

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 may have significant effects on the transportation system. Charts and tables use the latest available data. In most cases, the 2010 Census, 2017 American Community Service and 2017 National Household Travel Survey data 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 density data can be correlated to several important community resources: the location of the major employment centers (e.g., Cornell University, Ithaca College, Route 96-B industrial corridor, the Central Business District (CBD), and the northeast industrial corridor); the location of sanitary sewer and water service areas; and the ease and availability of transportation services/infrastructure.

COLLEGE TOWN EFFECT

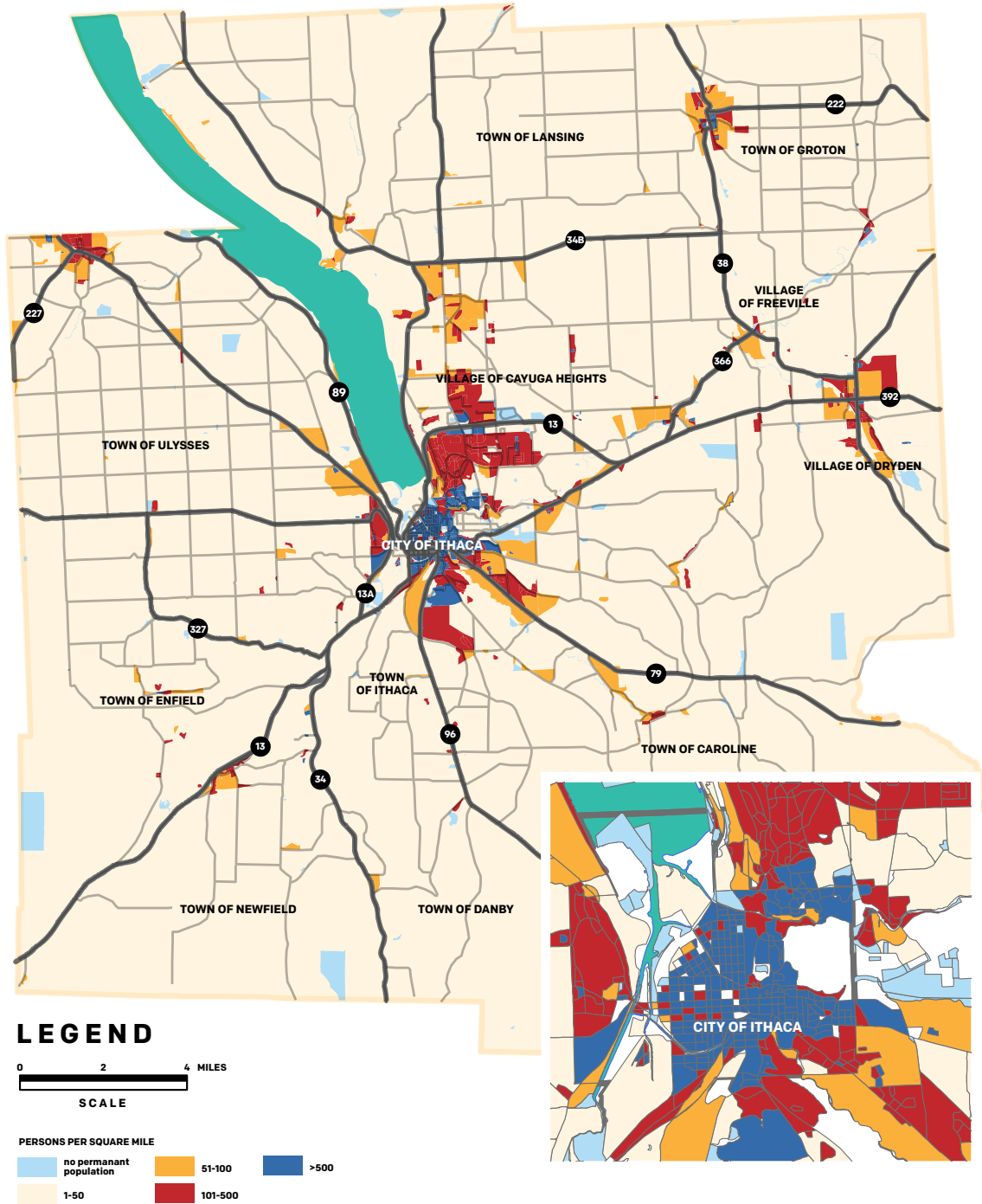
Tompkins County has a substantial student population of approximately 33,000. The bulk of the students attend Cornell University and Ithaca College, both within the Ithaca urban area. A third institution, Tompkins-Cortland Community College is located near the Village of Dryden.

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 2010 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 latest persons per household figure of 2.36 reverses a decreasing trend that dates to the 1980 census, however it is unknown how this factor will change in future years.
- Persons per household figures are slightly lower than State averages, probably due to the influence of the university community on the area's demographics.
- The number of 2 person households has shown continuous growth since 1990, while household with 4+ persons have been declining. One person households are the second most prevalent group.

POPULATION TOTALS FOR TOMPKINS COUNTY

CIVIL DIVISION	1990 (% OF COUNTY TOTAL)	2000 (% OF COUNTY TOTAL)	2010 (% OF COUNTY TOTAL)	2017 (% OF COUNTY TOTAL)	2000-2017 NUMERIC CHANGE (% OF CHANGE)	2000-2017 % CHANGE
TOWN OF CAROLINE	3,044 (3.2%)	2,910 (3.0%)	3,282 (3.2%)	3,419 (3.3%)	137 (4.8%)	4.2%
TOWN OF DANBY	2,858 (3.0%)	3,007 (3.1%)	3,329 (3.3%)	3,483 (3.3%)	154 (5.4%)	4.6%
TOWN OF DRYDEN	13,251 (14.1%)	13,352 (14.1%)	14,435 (14.2%)	14,897 (14.3%)	552 (19.4%)	3.8%
TOWN OF ENFIELD	3,054 (3.3%)	3,369 (3.5%)	3,512 (3.5%)	3,616 (3.5%)	104 (3.7%)	3.0%
TOWN OF GROTON	5,483 (5.8%)	5,794 (6.0%)	5,950 (5.9%)	6,078 (5.8%)	128 (4.5%)	2.2%
CITY OF ITHACA	29,541 (31.4%)	28,775 (29.8%)	30,014 (29.6%)	30,720 (29.4%)	611 (21.4%)	2.0%
TOWN OF ITHACA	17,797 (18.9%)	18,710 (19.4%)	19,930 (19.6%)	20,398 (19.5%)	468 (16.4%)	2.3%
TOWN OF LANSING	9,296 (9.9%)	10,521 (10.6%)	11,033 (10.9%)	11,454 (11.0%)	421 (14.8%)	3.8%
TOWN OF NEWFIELD	4,876 (5.2%)	5,108 (5.3%)	5,179 (5.1%)	5,314 (5.1%)	130 (4.6%)	2.5%
TOWN OF ULYSSES	4,906 (5.2%)	4,775 (5.0%)	4,900 (4.8%)	5,062 (4.9%)	162 (5.7%)	3.3%
TOTAL COUNTY	94,097	96,501	101,564	104,441	2,851	2.8%

