Gender Mainstreaming in City Comprehensive Plans
A Transportation Focus

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INTRODUCTION

Gender mainstreaming is an effective tool to shape policies and planning in order to equally benefit all genders. This paper addresses gender mainstreaming practices with transportation policies, specifically with city comprehensive plans. Transportation is necessary for individual mobility, access, and economic engagement with society. Due to the economic disparities among groups of people, low-income people and women are often faced with different spatial and time mobility. Transportation policy is driving the planning process directly on the local level, through city comprehensive plans, specifically in the transportation section. City comprehensive plans are a broad and general document that set the vision for the city planners and policy makers for the next 20 years. This paper analyzes four city comprehensive plants transportation section alongside existing gender disparities in transportation to address whether the plans are serving the needs of all people and the existing disparities in the

transportation system. Gender and transportation are overlooked in the present because there are

no measures, guidance, or participation of users in the planning of the document or the systems

in place. This paper goes beyond just quantifying gender and gender disparities, by utilizing a

mixed-method approach to understand the needs to create a more equitable and inclusive system.

2 LITERATURE REVIEW

GENDER

Feminists have debated and described the term gender in various ways, therefore the

definition requires some discussion. Biological determinism theory states sex and gender align so

that biological features determine gender. However, gender socialization theory does not agree,

stating that gender is a social construction, created by environments and pre-existing gender

norms (Millet 1971, Beauvoir 1972). Barbara Risman describes gender as functioning at the

individual, interactional and institutional levels and examines how various identities interact.

However, Risman thinks that each level should be examined individually as well (Risman 2004).

Intersectionality is key when discussing gender. This term was coined by Kimberle

Crenshaw to describe how experiences are compounded based on age, race, religion, gender, and

other identities that change an experience for an individual (Crenshaw 1991). Crenshaw

describes how a woman of color would experience gender differently from a white woman, for

example. Judith Butler recognizes that feminists may create a normative definition of gender that

may imply there is a correct way to be a woman (Stanford 2004). The definition of woman

implies there is some correct way to be gendered a woman, and thus becomes a "policing

force" to legitimize certain displays of femininity (Butler 1999). Therefore, Butler suggests

that the term "woman" not be defined at all, because it could create "unspoken normative requirements" that society expects women to conform to (Butler 1999, Stanford 2004).

GENDER MAINSTREAMING AS A SOLUTION FOR CITY COMPREHENSIVE PLANS

Gender mainstreaming is a way to "make women and men's experiences embedded in the design, implementation, monitoring, and evaluation of policies and programs" (UN Women). This allows for equal benefit for all people in political, economic, and societal contexts, allowing for future gender equality."[1] This term first came about as a strategy decided in the 1995 UN World Conference on Women in Beijing. However, in order to allow for gender mainstreaming, gendered norms must be questioned (Wittbottom pg. 267).

Gender mainstreaming allows for further review of a program, policy, or project to allow for the best possible product for all people. This gives more confidence and trust to the citizens in the results of projects. Strengths of gender mainstreaming allow for revealing the male norm that exists in existing structures and processes to show how the design of culture and institutions remain androcentric (Sainsbury 2009).

The European Union uses gender mainstreaming as a part of their governance process, allowing for better inclusivity for diverse opinions on policy. The European Commission has funded many research studies to provide evidence of inequalities between genders. This research and data have produced many groundbreaking findings that allow for more equitable infrastructure and policies. EU research on gender disparities has led to the EU-US Gendered Innovations in Science, Health and Medicine, Engineering and Environment project. This

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[1] *"Gender Mainstreaming an Overview."*

includes twenty studies on how sex and gender analyses have led to significant innovation.[2] This included the discovery of the need for pregnant crash test dummies, and their subsequent creation and use in the transportation sector (Gendered Innovations). The addition of female crash test dummies has saved many women's lives.

The country of Sweden has a transport policy sub goal that states there is a gender-equal transport system (Women's Issues in Transportation). Unfortunately, in Sweden it took 12 years to roll it out the gender mainstreaming practices, and it is still in its early stages (Sainsbury and Bergqvist 2009). A report on this work suggests that qualitative work digs deeper into the things that create gender disparities and will allow for individual voices to come forward to solve them. Sometimes, if quantifying gender is the only way that gender disparities are being addressed, many key parts of the work will be missing.

In a report by The Inland Transport Committee on gender issues in transport of the Economic and Social Council of the United Nations, the report calls for women to be engaged in each step of planning and design of transportation infrastructure. The document discusses how gender and transportation is overlooked in the present because there are no procedures, training, or participation of users in the planning or design of these systems. This exists in the United States as well as shown in the following analysis of city comprehensive plans. Further, gender mainstreaming is "preemptive rather than reactionary" in that it works to "avoid unequal outcomes rather than ensure equal treatment" (Ryan 2019 pg. 2). Dr. Ryan states that "gender mainstreaming is ripe for application to local long-range community planning in the United States."

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[2] Madariaga and Sánchez, "From Women in Transport to Gender in Transport: Challenging Conceptual Frameworks for Improved Policymaking."

Utilizing the comprehensive definitions of gender and the lens of gender mainstreaming, the following literature review encapsulates what the known gendered disparities are to better apply them to the methods used in the paper.

LITERATURE ON GENDER AND TRANSPORTATION DISPARITIES

Transportation is necessary for individual mobility, access, and economic engagement with society. Due to the economic disparities among groups of people, low-income people and women are often faced with different spatial and time mobility. Low-income individuals and women are often responsible for more home care tasks leading to reduced time spent in careers or on leisure. Increased time on home care tasks coupled with a smaller wage reduces income earning potential and lowers access to transportation. In London, it was found that 61% of the shopping trips and 71% of the trips made to drop off children were made by women (Hasson, Yael and Marianna Polevoy 2011). In a study on welfare participants, 47.3% of them faced a transportation problem, including lack of access to a car or not having a driver's license, decreasing the ability to adequately complete the program (Blumenberg 2000). Limited contemporary research in the United States on this topic leaves gaps in addressing this disparity between genders.

Fields of study that affect this issue include the planning field, welfare studies, housing studies, employment sector, and data collection through surveys utilized to collect data. The theories that begin to explain gendered implications of transportation are trip chaining (multiple stops of less than thirty minutes), time poverty, and the magnitude of female economic impact.

GAPS REMAIN IN RESEARCH FINDINGS

It is widely recognized in urban planning that women drive less often than men, while

they tend to make more trips as car passengers, by public transport or on foot (Scheiner et al 2011). This is because women often work closer to home in order to balance home responsibilities with work.

Urban and Regional Planning professor Yingling Fan (2015) investigates why gender differences in travel continue to persist in the US, although there have been marked improvements regarding women's employment, education, and general rights since the 1970s. In her study, Fan finds a connection between females and significantly longer household support travel times within all household structures studied, except for the homes with single-breadwinner couples without children. In the American Time Use Survey, household support travel includes household activities related to travel, caring for and helping household members, consumer purchases, and using household services. Fan finds that across all socio-economic backgrounds, households with children show women take over 300% more chauffeuring trips than men.
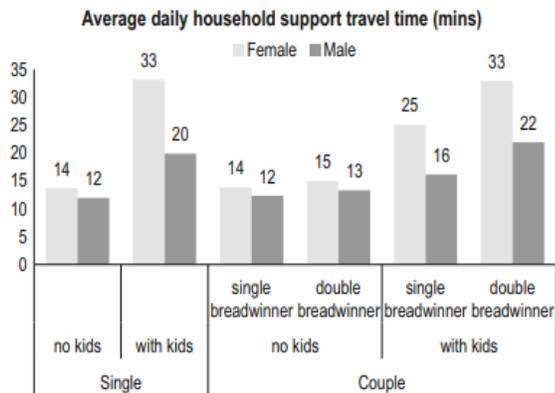

Figure 1: Daily household support travel time by gender and household structure (Fan 2015). This shows that women have overall higher daily household support travel times than men.

This study highlights how women have not found improvements in household travel time parity, and that breadwinner status often affects this time spent by women. Fan calls for

grounded qualitative research in order to detect the reasons for the differing travel behaviors. This study is limited in focus in that it only considers full time employment which may not account for many impoverished or unemployed groups of people.

Further, men are found to express more positive attitudes towards public transportation, and positive attitudes towards social status related to transportation. Women are more sensitive to travel stress and desire to change their form of transportation (Beirao and Cabral 2008). Studies like these, however, do not adequately explain why individuals are facing differences in travel time and household support travel time.

RACE AND TIME POVERTY

In a study using the American Housing Survey on gender and transportation, Crane (2007) found that between 1985 and 2005, black women's transit share decreased. This study, however, does not answer why this change is occurring. One potential reason is the jobs minority women are taking are out of the city, making them move to homes away from public transit.

It is still undetermined if women prefer using cars, if their employment location requires a car, or if they move to the suburbs with little access to a car. Crane argues studying these groups will be important to long run urban planning, because it will determine urban density, rents, housing, labor markets, and whether women are either limited or favored with these shorter commute times.

PUBLIC TRANSIT INADEQUACIES

Public transportation can create problems for women and low-income individuals in three ways: people taking short trips are subsidizing trips for longer trip-takers, women face safety concerns, and underfunded communities lack adequate transportation infrastructure.

In a flat fare system, riders pay the same price no matter how far they are travelling,

which can be problematic with individuals who have multiple short stops (trip chaining). This has been alleviated by tickets that last for a longer time period rather than one use. Often, stations and vehicles are not equipped for strollers or grocery parcels. Women find safety concerns in dark or deserted transportation stations and may avoid using transportation altogether (Hamilton et al 2000; Hasson et al 2011; Scheiner et al 2011). In addition, research shows that there is a "striking moderating effect of a bench, shelter and real-time sign on gender disparities in perceived insecure surroundings" (Fan 2016). This research shows that women who wait for longer than 10 minutes "perceived to be insecure and report waits as dramatically longer than they really are, and longer than do men in the same situation."

Some communities do not provide good bus routes for impoverished neighborhoods. If they do, they may not take the individuals where they need to go in a reasonable amount of time, contributing to the phenomenon of time poverty. Minority women rely on public transit in disproportionate numbers, which is twice as time consuming as car trips on average. These minority households are more likely to be poor and located in central cities (Doyle and Taylor 2000).

