

An aerial photograph of a residential neighborhood, showing houses, streets, and trees, all overlaid with a semi-transparent green filter. The text is centered on the image.

CHAPTER 2

TRANSPORTATION DEMAND OVERVIEW

TRANSPORTATION DEMAND OVERVIEW

INTRODUCTION

The purpose of this chapter is to provide a “snapshot” of demographic, economic and travel characteristics that affect the transportation system. Charts and tables use the latest available data. In most cases, the 2020 Census, 2022 American Community Survey, NYSDOT and Replica data sets were used. Other sources are identified where used. The principal factors considered are population characteristics, travel patterns, and employment and economic characteristics.

DEMOGRAPHIC CHARACTERISTICS

Summary of the Impacts of Population Factors on Transportation

- Increasing population will continue to place increased demand for transportation services and capacity.
- As the area becomes more urbanized, the travel patterns and behaviors of its residents will continue to change. Urban areas offer the greatest opportunities to meet transportation needs with a variety of modes of transportation.
- The population density map displays how the distribution of people can be correlated to several important community resources: the location of the major employment centers (e.g., Cornell University, Ithaca College, the Central Business District (CBD), and the northeast Ithaca industrial corridor); the location of sanitary sewer and water service areas; and the ease and availability of transportation services/infrastructure.

COLLEGE TOWN EFFECT

Tompkins County has a substantial college student population of approximately 33,000. The bulk of the students attend Cornell University and Ithaca College, both located within the Ithaca urban area. A third institution, Tompkins-Cortland Community College is located near the Village of Dryden.

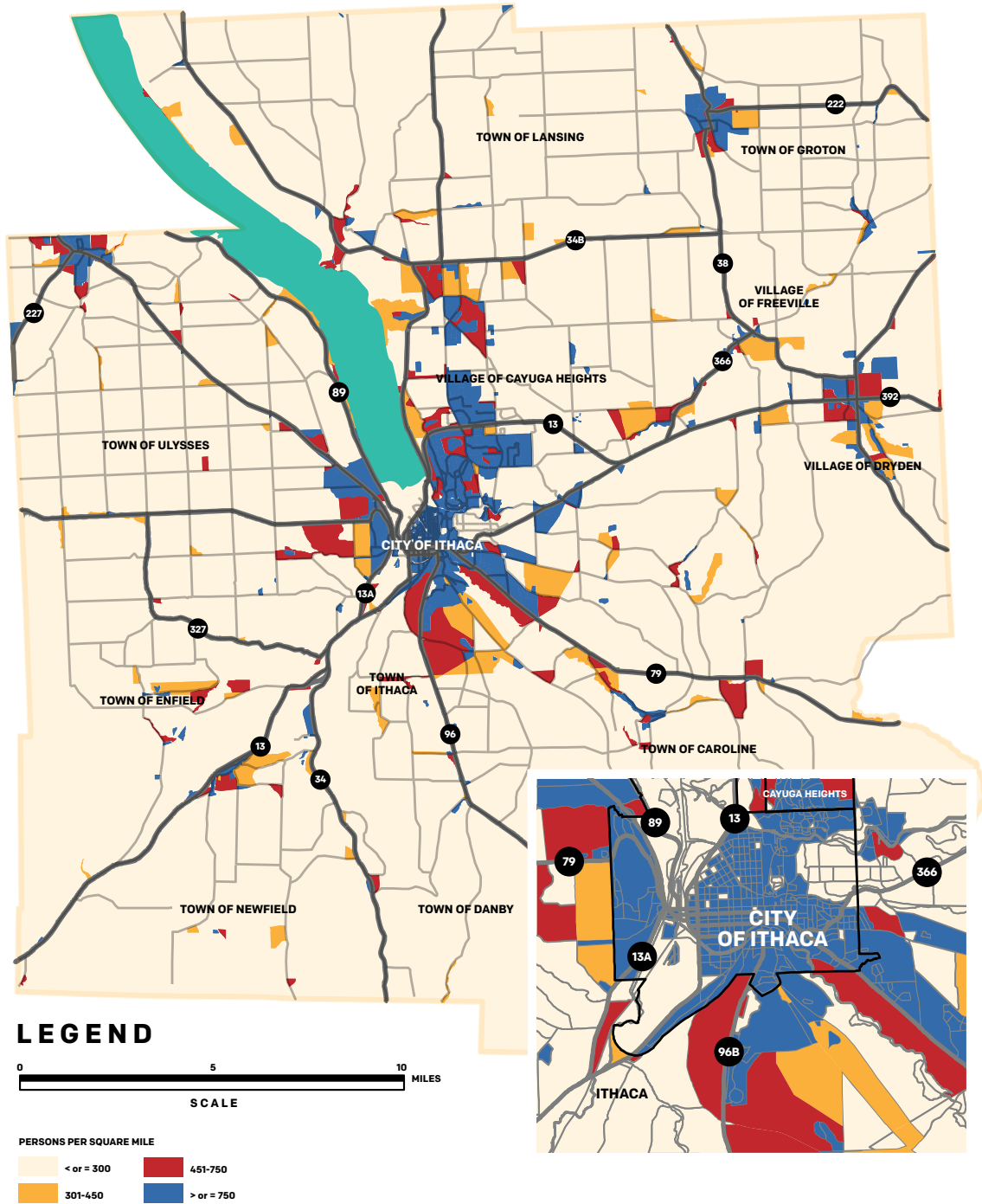
Cornell University is the largest employer in Tompkins County. Higher education institutions comprised the largest employment sectors in the local economy.

The impact of college students making up approximately one-third of the population affects many areas of transportation planning. Census figures, travel patterns, mode choices, congestion cycles are all affected by the concentration of students.

Many of these students are year-round residents, but most reside in Tompkins County only during the school year. Therefore, they create a significant seasonal impact in the demand for services including transportation. ITCTC staff and other transportation professionals in the county are aware of this dynamic. Transportation studies and data gathering efforts are routinely coordinated with the academic schedules to capture the true peak in the travel demand.



CENSUS BLOCK POPULATION DENSITY 2020 IN TOMPKINS COUNTY



- Significant population density can be found in the Ithaca urbanized area and the County's villages.
- Tompkins County's topography along with Ithaca's location at the center of the county and at the southern tip of Cayuga Lake results in most NY state roads converging in the City as they extend across the county.
- The area in the Town of Lansing, south of SR-34B, has experienced substantial suburban growth.
- Not evident in the map is the increase in residential land uses dispersed along rural roads throughout the county.

POPULATION TOTALS FOR TOMPKINS COUNTY

CIVIL DIVISION	1990	% OF COUNTY TOTAL	2000	% OF COUNTY TOTAL	2010	% OF COUNTY TOTAL	2020	% OF COUNTY TOTAL	2010-2020 NUMERIC CHANGE	2010-2020 % CHANGE
TOWN OF CAROLINE	3,044	3.2%	2,910	3.0%	3,282	3.2%	3,334	3.2%	52	1.6%
TOWN OF DANBY	2,858	3.0%	3,007	3.1%	3,329	3.3%	3,421	3.2%	92	2.7%
TOWN OF DRYDEN	13,251	14.1%	13,532	14.0%	14,435	14.2%	13,905	13.2%	-530	-3.8%
TOWN OF ENFIELD	3,054	3.2%	3,369	3.5%	3,512	3.5%	3,362	3.2%	-150	-4.5%
TOWN OF GROTON	5,483	5.8%	5,794	6.0%	5,950	5.9%	5,746	5.4%	-204	-3.6%
TOWN OF LANSING	9,296	9.9%	10,521	10.9%	11,033	10.9%	11,565	10.9%	532	4.6%
TOWN OF NEWFIELD	4,876	5.2%	5,108	5.3%	5,179	5.1%	5,126	4.8%	-53	-1.0%
TOWN OF ULYSSES	4,906	5.2%	4,775	4.9%	4,900	4.8%	4,890	4.6%	-10	-0.2%
CITY OF ITHACA	29,541	31.4%	27,775	29.8%	30,014	29.6%	32,108	30.4%	2,094	6.5%
TOWN OF ITHACA	17,797	18.9%	18,710	19.4%	19,930	19.6%	22,283	21.1%	2,353	10.6%
TOTAL COUNTY	94,106		96,501		101,564		105,740		4,176	3.9%

SOURCE: 1990, 2000, 2010 and 2020 Decennial Census

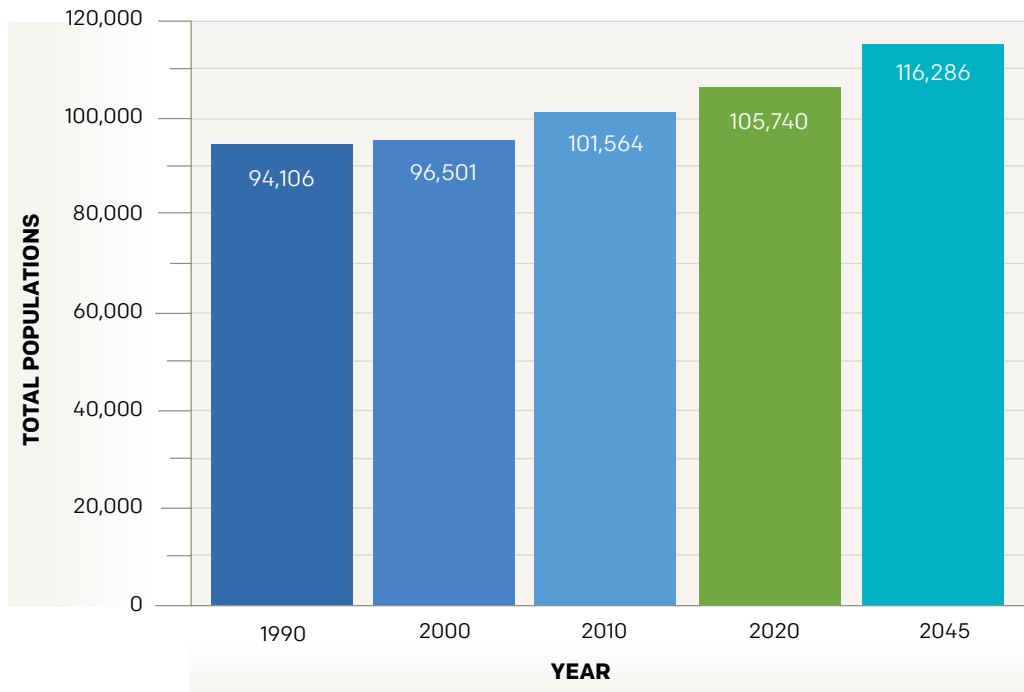
Note: Village population statistics are included as part of respective Town totals

POPULATION: VILLAGES OF TOMPKINS COUNTY 2000-2020

CIVIL DIVISION	2000 POPULATION	2010 POPULATION	2020 POPULATION	2010-2020 % CHANGE
VILLAGE OF DRYDEN	1,832	1,838	1,887	2.60%
VILLAGE OF FREEVILLE	505	520	498	-4.42%
VILLAGE OF GROTON	2,470	2,363	2,145	-10.16%
VILLAGE OF CAYUGA HEIGHTS	3,738	3,729	4,114	9.36%
VILLAGE OF LANSING	3,417	3,529	3,648	3.26%
VILLAGE OF TRUMANSBURG	1,581	1,797	1,714	-4.84%
TOTAL	13,543	13,776	14,006	1.64%

SOURCE: 2000, 2010 and 2020 Decennial Census

TOTAL POPULATION TOMPKINS COUNTY



SOURCE: 2010, 2020 Decennial Census. 2045 Population derived from linear projection based on annualized rate of growth from 1990 to 2020.

