# Climate Change in Bloomington

Emma Struss, Sustainability Coordinator



Minnesota is warming faster than other states.





Source: National Atmospheric and Oceanic Administration

- "Global surface temperature will continue to increase until at least the mid-century under all emissions scenarios considered."
- "Unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5 degrees Celsius or even 2 degrees Celsius will be beyond reach,"

#### With every increment of global warming, changes get larger in regional mean temperature, precipitation and soil moisture

a) Annual mean temperature change (°C) at 1 °C global warming



Source: Intergovernmental Panel on Climate Change





#### RESOLUTION NO. 2017- 98 A RESOLUTION IN SUPPORT OF THE PARIS AGREEMENT

WHEREAS, the City Council of the City of Bloomington is the official governing body of the City of Bloomington, Minnesota; and

WHEREAS, the City Council of the City of Bloomington established a Sustainability Commission in 2016 to advance policies, practices, procedures, and proposals that relate to the sustainable use and management resources that include air, water, energy, land and ecological resources, and waste; and

WHEREAS, consensus exists among the world's leading climate scientists that global warming caused by emissions of greenhouse gases (GHG) from human activities is among the most significant problems facing the world today; and

WHEREAS, documented impacts of global warming include but are not limited to increased occurrences of extreme weather events (e.g. droughts and floods) and adverse impacts on ecosystems, public health, property, infrastructure, populations displacement and economic value chains; and

WHEREAS, the Paris Agreement resulted in a commitment from almost every nation to take action and enact programs to limit global temperature increase to less than 2 degrees Celsius, with an expectation that this goal would be reduced to 1.5 degrees in the future; and

WHEREAS, in signing the Paris Agreement, the United States committed that by 2025 it would reduce its carbon emissions by 26% - 28% below its 2005 levels; and

WHEREAS the Bloomington Sustainability Commission voted on August 15, 2017, to recommend the City Council adopt this resolution.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BLOOMINGTON, MINNESOTA that:

- The City of Bloomington supports the Paris Agreement; and 1.
- The City of Bloomington intends to demonstrate its commitment to reducing GHG emissions through an 2. implementation of a Climate Action Plan to be developed before 2020; and
- The City of Bloomington joins other U.S. cities in the Climate Mayors network (also known as Mayors 3. National Climate Action Agenda) in adopting and working towards achieving, at a minimum, the goals of the Paris Agreement; and
- The City of Bloomington commits to exploring the potential benefits and costs of adopting policies and 4. programs that promote the long-term goal of GHG emissions reduction while maximizing economic and social co-benefits of such action.

Passed and adopted this 28th day of August 2017.

Attest: Win M Chiffun Secretary to the Council

To limit warming to 1.5 degrees Celsius, carbon emissions must be halved by 2030 (from 2005 levels).



## Largest sources of greenhouse gas emissions in Bloomington



## Energy

Using natural gas and electricity in buildings

## Transportation

Driving passenger, medium, and heavy duty vehicles

## Sources of Bloomington's Greenhouse Gas Emissions



Source: CenterPoint Energy, Xcel Energy, Met Council's Greenhouse Gas Inventory, Regional Indicator Initiative



# 2021 Energy Update

## Sources of Bloomington's Energy-Related GHG Emissions





1 Icon = 1% of energy-related GHG emissions





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= 100 electricity customers
= Business customers
= Residential customers



\*\*\*\*\*\*\*\*\*\*\*

# 100 natural gas customers = Business customers

= Residential customers

# Goals

### Energy

75% reduction in city-wide energy-related greenhouse gas emissions by2035, relative to 2016 levels.

### Transportation

Pursue all viable opportunities for promoting the elimination of vehicle emissions, including support for electric vehicles, increased public transportation, higher-density and mixed-use zoning, additional biking and pedestrian infrastructure, and telecommuting.