WELFARE AND EMPLOYMENT REQUIREMENTS

Women on welfare programs with work requirements are disproportionately impacted by low transportation access. In order to comply with welfare program requirements, access to an employment site, the welfare office, and a childcare center may be required (Blumenberg 2000). This can take much longer for individuals with low access to bus routes going towards work centers, or a vehicle. Completing these tasks can take upward of one hour each way in many areas.

In a study in Los Angeles in 2000, it was found that of the survey participants, 50%

traveled by car, and 46% traveled by public transportation. Of the 50% who traveled by car, 44% used their own car, 34% were driven by others, and 22% borrowed cars (Blumenberg 2000). Danziger et al (1999) found that 47% of welfare participants in the sample, with a higher percentage of African American participants, faced a transportation problem, including lack of access to a car or not having a driver's license.

Since public transportation can pose specific problems, women without vehicles may be less successful in these programs, thereby creating a cycle of poverty for individuals. Individuals may go further into debt to purchase a vehicle to get to employment that they otherwise couldn't access from their neighborhood.

MOBILITY AND EMPLOYMENT

Current public transportation services do not adequately focus on the needs of all forms of employment, especially women that work part-time and women with caregiving responsibilities. Part-time employment requires riding transportation on off-peak hours, and public transportation schedules are often suited towards work hours.

Employment location and hours of work are a large indicator for different transportation needs. Women hold most of the part-time jobs, especially in the caregiving sector (Duchène 2011; Hasson, Yael and Marianna Polevoy 2011). For women with caregiving responsibilities at home, it is important to have jobs close to their home. This is likely a contributing factor for the shorter commute times found for women in most gender and transport planning studies (Fan 2015; Crane 2007; Scheiner et al 2011).

For example, women who work in the caregiving sector, such as nurses with overnight shifts, may face difficulties in finding safe public transportation when getting off their shift at late hours. Male paid employment has historically been valued as the most legitimate form of

work (Fraser and Gordon 1994). Research on women and transportation in the 1970s was dismissed due to its irrelevance, because women's mobility was not seen as linked to the economy, therefore less important (Madariaga 2013). Recognizing the neglect of this issue area leaves an opportunity to newly recognize the value of women's work in the caregiving sector and better address their transportation needs. Addressing women's importance in the workforce through policy changes and better infrastructure will help the entire society.

ACCESSIBILITY

Focusing on accessibility in the context of gender and transportation is key. Differentiating this concept from mobility is a way to make it even more clear. Professor David Levinson elevates the term accessibility in his research, stating that "focusing solely on mobility and traffic delay doesn't provide a complete picture of how the traffic system is functioning." He describes the importance of cities creating a "density of activities" to allow for travelers to reach important destinations "such as shopping, jobs and recreation despite congestion and slower travel" (Levinson 2013). This change is essential for shaping the way planners think about congestion. Levinson privileges increasing the "density of activities" over "making transportation faster."

A city level view of planning using Levinson's "density of activities" provides for the opportunity to reduce time poverty and increase access to essential services and destinations without focusing solely on congestion and increasing speeds.

TRIP CHAINING

Studies show that women take most trips outside of rush hours and to destinations for non-leisure shopping, accompanying children to school, and going to health centers. This is

called trip

chaining,[3] which is defined as when the individual has

stops of less than 30 minutes (Hamilton et al, 2000).

Trip chaining tasks often fall on women, increasing

their workload of non-paid activities, on top of paid activities (Tacoli 2012).
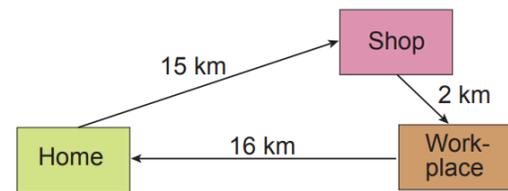
In London, it was found that 61% of the shopping trips and 71% of the trips made to drop off

children were made by women (Hasson, Yael and Marianna Polevoy 2011). Carrying, watching

and controlling children on public transportation is extremely difficult. When travel is so

difficult, requiring juggling heavy items and children, the layers of burden and barriers to

mobility become evident. Insofar, these everyday struggles are not recognized by urban planners

who may have everyday access to a vehicle and do not have childcare responsibilities.

Trip chaining particularly affects the urban poor who live in areas with inadequate

infrastructure or transportation services. Daily care activities take more time for individuals with

less access to quality infrastructure and adequate transportation compared to those with vehicles

and easy access to services.

TIME POVERTY

One aspect of trip chaining when using public transportation is the increased time and

distance required to complete a trip chains: public transit routes aren't necessarily geared

towards accommodating complex trip chains. Analyzing a chain of tasks is helpful to understand

the time and disparate spaces that are required for certain transportation needs. Transportation

systems and urban areas can put a strain on individuals who must combine time spent on paid

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[3] Figure 2: Joachim Scheiner, Kathrin Sicks and Christian Holz-Rau (2011)

employment and a significant amount of care work. This causes a "double workload" in the public and private sphere, making all tasks harder to accomplish (Madriaga 2013). Women in a dual-working household are twice as likely as men to pick up and drop off school-age children during their commute to work (Gendered Innovations). Disparity in time spent on chauffeuring children creates a perpetuation of disparities for women, especially women with low access to high quality transportation. This highlights the perpetuation of the time poverty for women in all households, and is magnified for women without access to transportation, high wages, and services with proximity to their homes and jobs.

MOBILITY OF CARE

According to Joan Tronto, the shortfall of democratic theory is that now everyone in society is expected to work *and* be citizens, but some are left with disproportionate caring duties. Everyone is equally going to need care at some point in life, and therefore this topic needs to be considered by everyone in society.

Tronto and Fischer (1990) define care as "a specified activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible." In her book *Caring Democracy,* Tronto shows the importance of understanding the ways in which caring practices rely upon one another in order to fulfill a broader purpose in society.

Researcher Inés Sánchez de Madariaga coined the term "mobility of care" to define all travel resulting from home and caring responsibilities, including shopping (not leisurely), and escorting others. This term shows that the tasks for supporting daily life aren't included in the wider definition of social reproduction, and therefore aren't included. By adding gender dimensions to engineering practices in transportation, this allows for the creation of new tools to

respond to changing gender roles and needs of society (Madriaga 2013). The transportation

sector uses the terms "discretionary" and "nondiscretionary" trips. Grocery shopping and other

tasks and home-oriented trips are typically categorized as non-discretionary trips. However, it's

important to evaluate the necessity of these trips: "is it necessary to escort children to school,

purchase food, or manage the home?" (Madriaga 2013). If so, then the transportation sector

should reframe the ways in which it categorizes use of transit.
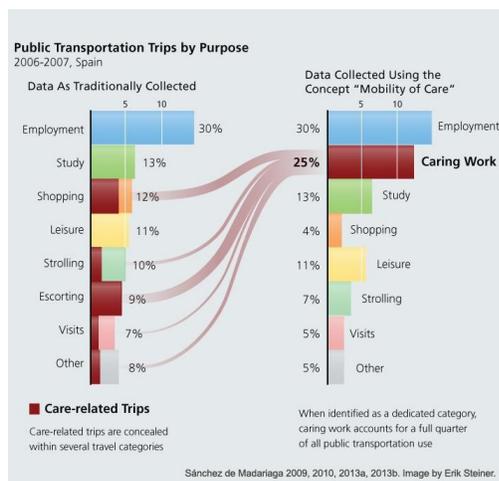
Figure 3: Sanchez de Madriaga, 2013. Merging the "discretionary" categories of various activities can show the
magnitude of care work provided by an individual.

One of the most important elements to include in gender and transportation policies is

rethinking the categories used in public transportation surveys to allow for changes in public

transportation to serve user needs, rethinking basic concepts that may vary for different users,

and gathering data based on sex and other variables that may correlate with transit use (Gendered

Innovations). This idea of mobility of care used by Madriaga is important in reframing the

reasons for trips taken by transportation users to inform where individuals are spending the bulk

of their time.

The problem with using the term "care work" is that it does not include the economic impact that women typically hold in households. By acknowledging the economic power that women have, businesses and transportation departments are more likely to prioritize the mobility and access for women to facilities. It is important to translate these theoretical gender disparity terms into actual policy and planning changes that will impact gender.

METHODOLOGY FOR ANALYSIS

The literature review indicates that gender is an important factor to consider in transportation policy and planning. However, local governments and planners who carry out policies and plans, lack the direction and measurement of the gender and transportation issues, leading to inefficient and inaccurate measurement within their cities.

Every 10 years in Minnesota, comprehensive plans are written by local governments for the Metropolitan Council. The comprehensive plan provides for "conformance, consistency, and compatibility" between the plans to create an integrated region.[4] The comprehensive plans have a chapter on transportation, housing, parks, and land use. This helps a community map the future of the community based on specific parcels of land.[5] The most recent plans were required to be submitted for review by the Metropolitan Council by December 31 of 2018. These plans show the most recent and forward thinking planning areas for local governments, which is used to analyze how local governments are preparing for tackling transportation challenges.

This paper will utilize 2040 comprehensive plans for local governments to determine

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[4] Metropolitan Council, Comprehensive Plans https://metrocouncil.org/handbook/Review-Process/Comprehensive-Plan-Updates.aspx

[5] Minnesota Department of Health https://www.health.state.mn.us/communities/environment/places/plans.html

ways in which the metro area cities are adequately or in-adequately, addressing gender and transportation disparities. These thresholds can be defined based on the disparities that have been identified about gendered differences in transportation and the needs for alleviating these burdens. Specifically, this paper will look at the transportation section[6] of four 2040 local government plans, starting with the region-wide Metropolitan Council's Thrive 2040 plan.

The method to determine a city's size is based on the classifications used in Thrive 2040. The following classifications to be analyzed are:

- Urban Center

- Urban

- Suburban

- Suburban Edge

- Emerging Suburban Edge

These classifications indicate various commercial and industrial areas, the stages of development that the communities are in, and growth patterns for the population. These categories have varying costs of living across the different cities, there are different job opportunities, housing opportunities, and regional connectivity. This impacts gendered opportunities and transportation access in different ways. Part-time work accessibility may be different based on the connectivity of the community, public safety concerns may vary by classification, and so on.

