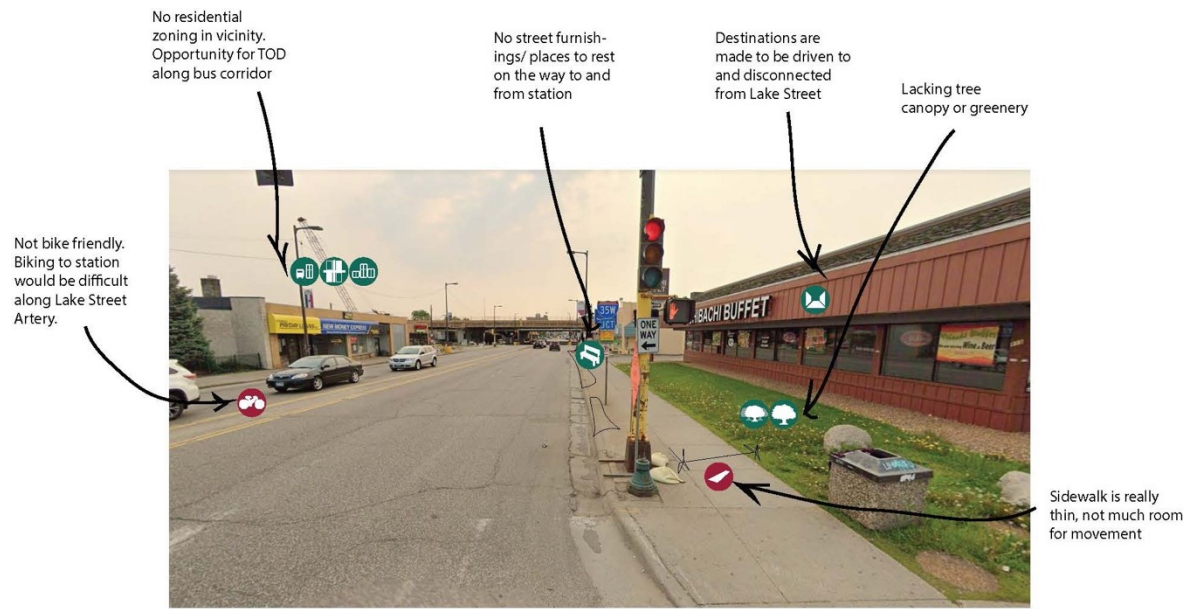


Figure 5.1: Sample of a community engaged marked-up map - aerial view



<b>URBAN DESIGN</b> DENSITY ZONING GREEN SPACE PLANTING FURNITURE		<b>TRANSIT</b> CAR PARK ACCESSIBILITY BIKE TRAIL STREET SIDEWALK		<b>INCLUDED</b> TOD FURNISHING ZONING SIDEWALK BIKE TRAIL		GREEN SPACE DENSITY
TOD	LAND USE	BIKE PARK	INTERSECTION	TOD	GREEN SPACE	
	ROW	STREET LIGHTING	BIKE TRAIL	FURNISHING	DENSITY	
			STATION	ZONING		
				SIDEWALK		
				BIKE TRAIL		

Figure 5.2: Sample of a community engaged marked-up map - street view

## CHAPTER 6: STATION AREA EVALUATION

In addition to gathering stories, community engagement efforts can elicit quantifiable evaluations of station areas and transitway routes from residents and business owners. With that in mind, we developed a station area evaluation tool that enables people to rate a proposed station area according to a number of criteria. This evaluation step is helpful after a proposed transit stop has been located in a particular place, since the evaluation is very specific in terms of what people are asked to respond to. It is also possible to use this evaluation tool to compare different possible sites as part of the planning process.

The evaluation uses a three-point scale: 3 = good, 2 = adequate, 1 = poor. The tool has 11 categories, related to those in the flashcards. They are:

- Intersection
- Street furniture
- Street lighting
- Maintenance
- Planting
- Sidewalk
- Stormwater Management
- Bicycle Lanes
- Bicycle Storage
- Transit Lane
- Transit Stop

To give community members some guidance on how to evaluate a site and determine whether some aspect of a station area is good, adequate, or poor, the tool provides lists of possible features in each category: six features to get a good rating, four features for an adequate rating, and two features for a poor rating.

