Bike and Car Sharing: Alternative Transportation for Region 5

Prepared for The Transportation Champions
of the Resilient Region Project

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The Central Minnesota Sustainable Development Plan[1] outlines the themes, issues, goals, and recommendations/actions to achieve sustainable development in Region Five. This memo focuses on the Infrastructure – Transportation Action Steps outlined in the plan. Specifically, it addresses Recommendations T6 (increasing alternative transportation) and T8 (planning multi-modal transportation options) by looking at bike sharing and car sharing as potential transportation alternatives for the region.

Bike Sharing: A Healthy and Economical Mode of Transportation

Bike sharing is a non-motorized transportation system, typically structured to provide users point-to-point transportation for short distance trips (3 miles or less), although longer trips are viable with the proper equipment. These systems provide users the ability to pick up a bicycle at any service location in the network and return it to another location within the network.[2]

Bike share programs bring environmental, social, economic, and public health benefits to the community.[3] From an environmental standpoint, biking is a near zero emissions form of transportation (manufacturing of bikes and lubricants produce some emissions). A bicycle commuter riding four miles to work, five days a week, avoids 2,000 miles of driving and an estimated 2,000 pounds of CO2 emissions every year.[4] Furthermore, increased bicycling can

[1] Available at www.resilientregion.org.
[2] Toole Design Group, USDOT Federal Highway Administration, *Bike Sharing in the United States: State of the Practice and Guide to Implementation* (September 2012), page 4, http://www.pedbikeinfo.org/pdf/Programs_Promote_bikeshareintheus.pdf.
[3] *Id*. at 12.
[4] Pedestrian and Bicycle Information Center, *Environmental Benefits of Bicycling and Walking*, http://www.pedbikeinfo.org/data/factsheet_environmental.cfm.

reduce traffic congestion and the need for vast open parking lots, creating more space for development and recreation.[5]

The social benefits of bicycling include increased access to transportation and jobs. In addition, access to bicycles allows everyone to commute to jobs that are not within walking distance. Bicycling can even also lead to an increase in educational opportunities as individuals have more ways to commute to local colleges and universities.

The economic benefits of bike share programs include increased tourism and development.[6] The relatively low cost of biking also decreases the amount of money people spend on transportation, thus increasing their funds available to save or spend elsewhere.[7] The high cost of ownership of a car is prohibitive to many low-income families, thus making them more reliant on alternative modes of transportation. In areas with little or no public transit systems, bicycling provides a viable alternative for these individuals to be able to commute to their jobs. Bike sharing programs enable those who cannot afford to purchase a bicycle to have access to a bike when they need transportation. In addition, studies have shown that more bicycle facilities increase home values, spending at local businesses, and economic development.[8]

The public health benefits of biking are immense. With obesity an increasing problem throughout the United States, bicycling provides a simple way to increase and promote physical activity that can help to reduce risk of coronary heart disease, stroke, diabetes, high blood

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[5] *Bike Sharing in the United States* at 12.
[6] *Id.*
[7] Pedestrian and Bicycle Information Center, *Economic Benefits of Walking and Bicycling*, http://www.pedbikeinfo.org/data/factsheet_economic.cfm.
[8] Flusche, Darren, League of American Bicyclists, *Bicycling Means Business: The Economic Benefits of Bicycling*, page 3, 22, http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(small).pdf.

pressure, and other chronic diseases.[9] The reduction in risk for chronic diseases can help to lower health care costs and improve the quality of life for people of all ages by increasing their physical activity.

Issues of Social Equity

Bike sharing is an affordable mobility option for low-income communities.[10] When implementing a bike share system, it is important to keep these communities in mind. Most bike share systems require a credit or debit card to access the bikes. This can prove to be problematic in low-income communities where credit card and debit card use is not as widespread.[11] Planning needs to be done to allow members of these communities the opportunity to access the bike share system. In Washington, DC, Capital Bikeshare collaborated with a local bank to offer free checking accounts and reduced rate memberships; in Boulder and Denver, B-cycle worked with the local housing authority to offer reduced-rate memberships.[12] Low-income populations need to be considered early in the planning in order to ensure they are given the opportunities afforded by bike sharing.

Liability Issues

"As with any publicly accessible transportation program, there are liability issues associated with bike sharing."[13] Appendix A contains a brief fact sheet produced by the Public Health Law Center at William Mitchell College of Law that outlines the basic liability issues that present themselves with bike share systems. In order to limit liability, a bike share owner/operator should purchase insurance to cover claims, require users to sign waivers or a

[9] Pedestrian and Bicycle Information Center, *Health Benefits of Biking and Walking*, http://www.pedbikeinfo.org/data/factsheet_health.cfm.
[10] *Bike Sharing in the United States* at 12, 33.
[11] *Id*. at 27.
[12] *Id*.
[13] *Id.* at 30.

liability release, encourage safe use of the bicycles (including encouraging helmet use), and properly maintain the bikes and equipment.

Bike share Business Models: Funding and Operations

There are a variety of funding and operating models to consider for a bike share system. Three types of business models have typically been used in the United States: government owned and managed, non-profit owned and managed, and for-profit owned and managed.[14] Combinations of the above models have been used in some programs, and due to the infancy of bike share programs, there are many models that are still to be tested. Selecting the best business model for the system depends on the location of the system, available financing, management of day-to-day operations, and the type of bicycle and stations. In Minnesota, the non-profit model used by Nice Ride Minnesota has proven to be successful.