Using this criteria, these four cities were chosen by taking all cities in each category,

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[6] This study uses the transportation sections, however, recognizes that transportation doesn't operate independently from Land Use. Land Use and Transportation considered jointly will present options for reducing spatial mismatch and improving rider needs.

giving each city a number, and then using excel to choose a random number[7]. The city that

corresponded with that number was the city chosen for evaluation. This analysis requires a

comprehensive plan that is able to be integrated with the region, and a city that has enough

transportation and transit planning to be analyzed in the plan.

The four local government plans evaluated in this paper are the following:

1. Urban Center - City of Minneapolis

2. Urban - City of Bloomington

3. Suburban - City of Little Canada

4. Suburban Edge/Emerging Suburb - City of Centerville

City Comprehensive Plans are a good measure for this study because they are a forward-

looking snapshot of the goals and aims of a city. This can show the direction and aim of a local

government for how they plan to address the transportation needs of a city. This is both a local

and regional document, crossing between communities and allowing for regional collaboration.

DOWNSIDES OF THE METHODS CHOSEN

The methodology used in this paper comes with downsides which are important to be

recognized. First, the author of this paper is a white woman, who has in many ways benefitted

from the existing transportation structure available to her. As someone without children and with

access to good public transportation, existing internal bias is always present. To mitigate some of

this, utilizing terminology created from scholars in the transportation and gender space, this

begins to broaden the scope of the analysis and methods.

Second, a simple word search and policy analysis of city comprehensive plans may not

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[7] Function in excel is RANDBETWEEN.

fully address the issue. Many of these policies can be placed under multiple categories of gender disparities in public transportation, which makes the analysis more complex and dynamic.

Third, gender and femininity are subjective concepts. Family structures can deviate from a dual-earning household with children. This can include variations such as large nuclear families, varying structures of relationships, and dynamic work and leisure schedules.

Fourth, how we define equity and accessibility will mean different things for different agencies, organizations, planners, cities, and people. For one city, accessibility may relate to the jobs outside of the community, where for others, accessibility may focus on internal parks and trails being accessible to all people. Equity and accessibility may require a common understanding of what the community's true goal is.

3 LENSES OF ANALYSIS

WORD SEARCH

First, a word search for the following terms was conducted. A search for the appearance of each word within the transportation of a comprehensive plan will serve as a baseline to see what types of topics are being discussed and highlighted in the comprehensive plans. This is by no means a complete indicator of the focus of the plans; however, it may shed some light to the gaps and needs of the plans.

- Safety
- Mobility
- Accessibility
- Gender
- Woman

- Women

- Access

- Childcare

- Sexual harassment

- Binary

- Non-binary

- Lighting

Lens of analysis

From previously cited gender and transportation literature, the following areas need to be addressed to alleviate the burden of the gendered transportation gaps in mobility for women. The areas chosen for a lens of analysis are in the realm of transit and transportation planning. These have been chosen as they are extensively researched areas that show the gaps between genders. These terms were carefully created as to represent the key disparities present in the literature review. The term will be matched with policies within the comprehensive plan to determine how the comprehensive plan addresses or does not address the already researched gender disparities that exist. Using these terms, the analysis attempts to incorporate and include all types of family structures beyond a binary use of the word gender.

4 CITY COMPREHENSIVE PLAN FINDINGS AND ANALYSIS
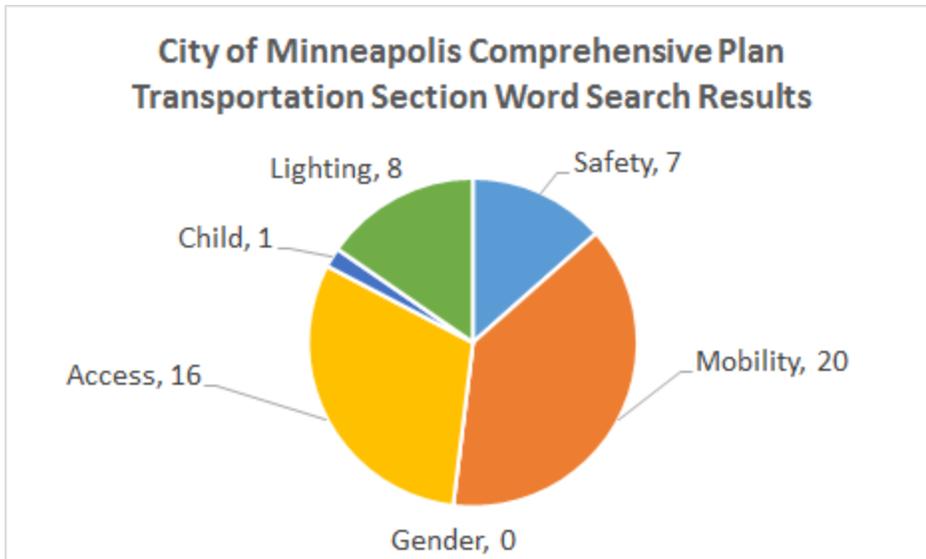
Below, the four city comprehensive plans are analyzed in the order of Minneapolis, Bloomington, Little Canada, and Centerville. First, the word search is analyzed, followed by an analysis of the policies and goals within the plans that pertain to the terms above. The analysis includes policies that are strong, and policies that are broad and vague that require refinement.

CITY OF MINNEAPOLIS ANALYSIS

The city of Minneapolis contains 425,403 people (census.gov 2018) and is the largest city in the state. The process for creating the comprehensive plan for the city of Minneapolis was particularly inclusive, labored, and detailed. This city comprehensive plan is widely recognized as being controversial and innovative, with a historic inclusion to allow for increased housing density within the city, eliminating zoning for single housing as well as the inclusion of an entire equity chapter. As a document containing policies and goals that carry a lot of political weight and political importance to the region, paying close attention to these goals and policies is critical to understanding the direction the city is taking. This city comprehensive plan is very detailed with its policies and goals, creating a proscribed policy document for planners and policy makers to follow.

Word Search

First, a word search was conducted within the large transportation plan. Most notably, the word mobility (excluding metro mobility) was present 20 times, the word lighting was present eight times, the word accessibility/accessible was present 10 times, the word childcare was present one time, and the word gender/women/woman/binary/non-binary was not present at all, as shown in Table 1 in the appendix.

City of Minneapolis Comprehensive Plan Transportation Section Word Search Results

Lighting, 8
Safety, 7
Child, 1
Mobility, 20
Access, 16
Gender, 0

Minneapolis Policies and Action Steps

Each policy in this plan was analyzed and then placed under one of the determined gender disparity categories as listed in the methodology. This analysis will focus on key portions of the policies and action steps, and how these policies address the needs of gender disparities in transportation. If the policy was not related to gender disparities in transportation, it is not listed.

The transportation comprehensive plan for the City of Minneapolis does not directly reference gender, however it does reference income, age, and ability throughout. If the opportunity to address these disparities are an option, then all types of disparities, such as gender should be addressed. The policy below satisfies the following gender disparity issues: time poverty, accessibility, off-peak schedules, safety concerns, and land use.

The policy is a directive to "*make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes*" (Minneapolis 2040).

This policy allows for denser shopping areas close to transit to allow for quicker non-discretionary trip chaining, accessibility by dense areas, allowing for safety at all times of the

day (even off-peak schedules), and creates a coordinated land use plan to allow for all of this to take place.

Next, there is a clear directive to plan for individual user needs in this comprehensive plan by discussing the built environment of transportation shelters and neighborhood interiors. The following policies satisfy the gender disparity of safety concerns related to gender and transportation.

- *"Encourage the location and design of pedestrian spaces to be climate-sensitive, allowing for shelter, window breaks, and sun access or shading depending on seasonal protection needs."*
- *"Investigate new approaches and strategies to implement pedestrian scale lighting to neighborhood interiors."*

By prioritizing pedestrian spaces to have lighting, shelter, sun shading, and seasonal needs, likely snow removal and safety from the elements, this creates a safer environment and may reduce perceived wait times for vulnerable populations such as women and families, which was found in research cited above by Professor Fan and coauthors (2016). Reducing vulnerability impacts gender specifically because gender-based violence is a well-documented problem, including stalking, rape, sexual harassment, and other forms of gender-based violence. Mitigating this violence through safe, well-lit neighborhoods and transit stops is a gendered solution.

Pedestrian scale lighting in neighborhoods provides for a safer route home for individuals traveling beyond the typical 9:00-5:00pm work hours.

The next policy satisfies the mobility of care disparity. The policy states:

"Actively shape and define the City's transit vision and framework, with a focus on outcomes rather than modes."

This policy states that the outcomes are just as important as the modes in transportation.

This points back to the gender mainstreaming research from Professor Ryan, stating that planning should work to "avoid unequal outcomes rather than ensure equal treatment" (Ryan 2019 pg. 2). Planners should focus on outcomes for the city's transit vision, which includes safety, shorter trips, improved rider experience, easy navigation of the system, and a feeling of safety on the system. This policy applies to intersectional identities such as gender, race, and class, in a significant way.

The next policy falls under the modal use differences category, related to biking. The policy states:

> *"Implement and expand zoning regulations and incentives that promote bicycling, such as the provision of secured storage for bicycles near building entrances, storage lockers, and changing and shower facilities."*

This policy is gender inclusive because women are more likely to bike to work if they have access to these amenities while under the larger societal pressure to look well-groomed at work. Such facilities are important to closing the gap of modal use differences. Biking to work is cheaper than driving, so if there is an opportunity to encourage this behavior, this will be a great way to reduce modal use gaps.

Inclusive facilities for bicycling includes safe facilities. The next policy states:
"Continue to build and maintain a network of bikeways including greenways and accessible protected bike lanes."

As researcher Sherry Davis (2019) has pointed out, women are more likely to bike if there are protected bike lanes. Attending to disparities in bicycle commuting through policies related to accessible protected bike lanes could reduce this gap.

Transit

The next policy is related to land use (segregated versus mixed use) which impacts women with increased instances of trip chaining and time poverty.

> "*Coordinate major transit projects with housing, economic development, and other transportation-related capital improvement investments, including connections to transit via pedestrian routes and bicycling facilities.*"

Creating coordinated land uses with transportation will significantly help planners and policymakers create effective, efficient, and well-connected communities. The area of land use is particularly important for the transportation section to address this need.