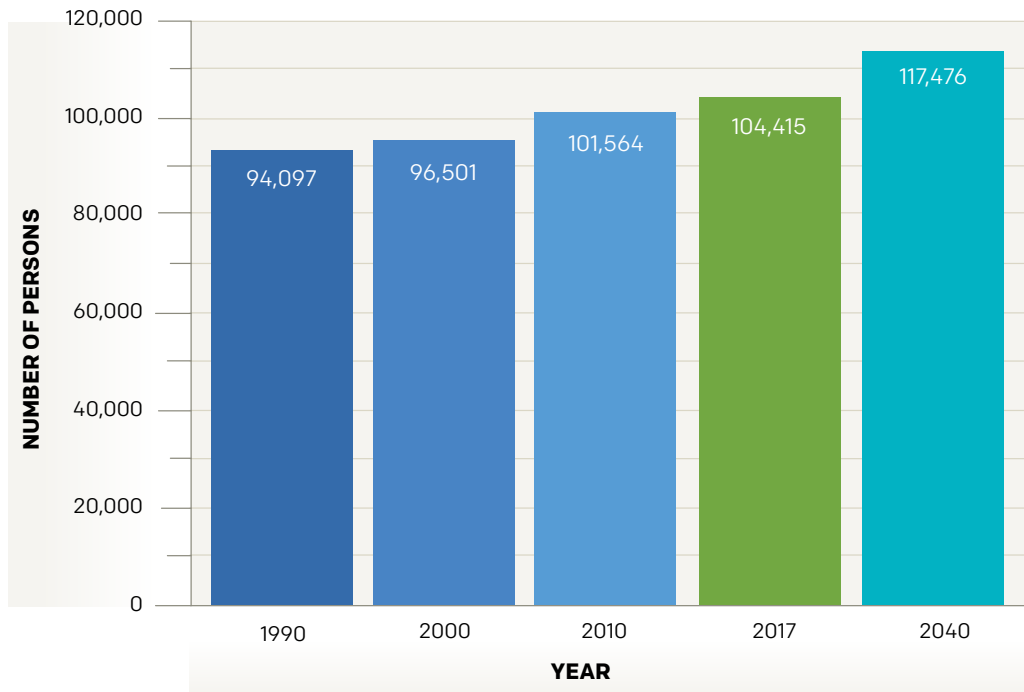
SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 American Community Survey
 Note: Village population statistics are included as part of respective Town totals

POPULATION: VILLAGES OF TOMPKINS COUNTY 1990-2017

CIVIL DIVISION	2000 POPULATION	2010 POPULATION	2017 POPULATION
VILLAGE OF DRYDEN	1,832	1,838	2,040
VILLAGE OF FREEVILLE	505	520	399
VILLAGE OF GROTON	2,470	2,363	2,389
VILLAGE OF CAYUGA HEIGHTS	3,738	3,729	3,799
VILLAGE OF LANSING	3,417	3,529	3,601
VILLAGE OF TRUMANSBURG	1,581	1,797	1,818
TOTAL	13,543	13,776	14,046

SOURCE: 2000, 2010 Decennial Census, and 2017 5 American Community Survey

TOTAL POPULATION TOMPKINS COUNTY



SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS) and Woods and Poole data 2040

A SUMMARY REVIEW OF TOTAL POPULATION:

- According to the data, the Tompkins County population has increased at a modest annual average rate of .43% over the last 26 years
- Population in 2017 is approximately 104,415
- Projected population for 2040 is 117,476
- The City of Ithaca and all nine of the Towns in the County showed population increases over the last 30 years
- 40% of the population increase since 2010 has take place in the City and Town of Ithaca
- Population in the six villages in Tompkins County showed small increases except for Trumansburg which shows a loss in population since 2010
- The County's population is 58% urban and 41% rural

POPULATION TRENDS IN URBAN AND RURAL AREAS

CENSUS AREA	2000	2010	NUMERIC DIFFERENCE	PERCENT CHANGE
URBAN	53,528	59,636 (58.44%)	6,108	11.4% ▲
RURAL	42,973	41,928 (41.28%)	-1,045	-2.4% ▼
TOTAL	96,501	101,564	5,063	5.3%

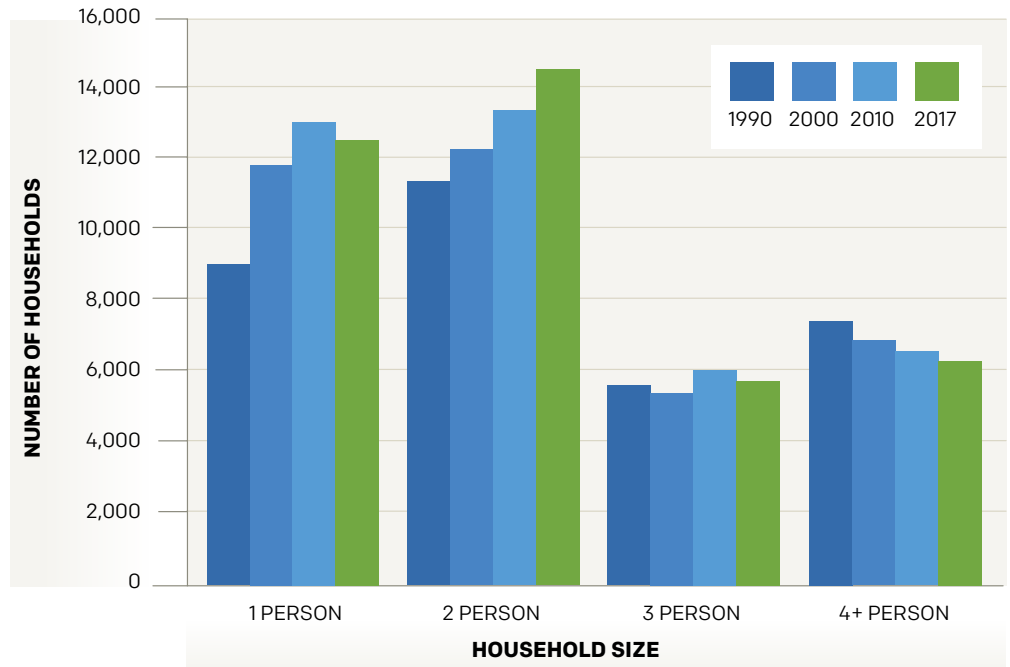
SOURCE: 2000, 2010 Decennial Census

PERSONS PER HOUSEHOLD IN TOMPKINS COUNTY

POPULATION			HOUSEHOLDS			POPULATION CHANGE	HOUSEHOLD CHANGE	PERSONS PER HOUSEHOLD (excludes group quarters)		
2000	2010	2017	2000	2010	2017	2010-2017	2010-2017	2000	2010	2017
96,501	101,564	104,415	36,420	38,976	38,986	2,851 (2.7%)	19 (.05%)	2.32	2.27	2.33

SOURCE: 2000 Census, 2010 Census, and 2017 5 American Community Survey (ACS)