## An Energy Action Plan for Bloomington, MN





# Energy Efficiency



# Renewable Energy





# Commercial, Industrial, 5+ Unit Multifamily







### Large Building Benchmarking

## Community Codes Support Program



## Sustainable Building Design Research



# 1-4 Unit Residential







### Time of Sale Energy Disclosure

Energy Program Promotion



## Energy Burden Research



# City Facilities



Properties (102)	Dashboard (Metrics current a	s of 08/19/2021 12	2 20 PM EDT) C	Search	n by ID or Name
Add a Property	View All Properties (102)	✓ Energy High	hlights	♥ Ref	resh Metrics
	Add/Edit/Delete Groups	Add/Edt/Del	ete Views		
Site EUI Trend (kBtu/tt <sup>+</sup> )	Name -	Energy Current ø Date	Site EUI (kBtu/ft*) •	ENERGY STAR e Score	Water Use Intensity (All Water Sources) (gal.ft*)
	City of Bicomington - Brookside Park 6635947	06/30/2021	116.4	Nð	NA
0 2010 2012 2014 2018 2020 (Chart current as of 09/12/2021 01:27 PM CDT) Refresh Chart	City of Bioominaton - Bryant Park 6635948	05/31/2020	105.1	NA	NA
	City of Bloomington - Bryg Park 6635949	06/30/2021	123.4	NA	NA
	City of Bioomington - Bush Lake Beach House 6635950	06/30/2021	110.5	Nő	Nő
Manage Portfolio	City of Bioominaton - Bush Lake Beach Maintenance 6635951	06/30/2021	107.4	Nő	NA
III Transfer ownership of a property that you manage to another Portfolio Manager user.	City of Bioomington - Bush Lake Beach Pictuc 6635952	06/30/2021	9.0	Nő	NA
Uplead and/or update multiple properties at once using an Excel spreadsheet if you are a pro. This can be the provide the provided of the p	City of Bioominaton - BYPASS LOGAN/KNOX 6652258	06/30/2021	70.0	NA	NA
use details, create meters and add meter consumption data.	City of Bioomington - Cemetery North 6622741	06/30/2021	13.7	NA	10.27
Download your entire portfolio to Excel or create a <u>custom download</u> .	City of Bioomington -	06/20/2021	64.0	812	-



## Energy Benchmarking

## Energy Design Assistance Program



## Researching Renewable Energy Options



# Implementation Support

# 2021 Service Projects



## Clara von Dohlen

2020-2021 Minnesota GreenCorps Member

## Yanyan Zeng

Summer 2021 Harvard SPARK Public Service Internship

# 2021 Free Technical Assistance

## **Center for Energy and** Environment

• Time of Sale Energy Disclosure

## Hennepin County

- Efficient Buildings Collaborative (Large Building Benchmarking)
- Sustainable Building Policy Research

## **Xcel Energy**

- Partners in Energy
- Community Codes Support Program

## **CenterPoint Energy**

- Data Requests
- Energy Advisor Service

## **Great Plains Institute**

• Renewable Energy Research

# 2021 Data Requests

4	A	В	С	D	E	F
1	Bloomington Multi-fa	mily Elec	tricity Us	e		
2	<b>g</b>	,	,	-		
3	Data Notes:					
4	1) Xcel Energy provides electric service to ci	ty of Bloomington				
5	2) Data is provided for all premises located i	n the city of Bloomin	igton and complies	with Xcel Energy's d	ata privacy	rules
6	<ol> <li>Multi-family premises filtered using City of</li> </ol>	Bloomington parce	l data			
7						
8	For Questions: Tami Gunderzik, tamara.gu	nderzik@xcelenerg	iy.com; Marisa Baye	r, mbayer@mncee.	org	
10		2018	2019	2020		
11	Premise Count - Multi-family	13.828	13.831	13.834		
12	Electricity Use - Multi-family	100,029,013	92,963,377	95,019,522		
15	Promise Count All Promises	44,000	44,000	44,000		
14	Premise Count - All Premises	41,980	41,933	41,903		
15	Electricity Use - All Premises	1,370,248,511	1,280,976,078	1,189,874,578		
17	Percent of Premises - Multi-family	33%	33%	33%		
18	Percent of Use - Multi-family	7.3%	7.3%	8.0%		
19						
20						
21						
22						
23						
24						
25	1					
26	1					
27	1					
28	1					
	1					