Government Owned and Managed

In government owned and managed systems, the up-front costs are paid for by the jurisdiction, which also own the bikes and the stations.[15] Usually the jurisdiction will contract with a private entity to handle the day-to-day operations. This model puts the financial responsibility on the government while liability exposure is placed with the contractor. One example of this type of system is the Washington, DC, area Capital Bikeshare.

Funding sources for a government owned system include Federal, State, and local grants, membership and usage fees, as well as private contributions, often in the form of sponsorships. There are Federal transportation funds that have been utilized for bike shares such as Congestion Mitigation and Air Quality Improvement Program(CMAQ), Transportation Enhancements (TE),

[14] *Id*. at 19.
[15] *Id*.

and Nonmotorized Transportation Pilot Program funds.[16] However, it is important to acknowledge the uncertainty of Federal programs continuing when their funding is dependent on on-going Congressional approval. One of the benefits of the funding mechanisms for government owned systems is that any profits can be put directly back into the system to improve and expand it. However, the downside to receiving Federal funds is that the system will be subject to more regulation and constraints from regulations such as the National Environmental Policy Act (NEPA) and Buy America provisions.[17] For example, environmental assessments (NEPA studies) may be required when using some Federal funds and Buy America provisions require domestic manufacturing for any steel or iron products when using Federal funds.[18] In addition to these restraints, some Federal funds are subject to strict timelines and the funds may be rescinded if deadlines are not met.

Non-profit Owned and Managed

A non-profit owned and managed bike share system, such as Nice Ride Minnesota, typically uses a mix of local and State government funding as well as some private funding to begin operations, while working with the local government to request Federal funds.[19] This model places the financial and liability responsibilities on the non-profit, removing it from the jurisdiction.[20]

Funding through the non-profit model allows for the broadest sourcing of funds of the three major business models. In addition to public funding from governments and user fees, non-profits operate by receiving private funding in the form of grants from foundations, donations

[16] *Id*. at 20, 24.
[17] *Id*. at 20.
[18] *Id*. at 24.
[19] *Id*. at 20-21.
[20] *Id*.

from businesses, and the public. As with a government owned system, a non-profit system typically reinvests any profits into the program to ensure its stability and sustainability.[21]

One of the main benefits of the non-profit model is that non-profits can adapt to changes in user needs more quickly than a governmental entity and the bureaucracy that can come with government control.[22] However, due to the fact that non-profits have to continually raise funds to operate, a non-profit may have to devote significant staff time towards fundraising, which can slow the progress of expansion.

For-profit Owned and Managed

A for-profit system is owned and operated by a private company that provides the funding and management of the system. This type of system is new to the United States with the most prominent example being Deco Bike in Miami Beach, Florida, the first for-profit bike share in the United States.[23]

The financial responsibility and liability is placed solely on the company operating the system. However, this can lead to problems with accessibility and social equity goals that local jurisdictions have if the operator only places stations where there is a guaranteed or likely profit. Due to the relatively short bicycling season in Minnesota, a for-profit system may not succeed, as the time to make a profit does not last the entire year.

Multiple for-profit entities could also join together to establish a bike share system. This could be done by having bike shops or a combination of bike shops and other business entities join together to establish, fund and operate the system.

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[21] *Id*. at 21.
[22] *Id*.
[23] *Id*. at 21-22.

Partnerships with Local Bike Shops

Bike share programs can benefit from collaborating with local bike shops. While at first glance, it would seem that bike shops would be opposed to a bike share system, there is the potential for increased business for the shops due to riders purchasing protective gear and accessories. In addition, bike shops may even see an increase in bicycle sales due to the expanding base of people bicycling in the community and increased bicycle friendly infrastructure.[24] Local shops could also be utilized to provide the maintenance for a bike share system located in areas where there is not a need to employ full-time mechanics for the system.

While some bike shops in Region Five offer rentals, especially those along the Paul Bunyan Trail, having a standardized rental bike among the shops would allow for easier maintenance and availability of bikes, thus reducing costs to the shop. The bike shops could even serve as station locations.

Locating and Securing Funding

A single bike share station, like those used in the Twin Cities, costs about $45,000 with an additional $5,000-8,000 needed for annual operating costs.[25] This is a large financial burden for any organization so securing continued funding is vital to the financial sustainability of a bike share system. The four basic types of funding for bike share programs are private, public, membership and usage fees, and advertising/sponsorships. Most systems use a combination of funding mechanisms in their operations. The most commonly used mechanisms to cover capital costs are public funds and private foundation grants; advertising/sponsorships and membership

[24] *Id*. at 29
[25] Nice Ride Minnesota, *Frequently Asked Questions*, https://www.niceridemn.org/faq/.

and user fees are used to cover on-going operations.[26] Ensuring the appropriate funding is in place while planning a bike share is an important task early in the process.