HOUSEHOLD SIZE IN TOMPKINS COUNTY

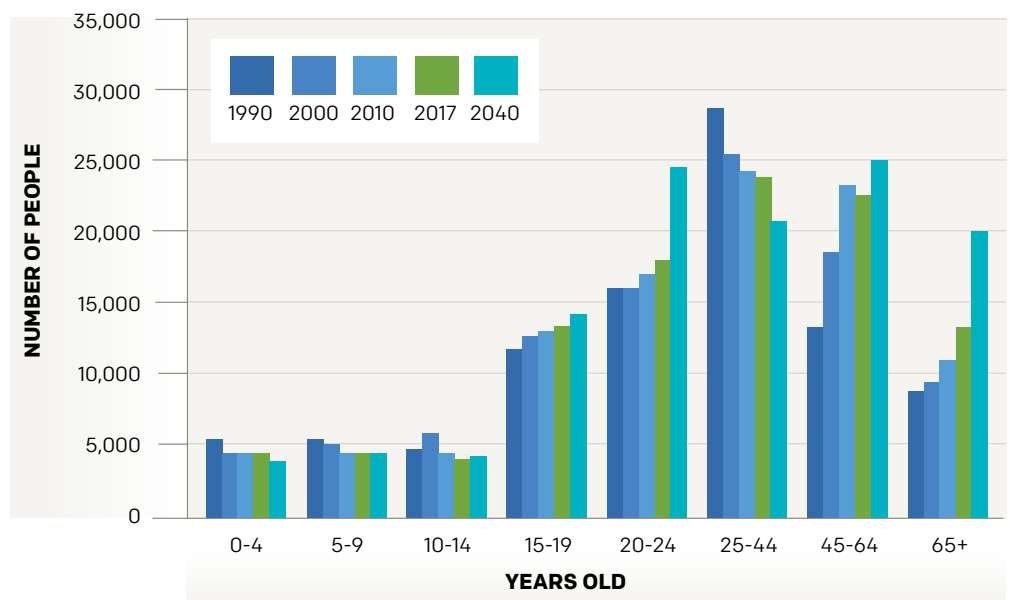


SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS)

A SUMMARY REVIEW OF POPULATION BY AGE:

- Population of children 0-14 years of age remains relatively steady
- Population of persons 15-24 continues to increase through 2040
- Population 25-44 has been decreasing since 1990
- Populations age 45 and above show significant increases through 2040
- By 2040 the population over 45 is projected to be similar to the population of 20-44 year olds
- 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, 2010 Decennial Census and 2017 American Community Survey, 2040 Woods & Poole

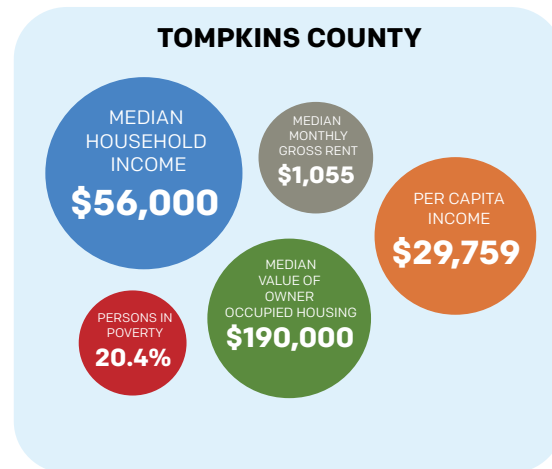
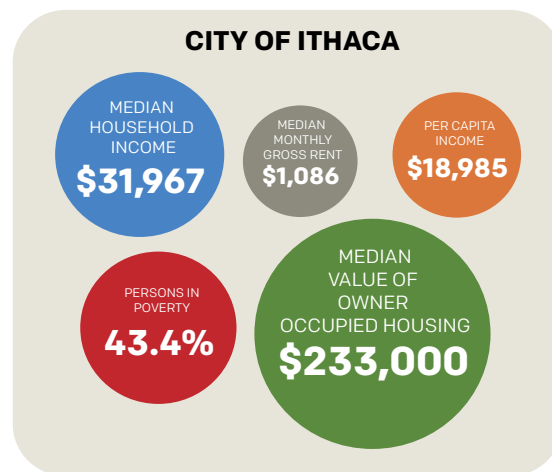
EMPLOYMENT AND ECONOMIC CHARACTERISTICS

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 disproportional 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: 2017 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 cost 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 secured online payment systems allow new players to enter the transportation marketplace, offering new mobility services that were not available even 5 to 10 years ago.

Transportation Network Companies (TNC) such as Uber and Lyft provide on-demand mobility services. In many cities, TNC's have grown significantly between 2012 and 2018, establishing on-demand transit

as a legitimate option for many who choose not to drive their personal vehicle. TNC market proliferation is not as strong yet in rural and suburban areas, but it is poised to disrupt this market segment too.

Other services such as car sharing (Ithaca Carshare) and rideshare/ carpool (Finger Lake Rideshare) 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 are less convenient depending on trip length, weather conditions and topography.

GENERAL TRAVEL TRENDS AND CHARACTERISTICS

Data

This section presents data from the 2010 American Community Survey, and the 2017 National Household Transportation Survey (NHTS). The NHTS 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 that is available through the census and NHTS 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 80%) are not work related. They are the social, recreational, shopping and other trips that are common in everyday life. These trips also need to be considered when determining travel trends and characteristics. The distribution of trip purposes has remained relatively unchanged since year 2000 at the national, state and county levels.



PERSON TRIPS PER DAY BY TRIP PURPOSE: 2001, 2009 AND 2017 ESTIMATES

TRIP PURPOSE	REMAINDER OF US			NEW YORK STATE			TOMPKINS COUNTY		
	2001	2009	2017	2001	2009	2017	2001	2009	2017
% EARNING LIVING	18.8%	18.9%	19.0%	19.4%	18.6%	17.6%	18.4%	22.7%	18.6%
% FAMILY/PERSONAL	43.9%	42.8%	38.5%	43.4%	43.6%	38.2%	42.6%	38.6%	37.9%
% CIVIC/EDUCATION/RELIGIOUS	9.8%	9.7%	10.9%	9.7%	9.6%	10.0%	11.4%	7.0%	9.2%
% SOCIAL/RECREATION	26.6%	27.8%	27.5%	26.3%	27.2%	28.6%	26.4%	29.9%	29.4%
% OTHER	.08%	.08%	4.0%	1.2%	1.1%	4.0%	1.2%	1.8%	4.9%

SOURCE: 2001, 2009, and 2017 National Household Survey (NHTS)

PERSON TRIPS PER DAY BY TRIP PURPOSE: 2017 NHTS



SOURCE: 1990, 2000, 2010 Decennial Census and 2017 5 Census American Community Survey (ACS)

NOTE: In NHTS graph to the right:

Earning Living means “to and from work” and “work related” trips;

Family/Personal means “family and personal errands”;

Civic/Education/Religious means “to and from church”, “to and from school” and “to and from civic events” trips;

Social/Recreational means “gym/exercise”, “rest relaxation/vacation”, “visit friends and family”, “visit public place”, and/or “other social/recreational event” trips

**PERSON TRIPS PER DAY BY MODE OF TRANSPORTATION:
2001, 2009 AND 2017 ESTIMATES**

TRIP MODE	REMAINDER OF US			NEW YORK STATE			TOMPKINS COUNTY		
	2001	2009	2017	2001	2009	2017	2001	2009	2017
% PRIVATE VEHICLE	87.8%	85.0%	83.9%	65.7%	62.3%	58.8%	80.5%	73.1%	66.2%
% PUBLIC TRANSIT	1.0%	1.2%	1.3%	9.5%	9.9%	11.8%	1.0%	5.0%	4.2%
% WALK	7.9%	9.7%	9.7%	20.0%	22.0%	23.5%	14.8%	18.2%	22.9%
% OTHER	3.3%	4.1%	5.1%	4.6%	5.6%	5.9%	3.8%	3.7%	6.7%

NOTE: Tompkins County 2017 % Other includes 3.4% bicycling
SOURCE: 2001, 2009, and 2017 National Household Survey (NHTS)