POPULATION TRENDS IN URBAN AND RURAL AREAS

CENSUS AREA	2010	2020	NUMERIC DIFFERENCE	PERCENT CHANGE
URBAN	53,661 52.83%	59,102 55.89%	5,441	10.14% ▲
RURAL	47,903 47.17%	46,638 44.11%	-1,265	-2.64% ▼
TOTAL	101,564	105,740	4,176	4.11%

SOURCE: 2010, 2020 Decennial Census.

A SUMMARY REVIEW OF TOTAL POPULATION:

- According to the data, the Tompkins County population has increased at a modest annual average rate of .38% over the last 30 years
- Population in 2020 was approximately 105,740
- Projected population for 2045 is 116,286
- The City of Ithaca and all of the Towns in the County, except Town of Ulysses which remains essentially unchanged, showed population increases over the last 30 years
- From 2010-2020 population growth focused in the Ithaca urbanized area of the county with marginal population decreases in some of the surrounding towns
- The bulk of the population increase since 2010 took place in the City and Town of Ithaca
- From 2010 to 2020 overall population in the six villages in Tompkins County showed a small increase. However, population gains were limited to the villages of Cayuga Heights, Lansing and Dryden.
- The County's population is 55.89% urban and 44.11% rural as of the 2020 Census
- The urban population increased 10.14%, while rural population decreased slightly by 2.64% over the 2010-2020 decade

PERSONS PER HOUSEHOLD IN TOMPKINS COUNTY

POPULATION			OCCUPIED HOUSEHOLDS			POPULATION CHANGE	HOUSEHOLD CHANGE	PERSONS PER HOUSEHOLD (excludes group quarters)		
2000	2010	2020	2000	2010	2020	2010-2020	2010-2020	2000	2010	2020
96,501	101,564	105,740	36,420	38,976	40,817	4,176 (3.95%)	1,841 (4.51%)	2.32	2.27	2.26

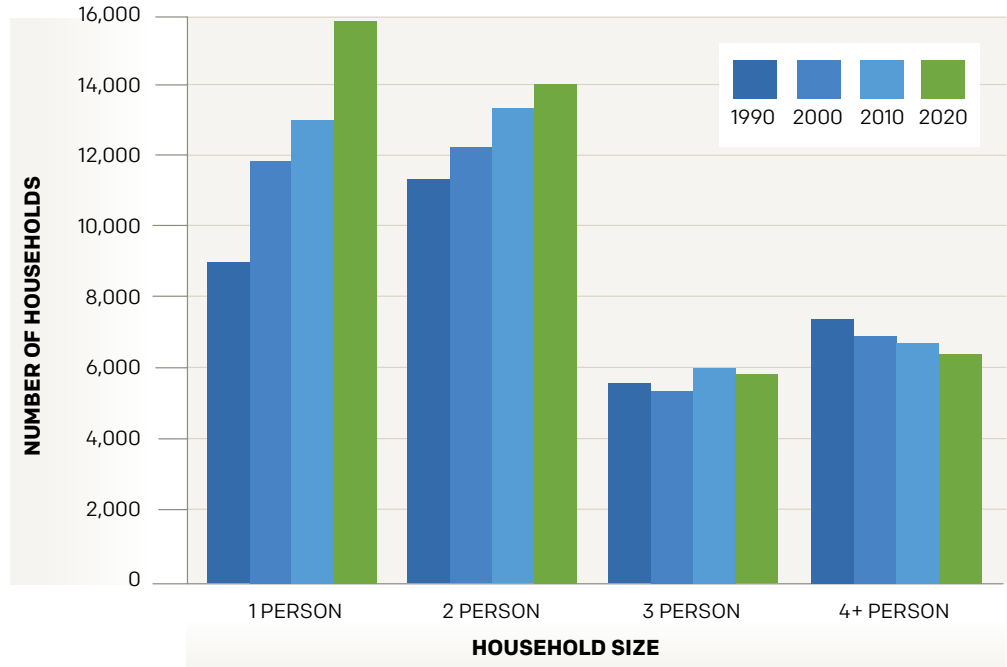
SOURCE: 2000 Census, 2010 Census, and 2020 Census

HOUSEHOLD SIZE

Persons per household figures are influenced by the large number of college students, group housing and rental housing units.

The number of 2 person households has shown continuous growth since 1990. One person households are the most numerous group.

HOUSEHOLD SIZE IN TOMPKINS COUNTY

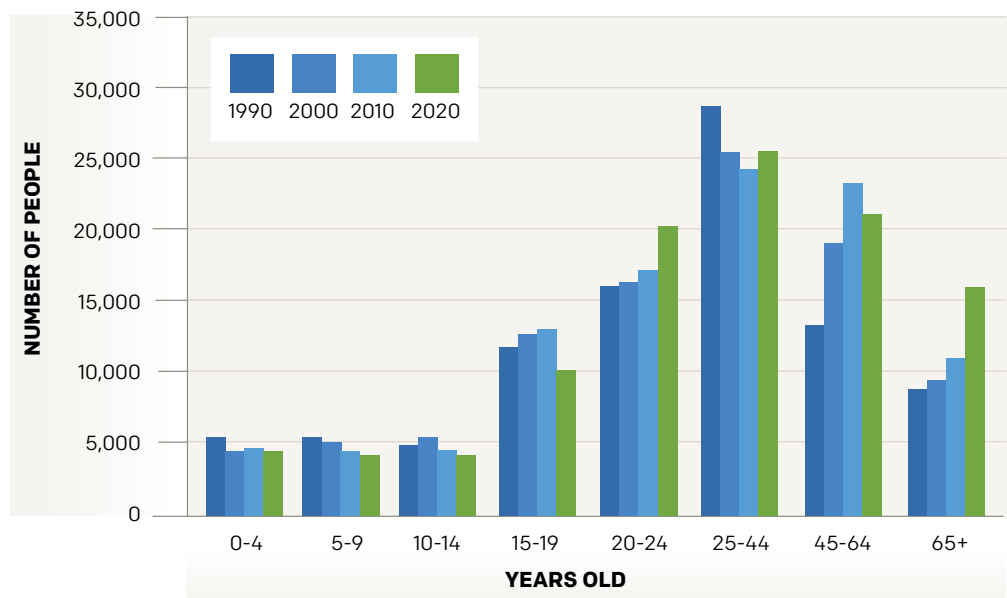


Source: 1990, 2000 Census, 2010, and 2020 Decennial Census

A SUMMARY REVIEW OF POPULATION BY AGE:

- Population of children 0-14 years of age remains relatively steady
- Population of persons 15-19 showed a reduction in 2020
- Population of persons 20-24 increased in 2020 at a higher rate than previous decennial measures
- Population 25-44 rebounded in 2020 after trending down from 1990 to 2010
- Populations age 65 and above show significant increases through 2020
- The population over 45 is projected grow into the future
- The figures in this table reflect the national trend towards an aging population (www.prb.org/aging-unitedstates-fact-sheet/)

AGE OF POPULATION IN TOMPKINS COUNTY



Source: 1990, 2000 Census, 2010, and 2020 Decennial Census

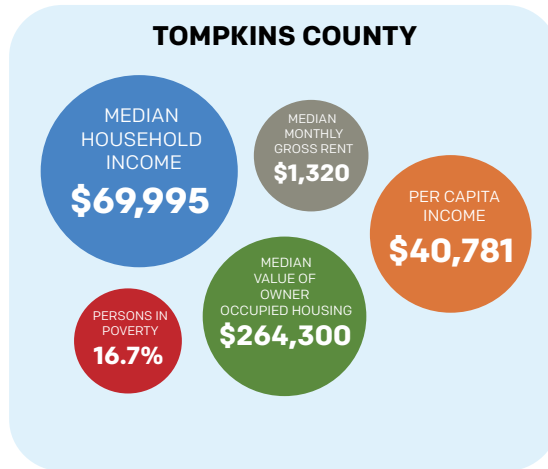
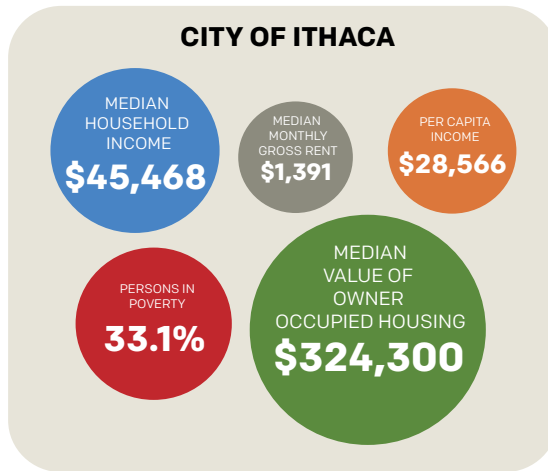
EMPLOYMENT AND ECONOMIC CHARACTERISTICS

Summary Review:

- Education is, by far, the leading employment sector in Tompkins County, followed by health services.
- The two principal employment centers in the county are Cornell University and Downtown Ithaca.
- Other important employment centers include:
 - Cayuga Medical Center;
 - Ithaca College/Therm, Inc./South Hill Business Campus;
 - Airport Area/BorgWarner, Inc./Cornell Business & Technology Park;
- The unemployment rate in Tompkins County is consistently one of the lowest in the State of New York, and yet there are still many pockets of poverty.
- The cost of living in Tompkins County is relatively high, affecting housing and transportation decisions.

Numerous factors, such as population increase, high demand for housing in the Ithaca Urban Area, and the disproportionate demand for rental units from college students have influenced the housing sector, creating increased demand and price pressure. Tight housing supply and high prices have pushed people out of urban areas, fueling sprawl and longer trip lengths, which disproportionately affect low income households. While this plan does not directly address issues of housing and high taxes, it is important to recognize the complex interactions between employment, economic and regulatory factors and the transportation sector.

BASIC ECONOMIC DATA



SOURCE: 2020 Decennial Census and 2022 5 Census American Community Survey (ACS)

EXTERNAL FACTORS AFFECTING TRANSPORTATION DEMAND



Gasoline prices

A small component of overall automobile cost but one that has a disproportionate impact on car use. The direct and recurring nature of this driving expense has a strong effect on driving habits.