## 5+ Unit Multifamily Energy Use

## Energy Bill Delinquency



Energy Assistance Program Participation



# Progress towards Goal

18	2019	(201	g 17-	2020	(3yrAvg-	2017	2018	2019
		201	9)		20207			
,176	2,502	2,0	062	1,718	-17%	115,220	136,060	174,580
105	1/13		104	5/1	-52%	9,440	15,500	21 510
699	6 344	6	556	6 848	4%	69 109	69.871	66 167
226	394		263	188	-29%	7.050	9,570	12,770
5	2		4	4	-8%	2,030	1,152	495
10	13		17	2	-88%	1,410	380	570
				127				
,858	10,000	9,	552	9,403	-2%	213,069	251,183	290,792
	_							
33	33		26	36	37%	2,690	7,700	5,100
-20-1	3	1	2	4	140%	650	5	270
38	40		45	9	-80%	1,210	830	867
5	2		3	2	-25%	250	1,200	1,110
			-	7		-	-	8 <b>.</b>
76	78		76	51	-33%	4,800	9,730	7,347
9	12		14	8	-41%	13,790	12,320	15,140
243	8/1		442	154	-65%	205,950	275,160	########
2	2		2	- 15	-100%	-	490	5,500
- 2	3	2	2	2	200%	61 610	400	4 010
			-	1	20070		12	4,010
-	12		-		1.0	-	82	100
10	8		7	8	20%		84	878
2			2	2	0%	2	9,150	843
1	13		7	4	-40%	8,650	460	13,805
•			-		•			
267	909		475	197	-58%	290,050	297,570	*****
,201	10,987	10,	102	9,651	-4%	507,919	558,483	########
2	2018	2019		2016	2	2017	2018	2019
2	2 <b>018</b> 700 473	2019 660 521		2016 296,847 256,572	2 199, 348	2 <b>017</b> ,949 ,514	2018 202,675 314,062	2019 198,215 347,894
	2018 700 473 207	2019 660 521 398		296,847 256,572 116,827	2 199 348 230	2 <b>017</b> ,949 ,514 ,831	2018 202,675 314,062 284,542 2 731	<b>2019</b> 198,215 347,894 301,574
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2 1 3,1 Counts 2	2018       700       473       207       .855       254       55       -       124       11       3       4       1       -       687       2018       248       98       27       4       19       2       4       -	2019 660 521 398 337 151 92 62 57 38 25 2 - - 2,343 30% 208 65 27 208 65 27 208 65 27 208 65 27 208 65 27 208 65 27 208 65 27 208 65 20 15 5 5 4 3 2 2 2 2 2 3 8 2 2 2 2 3 8 2 2 2 - - - - - - - - - - - - -	16	2016 296,847 256,572 116,827 1,824 142,956 30,463 28,809 - - 536 - 874,834 3224 2016 3,138,604 4,297,413 90,155 43,205 541,039 722,487 - 715 - (130,060) 644,226 2,033,245 - (130,060) 644,226 2,033,245 - 1,018,175 14,143 3,760,633 6,2717 7,635,467 6,535	2 199 348 230 2 127 3 90 6 3 1,013,: Electr 2 6,948 2,119 430 235 859 539 539 539 539 539 539 6 720 67 5 612 1,180 13,725, 14,738, 3	2017 343 343 351 320 740 085 ,641 451 .591 - 269 / 1,0 16% 373 16 k √h Savin 2017 2017 373 2017 373 2017 373 2017 373 2017 373 2017 373 2017 2018 2019 2018 2019 2018 2019 2018 2019 2018 2019 2018 2019 2018 2019 2018 2019 207, 3	2018 202,675 314,062 284,542 3,731 206,479 31,148 - 2,955 12,256 - 75,930 23% 3337 2018 18,373 18,373 18,373 18,373 18,373 18,373 18,373 18,373 18,5235 1950 2018 18,373 18,373 18,373 18,373 18,373 18,373 18,5235 1950 2018 18,373 18,373 18,373 18,373 18,373 18,373 18,373 18,373 1950 2018 18,373 18,373 1950 2018 18,373 18,373 18,373 18,373 18,373 18,373 18,373 1950 2018 18,373 18,373 18,373 18,373 18,373 1950 2018 18,373 18,373 18,373 19,52,351 1970 2018 19,523 10,525 10,525	2019 198,215 347,894 301,574 682 120,672 38,826 23,825 3,921 26,291 - 1,992 - 1,063,892 22% 365 22% 365 22% 365 22% 24% - 1,925,151 1,637,771 246,283 222,597 2,421,115 1,124,685 545,500 24 - 11,457 (6,302) 68,557 11,396 5,897 - 6,379 - 6,379 - 1,395 5,837 - 6,379 - 1,395 5,837 - 6,379 - 6,379 - 1,356 5,837 - 6,379 - 1,356 5,837 - 1,356 5,837 - 6,379 - 1,356 5,837 - 6,379 - 5,837 - 6,379 - 1,356 5,837 - 6,379 - 1,356 - 1,356 - 1,356 - 1,356 - 1,356 - 1,517 - 1,24,685 - 1,356 - 1,537 - 1,538 - 1,537 - - - - - - - - - - - - -