Person Trips by Mode of Transportation

- Data on the Trips by Mode table include all trips types.
- One important trend from the data is a reduction in the use of Private Vehicles as a percentage of trips per day in Tompkins County, from 83.1% in 1995, to 66.2% in 2017. Similar but less pronounced reductions are reflected in the national and state figures.
- 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 show increases in National, State and County figures. County increases in the percent of Walk trips date back to 1990 at 7.8%, compared to 1995 (10.7%), 2001 (14.8%), 2009 (18.2%) and 2017 (22.9%).
- Public Transit use (transit plus paratransit ridership), as a percent of total daily trips, was below the national average for 1995 and 2001. A significant change arose from the creation of TCAT in 1998 and it's re-organization in 2005. Public transportation ridership grew from 2,360,400 in 1995 to well over 4,000,000 in 2013. The growth in ridership is reflected in the NHTS estimates of 2009 at 5% of trips using public transportation.
- After peaking in 2013, Public Transit ridership figures are down slightly in 2017. However, this trend may already be reversing since reported transit ridership increased in 2018 after a four-year period of reductions.
- Overall the 4.2% share of Public Transit is relatively low and is an mode that could grow, particularly outside the rush hour periods. The high NY State figure is influenced heavily by transit use in New York City. Upstate NY public transit share is approximately 1.7% of all person trips per day, well below the Tompkins County figure.
- Bicycling is estimated at 3.4% of all trips within the 'other' category. This compares favorably with .8% for Upstate NY, but 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

DISTANCE	ANNUAL PERSON TRIPS (IN THOUSANDS)						TOTAL TRIPS	ALL TRIPS % BELOW
	TRIP MODE, DERIVED							
	WALK	BICYCLE	ALL PRIVATE VEHICLES**	SCHOOL BUS	PUBLIC BUS	OTHER***		
LESS THAN .5 MILES*	25,863	1,728	5,489	-	424	65	33,595	< .5 MILES = 17.3%
.5-1 MILE	14,654	3,454	21,039	569	2,420	451	42,589	< 1 MI = 39.2%
1-2 MILES	2,819	707	10,840	761	2,247	400	26,775	< 2 MI = 52.9%
2-3 MILES	829	208	17,056	644	1,307	12	20,075	< 3 MI = 63.2%
3-4 MILES	86	56	12,722	423	556	56	13,910	< 4 MI = 70.4%
4-5 MILES	127	264	9,766	278	138	13	10,587	< 5 MI = 75.9%
6-10 MILES	-	59	25,718	833	531	455	27,600	< 10 MI = 90%
11-15 MILES	10	25	8,660	16	589	255	9,555	< 15 MI = 95%
ALL TRIPS	44,585	6,611	128,918	3,599	8,233	2,250	194,509	

* Trip distance in miles, derived from route geometry returned by Google Maps API, or from reported loop-trip distance
 ** "Private Vehicles" includes Cars, SUVs, Vans, Pickup Trucks, RVs and Motorcycles
 *** "Other" includes Paratransit, Private Bus, Taxi/Limo/Uber/Lyft, and Rental Car
 Source: Federal Highway Administration, 2017 National Household Travel Survey (NHTS)

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 an opportunity to shift trips from personal motor vehicles.
- 77% of trips less than half a mile are completed by walking.
- Overall, 3.4% of trips are on bicycle.
- 53% of all trips are less than 2 miles in length. Of these, 42% are completed by walking; 5.7% by bicycle; 36% by private vehicle.
- Overall, 75% of trips are less than 5 miles in length.



COMMUTING

The work commute is an important daily ritual with wide ranging economic, environmental, safety and life style implications. Although work trips constitute 19% 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 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 Tompkins County residents who travel to work outside the county.
- The total number of persons working within Tompkins County is approximately 59,591, while the number of persons that live and work in Tompkins County is only 43,950.
- Approximately 4,280 (9%) of Tompkins County's resident workers commuted out of the county for work in 2016.
- Approximately 15,641 (26.2%) of all workers in Tompkins County commuted from more than eight other counties.
- The total net number of in-commuters is 11,361.
- Tioga County contributed the greatest number of workers to Tompkins County (3,250) followed closely by Cortland County (3,140), while Cortland County received the most workers (1,515) 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. 63% of commuters within the county drive alone, whereas 84% of in-commuters drive alone.
- Out-of-county public transportation connections currently exist to Cortland, Chemung, and Schuyler 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 6am to 8pm 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 2013
A. TOTAL DAILY WORKERS IN TOMPKINS COUNTY (C+F)	59,591
B. TOTAL WORKERS WHO LIVE IN TOMPKINS COUNTY (C+D)	48,230
C. WORKERS WHO LIVE AND WORK IN TOMPKINS COUNTY (B-D)	43,950
D. TOTAL OUT COMMUTERS (B-C)	4,280
E. TOTAL IN COMMUTERS (A-C)	15,641
F. NET COMMUTERS (D-E)	11,361
PERSONS LIVING IN TOMPKINS COUNTY AND WORKING IN:	
TOMPKINS COUNTY	43,950
CORTLAND COUNTY	1,515
CAYUGA COUNTY	480
CHEMUNG COUNTY	445
ONONDAGA COUNTY	275
SENECA COUNTY	180
TIOGA COUNTY	125
SCHUYLER COUNTY	220
BROOME COUNTY	275
OTHER	655
PERSONS WORKING IN TOMPKINS COUNTY AND LIVING IN:	
TOMPKINS COUNTY	43,950
TIOGA COUNTY	3,250
SCHUYLER COUNTY	1,715
CORTLAND COUNTY	3,140
CAYUGA COUNTY	2,485
SENECA COUNTY	1,380
CHEMUNG COUNTY	1,325
ONONDAGA COUNTY	330
BROOME COUNTY	720
OTHER	1,236