For example, a good intersection has the following: Signalized Crossing, Dedicated Crossing, Traffic Calming, Good Visibility, ADA Compliance, Visible Markings. An adequate intersection has: Dedicated Crossing, Good Visibility, ADA Compliance, Visible Markings. And a poor one has: No Dedicated Crossing, Fast Traffic and a Wide Street.

There is a maximum score of 33: 3 points across 11 categories. The goal of this evaluation tool is to gather community members' sense of what matters in a station area and its immediate surroundings and where they see the biggest problems. The scorecard also allows for comparisons among various points of view in a community, as the starting point for resolving differences among residents and business owners.

## 6.1 HOW TO USE STATION AREA EVALUATION TOOL

- WHO: Transit planners need to develop this tool ahead of any community engagement so that community members know what they are assessing and what the scoring entails.
- WHAT: The scorecard provides a numerical basis for grading station areas. The criteria for the scoring are based on flashcard categories and the quality of each criterion is rated on a scale from 0-3. Each criterion is added to make a total which is indicative of the station area's quality.
- WHERE: The scorecard assesses features within the quarter-mile radius of a proposed station stop.
- WHEN: This tool complements other tools by providing a quantitative ranking of station stops based on the same criteria, and so it can be used either before a station stop has been located or afterward, as a way to assess what needs to be done in a particular location to improve the transit users experience.
- WHY: A mixed-methods toolkit needs to have both qualitative and quantitative tools, and this scorecard provides the latter. The experiential quality of a station area can be hard to define, so the scorecard provides a quantifiable basis for choosing one station stop location over another.
- HOW: The spreadsheet can be either printed out and distributed to attendees at in-person meetings or delivered online to remote meeting participants.