Technology

Transportation systems across the US and the developed world have undergone significant changes in recent years. New technologies such as location-based tracking (GPS), reliable cellular networks, and secure online payment systems allow new players to enter the transportation marketplace, offering new mobility services that were not previously available.

Transportation Network Companies (TNC) such as Uber and Lyft provide on-demand mobility services. In many cities, TNC's are well established, making on-demand transportation a legitimate option for many who choose not to drive their personal vehicle. TNC services in Tompkins County are limited due to the small size of the market and rural nature of surrounding areas. New technologies and operation formats may allow greater penetration of TNCs in Tompkins County.

Other services such as car sharing (Ithaca Carshare), rideshare/carpooling and back-up/emergency ride home are facilitated by technology.

Meanwhile, micromobility services, both dock-based and smart dockless systems (including bike/e-bike and scooter-share), are rapidly growing and diversifying, reaching both major, densely-populated cities and smaller, less dense towns. Compared with traditional transit service, bike- and scooter-share use can be an affordable, on-demand alternative for short-distance trips. However, these services are not a feasible means of transportation for everyone and can be affected by trip length, weather conditions, topography, and the availability of safe cycling infrastructure.

National policies

National and State directives and resources (funding) can help shape demand through access to different modes of transportation. Having available safe, convenient options allows travelers to select modes that best match their needs. A diversified transportation system is more resilient, and less energy and fossil fuel intensive.

Economic fluctuations

Changes in economic factors (ie. unemployment rates, inflation rates, etc.) can dramatically affect decision-making down to the household level. Transportation is often one of the major household expenses, and also an important consideration of public and private businesses and organizations. Transportation decisions are directly impacted by fluctuations in economic parameters.

GENERAL TRAVEL TRENDS AND CHARACTERISTICS

Data

This section presents cell phone location generated data from Replica data services. The data is representative of an average day in 2023. The data include information specific to the Ithaca-Tompkins area. Where appropriate, national and New York State data is presented in addition to Tompkins County figures. The data provides a starting point for the analysis of general travel trends and characteristics in the greater Ithaca-Tompkins County area.

Person Trips by Trip Purpose

Work based trips are most responsible for peak hour traffic trends by the way they cluster in the mornings and evenings. Because these trips are concentrated in a specific period of time and along certain corridors, work trips are responsible for much of the local daily congestion. For this reason, they receive much of the attention of planners and engineers seeking to address congestion at peak times. However, the bulk of trips on our roadways (approximately 87%) are not work related. They are the social, recreational, shopping, home bound and other trips that are common in everyday life. These trips also need to be considered when determining travel trends and characteristics.

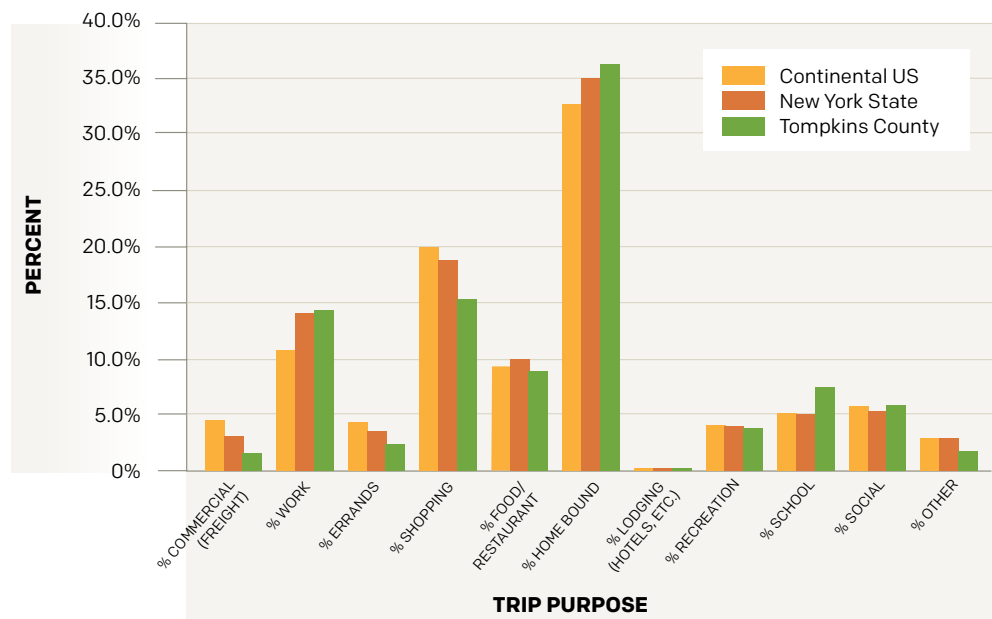


PERSON TRIPS PER DAY BY TRIP PURPOSE 2022

TRIP PURPOSE	CONTINENTAL US	NEW YORK STATE	TOMPKINS COUNTY
% COMMERCIAL (FREIGHT)	3.97%	2.84%	1.96%
% WORK	11.30%	13.37%	13.71%
% ERRANDS	4.26%	3.56%	3.06%
% SHOPPING	19.95%	18.40%	15.65%
%FOOD/RESTAURANT	9.39%	9.61%	8.60%
% HOME BOUND	32.72%	34.47%	36.90%
% LODGING (HOTELS ETC.)	0.79%	0.38%	0.48%
% RECREATION	3.37%	3.75%	3.56%
% SCHOOL	5.13%	5.35%	7.22%
% SOCIAL	6.32%	5.80%	6.70%
% OTHER	2.80%	2.47%	2.17%

SOURCE: 2022 Replica Data

PERSON TRIPS PER DAY BY TRIP PURPOSE 2022



SOURCE: 2022 Replica Data

**PERSON TRIPS PER DAY BY MODE OF TRANSPORTATION:
2019 AND 2022 ESTIMATES**

TRIP MODE	UNITED STATES		NEW YORK STATE		TOMPKINS COUNTY	
	2019	2022	2019	2022	2019	2022
PRIVATE AUTO	80.22%	81.78%	59.56%	63.76%	66.69%	68.72%
WALKING	10.19%	10.16%	17.07%	17.97%	22.51%	23.30%
PUBLIC TRANSIT	2.06%	1.19%	16.99%	12.17%	4.88%	2.50%
COMMERCIAL VEHICLE (FREIGHT)	4.39%	3.97%	2.90%	2.84%	2.08%	1.96%
OTHER	1.57%	1.51%	1.27%	1.15%	1.48%	1.36%
BIKING	1.18%	1.00%	0.86%	0.77%	1.70%	1.34%
TAXI/TNC	0.40%	0.40%	1.36%	1.34%	0.67%	0.81%

NOTE: 'Other' includes trips whose mode went undetected & the U.S. data includes figures from the lower 48 states; Hawaii and Alaska are not included. SOURCE: 2019 and 2022 Replica data

Person Trips by Mode of Transportation

- Data on the Trips by Mode table include all trips types.
- Use of Private Vehicles as a percentage of trips per day in Tompkins County is significantly lower than national figures and slightly higher than NY state.
- State figures for private vehicle use are relatively low thanks to the influence of New York City and its extraordinary transit use levels.
- Walking as a mode of transportation continues to be a significant mode in Tompkins County, with a higher proportion of trips than NY state and national figures.
- Public Transit use (transit plus paratransit ridership), as a percent of total daily trips, in Tompkins County was above the national average . NY state transit data are way above average due to the high public transportation use levels in the New York City area.
- Public Transit ridership figures show reductions from 2019 to 2022 which can be attributed to the COVID pandemic. Every effort is being made to reach and surpass pre-pandemic use levels.
- Overall the 4.88% share of Public Transit is relatively low and is an mode that could grow, particularly outside the rush hour periods.
- Bicycling use estimate is higher than national and state figures. However, at 1.34% of all trips there is still opportunity to expand cycling's mode share – see the Trip Length by Trip Mode table for more information.



TRIP LENGTH BY TRIP MODE IN TOMPKINS COUNTY NY 2023

DISTANCE	TRIP MODE, DERIVED							TOTAL TRIPS	% OF ALL TRIPS BY DISTANCE	% TRIPS BELOW DISTANCE
	WALK	BICYCLE	ALL PRIVATE VEHICLES**	TAXI/TNC	COMMERCIAL VEHICLE	PUBLIC TRANSIT	OTHER***			
LESS THAN .5 MILES*	31,802	1,229	9,231	99	584	8	3,088	46,041	11.7%	11.7%
.5-1 MILE	22,439	1,186	20,511	876	645	412	0	46,069	11.7%	23.3%
1-2 MILES	27,322	1,574	39,561	1,380	984	2,718	14	73,553	18.6%	42.0%
2-4 MILES	8,796	1,940	60,357	1,298	1,171	2,729	183	76,474	19.4%	61.3%
4-8 MILES	91	1,171	68,260	763	1,540	1,887	86	73,798	18.7%	80.0%
8-16 MILES	1	373	68,285	250	1,324	629	77	70,939	18.0%	98.0%
16-32 MILES	6	5	7,645	37	149	81	2	7,925	2.0%	100.0%
32-64 MILES	0	0	21	0	0	0	0	21	0.0%	100.0%
ALL TRIPS	90,457	7,478	273,871	4,703	6,397	8,464	3,450	394,820		
	22.9%	1.9%	69.4%	1.2%	1.6%	2.1%	0.9%	100%		

*Note: Trip distance in miles, collected from cellphone data
 ** "Private Vehicles" includes Cars, SUVs, Vans, Pickup Trucks, RVs and Motorcycles
 *** "Other" includes Paratransit, Private Bus, Limo/Uber/Lyft, and Rental Car
 Source: 2023 Replica Data Platform Data

Trip Length by Mode

- Trip length is an important factor to help determine feasible transportation mode options.
- Short trips, less than 2 miles, may be accommodated by walking, bicycling and other personal mobility options. They present the best opportunity to shift trips from personal motor vehicles.
- 69% of trips less than half a mile are completed by walking; 20% of these short trips use private vehicles.
- Overall, 1.9% of all trips are on bicycle.
- 42% of all trips are less than 2 miles in length. Of these, 49% are completed by walking; only 2.4% by bicycle; and 42% by private vehicle.
- 61.3% of all trips are less than 4 miles in length. Of these, 37.3% are completed by walking; only 2.5% by bicycle; and 53.5% by private vehicle. More specifically, 54% of trips 1-2 miles and 78% of trips 2-4 miles use private vehicles. These short trips represents the best opportunity to move trips to walking, bicycling or transit.
- Shifting private vehicle trips to more efficient modes will require the expansion of enhanced or new dedicated, safe, convenient and accessible infrastructure for bicycling, walking and transit.

Short trips present the best opportunity to move trips from automobile use to walking, bicycle, shared transportation and transit.