Source: 2016 5 American Community Survey

TOMPKINS COUNTY COMMUTER FLOW

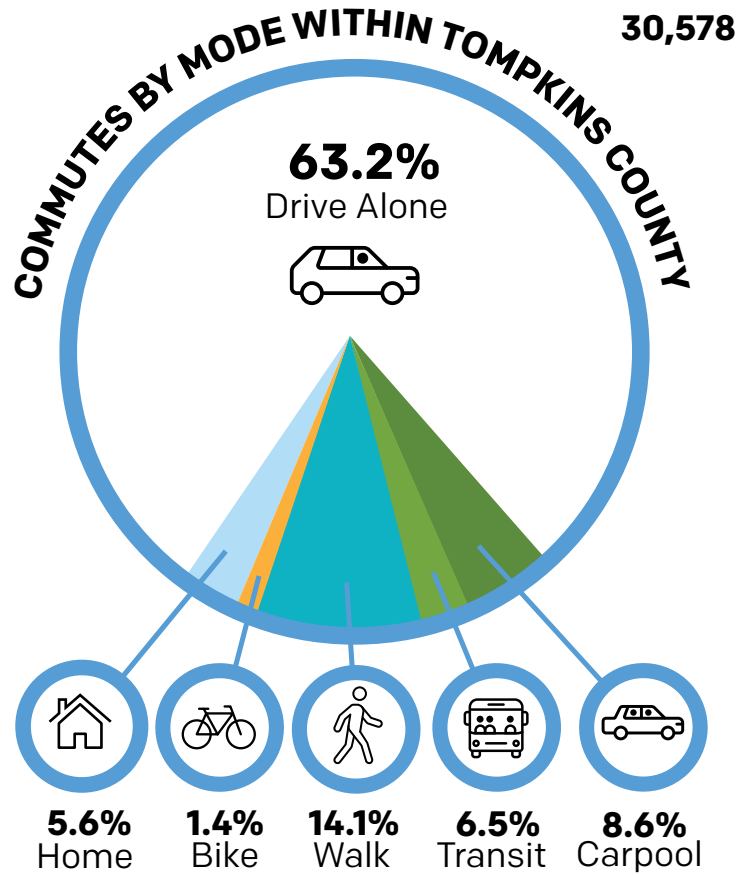
43,950

live & work in TC

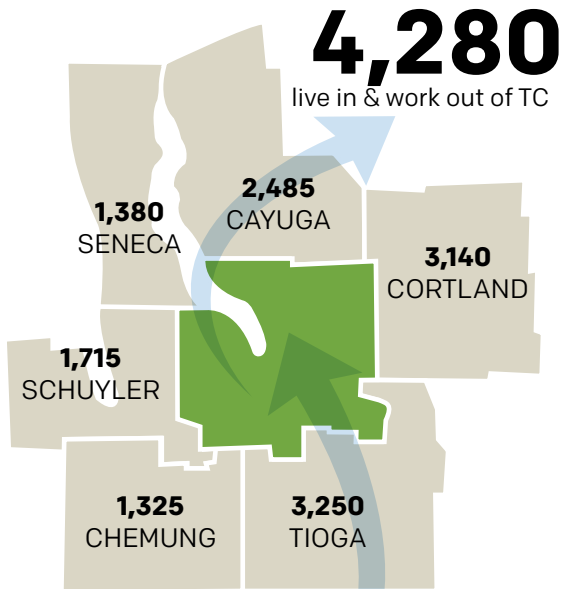


63.2% drive alone commutes

Source: 2016 5 American Community Survey



2.5% outbound commute decrease since 2013



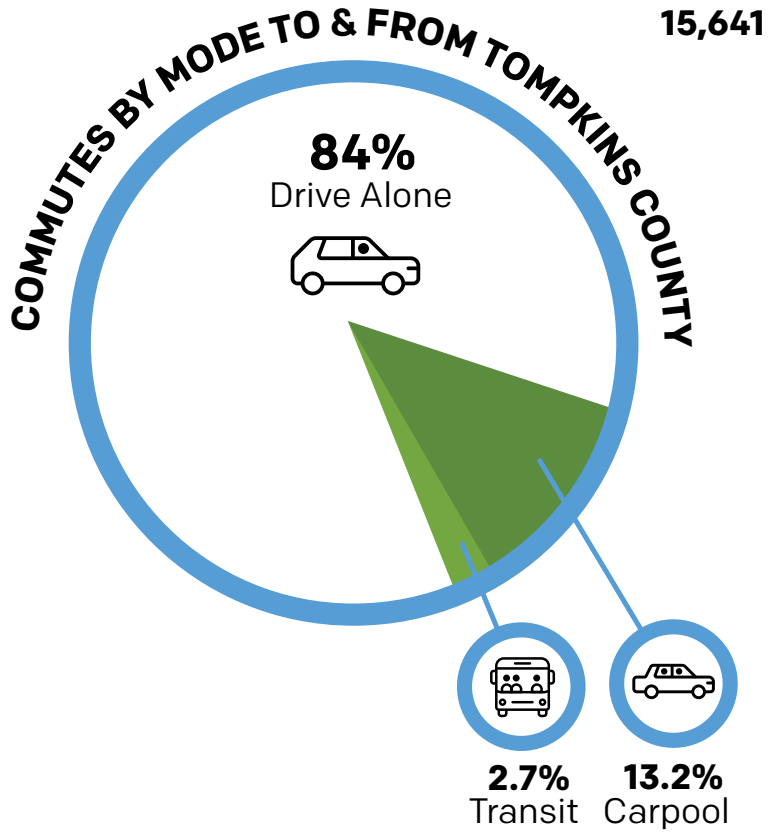
3.6% inbound commute increase since 2013

15,641

live out of county & work in TC

84% drive alone commutes

Source: 2016 5 American Community Survey



HOW PEOPLE GET TO WORK – COMMUTE MODE

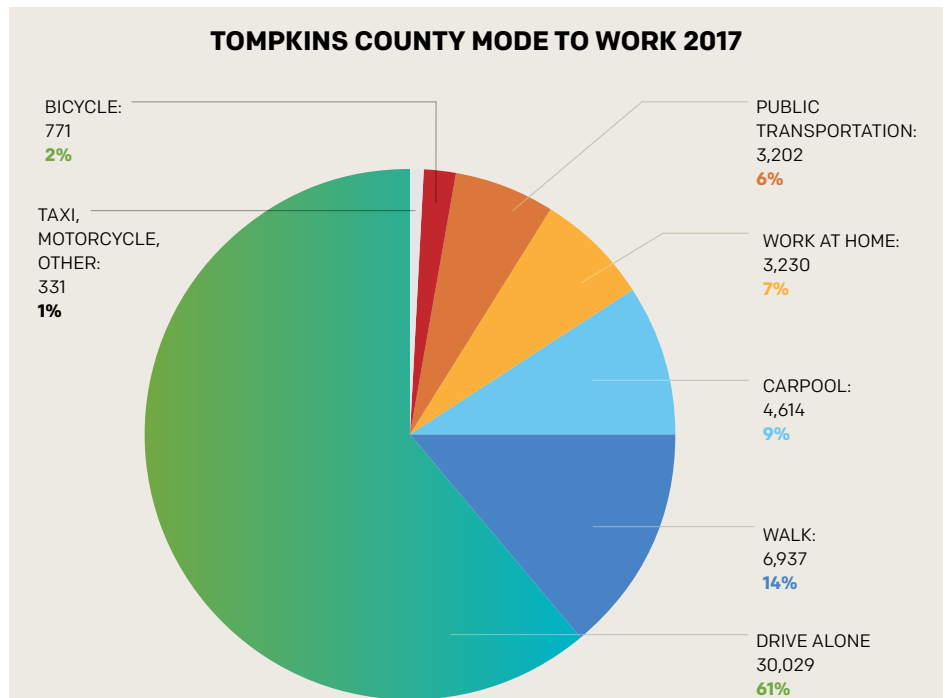
Knowing what mode of transportation is used to get to work is useful to help understand how people travel and what opportunities exist to provide commuters with safer, more economical and convenient options for their travels. This information can also be used to determine potential current and future 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: 18% for the U.S., 42% for New York State, and 32% 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 32% figure for Tompkins County, which does not include those 6% 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 modes 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.

- 61% of Tompkins County’s workforce drive alone to work, a 1% increase from 2013 figures.
- Non-drive alone modes of transportation to work:
 - 9% rideshare (carpool)
 - 14% walk to work
 - 6% use public transportation
 - 2% bicycle
 - 7% working at home
- The walking to work percentage for Tompkins County (14.2%), the City of Ithaca (36.1%) and the Town of Ithaca (17.5%), including the Village of Cayuga Heights (16%), are all substantially higher than the national (2.8%) and state (6.3%) 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