> "*Ensure that high frequency bus routes serve areas with the highest residential, employment and commercial densities*"

Directing high frequency bus routes to specific regions is essential to creating connectivity through targeting transit and land use. However, this directive could be more specific in highlighting how the city will ensure that the high frequency bus routes serve these areas. In addition, planners could look for routes that do not exist but that would be high frequency if added. This can be more of a challenge-- finding demand where it doesn't appear to exist--however, this is essential. This final policy relates to land use because it is an opportunity for planners and policy makers to ensure they create equity in communities.

> "*Use data on racial disparities and community asset mapping criteria to identify geographic areas most in need of reinvestment and where a coordinated approach would result in achieving Minneapolis 2040 goals, including but not limited to areas that have historically experienced disinvestment.*"

This is a very specific directive that can shape the work of the city staff. Specific policies such as these have strength in their ability to direct time and resources. Vulnerable and under resourced communities face transportation related disparities including safety, time poverty, and off-peak travel needs, which should be addressed through comprehensive data collection and

then action to address the needs.

CITY OF BLOOMINGTON ANALYSIS

The City of Bloomington has 85,579 people (census.gov 2018). The city is home to the Mall of America, one of the largest indoor shopping malls in the world. Bloomington is a suburb; however it holds many jobs due to its high volume of retail. The city of Bloomington may grapple with an increased need for a public transportation connection between residential areas to jobs.

Word Search Analysis

The city of Bloomington used the word safety 36 times in its transportation comprehensive plan. It used the word mobility 22 times, access 36 times, and lighting one time. The words gender/woman/women/childcare/non-binary were not used at all.
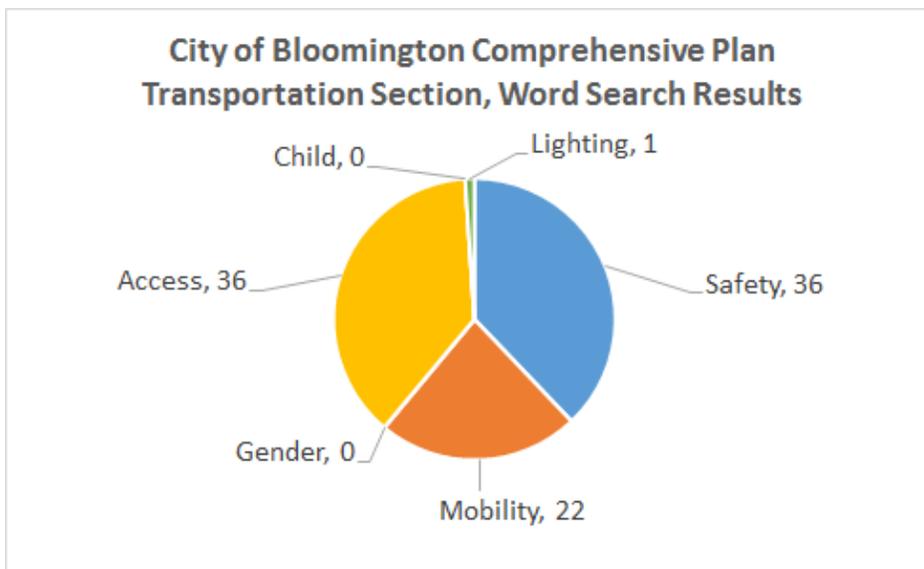
Goals and Policies Analysis

Time Poverty and Land Use are both addressed in the following policy:

> "use land use controls to encourage medium and higher density residential and mixed-use development in areas where significant investments in transit service and/or facilities

have been made or are planned" (pg. 37).

This is a good policy because it connects transportation and land use together, prioritizing mixed use development near transportation services and facilities. This policy directs the city to focus on creating dense areas with walking opportunities to reduce time poverty for women and families. This policy could be even better if it were to define "facilities" directly by including the terms schools, places of worship, recreation, shopping centers, and medical centers.

Some policies are not detailed or as direct as they should be. Mobility is an important term to focus on in the goals and policies, however, the following policy is very broad in its scope by stating:

"Prepare for new technologies that might influence mobility" (pg. 38).

The term mobility of care requires policies that discuss people and users and what their mobility needs are. A better way to phrase this policy would be to state:

"Prepare for new technologies such as connected and automated vehicles and shared mobility, such as Uber and Lyft, that could influence mobility for disabled people, families, children, low income people, and women. Preparing for this technology requires the acknowledgement of a range of diverse needs and collecting information from a diverse group of stakeholders on their transportation needs in the city of Bloomington. This can include safety concerns, mobility challenges, needs, opportunities, addressing the cost of new technologies, and unforeseen barriers to accessing the new technologies."

The following policies fall under the accessibility category. They state:

- "*Design and plan transportation facilities to consider the needs of all road users*.

- "*Apply the 'Complete Streets' policy in planning and construction of new roads to ensure consideration of various transportation modes, such as transit, bicycling, pedestrian use, vehicular traffic, and parking*" (pg. 38).

The first policy notes "all users", which is critical. The city transportation facilities should have the needs of all users in mind, to serve a very diverse set of people. Such policy could be refined to explain what "all users" includes, such as elderly, low income, children and

families, individuals without vehicles, and transit dependent riders. Planning for all users and modes is a key priority. The second policy prioritizes a variation in transportation modes which is critical to creating an accessible transit system. Recognizing the use of public transit, bicycles, and pedestrians to access essential services would be important to highlight in this policy. Directing the city to analyze the number of jobs that are accessible by a mode other than a personal vehicle would be useful in understanding the gaps in the ability for the system to diversify what services it offers.

The following policy falls under the off-peak schedules category:

"Encourage transit providers to establish "reverse" commute (urban to suburban) service."

This is a very strong policy that is clearly recognizing the need for reverse commutes. This is an essential policy for the City of Bloomington because it has a high amount of retail and service workers at the Mall of America and other businesses.

CITY OF LITTLE CANADA

The population of the City of Little Canada is 10,523 (census.gov 2018). This community is a suburb located north of St. Paul and is equidistant between St. Paul and Minneapolis.

Little Canada included fewer goals and policies in its comprehensive plan than Minneapolis and Bloomington. This creates more of a challenge to create specific goals that can be implemented through the next ten years. Short and vague goals are a recurring theme in Little Canada's plan. Many of the goals contain positive elements toward creating a more gender equitable system but require more specific and tangible solutions and goals to direct planners and policy makers to carry out the plan. One area lacking in this transportation comprehensive plan is planning for transit to shopping areas, schools, and jobs.

Analysis of Word Search

The word safety was in the transportation comprehensive plan three times, the word mobility was present two times, access was present eight times, and lighting was present one time. The words accessibility/gender/women/woman/childcare/non-binary/binary were bereft from the cities' plan.

City of Little Canada Comprehensive Plan Transportation Section, Word Search Results

- Gender, 0
- Lighting, 1
- Child, 0
- Access, 0
- Safety, 3
- Mobility, 2
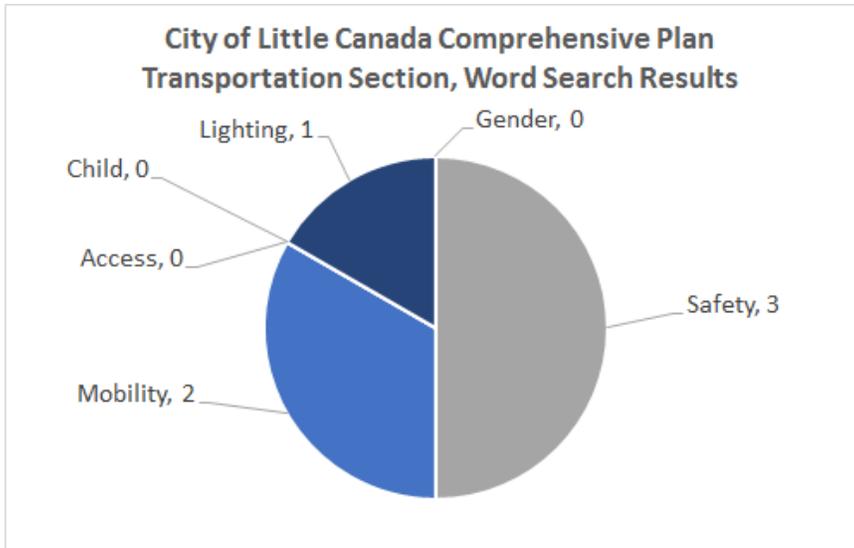
Analysis of Little Canada Goals and Policies

The following policy falls under the category of time poverty:

"*Encourage the development of transit routes to multiple activity centers*" (Policy 28).

Little Canada's policy is overly general and vague for two reasons: (1) it fails to define what an activity center is; and (2) the transit-oriented development goal is very general, broad and vague. By further specifying and clarifying the policy, it will allow for an increased understanding of who will be served and what types of activity centers are prioritized (those that are essential to residents).

Sample language for a better policy would state:

"encourage the development of direct transit routes to activity centers such as shopping (grocery, medicine, home maintenance goods), health care, schools, religious centers, and recreational centers to best connect individuals with low access to dense areas of need."

The following policy falls into the accessibility category:

"Where economically feasible, promote the addition of transit services and facilities to meet the basic transportation needs of persons who cannot or choose not travel by car" (Policy 27).

It is critical to directly address providing basic transportation opportunities for individuals who do not have options for a vehicle in this plan. The assumption of vehicle ownership or access is detrimental to communities because it omits service workers and lower income individuals without this access. Creating a self-fulfilling transportation system that reinforces car-dependency creates further inequities and will make it harder for the community to navigate away from vehicle travel in the future.

This comprehensive plan has no direct recognition of off-peak schedules, creating an issue for residents. If this is a bedroom community for neighboring job hubs, individuals will inevitably require off-peak transit in coordination with other communities. This may mean that residents of the city are required to borrow vehicles or carpool, reducing direct access to employment or other services.

The following policy falls under land use:

"Plan transportation facilities to function in a manner compatible with adjacent land uses" (Policy 2).