COMMUTING

The work commute is an important daily ritual with wide ranging economic, environmental, safety and life style implications. Although work trips constitute approximately 15% of all trips, the fact that they are clustered and repetitive creates a ‘rush hour’ which may lead to congestion and reduced safety in the transportation system. Location of employment relative to housing will help dictate what are the options for workers to get to work. Having housing near jobs provides greater accessibility and makes walking, bicycling and transit more convenient for commuters. Longer trips are more likely to be private motor vehicle dependent. For those, carpooling is a viable option, and in some instances where demand is high, there may be transit options available.

Regional Commuting Patterns

- Tompkins County is a net labor importer - more workers come into Tompkins County to work from neighboring counties than the number of Tompkins County residents who travel to work outside the county.
- The total number of persons working within Tompkins County is approximately 60,763, while the number of persons that live and work in Tompkins County is only 45,028.
- Approximately 15,735 (25.8%) of all workers in Tompkins County commuted from more than nine other counties.
- Approximately 4,580 (9.2%) of Tompkins County’s resident workers commuted out of the county for work in 2020.
- The total net number of in-commuters is 11,155.
- Tioga County contributed the greatest number of workers to Tompkins County (3,314) followed closely by Cortland County (3,309); while Cortland County received the most workers (1,423) from Tompkins County.
- The data patterns described above have been noticeable since the 1980 Census. This provides strong and persistent evidence of Tompkins County as a regionally important center of economic activity.
- The mode of transportation used to get to work varies significantly for commuters within the county vs. in-commuters from other counties. 54.3% of commuters within the county drive alone, whereas approximately 84% of in-commuters drive alone. (The 84% figure is based on historic mode split data; more recent data is not available.)
- Within Tompkins County workers who live in rural areas have less options for the commute to work due to longer trip distances and reduced or no transit and shared transportation options.
- Out-of-county public transportation connections currently exist to Cortland and Chemung Counties. However, these are limited and focus on morning and evening rush hours to principal employment centers (Cornell and Downtown Ithaca). Few options exist for workers outside the conventional 6:00AM to 8:00PM work day cycle.
- TCAT service is extensive in the Ithaca urbanized area but significantly more limited in the rural areas. Service focuses on morning and evening rush hour travel.

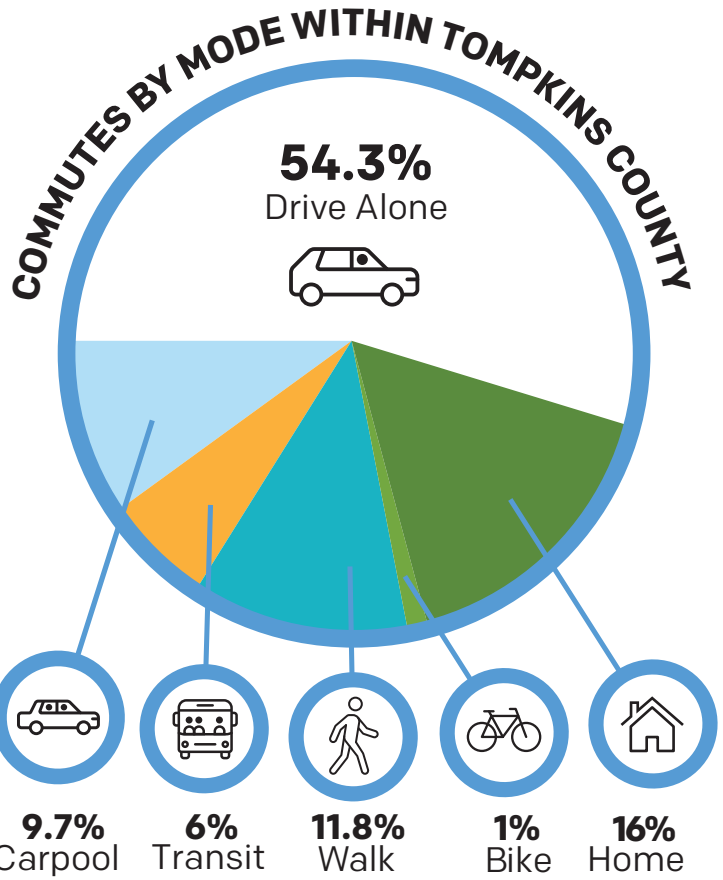
TOMPKINS COUNTY REGIONAL COMMUTING PATTERNS

COMMUTING PATTERNS	TOTAL 2020
A. TOTAL DAILY WORKERS IN TOMPKINS COUNTY (C+F)	60,763
B. TOTAL WORKERS WHO LIVE IN TOMPKINS COUNTY (C+D)	49,608
C. WORKERS WHO LIVE AND WORK IN TOMPKINS COUNTY (B-D)	45,028
D. TOTAL OUT COMMUTERS (B-C)	4,580
E. TOTAL IN COMMUTERS (A-C)	15,735
F. NET COMMUTERS (D-E)	11,155
PERSONS LIVING IN TOMPKINS COUNTY AND WORKING IN:	
TOMPKINS COUNTY	45,028
BROOME COUNTY	198
CAYUGA COUNTY	365
CHEMUNG COUNTY	508
CORTLAND COUNTY	1,423
ONONDAGA COUNTY	233
SCHUYLER COUNTY	234
SENECA COUNTY	98
STEBEN COUNTY	238
TIOGA COUNTY	305
OTHER	978
PERSONS WORKING IN TOMPKINS COUNTY AND LIVING IN:	
TOMPKINS COUNTY	45,028
BROOME COUNTY	611
CAYUGA COUNTY	2,189
CHEMUNG COUNTY	1,266
CORTLAND COUNTY	3,309
ONONDAGA COUNTY	484
SCHUYLER COUNTY	1,782
SENECA COUNTY	1,238
STEBEN COUNTY	189
TIOGA COUNTY	3,314
OTHER	1,353

Source: 2022 5 American Community Survey (ACS)

TOMPKINS COUNTY COMMUTER FLOW

45,028
live & work in TC

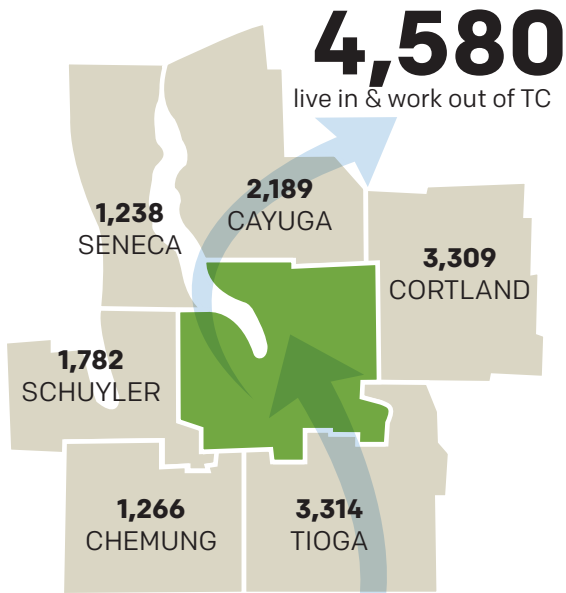


54.3% drive alone commutes

Source: 2022 5 Yr American Community Survey (ACS)



7% outbound commute increase since 2016



4,580
live in & work out of TC

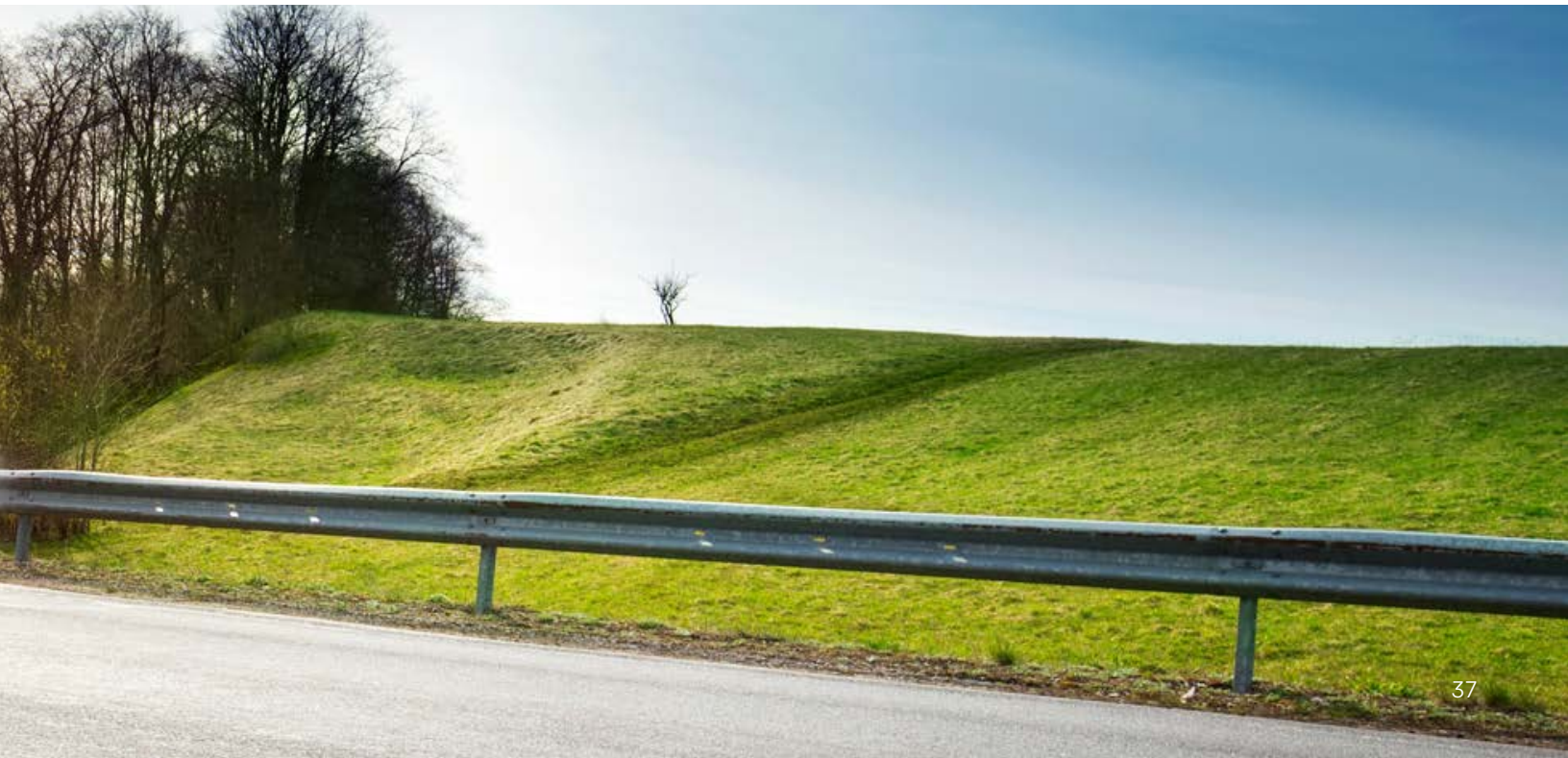
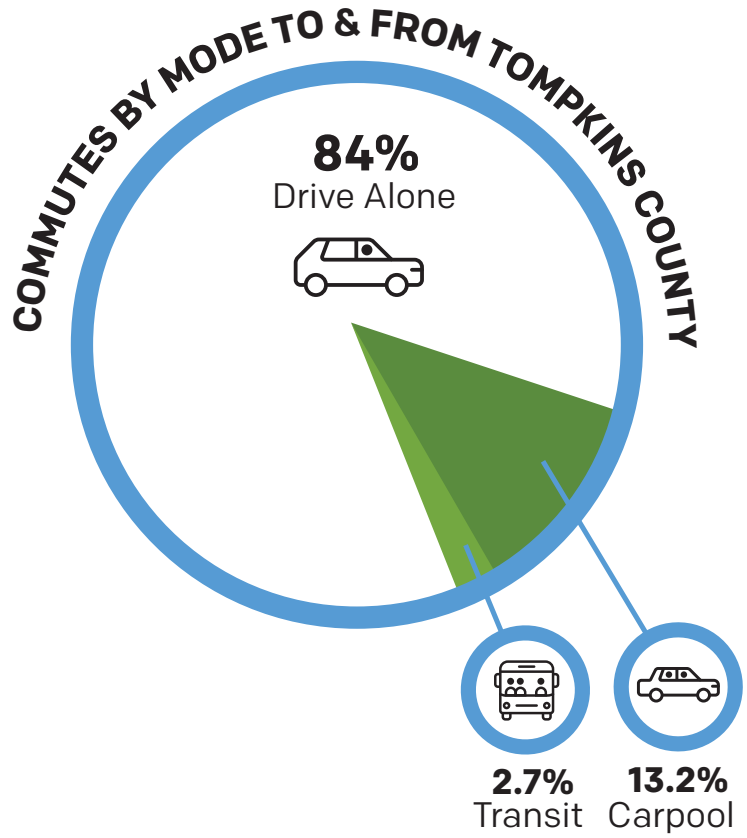
.6% inbound commute increase since 2013