# Gap to Goal

## 2.5X increase needed What we need to meet the goal What we're currently saving Annual Average Natural Gas Savings

### 5X increase needed



### Results from 2020 ACEEE Clean Energy Scoring Tool





Source: American Council for an Energy Efficient Economy (ACEEE)



# 2021 Transportation Update



### Walking



Scooters



Bicycle



Light rail





Ride Sharing Service e.g. Lyft, Uber



Car Share e.g. Hour Car









Freight





### Electric Motorcycle



### Electric Bike



### Electric Vehicle





Metro Mobility









Walking





Bicycle



Light rail





Ride Sharing Service e.g. Lyft, Uber



Car Share e.g. Hour Car







Freight









### Electric Motorcycle





### Electric Vehicle



### Carpooling



Metro Mobility

Internal Combustion Engine (ICE) Vehicle

1.50

## **Transportation is** the largest source of GHG emissions in Minnesota.

- Transportation emissions increased by 30.5% since 1990.
- VMT in Minnesota in 2018 was 60.4 billion up over 44% since 1992 while population grew only at 26%.



### Source: MnDOT Vehicle Miles of Travel Trends in Minnesota 1992-2018

Figure 7. VMT trends, 1992-2018 (MnDOT)

## Sources of Bloomington's Greenhouse Gas Emissions



## Bloomington's Transportation-Related GHG Emissions





- Passenger Vehicles
- 1 vehicle = 1%



Source: Metropolitan Council Greenhouse Gas Inventory (2018)

## **City Transportation Plans**



City of Bloomington **Transportation Demand Management** (TDM) Plan

May 2011

CITY OF BLOOMINGTON, MINNESOTA



his URT sheet is included a amington Control Station

savings over those required in the State energy code.

#### Accessibility

for energy is.

Making South Loop more accessible hinges on onhancing the bicyclesurveys and intropolog access to trainif. A contracted system. of hicycle regime and conversions? franal allows violities, residents, and ampleyees to travel to, from and within heath laop without getting

were used in the model instead.

it is recommended that buildings

in fouth Loop follow the State of

**Ennemate** By Sustainable Building

Daulalouts, which exceed the State

eavy rode by at least to percent. live stabilities, page 3.3.

The measurable surfaceability goal

At least 90 present main many

into a can Posst researceable metaloublicity indicators for accessibility show improveniately over the trend

aremanie as follows: Over 50 percent more starsts will

have highly mules. One third many residents will be

a transit stop.

· Over 25 percent decrease in the distance residents walk to reach **Disker** 

Over 14 prevent decrease in the distance employees walk to reach

#### Green infrastructure

integrating green industruction into South Loop involves creating open spaces, such as parits and playgrounds, providing groom ectairis between open spaces much as free-lined, landscaped houlestands, and using pervious materials where practical to allow on-inte-indifferation of extendator. All of these "best pearlices" (an improve aesthetics, pereide costing shade. and help manage electrowater runoff. Two measurable sustainability

industant for green industriation show propromitents over the tand comarie as follows:

- Over 50 percent mane multiputte in the district will be written a short walk 0/4 stilled of a park or influence and

Nearly one third of all land to Small Loop, north of \$54.5 Street wittin walking distance (v) mile) of and excluding the MNNWE, will be dedicated open space.