This policy is very good at directing the transportation facilities to work in conjunction with land use to create better planned communities for services and needs. However, this is a trend of the city of little Canada's transportation goals, is that they are nonspecific and quite short. This plan could add more specific items to direct planners to implement them more generally. What types of land uses should be prioritized as adjacent to transportation facilities?

CITY OF CENTERVILLE

The City of Centerville has a population of 4,009 (census.gov 2018). This city is an emerging suburban edge. This means that the city has some suburban elements mixed with rural elements. The population growth is expected to increase significantly, as 66% of population in the next 30 years (Centerville 2040 Comprehensive Plan 2018). The median household income is over $100,000 per year, and public transportation availability is limited in this community.

Word Search Analysis

The transportation section of the comprehensive plan for Centerville shows the word safety five times, mobility four times, access 25 times, and lighting one time. The word accessibility/gender/woman/women/childcare/harassment/binary/non-binary are not present at all in the plan. The word gender did show up in other portions of the city comprehensive plan, outside of the transportation section. The caveat to showing the word access 25 times is that access is often referred to for vehicle access and other technical planning terms that may not be associated with accessibility in the way defined in this research paper.

City of Centerville Comprehensive Plan Transportation Section, Word Search Results
- Lighting, 1
- Child, 0
- Gender, 0
- Safety, 5
- Mobility, 4
- Access, 25
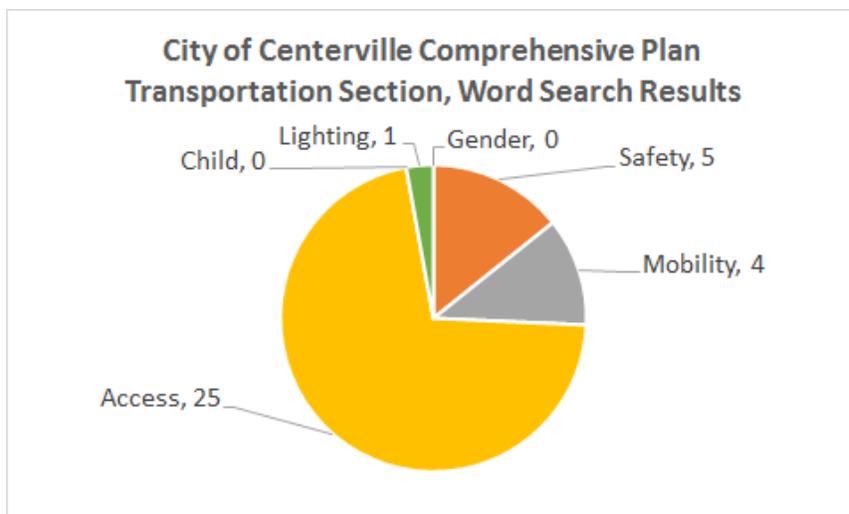
City of Centerville Goals and Strategies Analysis

The following three policies address the term accessibility:

- *"Establish a local transportation network which preserves neighborhood identity while linking together neighborhoods, community parks and facilities."*

Linking together different facilities is key, however this doesn't call out shopping, schools, or jobs. These services are essential for local travel and can reduce time-poverty as well. Creating these hubs of services in a more rural and spread out community can help families and individuals complete tasks quicker.

- *"Coordinate transportation planning and system improvements with surrounding communities as well as Anoka County and the Minnesota Department of Transportation"*

- *"Work with Metro Transit to maximize transit opportunities for the community."*

The above policies address a regional transportation system to create a connection between surrounding communities that have employment and shopping centers for the residents of this city. Maximization of transportation options is critical for a smaller city with less funding and infrastructure. However, this is a slightly ambiguous goal that could be explained in further detail.

Off-peak schedules are not directly addressed as a goal or a policy in the plan, raising issues for which transportation rides are being prioritized and recognized in the city. Many workers do not follow a 9:00-5:00 employment day, therefore someone with a reverse schedule who does not have good access to a vehicle with a long commute would not be able to access their job.

Finally, the following policy falls under the category of safety:

"Maintain a safe, efficient and convenient multi-modal transportation system."

This policy is very broad and general, and does not explain what it means by safe, efficient and convenient. Safe for whom? Convenient for whom? Efficient for whom?

Better language for this policy would be to state:

"Maintain a safe transportation system through improving neighborhood lighting, public transit stop lighting, and monitor road and sidewalk weather cleanup for pedestrians.

Maintain an efficient transportation system by connecting individuals to employment and necessary shopping services for quick trips. Creating transit-oriented development and dense shopping centers for individuals with lower access.

Maintain a convenient system by upgrading to 21st century technology for transportation services and connectivity."

COMBINED ANALYSIS
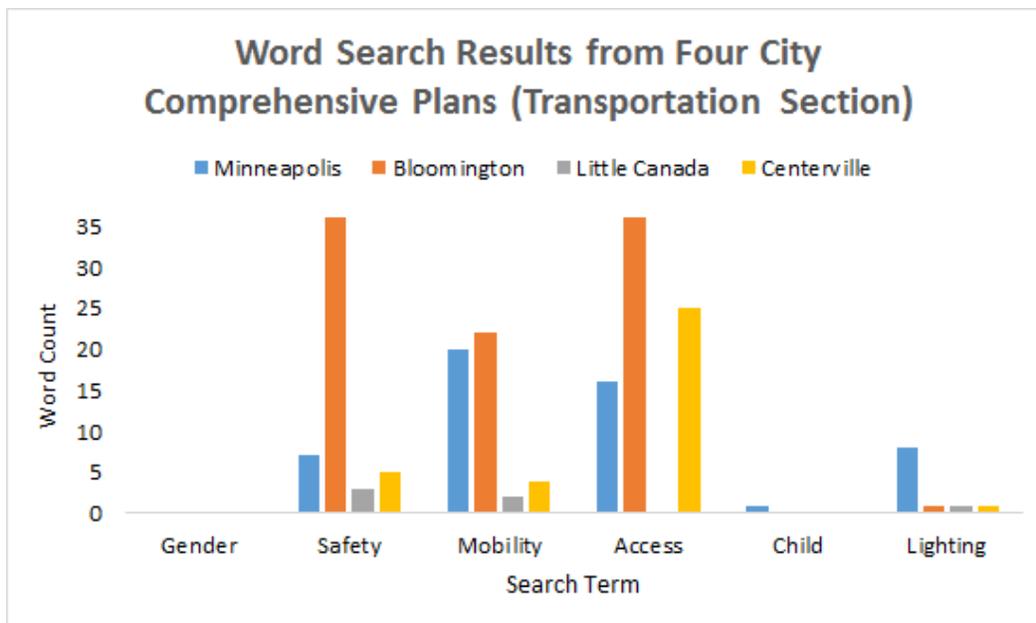
5 SUGGESTED LANGUAGE FOR CITIES AND CONSULTANTS WRITING CITY COMPREHENSIVE PLANS

- Maintain a safe transportation system through improving neighborhood lighting, public transit stop lighting, and monitor road and sidewalk weather cleanup for pedestrians, especially those with strollers, walkers, wheelchairs, and other mobility concerns.

- Maintain an efficient transportation system by connecting individuals to employment and necessary shopping services for quick trips.

- Create transit-oriented development and dense shopping centers for individuals with lower access.

- Encourage the development of direct transit routes to activity centers such as shopping (grocery, medicine, home maintenance goods), health care, schools, religious centers, and recreational centers to best connect individuals with low access to dense areas of need.

- Prepare for new technologies such as connected autonomous vehicles and shared mobility such as Uber and Lyft that could influence mobility for disabled people, families, children, low income people, and women. Preparing for this technology requires the acknowledgement of a range of diverse needs and collecting information from a diverse group of stakeholders on their transportation needs in the city of _____. This can include safety concerns, mobility challenges, needs, opportunities, addressing the cost of new technologies, and unforeseen barriers to accessing the new technologies.

FINAL RECOMMENDATIONS FOR CITIES AND TRANSPORTATION CONSULTANTS

There are solutions on the city level that could be included into the comprehensive plans or to city policies to address gendered disparities in transportation. Cities should:

1. CONNECT SCHOOL, DAYCARE, AND WORKPLACE LAND USE THROUGH ZONING AND TAX INCENTIVES.

Cities should prioritize placing daycare centers and schools at or near places of work, or on efficient transit routes, to reduce the time poverty created by taking children to daycare or school as a part of a trip-chain. As noted in the literature, women make 300% more chauffeuring trips than men, causing this burden to be heavier on women (Fan 2015). It was noted in the city comprehensive plans that transit oriented development and neighborhoods with amenities are prioritized, however they need to be incentivized. Cities can coordinate with daycares,

businesses, schools, and workplaces while providing tax incentives so these businesses can coordinate effectively to serve the families that are working or learning at the institution.

2. PRIORITIZE TAX INCENTIVES FOR EMPLOYERS TO CREATE TRANSPORTATION SERVICE BETWEEN SPECIFIC HIGH UNEMPLOYMENT NEIGHBORHOODS TO AREAS OF EMPLOYMENT.

For example, Amazon's warehouse in Shakopee, Minnesota provides bus service between the warehouse and employee neighborhoods. This level of coordination requires local governments to work with employers to effectively find ways to connect unemployed workers to employment in an affordable way. Women often take part-time work in order to account for the lost time taking multiple bus routes to get to a job. The bus routes provided by a private corporation are a great solution. Increasing access to jobs allows low-income populations and women who do not have a vehicle to access a job that is not located in the same neighborhood as their home.

3. PROVIDE TRANSPORTATION VOUCHERS TO WOMEN OR INDIVIDUALS IN CAREGIVING ROLES RECEIVING TEMPORARY ASSISTANCE FOR NEEDY FAMILIES (TANF) OR OTHER PROGRAMS WITH REQUIRED TRANSPORTATION TASKS.

This voucher can include taxi vouchers and reimbursement for mileage of drivers in both formal and informal carpools. A study found that vanpools are very popular, especially for rural TANF recipient travel (Amedee 2005). This creates an affordable way to get to the various destinations that often require a car, especially in rural areas or areas with minimal transportation options. Although this is not just a city function, a city can work in conjunction with other local and regional governments to ensure that its services that require travel provide vouchers for individuals that cannot access that service otherwise.

Cities should also create robust ride-sharing systems that work with Community Based Organizations (CBO) to enable communities to work together. CBOs can serve as an intermediary with the community to share resources on ride-sharing programs to better connect individuals travelling in the same direction.