15,735

live out of county & work in TC

84% drive alone commutes

Source: 2022 5 Yr American Community Survey (ACS)



HOW PEOPLE GET TO WORK – COMMUTE MODE

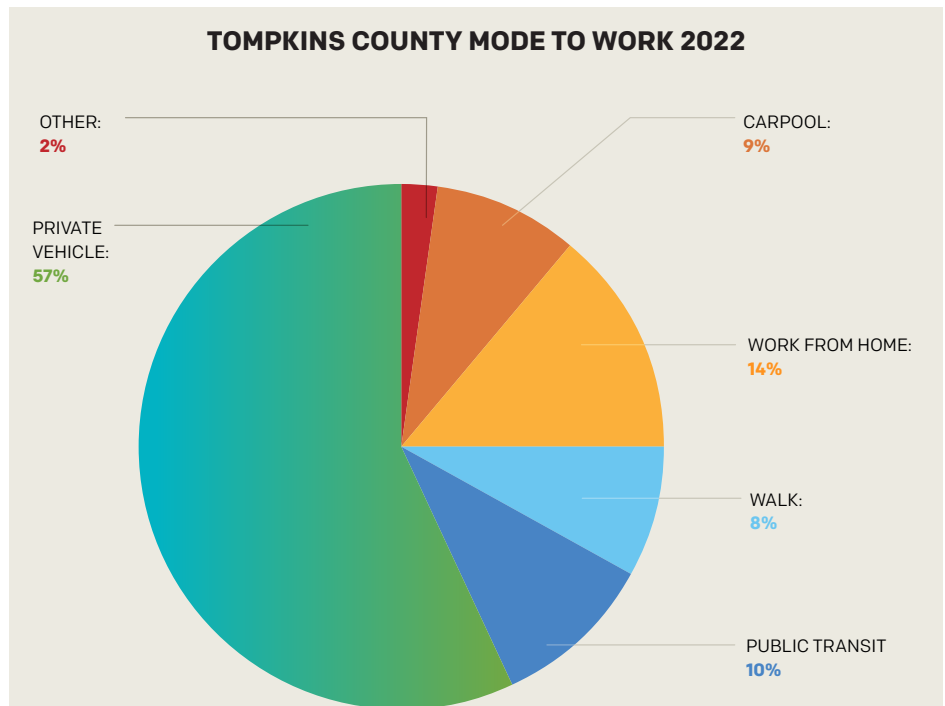
Knowing what mode of transportation is used to get to work is useful to help understand how people travel and what opportunities exist to provide commuters with safer, more economical and convenient options for their travels. This information can also be used to determine potential current and future demand for bicycle and pedestrian facilities, ridesharing (carpooling) programs, transit service, and other facilities.

The desired trend is to decrease the percentage of drive alone vehicles. Drive alone trips will need to be reduced significantly over the next 20 years to meet the 80% reduction in carbon emission goal established in the Tompkins County Comprehensive Plan and to manage congestion in the transportation system (www.tompkinscountyny.gov/planning/energy-greenhouse-gas).

While it may seem that the recommendations of this Plan place an unusually high emphasis on transit, ridesharing (carpool), bicycle and pedestrian strategies and investments, consider that Tompkins County is already benefiting from lower car dependency for the trip to work. When combined into a category termed by some as “alternative modes of transportation”, transit, ridesharing/carpool, pedestrian and bicycle trips account for the following percentages of work trips in 2022: 16.6% for the U.S., 37.9% for New York State, and 29.5% for Tompkins County (the figures for New York State are skewed by the disproportionately large participation in public transportation in the New York City metro area). Regardless, the 29.5% figure for Tompkins County, which does not include those 13.7% of workers that work at home, is almost twice the national average. This figure indicates that a significant number of trips are taking place by moving more people in fewer vehicles, or better yet without motor vehicles. These are enviable figures compared to many other urbanized areas but, clearly, there is room for improvements as Tompkins County strives to reduce carbon emissions and fossil fuel use, manage congestion and provide more equitable transportation options. To meet those goals the Tompkins County transportation system must be ready to accommodate and encourage increased use of transit, ridesharing (carpool), vanpooling, bicycling and walking not just for work based trips, but for all trip needs, i.e. family and personal business, social/recreational, educational. The non-drive alone alternative modes contribute to increased transportation system efficiency - i.e. transportation with reduced negative impacts. Programs like vanpools, car sharing, guaranteed/back-up ride home, employee incentives, etc. can also contribute to shifting travelers to non-drive alone modes.

The tables below and on the next page provides information on the distribution of the work trips by mode of transportation for each town and village in Tompkins County. This table gives a good indication of where the largest numbers of users for each mode are located.

- 57% of Tompkins County’s workforce drove alone to work, a 4% reduction from 2017 figures, due mostly to the jump in work from home and an increase in public transit.
- Non-drive alone modes of transportation to work:
 - 9% rideshare (carpool)
 - 8% walk to work
 - 10% use public transportation
 - 2% Other (includes bicycling)
 - 14% working at home
- The walking to work percentage for Tompkins County (14.2%), the City of Ithaca (28%) and the Town of Ithaca (12%), including the Village of Cayuga Heights (13%), are all substantially higher than the national (2.4%) and state (5.7%) averages.
- The bulk of people who walk to work are in the City and Town of Ithaca (including the Village of Cayuga Heights), illustrating the transportation efficiency of the urban form.



MEANS OF TRANSPORTATION TO WORK 2022

CIVIL DIVISION	DRIVE ALONE	ROW %	CARPOOL	ROW %	PUBLIC TRANSPORTATION	ROW %	BICYCLE	ROW %	WALK	ROW %	WORK AT HOME	ROW %	TAXI, MCYCLE, OTHER	ROW %	TOTAL
TOWN OF CAROLINE	1,275 4.86%	68.4%	229 4.89%	12.3%	13 0.45%	.7%	0 0.00%	0.0%	18 0.32%	1.0%	328 4.23%	17.6%	0 0.00%	0.0%	1,863 3.86%
TOWN OF DANBY	1,342 5.12%	82.8%	149 3.18%	9.2%	0 0.00%	0.0%	0 0.00%	0.0%	19 0.33%	1.2%	111 1.43%	6.8%	0 0.00%	0.0%	1,621 3.36%
TOWN OF DRYDEN	4,354 16.61%	65.5%	976 20.85%	14.7%	146 5.00%	2.2%	49 9.72%	0.7%	337 5.90%	5.1%	745 9.62%	11.2%	43 8.83%	0.6%	6,650 13.78%
TOWN OF ENFIELD	1,207 4.60%	80.4%	66 1.41%	4.4%	0 0.00%	0.0%	0 0.00%	0.0%	98 1.72%	6.5%	112 1.45%	7.5%	19 3.90%	1.3%	1,502 3.11%
TOWN OF GROTON	2,335 8.91%	86.7%	90 1.92%	3.3%	11 0.38%	0.4%	5 .99%	0.2%	53 0.93%	2.0%	162 2.09%	6.0%	37 7.60%	1.4%	2,693 5.58%
CITY OF ITHACA	3,970 15.14%	27.5%	948 20.25%	6.6%	1687 57.75%	11.7%	234 46.43%	1.6%	3,998 69.97%	27.7%	3,356 43.33%	23.2%	250 51.33%	1.7%	14,443 29.92%
TOWN OF ITHACA	4,214 16.08%	49.8%	833 17.80%	9.8%	636 21.77%	7.5%	97 19.25%	1.1%	981 17.17%	11.6%	1,594 20.58%	18.8%	110 22.59%	1.3%	8,465 17.54%
TOWN OF LANSING	3,986 15.21%	63.7%	881 18.82%	14.1%	368 12.60%	5.9%	119 23.61%	1.9%	108 1.89%	1.7%	787 10.16%	12.6%	7 1.44%	0.1%	6,256 12.96%
TOWN OF NEWFIELD	1,997 7.62%	77.5%	246 5.26%	9.5%	24 0.82%	0.9%	0 0.00%	0.0%	59 1.03%	2.3%	252 3.25%	9.8%	0 0.00%	0.0%	2,578 5.34%
TOWN OF ULYSSES	1,534 5.85%	69.9%	263 5.62%	12.0%	36 1.23%	1.6%	0 0.00%	0.0%	43 0.75%	2.0%	299 3.86%	13.6%	21 4.31%	1.0%	2,196 4.55%
TOMPKINS COUNTY	26,124	54.3%	4,681	9.7%	2,921	6.1%	504	1.0%	5,714	11.8%	7,746	16.0%	487	1.0%	48,267
NEW YORK STATE		50.52%		6.33%		23.36%		0.76%		5.69%		11.59%		1.74%	100%
NATIONAL US		71.67%		8.54%		3.79%		0.46%		2.43%		11.69%		1.41%	100%

Source: Census: 2022 5 American Community Survey. Percentages may not add to 100% due to rounding.
 Note: Row percentages are provided to the right of the numeric entry, while column percentages appear below the number (% of total individual modal share for Tompkins County total)
 Note: Village population statistics are included as part of respective Town totals