Transportation Demand Management Plan

2012

### South Loop Plan



2016

2016 Update **Alternative Transportation Plan** 

> **CITY OF BLOOMINGTON, MINNESOTA** City Council Approved - November 21, 2016

Alternative Transportation

### An Energy Action Plan for Bloomington, MN



May 7, 2018

2018

Bloomington **Energy Action** Plan

## **City Sustainability Transportation Goals**

#### South Loop District:

- Over 50 percent more streets will have bicycle routes.
- One third more residents will be within walking distance (1/2 mile) of a transit stop.
- Over 23 percent decrease in the distance residents walk to reach transit.
- Over 32 percent decrease in the distance employees walk to reach transit.

Transportation Demand Management Plan

2011

South Loop Plan

Alternative Plan

2016

Transportation: Pursue all viable opportunities for promoting the elimination of vehicle emissions, including support for electric vehicles, increased public transportation, higher-density and mixed-use zoning, additional biking and pedestrian infrastructure, and telecommuting.

Transportation

2018

Bloomington **Energy Action** Plan

## **City Transportation Plans**

#### FORWARD 2040 + COMPREHENSIVE PLAN

Section 4 • Transportation Element

#### 4.1 Introduction

Biomenglist's biomportation enumers is to facilitate measured of people and goods sadding efficiently, cost effectively, and constructably to denore determinate while minimum generation in generative recommendation of the environment. To accomplish that, the City etimes to provide a multi-modal transportation network comprised of readency, transit, well-ways and bilineways, and call facilitate that express to most or an indicate the second system.

Biomingtion is now fully developed and the existing randway selversh is essentially reorgade. Thus, the primary transportation planning focus is not on building new rands, but no resenting, managing and important the existing transportation reprints to accomplate a boundary spectrum of sums and importe constitution with reve development. This involves addressing street capacity, closing page in the pedention and optical rystem, enducing transit facilities and environs in areas with higher development, and conjugation of the probabilities and environs in areas with higher development, maintaining transportations and optical rests.

#### **Bioomington Transportation History**

07

201

Until the mult-close, Minnesota's primary transportation served an exercision. Notice Americans traveled, and traded along the Minnesota, Minnesota, Satter ana sheen for contactor. The first transpose explores and extines alon estad primarily on the steves. Really activity centers such as first building. It has an olicit primarily on the steves and activity centers accessibility. To sugment steve transportation between these early activity activity, method tradit were last out. One of Hamminghet's first reads enginested as the tradit accessesting Port leading with that presents the thready method to be allong with that presents the Radopee Read. Subsy's Oid that pretor and pre-state.

As while settlers began, farming the area in the aligin it became recencery to includ



Significant Transportation Projects Completed in the Last Decode Over the last decode served reputiest transportation projects were completed, is addition to serverse control and capacity improvement throughout the Crip inclusing

- Derryging Dismand Interchange at 34th Ammun and 1434
- Conversion of the al-grade remaining at UC visy at Highwood
- Lindau-Lane extension and structure induscements
- South Long ITS Wayboling System
- Nokomis-Missimeta Kiner Regional Trail
- Old Codar Avenue Bridge Behabilitation
   School Consing Tabley
- Exhancement Projects
   Hyland Trail Project

And Description

### Forward 2040

ward 2010

aportation read in the remain case property differences

## **City Ordinances**

The purpose of Transportation Demand Management (TDM) is to promote more efficient utilization of existing transportation facilities, reduce traffic congestion and mobile source pollution, and to ensure that new developments are designed in ways to maximize the potential for alternative transportation usage. TDM is a combination of services, incentives, facilities and actions that reduce single occupancy vehicle (SOV) trips to help relieve traffic congestion, allow parking flexibility and reduce air pollution.