1	A	B	C	D	E	F	G	H	I
2	<b>CHECKLIST FOR TRANSIT PLANNING</b>								
3	<b>DESIGN CHECKLIST</b>								
4	<b>PEDESTRIAN</b> <small>(within 1/4 mile radius of station)</small>								
5									
6	<b>GOAL</b> • TO CREATE A SAFE AND INVITING WALKABLE AND PEDESTRIAN-FRIENDLY ENVIRONMENT FOR TRANSIT USERS								
7									
8									
9	<b>CATEGORIES</b>								
10		<b>INTERSECTION</b>		<b>FURNISHING</b>		<b>LIGHTING</b>		<b>ACCESSIBILITY &amp; MAINTENANCE</b>	
11	<b>DESCRIPTION</b>	WHILE CROSSWALKS ARE PART OF ROAD STANDARDS, THEIR LOCATION, WIDTH, AND STATE OF REPAIR PARTLY DETERMINES THEIR EFFECTIVENESS. GOOD CROSSWALKS ARE LOCATED AT THE MAIN INTERSECTIONS AND ALONG THE IMPORTANT PEDESTRIAN ROUTES, FREQUENT ENOUGH TO DISCOURAGE UNWANTED CROSSINGS. ADEQUATE CROSSWALKS ARE INDICATED IN NUMBER, BUT ACCEPTABLE IN QUALITY. POOR ONES ARE MOSTLY MISSING OR MINIMALLY MAINTAINED.		STREET FURNISHINGS MUST ACCOMMODATE A VARIETY OF NEEDS AND ABILITIES ON THE PART OF PEOPLE TO MAKE THEIR TRIPS TO AND FROM STATIONS A GOOD EXPERIENCE. A WELL FURNISHED STREET HAS AMPLE BENCH SEATING, BIKE PARKING, AND PLANTED AREAS AS WELL AS SPACE FOR OTHER ACTIVITIES LIKE SIDEWALK TABLES AND CHAIRS. ADEQUATE FURNISHINGS MIGHT INCLUDE AN OCCASIONAL BENCH OR BIKE RACK, AND POOR FURNISHINGS, ONE SUCH ITEM SPACED FAR APART OR MISSING ALTOGETHER.		OUTDOOR LIGHTING ADEQUATE FOR AUTOMOBILES IS OFTEN INADEQUATE FOR PEDESTRIANS IN TERMS OF THEIR FEELING SAFE. IT ISN'T ENOUGH FOR A STATION PLATFORM TO BE ADEQUATELY LIT IF THE SURROUNDING SIDEWALKS ARE NOT. GOOD LIGHTING SHOULD ILLUMINATE THE ENTIRE WALKING SURFACE, WITH GOOD COLOR RENDERING AND WITHOUT GLARE. ADEQUATE LIGHTING MAY PROVIDE POOLS OF LIGHT AMIDST DARK PATCHES THAT MIGHT PROVE HAZARDOUS. POOR LIGHTING ALLOWS MORE DARKNESS THAN LIGHT.		WHILE THE MAINTENANCE OF AREAS AROUND A STATION AREA MAY NOT BE WITHIN THE CONTROL OF A TRANSIT OPERATIONS, IT IS KEY TO THE EXPERIENCE OF TRANSIT RIDERS IN TERMS OF THEIR FEELING SAFE AND SECURE. A WELL-MAINTAINED PEDESTRIAN ENVIRONMENT HAS LEVEL SURFACES, REGULAR TRASH PICKUP, FREQUENT MOWING OR CLIPPING OF GRASS OR PLANTS IN THE PUBLIC RIGHT-OF-WAY, AND A LACK OF DEBRIS OR OTHER OBSTACLES TO EASY USE. AN ADEQUATELY MAINTAINED ENVIRONMENT HAS SOME, BUT NOT ALL OF THOSE CONDITIONS, AND A POORLY MAINTAINED ONE, FEW OR NONE OF THEM.	
12									
13	<b>EVALUATION CRITERIA</b>								
14	3 = GOOD								
15		<ul style="list-style-type: none"> <li>• SIGNALIZED CROSSING</li> <li>• TRAFFIC CALMING - CURB EXTENSION</li> <li>• SIGHT LINE &amp; VISIBILITY BTW CARS &amp; PEDESTRIAN</li> <li>• ADA COMPLIANT - UNIVERSALLY ACCESSIBLE</li> <li>• MID-STREET CROSSING &amp; PLANTED MEDIUM</li> <li>• STORMWATER MANAGEMENT</li> <li>• DEDICATED &amp; VISIBLE SURFACE CROSSING</li> </ul>		<ul style="list-style-type: none"> <li>• LOCATED IN THE AMENITY ZONE</li> <li>• VARIETY OF SEATING</li> <li>• SEPARATION BTW CAR AND PED (BOLLARDS)</li> <li>• TRASH RECEPTACLE</li> <li>• BICYCLE STORAGE OPTIONS</li> <li>• PLANTING BED &amp; TRENCHES</li> <li>• LIGHTING FIXTURE</li> <li>• MAINTAINED WITH CARE</li> <li>• SMART STREET TECHNOLOGIES</li> <li>• STORMWATER MANAGEMENT</li> </ul>		<ul style="list-style-type: none"> <li>• HIGH EFFICIENCY</li> <li>• LOCATED IN THE AMENITY ZONE</li> <li>• PEDESTRIAN SCALE</li> <li>• SPACED OUT CONSISTENTLY</li> <li>• MAINTAINED WITH CARE</li> <li>• WELL LIT &amp; BOUNDARY</li> <li>• APPROPRIATE CLEARANCE &amp; SIGHTING</li> <li>• NO LIGHT POLLUTION</li> <li>• NO OR MINIMAL GLARE</li> <li>• WELL LIT SIGNAGE</li> </ul>		<ul style="list-style-type: none"> <li>• BEETH OR WINTER REMOVAL</li> <li>• MAINTAINED CONSISTENTLY</li> <li>• STORMWATER MANAGEMENT</li> <li>• UNIVERSALLY ACCESSIBLE</li> <li>• FURNISHINGS IN WORKING ORDER</li> </ul>	
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26	2 = ADEQUATE								
27		<ul style="list-style-type: none"> <li>• DEDICATED CROSSING</li> <li>• ADA COMPLIANT - UNIVERSALLY ACCESSIBLE</li> <li>• SIGHT LINE &amp; VISIBILITY BTW CARS &amp; PEDESTRIAN</li> <li>• DEDICATED &amp; VISIBLE SURFACE CROSSING</li> </ul>		<ul style="list-style-type: none"> <li>• SOME SEATING</li> <li>• SOME TRASH RECEPTACLE</li> <li>• SOME PLANTING</li> </ul>		<ul style="list-style-type: none"> <li>• SOMEWHAT LIT &amp; BOUNDED</li> <li>• SPACED OUT CONSISTENTLY</li> <li>• LOW EFFICIENCY</li> <li>• SOME GLARE</li> <li>• SOME LIGHT POLLUTION</li> <li>• MEDIUM EFFICIENCY</li> </ul>		<ul style="list-style-type: none"> <li>• UNIVERSALLY ACCESSIBLE</li> <li>• MAINTAINED FREQUENTLY</li> </ul>	
28									
29									
30									
31									
32									
33									
34									
35	1 = POOR								
36		<ul style="list-style-type: none"> <li>• NO DEDICATED CROSSING</li> <li>• FAST TRAFFIC</li> <li>• WIDE STREET</li> </ul>		<ul style="list-style-type: none"> <li>• SPACED OUT POORLY</li> <li>• INCONSISTENT FURNISHING</li> <li>• LITTLE OR NO SEATING</li> <li>• NO TRASH RECEPTACLE</li> <li>• NO PLANTING</li> </ul>		<ul style="list-style-type: none"> <li>• INCONSISTENT SPACING</li> <li>• LOW EFFICIENCY</li> <li>• NOT LIT</li> <li>• CONSIST GLARE</li> <li>• LIGHT POLLUTION</li> </ul>		<ul style="list-style-type: none"> <li>• NOT UNIVERSALLY ACCESSIBLE</li> <li>• MAINTAINED POORLY</li> <li>• OBSTACLE IN PATH</li> </ul>	
37									
38									
39									
40									
41									
42									
43									
44	<b>10TH STREET - RUSHLINE</b>	2		2		2		3	
45									
46									
47									
48									
49									
50									