Public Funding

Most public funds used by bike share programs have come from Federal transportation funds, health grants, and sustainability grants.[27] Nice Ride Minnesota has received government grants from the National Park Service and Hennepin County as well as from Transit for Livable Communities (funded by the Federal Highway Administration).[28]

As previously noted, Federal funds often come with requirements such as the Buy-America provisions which require domestic steel and iron for projects receiving Federal funding. This provision could restrict the procurement of bikes and parts of bike share stations if they are not made in the United States.[29] Depending on the project and where the funds come from, NEPA provisions, Americans with Disabilities Act, and accessibility to low income and minority communities may also come into play. However, as increasing access to transportation for low-income individuals ties in with the overall transportation goals of the Central Minnesota Sustainable Development Plan, accessing Federal funds may prove to be easier. Because some Federal funds are only accessible by government agencies, the business model selected will impact the accessibility of Federal funding. Finally, Federal funds can only be used for capital costs, making the need for operating funds a vital component of Federal funding of a bike share program.[30]

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[26] *Id*.
[27] *Id*. at 24.
[28] Nice Ride Minnesota, *Our Story*, https://www.niceridemn.org/about/.
[29] *Bike Sharing in the United States* at 24.
[30] *Id*.

Because of changing political and economic conditions, Federal funds can be difficult to acquire. It will be important to locate and secure potential Federal sources early in the process of planning to ensure that they will still be available when the time comes to begin implementation.

When applying for federal, state or local funds, it is critical to understand the legal regulations, requirements, and restrictions that apply.

Private Funding

In addition to government funds, private funding is often used in bike share programs, most often in non-profit systems. Private funding most frequently comes in the form of gifts and donations from individuals, grants from private foundations, private investment, and sponsorships. Currently, some of the largest sources of private funding come from health related organizations and private foundations that support active lifestyles.[31] Private funding provides more flexibility than public funding as the money usually can be used for operations as well as capital costs.

Membership and Usage Fees

Bike share programs have two types of revenue-generating streams: membership fees and usage fees. Memberships for typical bike share systems are typically available on a daily, weekly, monthly, or annual basis. Weekly and daily memberships are generally targeted towards non-residents and tourists, while annual and monthly memberships are primarily purchased by local residents.[32] Typically, the membership fee allows the individual to access the system.

In addition to membership fees, usage fees are often implemented in bike share systems to increase revenue. The majority of systems in the United States offer the first 30-60 minutes of each ride for free, thus encouraging short trips and commuting. After this period, users are

[31] *Id*. at 25.
[32] *Id*.

charged an incremental fee based on the time of use, typically $1-4 per 30 minutes of use.[33] In areas with dense populations where the bikes are used frequently for short trips, this pricing structure is effective. However, in an area such as Brainerd/Baxter, some trips may take more than 30 minutes, making this type of pricing scheme costly.

Because of the nature of the location, the Nice Rice Bemidji system functions more like a traditional bike rental program, offering rentals by the hour, day, or week.[34] There is a modest discount for Bemidji residents on certain days of the week to promote the system.[35] Nice Ride Bemidji is working on ways to give members of Twin Cities Nice Ride a discount on the use of the Nice Ride Bemidji system.[36] The Bemidji system currently operates without an additional fee for membership though you still are required to have a credit card on file and register the rental to cover any damages or lost bikes.

Considering the amount of tourism in the Brainerd/Baxter area, a traditional rental system like that in Bemidji may prove to be a better fit. However, with many tourists coming from the Twin Cities to the area, the traditional bike share model should be modified to allow individuals to use their Twin Cities Nice Ride membership to access the system in the Brainerd Lakes area. Ensuring competitive pricing will generate more bike use and revenue, therefore ensuring the financial sustainability of the system.

Advertising and Sponsorship Sales

Some bike share programs allow advertising on the bikes and station kiosks to generate revenue. Advertising and sponsorships on individual stations by local businesses has proven to be a great way to generate revenue for Denver and Boulder, Colorado's B-cycle systems. The

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[33] *Id*.
[34] Nice Ride Bemidji, *About the Program*, http://bemidji.niceridemn.org/about_the_program/.
[35] *Id*.
[36] Nice Ride Bemidji, *Frequently Asked Questions*, http://bemidji.niceridemn.org/faqs/.

agreements in Denver and Boulder cover 25-30% of the costs of operation and management.[37] A bike share system in Region Five would potentially provide an opportunity for the many locally-owned businesses to advertise in new and creative ways.

Before starting an advertising program, state laws and local ordinances should be studied. Local ordinances often regulate the size, placement, lighting, materials, and necessary inspections of advertising and signs. Minnesota statute prohibits advertising on any object within the right of way ("a strip of land which is used as a transportation corridor"[38]) limits of any state, county, city, or township roads or highways (which often extend beyond the physical surface of the road).[39] This would extend to bike sharing stations located in the right of way near roads. However, there is an exception to this prohibition for cities of the first class, that is, cities "having more than 100,000 inhabitants."[40] Because there are no cities within the Region Five area with a population over 100,000, the statute would need to be amended to allow advertising on stations if they are located within the right of way. If the bike station is located outside of the right of way limits, the advertising will not be in violation of current law. In selecting station locations, it will be important to determine right of way limits to decide whether advertising will be allowed on the station if the program desires to have advertising on stations.