CIVIL DIVISION	DRIVE ALONE	ROW %	CARPOOL	ROW %	PUBLIC TRANSPORTATION	ROW %	BICYCLE	ROW %	WALK	ROW %	WORK AT HOME	ROW %	TAXI, MCYCLE, OTHER	ROW %	TOTAL
VILLAGE OF CAYUGA HEIGHTS	556 2.12%	34.3%	298 6.37%	18.4%	270 9.24%	16.7%	43 8.53%	2.7%	216 3.78%	13.3%	213 2.75%	13.1%	25 5.13%	1.5%	1,621 3.36%
VILLAGE OF DRYDEN	506 1.93%	63.1%	116 2.48%	14.5%	26 0.89%	3.2%	9 1.79%	1.1%	0 0.00%	0.0%	123 1.59%	15.3%	22 4.52%	2.7%	802 1.66%
VILLAGE OF FREEVILLE	148 0.56%	66.1%	40 0.85%	17.9%	5 0.17%	2.2%	0 0.00%	0.0%	5 0.09%	2.2%	24 0.31%	10.7%	2 0.41%	0.9%	224 0.46%
VILLAGE OF GROTON	801 3.06%	80.5%	47 1.00%	4.7%	11 0.38%	1.1%	5 0.99%	0.5%	39 0.68%	3.9%	77 0.99%	7.7%	15 3.08%	1.5%	995 2.06%
VILLAGE OF LANSING	1,043 3.98%	45.6%	516 11.02%	22.5%	326 11.16%	14.2%	101 20.04%	4.4%	50 0.88%	2.2%	253 3.27%	11.1%	0 0.00%	0.0%	2,289 4.74%
VILLAGE OF TRUMANSBURG	401 1.53%	64.1%	12 0.26%	1.9%	36 1.23%	5.8%	0 0.00%	0.0%	23 0.40%	3.7%	133 1.72%	21.2%	21 4.31%	3.4%	626 1.30%
TOMPKINS COUNTY	26,214	54.3%	4,681	9.7%	2,921	6.1%	504	1.0%	5,714	11.8%	7,746	16.0%	487	1.0%	48,267
NEW YORK STATE		50.52%		6.33%		23.36%		0.76%		5.69%		11.59%		1.74%	100%
NATIONAL US		71.67%		8.54%		3.79%		0.46%		2.43%		11.69%		1.41%	100%

Source: Census: 2022 5yr American Community Survey. Percentages may not add to 100% due to rounding.
 Note: Row percentages are provided to the right of the numeric entry, while column percentages appear below the number (% of Tompkins County total)

Vehicle Population

- The number of personal vehicles registered in Tompkins County increased steadily from 1998 to 2011. The data showed a reduction in 2017, but the numbers rebounded by 2023 to their highest level.
- The great majority of registered vehicle are personal vehicles (cars, SUV, vans, pickup trucks).

Vehicles per Household

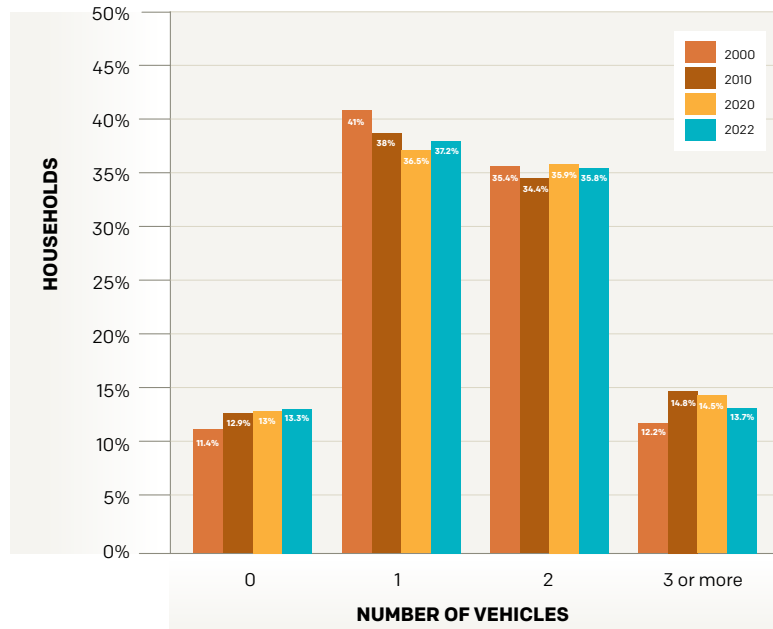
- Percentage of zero vehicle households is the only category to increase for every data period. This may be influenced the number of college student households.
- The percentage of three vehicle households has been decreasing since 2010.
- The percentage of one vehicle households has an overall decreasing trend.

TOTAL VEHICLE REGISTRATIONS IN TOMPKINS COUNTY

YEAR	PERSONAL VEHICLES	COMMERCIAL VEHICLES	TRAILERS	MOTORCYCLES	MOPEDS	AMBULANCE	FARM	TOTAL
1998	44,829	10,643	2,561	1,535	107	9	53	59,737
2000	47,182	10,733	2,903	1,592	88	9	57	62,564
2003	49,042	9,442	2,480	1,915	94	9	52	63,034
2007	50,985	8,136	2,918	2,466	146	13	63	64,727
2011	51,695	7,198	3,099	2,984	150	14	92	65,232
2017	48,515	6,078	1,751	2,817	98	13	205	59,477
2023	52,210	6,226	4,221	2,359	63	15	151	65,245

Source: New York State Department of Motor Vehicles – Statistics

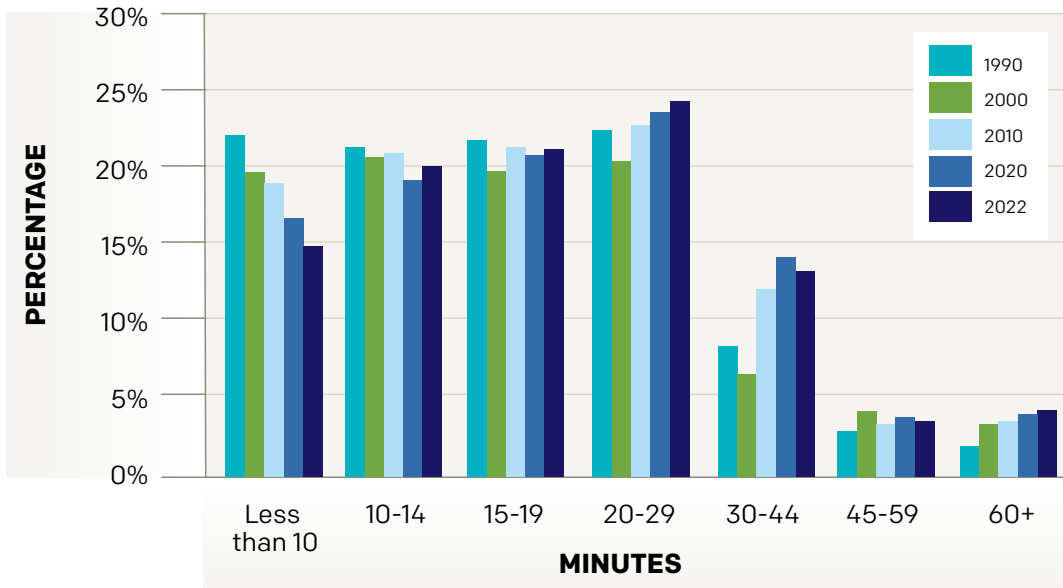
NUMBER OF VEHICLES PER HOUSEHOLD TOMPKINS COUNTY NY



SOURCE: 2000 & 2010 Decennial Census and 2020 & 2022 5 Yr American Community Survey

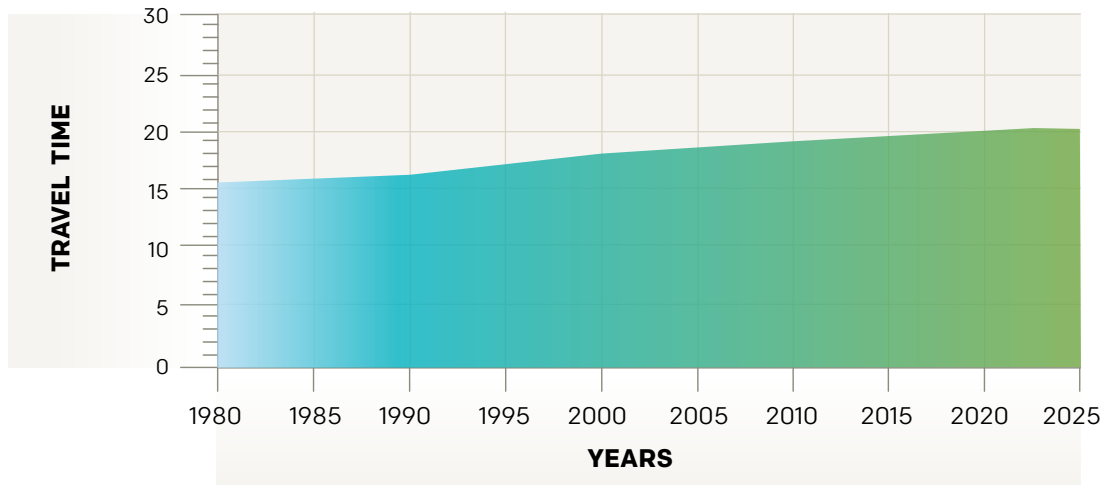


TRAVEL TIME TO WORK (WORKERS AGE 16+, NOT WORKING AT HOME)



Source: 1990, 2000 Decennial Census and 2010, 2020, and 2022 5 Yr American Community Survey

MEAN TRAVEL TIME TO WORK (WORKERS AGE 16+, NOT WORKING AT HOME)



Source: Census 1980-2000 Decennial Census and 2010 & 2020 5 Yr American Community Survey

Travel Time to Work

- Travel time to work is a function of the time, speed, and distance of the average trips, in a given study area. The Census gathers data on travel time to work as part of its Journey-to-Work effort. As explained before, the Journey-to-Work data is of importance to transportation planning because of its impact on the peak travel period.
- The most significant percentage increase in travel time is in the 20-29 minute trip interval
- The percentage of shorter trips (less than 10 min.) has been decreasing steadily since 1990.
- Percentage of 30-44 minute trips increased every decennial census since 2000. The total number of these trips is significantly less than trips below 30 min.
- The mean travel time to work has been continually increasing since 1980 (15.7 min.) with the 2022 estimate (20.2 min.) surpassing 20 minutes for the first time.