> § 21.301.09 **TRANSPORTATION** DEMAND MANAGEMENT (TDM)

07

0

0

(a) Purpose. To accommodate and promote electric vehicle charging throughout the city promoting the health, safety and general welfare of the community and preventing adverse impacts in the installation and use of electric vehicle chargers.

a) Purpose and intent. The city recognizes the health, safety, welfare and aesthetic value of providing parking standards in the community. The provisions of this section are intended to: (Note: it lists 11 items)

§ 21.302.14 ELECTRIC 07 201 **VEHICLE CHARGING STANDARDS** 

§ 21.301.06 PARKING AND LOADING

Shared vehicles. that are (h)not rented or loaned are prohibited from the right-of-way and subject to removal by the city unless located in a dock or designated area. Commercial providers must obtain an obstruction permit for docked or dockless subject to the requirements of this section and following conditions of approval.

**UPDATE TO:** § 17.68 PERMIT **REQUIRED.** 

# **Climate Goals**

There are no quantitative goals for reducing transportation-related greenhouse gas emissions, VMT reduction, electrification, etc.



# Goals

### Energy

75% reduction in city-wide energy-related greenhouse gas emissions by2035, relative to 2016 levels.

### Transportation

Pursue all viable opportunities for promoting the elimination of vehicle emissions, including support for electric vehicles, increased public transportation, higher-density and mixed-use zoning, additional biking and pedestrian infrastructure, and telecommuting.

## An Energy Action Plan for Bloomington, MN





## Electrification



40<sub>by</sub>

Amount of space required to transport the same number of passengers by car, bus, or bicycle. Event info at www.facebook.com/Urban.Ambassadors - Photos by www.tobinbennett.com (Des Moines, Iowa - August 2010)

## Providing Alternatives to Driving Alone



**Both electric** vehicles and increasing lowcarbon transportation options are needed.

### Annual Emissions Reductions by EV Sales Growth Scenario under Minnesota Average Grid Mix



Consumption by Sector and Source," US Energy Information Administration, https://www.eia.gov/outlooks/aeo/data/browser/#/?id=2-AEO2020&cases=ref2020&sourcekey=0, which forecasts electricity consumption in the transportation sector.

9/22/2021

mndot.gov

17

## Reducing vehicle miles traveled, not people miles traveled.

CO<sub>2</sub>

CO<sub>2</sub>

CO2

X CO<sub>2</sub>

Increase mobility options & accessibility



Reduce GHG

emissions

Improve community health





## Health



### **Using Energy**



Driving





### Source: Minnesota Department of Health

#### CHANGES IN OUR ATMOSPHERE LEAD TO HEALTH EFFECTS

## Health

## State-wide

• The share of motorist traffic fatalities is trending down, while the share of non-motorist traffic fatalities is trending up.



Source: MnDOT 2020 Sustainability Report



### Figure 3.6: Total Fatalities Trend





#### Extreme heat

Increased temperatures combined with increased humidity will disproportionately affect residents with underlying health conditions, especially those with limited means to adapt.



#### Urban heat islands and vulnerable communities

Many urban areas have more concrete and other impermeable surfaces that radiate heat along with less tree canopy and greenspace to mitigate the heat. This creates urban heat islands where the temperature measured can be significantly higher than the official reported temperature. The continued rise of temperatures due to climate change is likely worsening this heat island effect.

Occurrences of daytime extreme heat are projected to increase by 2050. While a couple of degrees may not seem significant, increased temperatures combined with increased humidity will disproportionately affect residents with underlying health conditions, especially those with limited means to adapt.

Areas with those most vulnerable to the effects of extreme temperatures and the urban heat island are show in the map (Figure 6). The map was developed using average August nighttime mean temperatures from August 2011 to August 2014, which was derived from a study by the University of Minnesota<sup>5</sup>, overlain with the areas of greatest population vulnerability. Nighttime temperatures are an important factor because our bodies are evolved to cool down

**POT** 

Urban areas with less tree canopy and greenspace and more impervious surfaces that radiate heat create heat islands

#### Increased stormwater and localized flooding

Surface water impacts are determined by how much and how quickly precipitation falls and by the ability of soils to infiltrate water or the capability of stormwater conveyance systems to drain it away.