CIVIL DIVISION	DRIVE ALONE	CARPOOL	PUBLIC TRANSPORTATION	BICYCLE	WALK	WORK AT HOME	TAXI, MCYCLE, OTHER	TOTAL
TOWN OF CAROLINE	1,433 (77.3%) 4.8%	209 (11.3%) 4.4%	54 (2.9%) 1.7%	0 (0.0%) 3.1%	54 (2.9%) 0.8%	103 (5.6%) 3.2%	0 (0.0%) 0.0%	1,853 (100%) 3.8%
TOWN OF DANBY	1,559 (86.0%) 5.2%	147 (8.1%) 3.2%	56 (3.1%) 1.8%	0 (0.0%) 0.0%	32 (1.8%) 0.5%	19 (1.0%) 0.6%	0 (0.0%) 0.0%	1,813 (100%) 3.7%
TOWN OF DRYDEN	5,724 (73.8%) 19.1%	936 (12.1%) 20.3%	244 (3.1%) 7.6%	92 (1.2%) 11.9%	273 (3.5%) 3.9%	425 (5.5%) 13.2%	57 (0.7%) 17.2%	7,751 (100%) 15.8%
TOWN OF ENFIELD	1,442 (76.5%) 4.8%	277 (14.7%) 6.0%	14 (0.7%) 0.4%	0 (0.0%) 0.0%	18 (1.0%) 0.3%	133 (7.1%) 4.1%	0 (0.0%) 0.0%	1,884 (100%) 3.9%
TOWN OF GROTON	2,683 (83.5%) 8.9%	218 (6.8%) 4.7%	25 (0.8%) 0.8%	0 (0.0%) 0.0%	133 (4.1%) 1.9%	143 (4.5%) 4.4%	11 (0.3%) 3.3%	3,213 (100%) 6.6%
CITY OF ITHACA	4,567 (35.6%) 15.2%	741 (5.8%) 16.1%	1,544 (12.0%) 48.2%	314 (2.4%) 40.7%	4,638 (36.1%) 66.9%	925 (7.2%) 28.6%	101 (0.8%) 30.5%	12,830 (100%) 26.2%
TOWN OF ITHACA	5,586 (62.3%) 18.6%	951 (10.6%) 20.6%	700 (7.8%) 21.9%	252 (2.5%) 32.7%	1,568 (17.5%) 22.6%	783 (8.7%) 24.2%	84 (0.9%) 25.4%	8,973 (100%) 18.3%
TOWN OF LANSING	4,962 (84.2%) 16.5%	564 (9.6%) 12.2%	433 (7.4%) 13.5%	75 (1.3%) 9.7%	93 (1.6%) 1.3%	328 (5.6%) 10.2%	0 (0.0%) 0.0%	5,891 (100%) 12.0%
TOWN OF NEWFIELD	2,310 (80.3%) 7.7%	306 (10.6%) 6.6%	10 (0.3%) 0.3%	38 (1.3%) 4.9%	92 (3.2%) 1.3%	62 (2.2%) 1.9%	58 (2.0%) 17.5%	2,876 (100%) 5.9%
TOWN OF ULYSSES	2,248 (86.3%) 7.6%	265 (10.0%) 5.7%	122 (4.6%) 3.8%	0 (0.0%) 0.0%	36 (1.4%) 0.5%	185 (7.0%) 5.7%	20 (0.8%) 6.0%	2,577 (100%) 5.3%
TOMPKINS COUNTY	30,029 (61.3%)	4,614 (9.4%)	3,202 (6.5%)	771 (1.6%)	6,937 (14.2%)	3,230 (6.3%)	331 (0.7%)	48,990 (100%)
NEW YORK STATE	53.0%	6.7%	28.0%	0.7%	6.3%	4.0%	1.3%	100%
NATIONAL US	76.4%	9.3%	5.1%	0.6%	2.8%	4.6%	1.2%	100%

Source: Census: 2017 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 Tompkins County total)
 Note: Village population statistics are included as part of respective Town totals

CIVIL DIVISION	DRIVE ALONE	CARPOOL	PUBLIC TRANSPORTATION	BICYCLE	WALK	WORK AT HOME	TAXI, MCYCLE, OTHER	TOTAL
VILLAGE OF CAYUGA HEIGHTS	745 (43.7%) 2.5%	261 (15.3%) 5.7%	230 (13.5%) 7.2%	103 (6.0%) 13.4%	273 (16.0%) 3.9%	94 (5.5%) 3.0%	0 (0.0%) 0.0%	1,706 (100.0%) 3.5%
VILLAGE OF DRYDEN	759 (80.1%) 2.5%	91 (9.6%) 2.0%	25 (2.6%) 0.8%	20 (2.1%) 2.6%	25 (2.6%) 0.4%	19 (2.0%) 0.6%	8 (0.8%) 2.4%	947 (100.0%) 1.9%
VILLAGE OF FREEVILLE	149 (70.6%) 0.5%	936 (12.1%) 20.3%	6 (2.8%) 0.2%	12 (5.7%) 2.0%	13 (6.2%) 0.2%	7 (3.3%) 0.2%	2 (0.9%) 0.6%	211 (100.0%) 0.4%
VILLAGE OF GROTON	899 (78.9%) 3.0%	277 (14.7%) 6.0%	25 (2.2%) 0.8%	0 (0.0%) 0.0%	47 (4.1%) 0.7%	34 (3.0%) 1.1%	11 (1.0%) 3.3%	1,139 (100.0%) 2.3%
VILLAGE OF LANSING	1,210 (64.1%) 4.0%	218 (6.8%) 4.7%	375 (19.9%) 11.7%	50 (2.6%) 6.5%	43 (2.3%) 0.6%	39 (2.1%) 1.3%	0 (0.0%) 0.0%	1,887 (100.0%) 3.9%
VILLAGE OF TRUMANSBURG	686 (73.4%) 2.3%	741 (5.8%) 16.1%	37 (4.0%) 1.2%	0 (0.0%) 0.0%	36 (3.9%) 0.5%	87 (9.3%) 2.8%	6 (0.6%) 1.8%	935 (100.0%) 1.9%
TOMPKINS COUNTY	30,029 (61.3%)	4,614 (9.4%)	3,202 (6.5%)	771 (1.6%)	6,937 (14.2%)	3,230 (6.3%)	331 (0.7%)	48,990 (100%)
NEW YORK STATE	53.0%	6.7%	28.0%	0.7%	6.3%	4.0%	1.3%	100%
NATIONAL US	76.4%	9.3%	5.1%	0.6%	2.8%	4.6%	1.2%	100%

Source: Census: 2017 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 Tompkins County total)

Vehicle Population

- The number of vehicles registered in Tompkins County increased steadily from 1998 to 2011, but data show a reduction in 2017. This figure needs to be monitored for emerging new trends.
- The great majority of registered vehicle are personal vehicles (cars, suv, vans, pickup trucks).
- 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 increased in the decade between 2000 and 2010.
- The percentage of two vehicle households has been decreasing since 1990.

Driving Population

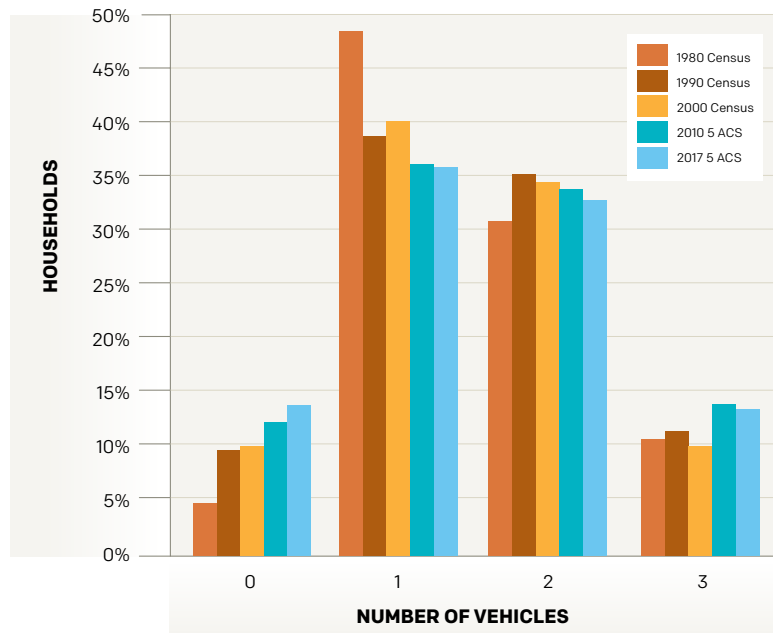
- The number of driver's licenses increased steadily over the period from 1988 to a peak in 2003. Since then, figures fluctuated until 2017 when data indicated a new peak of 65,634.
- The 2017 increase may be a reflection of the large 'millennial' population cohort. This trend needs to be monitored into future years.