In addition, local ordinances may prohibit advertising and signs on the right-of-way or sidewalk that are not authorized by a local unit of government.[41] When implementing a bike share program, it will be important to file the necessary permit applications with local units of

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[37] *Bike Sharing in the United States* at 26.
[38] Minnesota Department of Transportation, *Right of Way Acquisition*, http://www.dot.state.mn.us/row/.
[39] Minn. Stat. § 160.27 Subd. 7 (2014); Letter from MnDOT Commissioner, March 27, 2014, available at http://www.dot.state.mn.us/govrel/rw_signs.html.
[40] Minn. Stat. § 410.01 (2014)
[41] Nisswa City Code Chapter 9.1(D); Baxter City Code Title 10, Chapter 5, Part 1.

government in the relevant city if advertising will be placed on the stations located within a public right-of-way.

Sponsorship is one of the other leading ways to fund bike share programs. A great example of this is the Nice Ride program here in Minnesota. Through its partnership with Blue Cross Blue Shield of Minnesota's Center for Prevention, Nice Ride continues to be one of the model bike share programs in the United States. Every bike in the Nice Ride system in Bemidji and the Twin Cities features the Blue Cross Blue Shield logos, giving the company mobile advertising while also showing support for active lifestyles in local communities.

Implementing a Bike Share Program

The Central Minnesota Sustainable Development Plan includes the goal of "improve[ed] transit options to affordably get people where the jobs are."[42] A bike share program is one way to achieve this goal. Consideration of overall project goals, target audience, demographics, and other relevant information is vital to the planning process. In each step below, these factors should be kept in mind.

Ensuring that there is a clear champion for the program is essential to making a bike share program feasible.[43] Without a champion to push the cause to build public participation and support for the program, it may difficult for a bike share system to succeed. To this end, the Region Five Development Commission's Transportation Champions should consider being the champion for planning and implementing a bike share program.

[42] Region Five Development Commission, *Creating a Resilient Region: The Central Minnesota Sustainable Development Plan* (2012).
[43] *Bike Sharing in the United States* at 15.

Determining Location

The first step in planning a bike share program is to determine if the area in question is appropriate for bike sharing.[44] Bike share programs have primarily been implemented in urban areas due to the population density and typically short of trips.[45] However, more suburban and rural areas have begun to experiment with bike share programs. Nice Ride Minnesota began a bike share program in Bemidji, Minnesota on June 22, 2014. In its first season that ended October 22, 2014, more than 1,000 rides were taken using the Bemidji Nice Ride system.[46] While this is a significantly smaller number of rides than the larger Nice Ride system in the Twin Cities, it is important to keep in mind that the population of Bemidji is just above 13,000.[47] In addition, the Bemidji Nice Ride functions as more of a traditional rental system, with hourly, daily, and weekly rentals, whereas the Nice Ride system in the Twin Cities is a more on-demand bike sharing program.[48] The differences between the programs are discussed in further detail later in this memo.

Defining Goals

The second step in planning a bike share program is to define the goals of the project to document their impact.[49] The Resilient Region Plan sets forth basic transportation goals to be accomplished; however, specific goals should be identified and adopted focusing on implementing a bike share program. These goals could include increased visibility of bicycling, promotion of a healthy and active lifestyle, financial sustainability, access to communities

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[44] *Id*. at 15, 17.
[45] *Id*. at 17.
[46] Zach Kayser, *Nice Ride Program is Cruisin'*, Bemidji Pioneer, Oct. 18, 2014, at A1.
[47] United States Census Bureau, American Fact Finder, Community Facts for Bemidji, Minnesota, http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml.
[48] Bemidji Nice Ride, *Program*, http://bemidji.niceridemn.org/about_the_program/.
[49] *Bike Sharing in the United States* at 15.

lacking viable transportation, and an alternative to driving.[50] The key to this step is to ensure that realistic goals are in place and that there is a means to measure the success of meeting these goals. In addition, project leaders will need to determine who the target audience will be. Local permanent residents, seasonal residents, tourists, or a combination of these groups are the most logical groups to consider as a target audience.

Station Locations

The third step in planning involves more detailed study of local demographics to determine where bike sharing stations should be located.[51] Major factors to consider include: population density, employment density, proximity to colleges and universities, retail/commercial activity density, available bicycle infrastructure, proximity to tourist attractions and recreation areas, availability of other modes of transit, and topography. Some bike share programs have developed "heat maps" using Geographic Information System (GIS) that help to define the initial service areas for the system using these factors.[52] A resource to consider for creation of these maps in Region Five is the Community GIS Program at Center for Urban and Regional Affairs (CURA) at the University of Minnesota. The Community Assistantship Program at CURA provides students to work on community-based projects in rural Minnesota.[53]

Population Density

Locating bike share stations in areas with high population densities will support greater demand for bike sharing by creating a larger pool of potential users. While Region Five does not have the density of the Twin Cities, the Brainerd-Baxter area provides one of the higher densities of the Region, similar to that of Bemidji, making it a logical location for a Region Five bike

[50] See *Resilient Region Plan*.
[51] *Bike Sharing in the United States* at 15, 17-18.
[52] *Id.* at 17.
[53] See the Programs link at www.cura.umn.edu for information about these two programs.

share program.[54] Placing stations near apartment buildings and dense neighborhoods will increase the pool of potential users, thus helping to ensure the system is used.