Traffic Accidents

- Despite the continued increase in the number of vehicles registered, number of licensed drivers, and the amount of vehicle miles of travel, the number of crashes in all categories is flat or declining, while the rate of crashes is declining.
- Many factors may interact to explain the decreasing rates of crashes and fatalities:
 - improved safety design for cars and highways
 - promotion of safety belt, child safety seat, and motorcycle helmet use
 - measures to discourage drunk driving and distracted driving
 - better and prompter medical attention for victims of transportation crashes and accidents

The NY State Department of Transportation has an automated traffic crash reporting system called Crash Location & Engineering Analysis & Reporting (CLEAR), which provides crash data for Tompkins County. (This system replaced the previously used Accident Location Information System-ALIS). The ITCTC produces crash summary reports that are available in the agency’s website – www.tompkinscountyny.gov/itctc/statistics.

TRAFFIC CRASHES IN TOMPKINS COUNTY 2008-2023

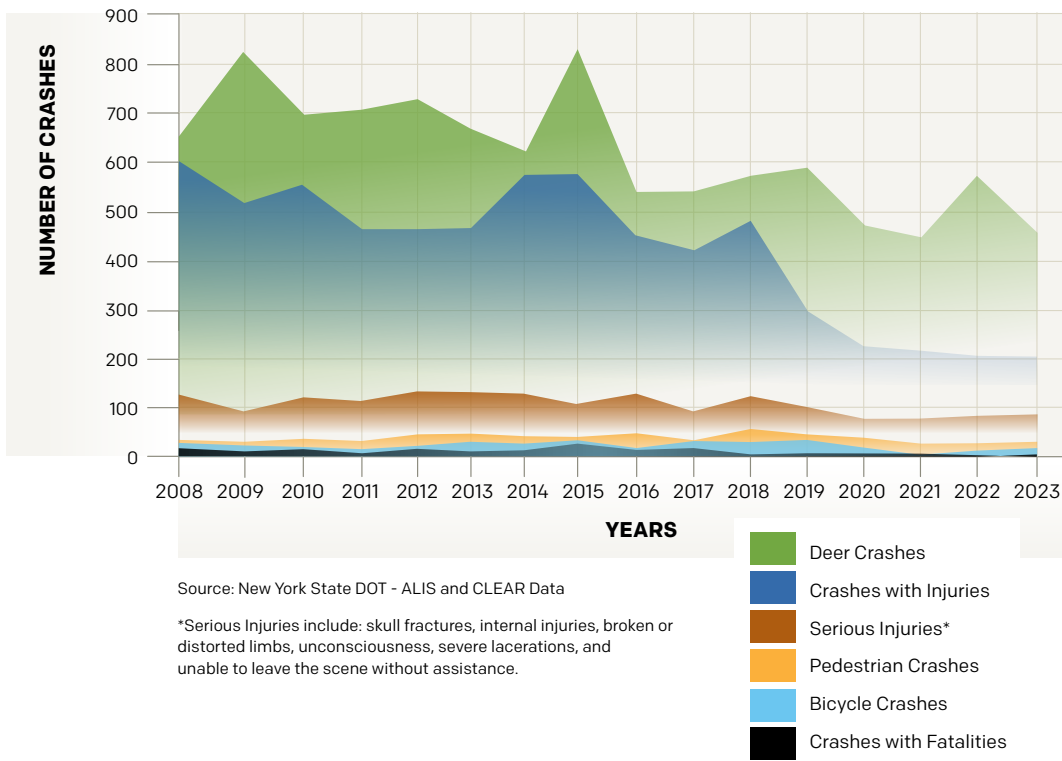
YEAR	TOTAL CRASHES	BICYCLE CRASHES	PEDESTRIAN CRASHES	DEER CRASHES	CRASHES WITH INJURIES	SERIOUS INJURIES*	CRASHES WITH FATALITIES
2008	3,418	28	39	652	600	121	9
2009	3,422	25	32	820	515	99	7
2010	3,563	23	36	698	564	110	11
2011	3,508	17	32	700	478	106	6
2012	3,322	20	42	721	478	119	12
2013	3,516	24	39	673	479	123	6
2014	3,391	22	35	619	589	130	6
2015	4,170	26	34	834	589	101	20
2016	3,393	15	39	562	469	130	10
2017	3,051	23	20	550	413	94	7
2018	3,514	22	51	574	490	117	3
2019	3,295	24	36	578	305	96	7
2020	2,343	15	29	468	234	68	6
2021	2,550	6	24	453	231	70	9
2022	2,505	20	26	564	214	74	3
2023	2,590	21	31	462	207	76	8

Source: New York DOT - Accident Location Information System (ALIS) and CLEAR Data

*Serious Injuries include: skull fractures, internal injuries, broken or distorted limbs, unconsciousness, severe lacerations, and unable to leave the scene without assistance.

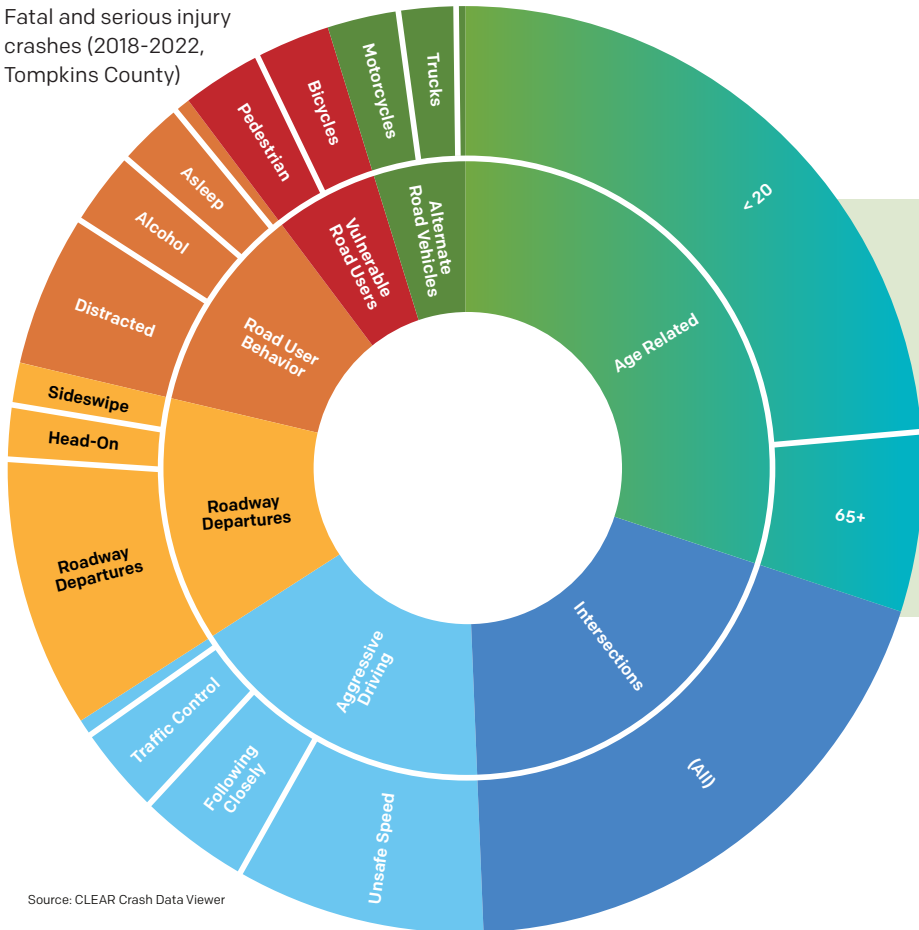


TRAFFIC CRASHES IN TOMPKINS COUNTY 2008-2023



CRASH FACTORS

Fatal and serious injury crashes (2018-2022, Tompkins County)



Crash Factors resulting in death or serious injury:

- Age: particularly young drivers, under 20 years old.
- Aggressive driving: particularly speeding.
- Behavior related: distracted, alcohol related, asleep.
- Crash type/location: roadway departures and at intersections.

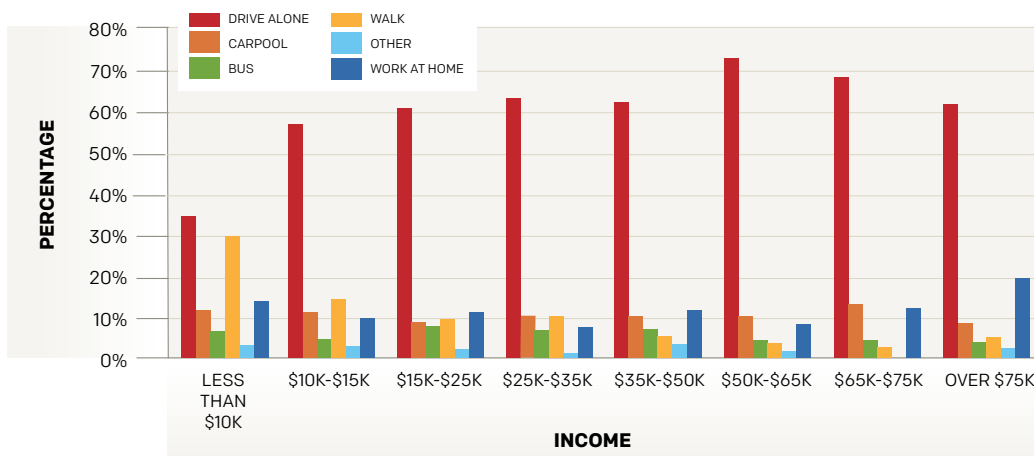
Source: CLEAR Crash Data Viewer

Equity in Transportation

Another important dynamic is the multimodal nature of the work commute for minority and low income populations. These populations are more dependent on modes other than the privately owned vehicle for the critical 'trip to work'. The ability to have a dependable commute to work is essential for workers in low and moderate income households to retain their employment. This speaks strongly to the equity impacts of transportation decisions.

- Minority populations use transit, walk and carpool at a much higher rate than white (nonhispanics) for their work based trip.
- Minority populations also bike and carpool at a higher rate for their work based trip.
- A similar pattern for low income households. Although drive-alone is the dominant mode at all income levels, the lower income households are more dependent on other modes to help them get to work.