4. PERFORM A GENDER AND EQUITY REVIEW OF COMPREHENSIVE PLANS BEFORE RELEASING FOR PUBLIC COMMENT

This review may require an office of diversity or office of equal opportunity. Alternatively, smaller cities could hire a gender consultant and equity consultant to contribute to the comprehensive plan. This may include recommendations such as instituting parking spots for pregnant women at appropriate places such as clinics or hospitals. Innovative solutions for accessibility come from the process of engaging a diverse set of people when planning for built environments and compensating them appropriately. It is critical to engage individuals who benefit the most from improvements to the comprehensive plan. This is just one example of a way that our society can better serve all people in every stage of their life.

5. PARTNER WITH TRANSIT AGENCIES TO CREATE "NIGHT STOPS" (IN-BETWEEN TRANSIT STOPS) FOR SAFER ROUTES HOME FOR VULNERABLE POPULATIONS.

The city of Kalmar, Sweden instituted "night stops" as a way for individuals who feel unsafe taking public transit at night to request the driver to stop in-between stops. The driver would only open the front door, ensuring that no one would follow the individual off the bus on the walk home.[8]

6. COLLECT CITY LEVEL TRANSPORTATION DATA THAT IS DISAGGREGATED BY GENDER.

This requires re-creating local and national transportation and time use surveys. The American Time Use Survey is currently missing a significant opportunity to better understand the differences in travel and time available for travel based on gender. Working with transportation provides, gender and equity consultants can provide insight into what the needs for various communities may be, and ways to capture that through data collection.

6 RECOMMENDATIONS FOR FURTHER POLICY CHANGE AND RESEARCH ON THE ISSUE OF GENDER AND TRANSPORTATION

1. REVISE SCHEDULES TO PROVIDE TRANSPORTATION TO PART-TIME WORKERS WHO ARE UTILIZING TRANSPORTATION IN OFF-PEAK HOURS, OR IN REVERSE-COMMUTE DIRECTIONS.

Many transportation systems are built on a 9:00 am to 5:00 pm work schedule, with less frequent transportation options on "off peak" hours. This leads to service workers, nurses, and other employees with difficult transportation options. Women are subject to safety concerns and a longer travel time period. Creating schedules that allow for these workers to travel in opposite directions of the typical 9:00 am to 5:00 pm work schedule, as well as more frequent service will increase safety and accessibility for all.

2. INCREASE ACCESS TO VEHICLE OWNERSHIP FOR TARGETED POPULATIONS

Communities within this study bordered the rural communities of Minnesota. Rural communities and exurban communities share similarities in their access to robust transportation systems and the regional network. Further research should prioritize understanding whether or not vehicle access is important to a community or region, especially for families relying on essential city or county provided services, such as TANF.

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[8] Include Gender 2014. https://www.includegender.org/gender-equality-in-practice/planning-and-urban-development/safe-travel-makes-public-transport-more-attractive/

A study of 5 rural counties in Iowa in 2006 interviewing low-income families found that the lack of a reliable vehicle reduced the probability of employment for the respondents by nearly 10 percentage points, more so than fair or poor health (8.4 percentage points), and low education did. Having a high school degree increased the likelihood of employment by 6.5 percentage points, while the access to a reliable vehicle increased it by 12.6 percentage points, nearly double that of education. The probability of employment was 27.8 percentage points higher when education, health, and transportation barriers were removed for these rural women. (Fletcher et al 2010). For rural communities, this is a large barrier to employment and to access essential services for families.

3. RESEARCH EMERGING TECHNOLOGY IMPACTS ON VULNERABLE AND DIVERSE COMMUNITIES

Connected Autonomous Vehicle (CAV) technology, ride-sharing programs, and automated transportation systems are all on the horizon for transportation globally. However, negative impacts on communities of color and for vulnerable populations is inevitable if the systems are not built with the input and recognition of the needs of a diverse set of people. System programmers, CAV engineers, safety engineers, and companies that produce this machinery which are devoid of gender and equity consultants advising them are sincerely lacking the understanding of needs for a diverse set of people. Therefore, as these technologies are adapted and created, they will require significant input from a variety of stakeholders to update the technology to be user friendly, creating best possible system for all users.

There are so many opportunities in transportation technology to create a system that would create more equity in transportation access for disabled people, people without access to a vehicle, caregivers with many trip-chains, people with long commutes, and more. The opportunities are endless; however, they won't be uncovered unless we engage them in the process now.

7 CONCLUSION

The intersection of gender and transportation is an emerging field to consider when

planning cities and creating local policies. As this paper discusses, there is a significant amount

of literature documenting the disparities within the field, however it is not being translated into

the plans and policies for transportation infrastructure and public transportation. There is

immediate opportunity for city officials to implement and follow the recommendations provided

above. Such policies will ameliorate the gendered disparities in transportation and allow for

equal services for all needs. City comprehensive plan writers such as consultants and

policymakers should hire gender consultants to implement the diverse experience of the

transportation system users in order to create a more efficient and welcoming system. They should implement tax incentives for businesses to create day cares and schools near places of work and transit centers to allow for better routes for families. These solutions are just the tip of the iceberg, and with local input and a diverse group of voice, the transportation system can be gender mainstreamed.

APPENDIX

CITY OF MINNEAPOLIS WORD SEARCH RESULTS

- Safety (7)
- Mobility (20) (excluding the term metro mobility)
- Accessibility/accessible (10)
- Gender (0)
- Woman (0)
- Women (0)
- Access (16)
- Childcare/children (1)
- Sexual harassment/harassment (0)
- Binary (0)
- Non-binary (0)
- Lighting (8)

Table 1

7.1 CITY OF MINNEAPOLIS GOALS AND ACTIONS

Time Poverty	Time Poverty Analysis
Transit +Partner with Metro Transit and other transit providers to provide reliable service in Minneapolis through shorter transit headways and transit advantages, including priority transit lanes and signal priority and preemption. **Development near METRO Stations** +Allow and encourage a dense mix of housing, employment, and commercial goods and services near METRO stations. +Make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes. **Coordinated Development Strategy** +Prioritize acquiring and disposing of property in order to implement coordinated district-wide development in areas where the positive benefits of reinvestment can have the greatest gain by and most immediate impact for people of color, indigenous people, immigrants, and low-income residents. +Invest in transportation infrastructure in locations experiencing growth, particularly in locations that have existing transportation infrastructure that needs to adapt to the demands and opportunities brought by growth. **Affordable Housing Near Transit and Job Centers** +Maximize opportunities to create affordable housing, including senior housing and multigenerational housing, near transit stations and along high-frequency transit corridors. +Improve coordination within the City enterprise and with outside jurisdictions to identify opportunities to increase housing density and affordability along transit corridors and near job centers.	-Shorter transportation commute times and reliable service. This is important for those who have less hours in their day and have to take care of family members. -TOD helps shorten time poverty for mobility of care trips. -Walkable and safe neighborhoods that allow for taking care of families reducing time poverty and makes an accessible neighborhood for everyone. -An intersectional approach to improving the development to help individuals that are historically disinvested in will improve communities access to good jobs, shopping areas, and schools. -This recognizes that transportation infrastructure needs to match the needs of the community and the demands from a community.

	-Locating affordable housing near transit and jobs increases that ability for all people to access these amenities to reduce time poverty and to increase connectivity.
Mobility/Mobility of Care **Transportation and Equity** **+**Support strategies to improve mobility for seniors and those with mobility challenges. +Actively shape and define the City's transit vision and framework, with a focus on outcomes rather than modes. **Transit** +Work with regional partners to make transit more effective at the local level on both major regional projects as well as the local network.	**Mobility of Care Analysis** -Mobility of care is a task that women perform the most. Supporting mobility challenges and increasing mobility for seniors is key to relieving this burden from women. -Modes of mobility are not the only important factor - but also the outcomes. This applies to women in a significant way because improved mobility will help improve women's demand to support it. -Localized transportation systems will support carework for women and families.
Accessibility **Transportation and Equity:** + Provide equitable and ample access to walking, bicycling, transit options, and a shared mobility economy. +Increase connections to isolated areas of the city that were created by historic inequities. **Complete Streets** +Prioritize projects that will improve the	**Accessibility Analysis** -Access to various transportation options is key for all people to utilize it. -Accessibility to all areas of the city is important

pedestrian, bicycle, and transit networks when developing the City's long-range Capital Improvement Program, focusing on an equitable distribution of resources and recognizing historical practices that led to inequitable pedestrian networks. **Pedestrians** +Improve pedestrian connections across barriers such as freeways, highways, and busy streets. **+**Continue to make improvements to the existing sidewalk network, and fill existing sidewalk gaps. +Ensure timely city-wide enforcement of regulations for snow and ice removal from sidewalks. Include annual public education and support for those with physical limitations. Explore additional strategies, technologies, and improved City clearance operations. **Skyways** +Encourage consistent and uniform directional signage and accessible skyway system maps in multiple languages near skyway entrances, particularly along primary transit and pedestrian routes. Include navigation to publicly accessible restrooms. **Development near METRO Stations** +Allow and encourage a dense mix of housing, employment, and commercial goods and services near METRO stations. +Make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes. +Allow space for connecting bus routes, bike-share and other first-last mile infrastructure near METRO station in the city rights-of-way, coordinating with development whenever possible. **Shared Mobility** +Evaluate demographics of early adopters of new ownership models and ensure shared mobility benefits are accessible in an equitable way. **Innovations in Transportation and Infrastructure** +Proactively regulate automated vehicles in Minneapolis while ensuring equitable access.	for all genders. -This goal is pointing to the needs of distribution of pedestrian and bicycling areas for all people. For some, it's not just a mode for leisure and recreation, it's a way to access jobs and stores. -This goal is a nod to increasing connectivity for pedestrians. Again, making things accessible for those who do not have access to a vehicle or good public transportation. -Making sidewalks and walking an option. -This is highly important for elderly people, people with disabilities, and people who are less mobile**.** -Signage and accessible maps are key to improving the accessibility of public spaces to all people. This will help individuals navigate the system with families and children for medical appointments, or other care work. -Easily accessible commercial goods and services near housing will benefit elderly, disabled, and limited mobility individuals. -Planning for the inclusivity of all age types and incomes will increase the ability to access jobs, shopping, and other leisure activities.