Employment Density

With the location of stations in areas where people live, there needs to be an end location for their trips. Placing stations in areas of high employment density will provide an incentive to potential users to commute to work using the bike share system as well as give the opportunity for those without vehicles to access jobs throughout the area. However, as most bikeshare systems are removed in the winter, the problem of commuting in the winter arises. Carsharing, discussed later in this report, may be the solution.

Proximity to Colleges and Universities

College students are a prime demographic for potential riders. Brainerd is home to Central Lakes College, with over 6,000 enrolled students.[55] As noted on the college's profile, student housing is adjacent and within walking distance of the campus.[56] Placing stations on campus and near student housing provides an immediate user pool for the system. Currently, the campus' only transit option is the Brainerd and Crow Wing County Public Transit shuttle bus.[57] Expanding transit opportunities for the college will help to connect the downtown area of Brainerd and the college itself, achieving Action Step T1C in the Resilient Region Plan.

Retail/Commercial Activity Density

Areas of dense commercial activity are often located near employment opportunities. In Brainerd/Baxter, the Westgate Mall, businesses along Highway 371, and downtown areas

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[54] Wikipedia, *Bemidji, Minnesota*, http://en.wikipedia.org/wiki/Bemidji,_Minnesota; *Brainerd, Minnesota*, http://en.wikipedia.org/wiki/Brainerd,_Minnesota.
[55] Minnesota State Colleges and Universities, *Central Lakes College*, http://www.mnscu.edu/collegesearch/index.php/institution/profile/0301.
[56] *Id*.
[57] *Id*.

provide examples of where stations could be highly utilized. Placing stations near businesses that with high traffic volumes such as big-box stores and grocery stores provides an incentive to people to use the bike share system to make short trips to the store when they do not need to do a lot of shopping, thus saving a trip in a car.

Available Bicycle Infrastructure

Bike lanes and bike friendly roads are vital to a successful bike share program. This can be achieved through local governments adopting and implementing Complete Streets policies to promote alternative transportation. "'Complete streets' is the planning, scoping, design, implementation, operation, and maintenance of roads in order to reasonably address the safety and accessibility needs of users of all ages and abilities. Complete streets considers the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to the local context and recognizes that the needs vary in urban, suburban, and rural settings."[58] State statute requires the state Department of Transportation to implement a complete streets policy, but only encourages local road authorities such as counties and cities, to implement complete streets policies.[59] Cities in the Region 5 area should adopt Complete Streets policies to ensure that the infrastructure for alternative modes of transportation, including bicycling, are available in the region.

Proximity to Tourist Attractions and Recreation

The Brainerd Lakes area is home to many tourist and recreation areas. The Northland Arboretum and the many lakes in the area provide opportunities for casual bike trips using a bike share system. The largest attraction for biking is the Paul Bunyan Trail, which runs from Crow

[58] Minn. Stat. § 174.75, Subd. 1 (2014).
[59] Minn. Stat. § 174.75, Subd. 2, 4 (2014).

Wing State Park to Lake Bemidji State Park.[60] This 120-mile trail provides opportunities for residents and visitors to the area to experience the Brainerd Lakes area while exercising and enjoying the outdoors. In addition, local businesses could benefit from increased traffic along the trail. Bike share stations would need to be placed in towns along the trail. Possible locations include Nisswa, Pequot Lakes, Pine River, Backus, Hackensack, Walker, and Guthrie. By placing stations in these communities, tourists and locals could utilize the Paul Bunyan Trail from locations close to their home or lodging. The Paul Bunyan Trail already attracts thousands of bicyclists a year and creating opportunities for the more casual riders to enjoy the trail through a bike share system could attract even more people.

Other Transit Options Available

In large cities, bike share stations are placed near transit stops and hubs to provide alternative service for the first and last portions of trips. This creates a system of transit that connects more people with more places. However, in smaller areas such as the towns and cities located in Region Five, transit options are limited. In Brainerd/Baxter, the only transit options are Dial-a-Ride, which operates from 7:15 AM to 4:30 PM, and the Express Bus, which only runs from 9 AM to 3 PM.[61] Both of these transit options only operate Monday through Friday, leaving the community without any transit options on weekends.[62] Adding bike share stations along the Express Bus routes and potentially expanding the hours of operation of the bus would allow people to access more locations throughout the area using transit. This could lead to increased use of the bus system and the bike share system.

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[60] http://www.paulbunyantrail.com/.
[61] Brainerd Area Public Transit, *Brainerd and Crow Wing County Public Transit & Pine River Service*, http://www.ci.brainerd.mn.us/transit/.
[62] *Id*.

Topography

Hills are a deterrent to bicycling for many people. With bike share systems, the bicycles are generally heavier with fewer gears than the typical bicycle owned by an individual. Because of this, it is important to place stations in areas with minimal elevation changes between stations. While Region Five does have some elevation changes, the Paul Bunyan Trail and the Brainerd/Baxter area is fairly flat, making bicycling a viable alternative.

Station Size

One other important factor to consider when placing stations is the physical space needed for each station. A typical station with 11 bicycle docks requires an area of 32 feet by 12 feet that can support a station that weighs 3,000 to 5,000 pounds.[63] Ensuring adequate space for riders to maneuver around the station is also important in making a station site selection.