This map (Figure 9) depicts the location of 100-year and 500-year floodplains as mapped by FEMA. A 100year flood is more accurately defined as a flood that has a 1% probability of occurring in any one year. Due to increasing precipitation, the 500-year floodplain is rapidly becoming the new 100-year floodplain. While many FEMA maps take into account storm sewer capacity and soil types, the mapping doesn't present a full picture because it doesn't consider localized flooding. The Minnesota Department of Natural Resources is working to



The eastern side of Bloomington has a higher percentage of BIPOC residents and has more areas susceptible to >1 ft of flooding

#### Inequitable climate impacts: Air pollution from transportation

Vehicles are a large source of air pollution. The map (Figure 11) depicts a projection of air pollution from traffic based on average daily trip data.11 As would be anticipated, transportation-related air pollution is higher in the more urban areas of the county where the road network is densest and traffic is highest. According to the Minnesota Pollution Control Agency, communities of color bear a disproportionate burden of raffic-related health impacts<sup>12</sup> due to living in proximity to the highest traffic levels.

According to the Minnesota Department of Transportation, reducing VMT will have immediate, lasting benefits to communities of color who breathe worse air and are at a higher risk of traffic crashes. Lowering VMT will help reduce both particulate matter and other pollutant emissions and reduce the risk of traffic crashes, resulting in improved, equitable outcomes.

Minnesota Department of Health, Healthy

fealth along the Central Corridor Light Rail

ommunities Count! Indicators of Community







Vehicles are a large source of air pollution





- Community Severance
- Noise Pollution
- Decreased Property Values

and Minnesota Historical Society









Automobile job accessibility within 30-minutes of travel in the Minneapolis-Saint Paul metropolitan area is much greater than walk-up transit job accessibility within 30-minutes of travel in the Minneapolis-Saint Paul metropolitan area.

40% of Minnesotans don't have access to a car or can't drive

Sources: Move Minnesota and Our Streets MPLS



### Percent of households without a vehicle by race/ethnicity: United States, 2019



In most communities, convenient and reliable transportation access requires a vehicle

Source: National Equity Atlas

Black households are least likely to have access to a vehicle

# Equity



## ~10 minutes







## ~25 minutes







## ~50 minutes







## ~90 minutes







City Staff Commuting Research

Transportation Listening Sessions



## Starting Process to Set Quantitative Goals

91% of Bloomington employees drive alone to work.



## **Streetlight Data**

## Bloomington employees on average work day.





## 3.8 tons

All employees driving

## 55 miles

Average employee

## 45 minutes

Average employee

## O-D Analysis SG to PH (Peds)

### Design

- Year 2018 Summer (June – Oct)
- Segments placed along expected main routes of travel

Zones showing destination counts if the starting point was the dark polygon along 86<sup>th</sup> St with a few more walkers about, probably due to the fact that it is warmer







"I LIVE ON THE BOTTOM FLOOR AND I SEE PEOPLE WALKING THROUGH SNOW COMING FROM THE STORES. IF THE BUS WOULD COME CLOSE TO THE APARTMENTS THEN PEOPLE WOULDN'T HAVE TO DO THAT. I THOUGHT MANY TIMES, IF I COULD STILL DRIVE I WOULD PUT A NOTE IN THE BUILDING AND SAY, 'DO YOU NEED A RIDE?' \$0.50 A RIDE OR SOMETHING LIKE THAT."

> BLOOMINGTON RESIDENT AT TRANSPORTATION LISTENING SESSION SUMMER 2021

# Take Aways



Climate change is a significant health and equity problem that requires immediate action.



Energy use and driving contribute to this problem the most in Bloomington.



## We are not on track to avoid the worst of climate change.

# Take Aways Cont.



**Coordinated city**wide efforts to tackle this problem are in their infancy.



Sustainability efforts need to ramp up quickly in order to meet the City's climate goals.





There are solutions and resources to help us tackle this problem.

# Questions?