Affordable Housing Near Transit and Job Centers +Maximize opportunities to create affordable housing, including senior housing and multigenerational housing, near transit stations and along high-frequency transit corridors. +Promote a diversity of housing options throughout the city, especially in places near job employment opportunities, commercial goods and services, and educational institutions. +Support education and housing stability by encouraging the development of larger, family-supportive housing units (with at least two bedrooms) in close proximity to Minneapolis Public Schools and along Minneapolis Walking Routes for Youth.	-the connectivity of individuals to jobs and shopping is exactly what the planners should be focusing on when discussing accessibility. -This statement is self explanatory and plays along the lines of creating accessibility for all users in the shared mobility space. Although, it's not clear in it's direction of how to get to that end goal. -In gender policy literature, we see equitable access as key to rolling out CAV infrastructure in the coming years. -high-frequency corridors will ensure accessibility for large families and for seniors. This is key for individuals without access to vehicles, or those who can't / don't have the option to drive long distances. -accessibility for affordable housing to these services and institutions is critical. -this is a similar goal to ones above, but is even more specific to the city and has a clear direction for solutions.
Off-Peak Schedules **Development near METRO Stations** +Allow and encourage a dense mix of housing, employment, and commercial goods and services near METRO stations. +Make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes.	**Off-Peak Schedules Analysis** -putting housing and employment near transit stations will allow for those on off peak schedules to easier access work. This will create safer travel environments for late night travelers as well, increasing lighting and activity. -Yet, this area is still lacking in a direct recognition from the plan.

Safety Concerns + Bicycling Continue to build and maintain a network of bikeways including greenways and accessible protected bikelanes. Pedestrians Improve safety for pedestrians, and prioritize pedestrians over other road users, especially at street intersections; focus on signals, crosswalks, lighting, signage, visibility and lowering vehicular speeds through street design and other measures. +As opportunities exist, encourage and design for streetscape amenities, including street furniture, street lighting, trees, and landscaping, that buffer pedestrians from street traffic and parking areas. Transit +Support Metro Transit's efforts to install higher quality infrastructure (bus shelters, heating, lights) and coordinate these improvements with street improvement projects and new development. Public Realm +Encourage the location and design of pedestrian spaces to be climate-sensitive, allowing for shelter, window breaks, and sun access or shading depending on seasonal protection needs. +Investigate new approaches and strategies to implement pedestrian scale lighting to neighborhood interiors. Development Near METRO Stations +Make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes. Innovations in Transportation and Infrastructure +Proactively regulate automated vehicles in Minneapolis while ensuring equitable access.	Safety Concerns Analysis -as researcher Sherry Davis has pointed out, women are more likely to bike if there are protected bike lanes. This safety concern is important for women. -lighting and signage are important safety concerns for women, allowing for more people to take advantage of public transit, even at night. -again, lighting and increased feeling of safety makes it easier for more people to use transit. -this is again, an important addition to public transit across the city. -This goal is the most user oriented that there is in this plan; showing that commitments to the needs of individuals depending on location is something that planners can focus on. -this is essential for women coming home from work to feel safer.

	-again, referencing all ages and incomes is essential to ensuring that safety is available to all people. Walking to and from activities require safe environments for all people. This includes lighting and the correct infrastructure for all abilities. -Regulations of CAVs is critical to creating safe environments for children, families, women, and non-binary individuals using them. If the rules and regulations are left to the white male engineers, they will not build technologies that work for all people. This could be detrimental to equitable use and access of them.
Modal use differences + **Transportation and equity** Develop ongoing measurements to track the effectiveness of the transportation system in contributing to equitable outcomes.(collecting data on disaggregated use) **Complete Streets** Implement the Complete Streets Policy throughout all phases of transportation projects and initiatives, including programming, planning, design, construction, operation, and maintenance. **Bicycling** Implement and expand zoning regulations and incentives that promote bicycling, such as the provision of secured storage for bicycles near building entrances, storage lockers, and changing and shower facilities. **Transit** +Support Metro Transit's efforts to monitor and	**Modal use differences Analysis** -This goal could be even more specific, directing the city planners to collect data in a disaggregated way to see the inequities. This is important to see model use differences and ways to close gaps by gender. -since women are known to trip chain more, this requires planning and design surrounding these needs. Other modal use differences by gender can be addressed in complete streets policies as well. -women are more likely to bike to work if they have access to these amenities, feeling a larger societal pressure to look well groomed at work. These facilities are important to closing the gap of modal use differences. Biking to work is cheaper than driving, so if there is opportunity to

maintain transit facilities, including landscaping, trash removal, and cleaning of bus shelters.	encourage this behavior, this will be a great way to reduce modal use gaps. - Maintaining facilities will enhance the feeling of safety and allow for increased usage by women and families.
Land Use (Segregated Use vs Mixed Use) **Transit** +Coordinate major transit projects with housing, economic development, and other transportation-related capital improvement investments, including connections to transit via pedestrian routes and bicycling facilities. +Ensure that high frequency bus routes serve areas with the highest residential, employment and commercial densities. **Development near METRO Stations** +Allow and encourage a dense mix of housing, employment, and commercial goods and services near METRO stations. +Make strategic investments around individual stations that create safe high-quality, walkable districts for living, working, shopping, and recreating for people of all ages and incomes. **Coordinated Development Strategy** +Use data on racial disparities and community asset mapping criteria to identify geographic areas most in need of reinvestment and where a coordinated approach would result in achieving Minneapolis 2040 goals, including but not limited to areas that have historically experienced disinvestment.	**Land Use (Segregated Use vs Mixed Use) Analysis** -created coordinated land uses with transportation will significantly help planners and policy makers to create more effective and efficient communities. This is one place where the transportation section of the city comprehensive plans can better align with the land use planning. -this directive could be more specific in highlighting how they will ensure that the high frequency bus routes do serve these areas. In addition, they could look for routes that do not exist but that would be high frequency if they were added in. -coordinated development and land use near metro stations will help planners and policy makers. -again, important. -this is a point of opportunity for planners and city policy makers to follow this specific policy to ensure that they improve communities and create equity.

7.2

- Safety (36)

- Mobility (22) (excluding metro mobility)

- Accessibility (5)

- Gender (0)

- Woman (0)

- Women (0)

- Access (36)

- Childcare (0)

- Sexual harassment (0)

- Non-binary (0)

- Lighting (1)

Table 2

7.3 CITY OF BLOOMINGTON GOALS, STRATEGIES AND ACTIONS

Time Poverty	Time Poverty Analysis
+ "Strategy 1.4: **Maximize land use and transportation coordination**. • Promote a variety of land uses and development of complementary uses within walking distance of one another. • Use land use controls to encourage medium and higher density residential and mixed use development in areas where significant investments in transit service and/or facilities have been made or are planned." (pg 37)	-creating dense areas with walking opportunities can limit time poverty for women and families.
Mobility/Mobility of Care "Strategy 1.9: **Prepare for new technologies that might influence mobility**" (pg 38).	*- None of these strategies discuss people or users. It is a very general and broad statement.*

"Strategy 5.2: **Improve mobility throughout the District.** • Continue to require implementation of Transportation Demand Management (TDM) strategies in conjunction with new development. • Create standards to require new development and redevelopment to incorporate transit, pedestrian and bicycle friendly design features." (pg 41).	*-Mobility as defined in this context is about vehicles and not users necessarily. This could be improved to better describe who would be supported.*
Accessibility **+** "Strategy 1.8**: Design and plan transportation facilities to consider the** needs of all road users. • Apply the "Complete Streets" policy in planning and construction of new roads to ensure consideration of various transportation modes, such as transit, bicycling, pedestrian use, vehicular traffic, and parking" (pg 38). +"Strategy 1.6: Improve and maintain pedestrian and bicycle infrastructure. • Work with other agencies and neighboring jurisdictions to eliminate barriers to biking and walking, and coordinate regional connections, promotions, and information materials on regional trail systems. • Coordinate year-round maintenance of sidewalks, shared-use paths, bike lanes, transit stops, and areas connecting to and within transit shelters." (pg 37). "Strategy 4.2: **Work to enhance the local transit network to meet the needs of residents and employees** *(action 7)* "Advocate and support transportation network and transit station improvements to remove barriers to transit use, including but not limited to additional park and ride facilities, bicycle storage, paved loading areas, improved signage, transit shelters,	-all users is critical here. This could better address the needs of a diverse set of people, yet they could lay this out further in a more critical way. Planning for accessibility by different modes is important as well. -addressing the fact that there are barriers to biking and walking for individuals within the city is critical in fixing it. -seniors and low mobility individuals need clean sidewalks and paths. However, this could go into more specific detail about the maintenance and what specific issues it may be addressing, like snow removal, or other barriers in place. Gender mainstreaming can help direct solutions for these problems to help planners better address these problems and plan for them. -this is a good start for implementing improved facilities for users, implementing that idea of personas. This means improved bicycle storage, and shelters. However it does not call out lighting specifically which is crucial.