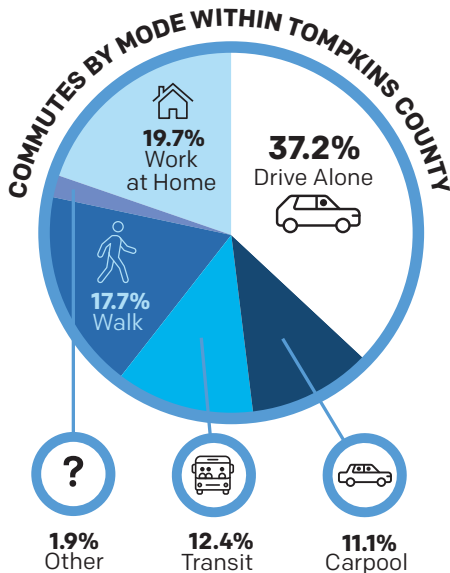
HOUSEHOLD INCOME BY MODE TO WORK – TOMPKINS COUNTY NY 2022



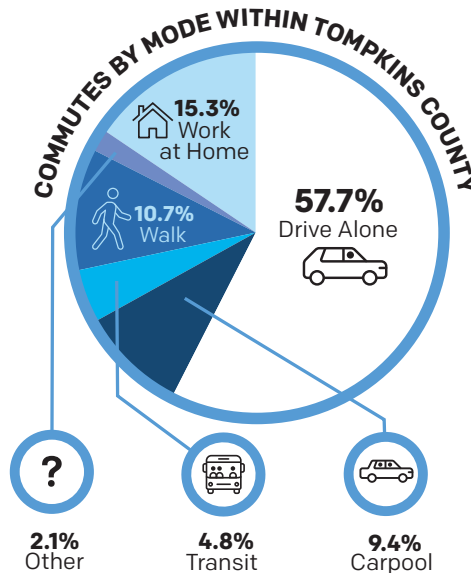
Source: 2022 5 YR ACS DATA

COMMUTE MODE WITHIN TOMPKINS COUNTY 2022

MINORITY POPULATION



WHITE POPULATION



Source: 2022 5 Yr ACS DATA

Transportation Equity Needs Assessment

In 2020, public and private organizations that contribute to local transportation services formed the Tompkins County Transportation Equity Coalition. The Coalition meets regularly to understand and address factors that affect access to safe, efficient transportation for Tompkins County residents, particularly those from under served communities.

In order to gather valuable input from our communities, the Coalition conducted a county-wide needs assessment throughout 2022 and 2023.

The results are now available at CCEtompkins.org/TENA.

The goals of these outreach efforts were to:

- Understand the strengths and weaknesses of the county transportation system;
- Focus on the experience of the under served;
- Provide under served residents the opportunity to contribute to transportation research and decision making; and
- Provide a framework for developing and identifying transportation services and solutions that will support and nurture the Tompkins County community

Who Was Included?

By design, outreach around the survey was to reach Tompkins County residents and transportation users identified as “underserved.” This included those who self-identified as under 17 years old or 55+; LGBTQI+; Black, Indigenous, People of Color (BIPOC); Hispanic/Latino/Latina/Latinx; with limited English proficiency; having a fixed/low/no income; without a car/restricted license; having a physical or mental disability or impairment; or living in a rural area.

KEY FINDINGS

Connectivity

- Most common mode of transportation: personal vehicle; unsurprisingly most did not find it hard to get around Tompkins County.
- Over 20% of the low-income underserved said getting around the County is “hard” or “very hard.”

Strengths

- For underserved low-income — Bus (TCAT) works best (44%).
- In comments however, where respondents mentioned barriers, almost half discussed barriers within TCAT.

Barriers

- For low-income underserved, the top difficulties were “no buses when needed” (46%), and “no car/can’t drive” (33%).
- Underserved, low-income respondents were almost twice as likely to report experiencing discrimination as their not underserved counterparts.

Effects of Barriers

- “Stress” was a significant response for all groups.
- “Limited autonomy” was an important response for underserved groups (43%) with “late/missed appointments” being another significant effect.

SOLUTIONS AND RECOMMENDATIONS

Top Solution

- “Better bus service”
 - Investment in and support for drivers
 - More times available

Other Key Recommendations

- Additional transportation services, including van pool and on-demand shuttle services, particularly for rural areas
- Improved walking infrastructure for safety
- Bike lane network
- Subsidized or free transportation

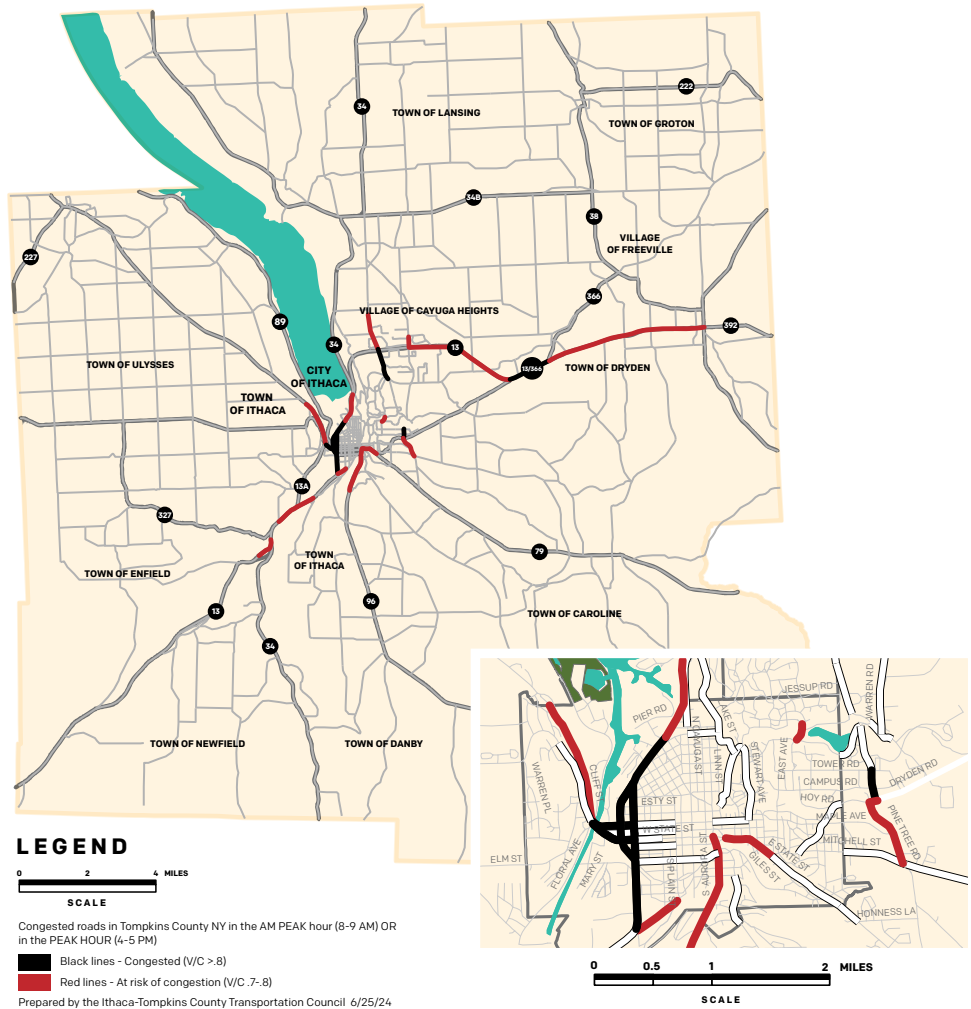
CONGESTION

The ITCTC utilized existing traffic counts to help estimate Volume-to-Capacity ratios (V/C ratio) for the principal roadways in the county. This was supplemented with information generated by runs of the ITCTC travel demand model. V/C ratios relate the traffic volumes to the roadway traffic capacity based on the road's geometry, traffic flow speeds and adjacent land uses. The accompanying maps display the output of the data analysis.

Notes on Congestion in Tompkins County

- Five different numbered state routes converge in a relatively small area at the City of Ithaca's West End (aka The Octopus). This area of short blocks, numerous traffic lights, high traffic volumes and a rail line, experiences delays at the rush hours, and periodically due to the presence of railroad trains, vehicular crashes or other seasonal community events. At rush hour, the congestion extends to the state route approaches. This area is expected to continue to be prone to congestion.
- Advanced traffic signal systems and transportation demand management (TDM) strategies and incentives that reduce the number of cars or shift work hours to reduce peak hour traffic, can help mitigate recurring congestion in this area.
- State Route-13 northeast from the Ithaca Urbanized area, carries the highest traffic volumes in the county, specifically the SR-13/SR-366 Overlap section in the Town of Dryden.
- The travel demand model indicates that suburban areas will see an increase in the number of congested roadway links in future years.
- Cornell University has a huge impact as a traffic origin and destination. Several of the roads serving as approaches to the University are prone to congestion.
- GoIthaca (www.goithaca.org) and Cornell University offer TDM programs to help commuter reduce drive-alone trips. These programs need continuous support and enhancement.

CONGESTED ROADS IN TOMPKINS COUNTY 2024



ABOUT CONGESTION

As explained in the TDM Encyclopedia (www.vtpi.org/tdm/), a resource of the Victoria Transport Policy Institute, "traffic congestion is a non-linear function, meaning that a small reduction in urban-peak traffic volume can cause a proportionally larger reduction in delay. For example, a 5% reduction in traffic volumes on a congested highway such as from 2,000 to 1,900 vehicles per hour may cause a 10-30% reduction in delay. As a result, even relatively small changes in traffic volume on congested roads can provide relatively large reductions in traffic delay" (Victoria Policy Transport Institute, 2003). Therefore, polices and projects that move even a small percentage of trips from automobiles to alternative modes or that shift traffic volumes from peak hours will result in noticeable reductions in congestion and improved performance of the roadway system. Additional secondary benefits will result from lower emissions, more active lifestyles, reduced energy consumption, reduce costs in roadway system expansion, etc.





SUMMARY

The Ithaca Urban area is a regional employment center which attracts a significant number of daily in-commuters. The local economy, anchored in the education sector, is stable and growing. The county's population is also growing at a moderate rate and, like many other areas, it is getting older. However, due to the presence of institutions of higher education, the cohort of age 20-24 will remain significant into the future.

The general travel patterns for the greater Ithaca-Tompkins County show stronger than average participation in walking, public transportation and rideshare/carpooling for most trip purposes, and particularly for the journey to work. Nevertheless, there remains room for improvements. There continues to be a significant dependency on the automobile and drive alone trips to fulfill transportation needs. In particular, into-county and out-of-county commuting trips are overwhelmingly drive alone trips (81%). These patterns will continue unchanged unless there are continuous and coordinated efforts to facilitate mode shift away from single occupancy automobile use.

TCAT offers excellent service in the urbanized area of Ithaca but is more limited in the rural area. There continues to be a latent demand for transit that is evidenced by increased ridership. TCAT is working to enhance transit service to rural areas through application of new communication technologies and on-demand strategies.

Bicycle use for transportation has increased in the urban area, even when the data does not reflect the advent of bikeshare services. Bicycling remains an underutilized and underdeveloped mode. With 42% of all trips less than two miles in length and 61% less than four, bicycling has great potential to positively impact mobility in the urban/suburban area.

Equity considerations in the transportation sector require that affordable and convenient alternatives to private automobile use be made available. This is essential for minority, low income and the continuously expanding senior population to be able to participate effectively in the economy, which in turn generates multiple societal benefits.

Shifting even a small percentage of trips from automobiles to alternative modes will result in noticeable reductions in congestion and improved performance of the roadway system. Limited local financial resources for surface transportation and the growing evidence of the negative externalities (emissions, safety, fossil fuel energy use, congestion, noise, etc.) of continued over-dependency on the automobile as the principal mode of transportation have made it particularly important to understand and seek to maximize the role of transportation modes, and programs and policies that serve to reduce automobile dependency.