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

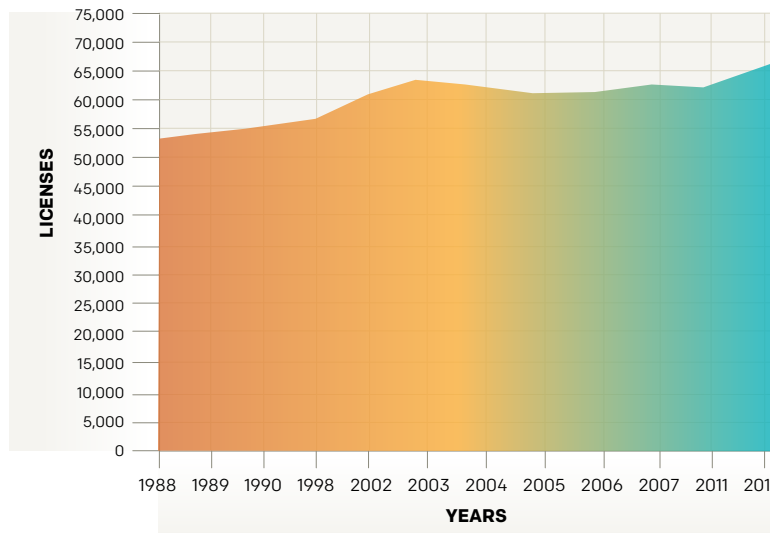
Source: New York State Department of Motor Vehicles – Statistics

NUMBER OF VEHICLES PER HOUSEHOLD TOMPKINS COUNTY NY



SOURCE: 1980, 1990, 2000 Decennial Census and 2010 5, 2017 5 American Community Survey

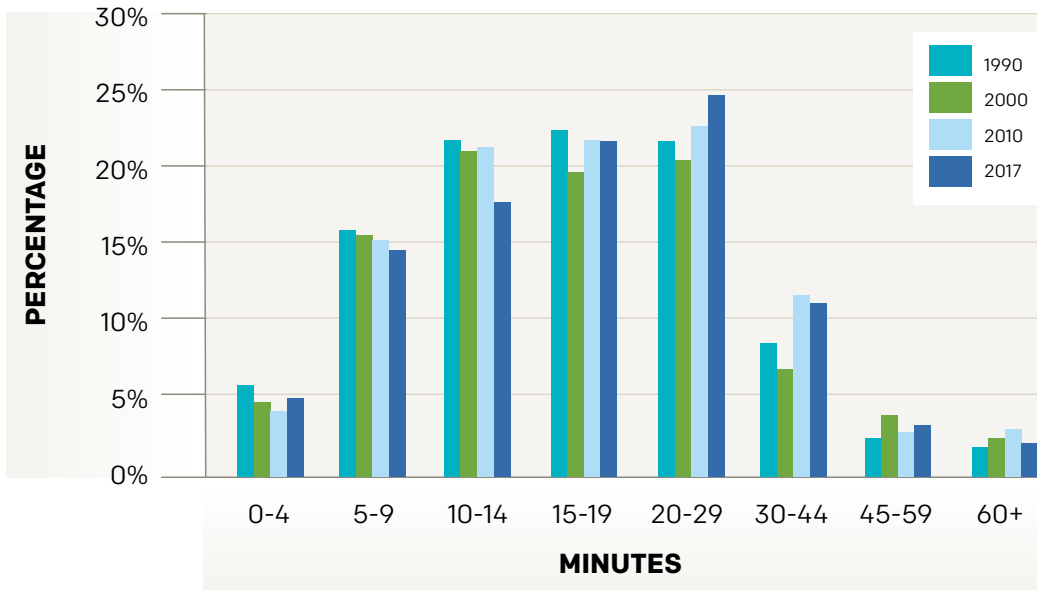
TOMPKINS COUNTY TOTAL NUMBER OF DRIVER'S LICENSES (1988-2017)



Source: New York State Department of Motor Vehicles – Statistics

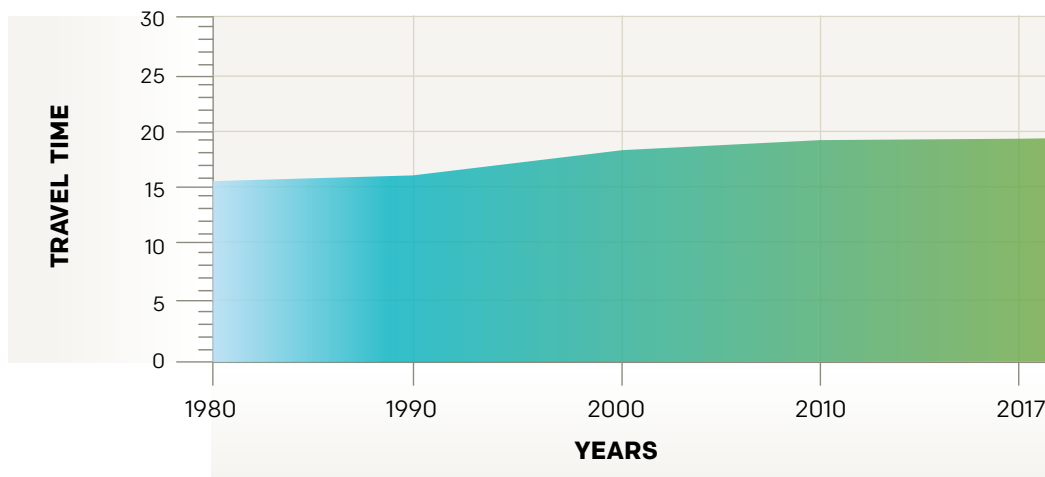


TRAVEL TIME TO WORK (WORKERS AGE 16+, NOT WORKING AT HOME)



Source: 1990, 2000 Decennial Census and 2010 5, 2017 5 American Community Survey

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



Source: Census 1980-2000 Decennial Census and 2017 5 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 (5-9min. and 10-14min.) is smaller in 2017
- Percentage of 30-44 minute trips increased in 2010 and has not significantly changed since then
- The mean travel time to work has not changed much since last reported measured in 2010. However, the overall trend is an increase in travel time to work
- Overall, the average travel time to work has been increasing since 1980 (15.7 minutes) to 2017 (18.6 minutes)

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 Accident Location Information System (ALIS), which provides crash data for Tompkins County. The ITCTC produces crash summary reports that are available in the agency’s website – www.tompkinscountyny.gov/itctc/statistics.