Equipment Selection

The next step in the planning process is the selection of the actual bicycles and type of stations. The bikes used in the Twin Cities Nice Ride system are designed for use in high-density cities, inner-city environments, and shorter rides than the bikes used in Bemidji. While both bikes are designed for ease of use by riders of all abilities, the bicycles in Bemidji are designed with longer trips in mind compared to the bikes in the Twin Cities. For the Brainerd Lakes area, the bicycle that was chosen for Bemidji is a more fitting option due to the likelihood of longer rides and the overall characteristics of the area. Discussing options with a bike share manufacturer can help to make an informed decision as to the proper model to meet the needs of the system for the given area.[64]

[63] *Bike Sharing in the United States* at 19.
[64] *Id*. at 26.

If the traditional bike share model is used, key aspect of equipment selection also depends on the type of power supply used for the station kiosks. There are two ways of powering the stations: hard-wired or solar power. Bike share stations with solar power are more expensive up front, but can be more cost effective to operate because there is no electricity charge from a utility company and they allow for easy re-location to meet changing demands.[65]

Bicycle Infrastructure Improvements

The majority of locations that implement a bike share program have extensive bicycle infrastructure already in place which includes trails, bike lanes, and bike friendly roads.[66] However, because there is no perfect bicycle network, all bike share systems are placed in cities that can continue to improve this infrastructure. Bike share systems around the country have shown a propensity to add additional momentum to efforts to improve bicycle infrastructure.[67] In the Region Five area, the goal of increasing transportation alternatives can be furthered by implementing a bike share program. Not only would users of the bike share system benefit, but those who bike in the area will benefit from the increased bicycle infrastructure that will undoubtedly be spurred by the bike share program.

Minnesota statute allows the governing body of any political subdivision to "designate any roadway or shoulder or portion thereof under its jurisdiction as a bicycle lane or bicycle route."[68] Cities and towns within Region Five are allowed to designate streets within the city as bicycle routes under this statute. While bicyclists are allowed to use city streets already, designating specific routes and creating bike lanes will increase the visibility of bicyclists in the

[65] *Id*.
[66] *Id*. at 27.
[67] *Id*.
[68] Minn. Stat. § 160.263, Subd. 2 (2014).

community and raise awareness of cyclists on the road, thus making riders feel safer and more apt to use the roads.

Next Steps

The next step in the process is to begin an in-depth feasibility study of the area for a proposed bike share program. Most bike share manufacturers provide feasibility study services, albeit for a fee. These studies take into consideration the aforementioned factors in the process, while using statistical data and the geographical information system (GIS) to determine the feasibility of a bike share system for the area under study. As previously noted, the Center for Urban and Regional Affairs at the University of Minnesota is one potential resource for completing statistical data research and GIS studies.

In addition, Nice Ride Minnesota is an invaluable asset for the process as it is looking to expand to Greater Minnesota if results are positive in Bemidji. Further coordination with local municipalities and bicycling organizations will help to spread awareness of the potential program and garner support.

Once a potential location for the system has been determined, additional legal research will be required to determine impacts of local laws that may affect the bike share system. The Community Development Clinic at William Mitchell College of Law may be able to assist with this research.

Car Sharing: More than Just Carpooling

Carsharing differs from a typical car rental in that cars are available for as little as one hour, whereas a standard car rental is done by the day or week. The Carsharing Association's Code of Ethics and Standards of Practice describes carsharing as:

> A service designed for local users in support of community transit and environmental goals. The Association identifies the mission, vision and values

> lead to actions aimed at decreasing individual car ownership, reducing vehicle miles traveled, improving urban land use and development, providing affordable access to vehicles for all constituencies – including those less able to afford car ownership - as well as motivating residents to walk, cycle and take public transportation, and decreasing dependence on fossil fuels while reducing the emission of greenhouse gases.[69]

Carsharing organizations can operate as a non-profit organization, a for-profit company, or a cooperative and operate a fleet of vehicles for members to access. Fees can be based on distance traveled, duration of trip, or a combination of both. In addition, most carsharing organizations have a membership fee for monthly or yearly access.

The benefits of carsharing include reduced fossil fuel consumption and pollution emissions, cost savings, and greater mobility. It is estimated that for every carsharing vehicle, 14.9 private cars are taken off the road.[70] The consumption of fossil fuels and lower emissions comes from cutting down on the number of vehicles owned and the amount of travel done by users, as well as the use of newer vehicles, often hybrids, in carsharing programs.

Studies have shown that while the ability to take more trips increases through carsharing, people actually take fewer trips because of the direct financial incentive.[71] Owners of cars do not see the direct costs of every trip they take, whereas users of carsharing programs see the cost for each trip they take. This cost awareness, in turn, promotes more efficient use of transportation and reduces unnecessary trips.

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[69] CarSharing Association, *Code of Ethics and Standards of Practice*, http://carsharing.org/wp-content/uploads/2011/02/CarSharingAssociation_CodeofEthics.pdf

[70] Transit Cooperative Research Program of the Transportation Research Board of the National Academies, *Car-Sharing: Where and How It Succeeds*, Report 108, page 4-11, http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_108.pdf.

[71] *Id*. at ES-4.