and integrated bike and pedestrian improvements." (pg 40).	
Off-Peak Schedules + "Strategy 4.2: **Work to enhance the local transit network to meet the needs of residents and employees.** *(actions 1-6)* • Work with transit providers to improve access and level of service throughout Bloomington. • Encourage transit providers to establish "reverse" commute (urban to suburban) service. • Work with transit providers and business/community leaders to identify opportunities to provide circulator bus service and shuttles to compliment public transit and close gaps in service for employees, customers, and visitors. • Advocate and explore partnerships with ridesharing services to provide "first mile, last mile" arrangements within the City. • Encourage transit providers to continue updating and implementing new technology, such as real-time departures, to enhance the transit rider experience. • Continue to provide transit providers information on changing demographics and/or land use for use in analyzing service improvements."(pg 39) - very good	**Off-Peak Schedules Analysis** -this is important for workers who may have bus routes that are limited or not frequent. -This is a great policy - very important. Bloomington has lots of service workers with off-peak schedules so this is critical. -this is really specific and so important. A great goal. A public private partnership to create options for circulator buses and shuttles to close the transportation gaps. -the city of Bloomington is focusing on partnerships which is really important to improving the transportation options. -very important from a user perspective to create a better experience so people can predict their wait times. For women and families with little time. -this is important for reverse schedules and off-peak schedules.
Safety Concerns + "Strategy 1.6: **Improve and maintain pedestrian and bicycle infrastructure.** • Improve pedestrian and bicycle facilities to make walking, biking, and use of	 - This is inclusive for people who have

mobility devices safer, more convenient, and a viable transportation option for people of all ages and abilities. • Provide physical separation between bikeways/sidewalks and roadways when appropriate and cost effective" (pg 37)	different needs for pedestrian and bicycle facilities. However it could call out specific ways to improve the safety and convenience to better provide direction and an ideal system. - This is noted in the literature as something that is important for women for biking, and makes a safer community for all.
Model use differences	- None were listed here.
Land Use (Segregated Use vs Mixed Use) +"Strategy 1.4: **Maximize land use and transportation coordination**. *(2 actions repeated from Time Poverty above)* • Promote a variety of land uses and development of complementary uses within walking distance of one another. • Locate regionally oriented land uses near regional transportation facilities (freeways and transitways). • Use land use controls to encourage medium and higher density residential and mixed use development in areas where significant investments in transit service and/or facilities have been made or are planned." (pg 37) + "Strategy 4.1: **Advocate for a network of strategically placed transitways** • Support regional transit investments on existing high density corridors. • Participate in efforts to increase coordination among transit providers offering transit service in Bloomington and surrounding communities to improve connections between Bloomington and other regional transit centers and destinations." (pg 39).	-This goal recognizes the need for land use variety, but would require coordination with the land use section. -Recognition of connectivity to transportation facilities and high volume areas is important. -recognizing where the density is to connect them to jobs. This doesn't get quite to the TOD aspiration, yet it's beginning to get there. -high density corridors and transit are key to

	connectivity.
	-this partnership is important.

7.4   LITTLE CANADA 2040

- Safety (3)
- Mobility (2)
- Accessibility (0)
- Gender (0)
- Woman (0)
- Women (0)
- Access (8)
- Childcare (0)
- Sexual harassment (0)
- Binary (0)
- Non-binary (0)
- Lighting (1)

Table 3

7.5

LITTLE CANADA GOALS AND POLICIES (PAGE 57-59 IN COMPREHENSIVE PLAN)

Time Poverty +	Time Poverty Analysis
Policy 28. Encourage the development of transit routes to multiple activity centers.	-it's unclear exactly what activity centers means here, but it's going in the right direction for the needs of individuals with

	time poverty.
Mobility of Care -	**Mobility of Care Analysis** - This comprehensive plan did not include any statements with mobility of care.
Accessibility + **Policy 8** Ensure that the highway system complements and facilitates local movements provided by local streets, bicycle trails and pedestrian facilities. **Policy 27.** Where economically feasible, promote the addition of transit services and facilities to meet the basic transportation needs of persons who cannot or choose not travel by car.	**Accessibility Analysis** - This is the way in which the generic accessibility term is used, where it provides for better access to high frequency routes. Higher connectivity will allow for improved accessibility. - Providing these basic transportation opportunities for individuals who do not have options for a vehicle is critical to state. The assumption of vehicle ownership or access can be detrimental to communities that typically have a larger population of car owners and users.
Off-Peak Schedules	**Off-Peak Schedules Analysis** - There is no direct recognition of off-peak schedules in the transportation comprehensive plan, which is an issue for this city. If this is a bedroom community for neighboring job hubs, individuals will require off-peak transit, in coordination with neighboring communities.
Safety Concerns + **Policy 21** Improve street safety through the appropriate use of street lighting and sign controls. **Policy 24**. Design pedestrian and bicycle right-of-ways separated from motorized traffic	**Safety Concerns Analysis** - This direct recognition of street safety, not embedded within another goal, is really important. - This is an important recognition of

along arterial streets. When physically and/or economically feasible, separate pedestrian and bicycle traffic.	safety concerns and needs for bike and ped facilities.
Model use differences + **Goal 2** Provide a balanced transportation system giving attention to all modes and related activities. **Policy 4** Reduce dependency on automobile-oriented transportation by assigning higher priorities to the development of pedestrian/bicycle and transit facilities.	**Model use differences** -this is a weak goal, however it is beginning to address that there are a variety of needs. -for individuals without a vehicle, reducing the dependency on just auto transportation is important for connectivity.
Land Use (Segregated Use vs Mixed Use) + **Policy 2** Plan transportation facilities to function in a manner compatible with adjacent land uses	**Land Use (Segregated Use vs Mixed Use) Analysis** -this is a really good statement - connecting the transportation plan to the land use plan. It could go further to call out specific ways to make it compatible and ways in which planners can carry this out. However, this is a trend of the city of little Canada's transportation goals, is that they are non specific and quite short. This plan could add more specific items to direct planners to implement them more generally.

7.6 CENTERVILLE 2040

- Safety (5)

- Mobility (4)

- Accessibility (0)

- Gender (0) *does show up 5 times throughout the comprehensive plan

- Woman (0)

- Women (0)

- Access (25)

- Childcare (0)

- Sexual harassment (0)

- Binary (0)

- Non-binary (0)

- Lighting (1)

Table 4

7.7   CITY OF CENTERVILLE GOALS AND STRATEGIES (PAGE 70)

Time Poverty +	Time Poverty Analysis - This plan had little to provide for reducing time poverty. This may be a result of very little public transportation provided within the city.
Mobility of Care	**Mobility of Care Analysis** -Carework was not directly recognized within this plan.
Accessibility • Develop land use development standards that promote safe and efficient access to the transportation system. • Establish a local transportation network which preserves neighborhood identity while linking together neighborhoods, community parks and facilities. • Coordinate transportation planning and system improvements with surrounding communities as well as Anoka County and the Minnesota Department of Transportation. • Work with Metro Transit to maximize transit opportunities for the community.	**Accessibility Analysis** - **Access to the transportation system** efficiently is key to equitable use of the system. However this is a very broad goal that will not lead to particular outcomes. - Linking together different facilities is key, however this doesn't call out shopping, schools or jobs. - Surrounding communities which have jobs and shopping centers need to be connected to the city to create accessibility.

	- Maximization of options for transportation is critical. This is a slightly ambiguous goal that could be explained in further detail, however.
Off-Peak Schedules	**Off-Peak Schedules Analysis** -this is not addressed in the plan, which raises issues for which transportation rides are being prioritized and recognized.
Safety Concerns + • Maintain a safe, efficient and convenient multi-modal transportation system.	**Safety Concerns Analysis** -this is a very broad and general statement that does not explain what it means by safe, efficient and convenient. Safe for who? Convenient for who? Efficient for who?
Modal use differences + • Maintain a safe, efficient and convenient multi-modal transportation system *(Goal repeated)*.	**Modal use differences Analysis** -This one goal has been used multiple times because it has some key words, however it's not necessarily directly addressing what about a multi-modal system it will improve or focus on.
Land Use (Segregated Use vs Mixed Use) • Develop land use development standards that promote safe and efficient access to the transportation system. (Policy repeated)	**Land Use (Segregated Use vs Mixed Use)** -this is cross sectional, including the transportation component with the land use component.

8   GENDER DISPARITY TERMS AND DEFINITIONS

Term	Definition
Time Poverty	Women in a dual-working household are twice as likely as men to pick up and drop off school-age children during their commute to work (Gendered Innovations). This causes a "double workload" in the public and private sphere, making all tasks take more time and be harder to accomplish (Madriaga 2013). This creates Time Poverty. Increased time spent on transportation is a result of trip chaining, where an individual has stops of less than 30 minutes (Hamilton et al, 2000), which can be chauffeuring children, bringing family members to medical appointments, and non-discretionary shopping. Trip chaining tasks often fall on women, increasing their workload of non-paid activities, on top of paid activities (Tacoli 2012) which ultimately contributes to time poverty.
Mobility of Care	Inés Sánchez de Madariaga coined the term "mobility of care" to define all travel resulting from home and caring responsibilities, including shopping (not leisurely), and escorting others which is necessary for managing a family (Madriaga 2013). Grocery shopping, errands, and other care work trips are included in "mobility of care" trips (Madriaga 2013). By aggregating carework, this will allow for a better recognition of the increased time that women spend on transportation related trips to support family. This is important because then an increased amount of resources can be put into carework transit trips, not just prioritizing "work" related trips.
Accessibility	Professor David Levinson elevates the term accessibility in his research, stating that "focusing solely on mobility and traffic delay doesn't provide a complete picture of how the traffic system is functioning." He describes the

	importance of cities creating a "density of activities" to allow for travelers to reach important destinations "such a shopping, jobs and recreation despite congestion and slower travel" (Levinson 2013)
Off-Peak Schedules	Women hold most of the part-time jobs, especially in the caregiving sector (Duchène 2011; Hasson, Yael and Marianna Polevoy 2011). Women who work in the caregiving sector as nurses in overnight shifts may face difficulties in finding safe public transportation when getting off of their shift at late hours. Male paid employment has historically been valued as the most legitimate form of work (Fraser and Gordon 1994).
Safety Concerns	Women find safety concerns in dark or deserted transportation stations and may avoid using transportation altogether (Hamilton et al 2000; Hasson et al 2011; Scheiner et al 2011).
Modal use differences	Modal use refers to the mode chosen by an individual based on their access to that mode, needs, and their preferences if they are a choice rider. In order to comply with welfare program or job requirements, access to an employment site, the welfare office, and a child care center may required a vehicle (Blumenberg 2000). Accessing these places can take much longer for individuals with low access to bus routes going towards work centers or limited access to a vehicle. In a study in Los Angeles in 2000, it was found that of the survey participants, 50% traveled by car, and 46% traveled by public transportation. Of the 50% who traveled by car, 44% used their own car, 34% were driven by others, and 22% borrowed cars.(Blumenberg 2000). For choice riders, certain modes such as public transit or biking may not be preferred when carrying out grocery shopping or chauffeuring children.

Land Use (Segregated Use vs Mixed Use)	From the above categories, land use becomes particularly important to the ways in which user travel needs arise. When city land use considerations are not incorporating city transportation planning principles and goal and vice versa, serving the needs of the users, there is spatial mismatch for riders.

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