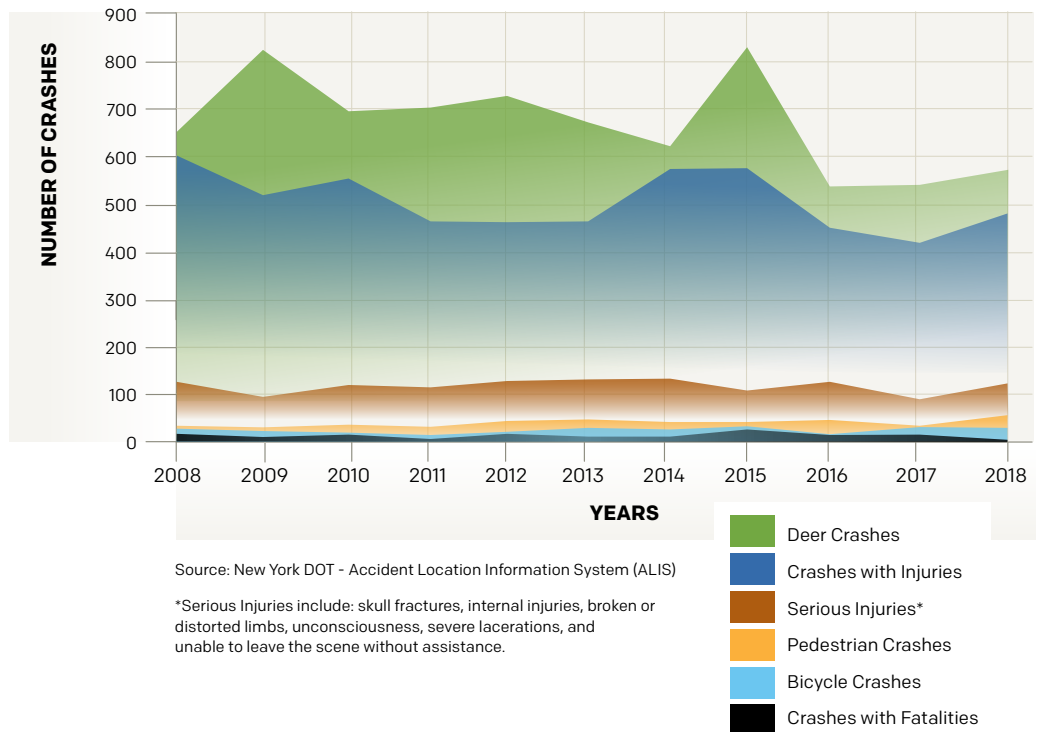
TRAFFIC CRASHES IN TOMPKINS COUNTY 2008-2018

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	3,05	23	20	550	413	94	7
2018	3,514	22	51	574	490	117	3

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

*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 2008-2018

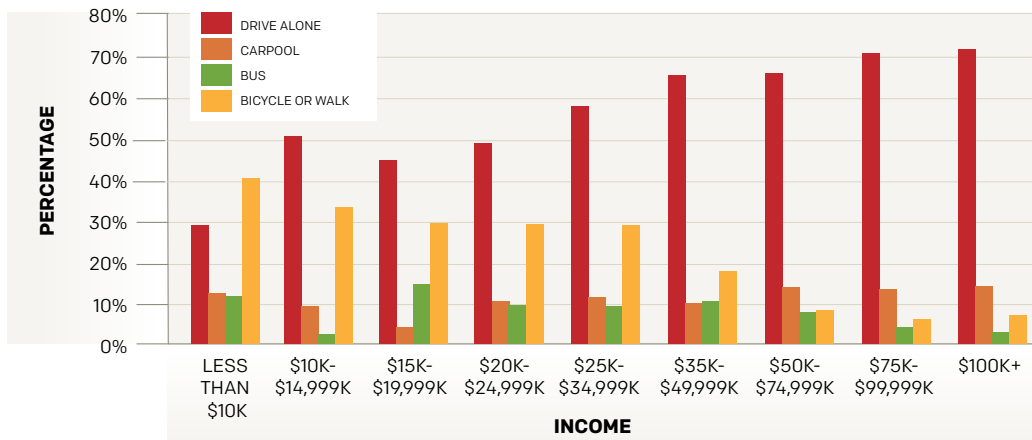


Equity in Transportation

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 critical 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 and walk at a much higher rate than white (non-hispanics) 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. The proportion of households reporting driving alone increases with household income.

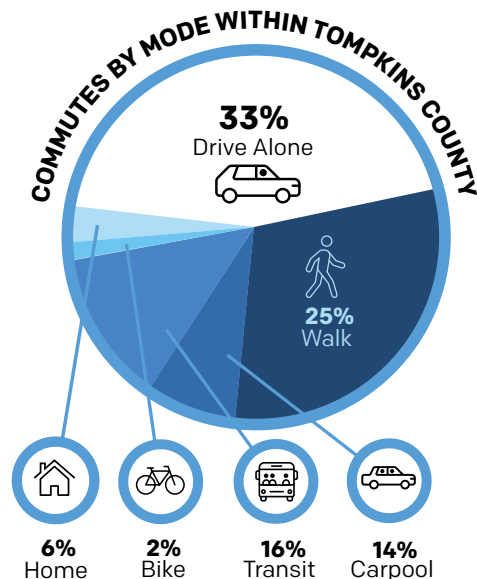
HOUSEHOLD INCOME BY MODE TO WORK – TOMPKINS COUNTY NY



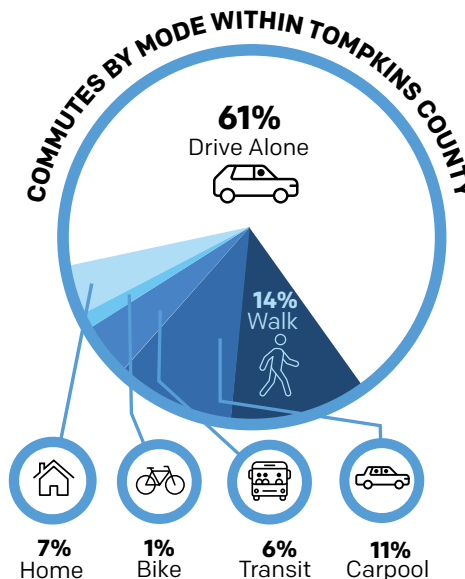
Source: 2010 5 Census CTPP

COMMUTE MODE WITHIN TOMPKINS COUNTY

MINORITY POPULATION



WHITE POPULATION



Source: 2010 5 Census CTPP

CONGESTION

The ITCTC travel demand model was used as a starting point to identify links with the highest levels of congestion. The model based its analysis on estimating Volume-to-Capacity ratios (V/C ratio) for the principal roadways in the county. V/C ratios relate the traffic volumes to the roadways traffic capacity based on the road's geometry, traffic flow speeds and adjacent land uses. The accompanying maps display the output from the travel demand model for 2019 conditions and projections to 2040. The travel demand model is currently designed to model the afternoon peak hour (5-6PM). Therefore, the map may not highlight links that experience congestion at other times.

Notes on Congestion in Tompkins County

- Five different numbered state route 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 that reduce the number of cars or shift work hours to reduce peak hour traffic may 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.

CONGESTED ROADS IN TOMPKINS COUNTY 2019



LEGEND



Actual traffic volumes compared to road capacity for AM/PM peak hours
 Prepared by the Ithaca-Tompkins County Transportation Council 9/18

ABOUT CONGESTION

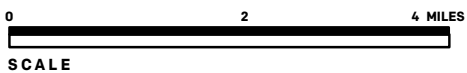
As explained in the TDM Encyclopedia (www.vtpi.org/tdm/), a resource of the Victoria Transport Policy Institute, "traffic congestion is a non-linear function, meaning that a small reduction in urban-peak traffic volume can cause a proportionally larger reduction in delay. For example, a 5% reduction 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.



CONGESTED ROADS IN TOMPKINS COUNTY 2040



LEGEND



VOLUME OVER CAPACITY > .9

Actual traffic volumes compared to road capacity for AM/PM peak hours
Prepared by the Ithaca-Tompkins County Transportation Council 9/18

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 in 2018. Bicycling remains an underutilized and underdeveloped mode. With 52% of all trips less than 2 miles in length, 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.