Equitable Access

Ensuring that low-income populations are served by transportation systems is a common goal throughout the United States. When implementing any new system, whether it is simple walking paths, bus route, or carshare program, attention must be given to these communities. Since many carshares operate on a for-profit basis, there may be hesitation to place cars in these communities because of the concern that usage would be lower and thus revenues and profit would be lower. Cities such as Seattle have acknowledged this and encouraged placement of four carsharing vehicles in low-income neighborhoods by contributing half of the cost.[72] In the Region Five area, it may be possible to partner with municipalities and counties to secure funds to encourage the placement of cars in lower-income areas.

Carshare Business Models

Three types of business models are typically used in North America; for-profit, non-profit, and cooperative. Depending on the geographic area and the targeted market, the business model used varies.

For-profit Carsharing

The largest carsharing operators in North America use a for-profit organization. These operators have the most capital to enter new markets and the most refined business plan in place. The most well known for-profit carshare operator is Zipcar, with operations in dozens of cities throughout the United States and Europe. Zipcar uses over thirty models of vehicles in fixed locations; a person rents and returns the vehicle to the same parking spot after completion of the use.

[72] *Id*. at 6-14.

In addition to Zipcar, auto manufacturers have entered the business. Daimler, maker of the Smart brand cars, is another big participant in the carsharing business with its car2go system. This system uses the small, two passenger Smart Fortwo as the sole vehicle choice. While the system works well in densely populated urban areas, its effectiveness in more rural and suburban areas is unlikely due to its limited carrying capacity and vehicle design geared towards inner-city driving. Furthermore, snow and ice conditions in more rural areas where snow and ice removal may not be as quick as in the major cities, can prove to be difficult to navigate for Smart cars.

Car2go also differs in that you can park the car wherever it is legal to do so. In other words, you do not have to return the vehicle to the same spot as where you first picked it up. The difficulty with this type of system is ensuring that cars are distributed evenly throughout the area the system operates and that they are left within the geographic area of the system.

Non-profit Carsharing

Another business model that has been used in the United States is the non-profit organization. The benefit of the non-profit model is that it is often in a better position to use government funding and the tax-exempt status allows non-profits to obtain foundation grants.[73] In addition, non-profits generally put any "profit" back into the system itself, thus ensuring that rates are low. However, with any non-profit, continual fundraising presents an issue and government and foundation funds are not guaranteed to continue year to year. A local example of this model is the HOURCAR system in the Twin Cities, run by the non-profit Neighborhood Energy Connection in Saint Paul.[74]

[73] *Id*. at 2-11.
[74] HOURCAR, *About Hourcar*, http://www.hourcar.org/about-us.

Cooperative Carsharing

The third business model used in North America is the cooperative. Operators using this model are run by the members who have purchased a "share" in the organization. There are two types of cooperatives. The first type is owned and run by the members, for the sole benefit of the members. The second type is also owned and run by the members but allows non-members access, usually for a higher fee.

The cooperative has the responsibility to provide the capital for the establishment and operations of the care share program. Car repairs are often very expensive, and if the cooperative cannot afford to fix the vehicles, the cars will fall into disrepair, increasing the potential for injury and limiting the number of cars available for use. Membership fees may be one way to raise the initial capital; usage fees may provide sufficient funds to maintain the system. Members may find themselves liable for shortfalls in the cooperative's budget. Detailed financial projections should be made before adopting this business structure for a car share program.

Another benefit of the cooperative models is that the members all have a say in how the system is operated and any changes that need to be made. This allows cooperatives to make relatively quick changes to fit the needs of the specific community in which they exist.

Informal carsharing through neighbors, friends, or family can also function in some communities. Early carsharing programs in Switzerland were founded on the philosophy that cars and other long-lasting goods should be shared among smaller user groups of less than a dozen families and maintained through volunteer labor.[75] This approach may be a logical solution in the Region Five area. Through the promotion by the appropriate partners and a local champion, an informal carsharing program is one way to introduce the idea of carsharing before

[75] *Car-Sharing: Where and How It Succeeds* at 2-14.

a formal business such as Zipcar or HOURCAR enters the area.. Because of the informal nature however, these groups may run into problems scheduling use of vehicles, maintaining funding for the vehicles, insurance, and liability issues in the event of accidents.

The Role of Partners

Carsharing organizations around the country have many different partners that assist in funding and promoting carsharing. They have come in many different forms including local governments, transit agencies, developers, employers and businesses, universities, and grassroots community groups.[76] As with a bike sharing program, when implementing a carshare system it is important to have strong partners and a champion for the cause

Keys to Success

The Transit Cooperative Research Program identified five keys to a successful carsharing program.[77] The first is identifying a champion for the project. The Transportation Champions of the Resilient Region Project would be a logical champion to promote a carsharing system as the goals of the Central Minnesota Sustainable Development Plan closely match some of the goals of carsharing programs, such as environmental sustainability, expanded transportation alternatives and accessibility.

The second is ensuring communities adopt policies and regulations that are supportive of carsharing programs. These includes adopting zoning incentives and including carsharing in environmental, transportation, and corporate sustainability plans.[78]

The third key to a successful program is to ensure that adequate funding is in place for the program. Depending on the business organization of the system, this can prove to be difficult.

[76] *Id*. at 5-7.
[77] *Id*. at 6-19.
[78] *Id*. at 6-22 through 6-23.