Figure 6.1: Sample of a station area evaluation (scorecard)

## CHAPTER 7: 3D VISUALIZATION

Many community members can have difficulty imagining what a transitway and its stops might look like, and for some, this can lead them to imagine unimproved conditions. As a result, we developed this tool to help residents and business owners in a community see what improvements related to transit might look like in three dimensions.

This tool allows its users to turn a layer on or off to show what a particular improvement might look like in a particular setting. The tool uses the icons developed for the flashcards to indicate what each layer might show, with the following available as part of the 3-D visualization:

- Street lighting
- Street furnishing
- Street planting
- Bicycle path
- Sidewalk
- Transit-oriented development

The tool is customizable and other layers can be developed and icons used, depending up the situation and the interests of communities.

The following images show the use of the tool in three different settings, along each of the three BRT lines studied:

1. The Rush Line follows the Bruce Vento Trail, a former rail right-of-way currently used as a biking and walking path. The first 3-D image shows what the BRT transitway would look like at the intersection with Idaho Avenue East. The tool adds a sidewalk, a bicycle path, a crosswalk, and a widened right-of-way to indicate the safety measures that would be taken at major intersections.
2. The Gold Line parallels I-94 for much of its route, with a station stop at Greenway Avenue and Hudson Boulevard North. The second image indicates what the addition of a sidewalk, a bicycle path, street plantings, and a crosswalk would look like in that location, improving the safety of the station area as well as enhancing its accessibility and environmental sustainability.
3. The B Line, shown in the third image, travels along a denser, urban corridor through St. Paul and Minneapolis, and the third image here shows what the addition of a wider sidewalk, transit-oriented development and improved street furniture, lighting, and planting would do to enhance the experience of transit users going to or from the transit station stop to their destinations.

## 7.1 HOW TO USE 3-D VISUALIZATION TOOL

- WHO: This tool would be used by transit planners as a way to engage community members who may respond better to 3-D images than to maps or data.
- WHAT: The tool provides visual suggestions for station-area improvements using 3D collage in Photoshop.
- WHERE: Wherever street-level images of a station area are available, this tool can be used with Photoshop.
- WHEN: While the turning on and off of layers can be an effective way to engage community members in a discussion, the completion of the imagery would happen after a community engagement session and the input gathered there.
- WHY: The tool provides a way to visually represent how the public realm might be improved and to help planners understand what a community needs and values.
- HOW: Photoshop enables the modeling of items like street planting and furniture, bicycle lanes, and transit-oriented development in perspective images of station areas.



Figure 7.1: Rush Line public realm improvement - before



Figure 7.2: Rush Line public realm improvement - after



Figure 7.3: Gold Line public realm improvement - before



Figure 7.4: Gold Line public realm improvement - after



Figure 7.5: B Line public realm improvement - before



Figure 7.6: B Line public realm improvement - after