Grassroots efforts and public-private partnerships often have the most difficulty with securing funds for a carsharing program because of the uncertainty that comes with their natural sources of funding.

The fourth key to a successful program is implementing supporting actions such as marketing, integration with transit, and support of the communities. This is one of the most important functions of the partners and champion. Getting the word out in the community about the program and its benefits will be important to ensuring the success of the program.

The last key to success is selecting the appropriate neighborhoods to place vehicles. As with a bike share program, population density, walkability, transit access, and distance from commercial areas all factor into site selection for placing cars. In Region Five, placing cars in neighborhoods that are densely populated with limited car ownership may prove to be important. In doing so, the partners and champion must engage the communities to gauge where support will be and where the most need is located.

Market Considerations

When selecting where to place vehicles in a carshare system, or if a carshare system is viable, studies have shown that there are three common neighborhood characteristics. These characteristics are parking pressures, ability to get around without owning a car, and high density.[79]

It is important to note that carsharing is not meant to meet a household's entire mobility needs, especially in non-urban areas, but should be a supplement to existing transportation.[80] Establishing a carsharing system may even allow some households with two vehicles to sell one

[79] *Id*. at 3-26 through 3-27.
[80] *Id*. at 3-26.

of their vehicles and use the carsharing system on an as needed basis. This would reduce transportation expenditures for the household.

Successful carsharing programs are most frequently located in cities with good public transit already in place. In areas where large shopping centers and neighborhoods are spread out and alternative transportation options are limited, carsharing may struggle. However, implementing a carsharing system and a bikesharing system together could provide enough of a boost to each other to provide the sustainability needed.

As with bike sharing, car sharing program are best suited for high-density neighborhoods with a large user base and the potential for an increased number of users per vehicle, thus increasing revenue for the operator. In addition, high-density populations are less likely to own vehicles compared to rural and suburban areas.[81] This directly influences the number of people who have an incentive to join a carsharing program.

Despite the appearance that carsharing can only succeed in an urban setting, small towns and more rural areas have been implementing carsharing systems over the past two decades. Aspen, Colorado, with a local population of just over 6,000, has implemented a carsharing program of nine vehicles called Car to Go.[82] It functions much like the larger Zipcar system but on a much smaller scale. Despite being a small town, Aspen has a strong public transportation system, which may play some role in why the carsharing system there has been successful.

Some studies have found however, that making a carsharing program viable in a rural setting is not completely dependent on good public transportation: a strong local champion is

[81] *Id*. at 3-27.
[82]City of Aspen and Pitkin County, *Car To Go*, http://www.aspenpitkin.com/Departments/Transportation/Car-To-Go/.

more important.[83] With this in mind, ensuring that a strong champion exists and is motivated can significantly increase the chances of a carsharing program being viable for Region 5.

Zoning Barriers

One of the largest regulatory obstacles carsharing programs face is parking restrictions which can limit the ability of carsharing programs to park vehicles in commercial and residential areas.[84] Some jurisdictions prohibit the parking of "commercial vehicles" in residential areas. Seattle had this concern and amended its Land Use Code to allow carsharing as an accessory use for residential buildings.[85] In Washington, DC, a complaint from a resident prompted the city's department of transportation to write to the city's Zoning Commissioner explaining that carsharing was an appropriate use in a residential area, thus resolving the issue.[86] Washington, DC's simple solution can avoid the time consuming process of amending a city's zoning code.

Other zoning related issues that need to be considered in each area where the carsharing program operates include parking restrictions, ordinances that may prohibit extended duration street parking, and requirements for permitted uses of public streets. When an area is selected for a carsharing program, researching the specific local laws of the area will need to be conducted.

Adopting Policies Supportive of Carsharing

Sustainability and transportation plans that call for energy conservation, traffic mitigation, and emissions reductions would help encourage the implementation of a carsharing program. Communities in the Region Five area should review their policies to determine how they promote or discourage car sharing programs, and should adopt additional policies that are supportive of carsharing.

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[83] *Car-Sharing: Where and How It Succeeds* at 3-29
[84] Id. at 6-10.
[85] Id.
[86] Id. at 6-10 through 6-11.

Next Steps

The first step is to gauge support among the communities. The champion for the program should be closely involved throughout the process. This should be conducted early in the discussions before too many resources are expended. In addition, moving forward with a carsharing program, partners and champions need to answer three important questions according to carsharing operators:

1. Is there a business plan and something tangible to offer or in-kind assistance?

2. Are commitments in place that make the venture less risky?

3. Do transit agencies and local government in the community embrace carsharing with a willingness to provide institutional support? [87]

Ensuring a champion, whether an individual or a group, is in place is the most important element of bringing a carshare program to a community. Evaluating if community interest exists and positive responses to the three questions above will help lead to a successful carsharing program. In addition, mapping of the areas where carsharing is being contemplated using GIS should be done to indicate where the potential cars should be located. If a commercial carsharing company is recruited to the area, the company will do this in-depth analysis. However, in an effort to entice one of the carsharing companies to come to a community, the champion(s) could have this data prepared for presentation to the company. This would show the company that the community wants carsharing and is interested in providing assistance to implement a carsharing program.

[87] Id. at 6-19.