Appendix A: Strategy Matrix

MTP Goal 1: Promote compact growth and invest in a safe and efficient multimodal transportation system that supports mode shift from single occupancy vehicle travel to other modes, resulting in an overall reduction in vehicles miles traveled (VMT) in the county.				
Action		**Timeline**	**Lead Entity**	**Supporting Entity**
Continue support for communities in implementing the Act 181 and municipal housing targets to achieve the MTP target of 90% of new housing in areas planned for growth		Ongoing	CCRPC/Cities/Towns	State Agencies & Private Developers
Monitor countywide and municipal VMT annually using the Transportation Sustainability Tracking Tool and other tools		Annually	CCRPC	Cities/Towns/UVM TRC
1.1 - Provide guidance, support, and standardization for municipal TDM land use regulations, policies, and monitor results				
1.1A	Evaluate existing municipal TDM regulations and develop model TDM ordinances. Support adoption by interested municipalities.	2-3 years	CCRPC/CATMA/GMT	Cities/Towns
1.1B	Promote the use of TDM to reduce impact fees and expedite permitting.	2-3 years	Cities/Towns	CCRPC/CATMA
1.1C	Update the model TDM language to align with emerging industry trends and to address any local challenges.	Ongoing	CCRPC/CATMA/GMT	Cities/Towns
1.1D	Work with municipalities to develop language in municipal regulations that requests coordination between carsharing and developers when identifying EV charging locations.	Ongoing	CarShare VT/CCRPC	Cities/Towns
1.1E	Include EV charging for carsharing in municipal EV charging plans.	1-2 years	VEIC/CarShare VT/ CCRPC	Cities/Towns
1.2 - Support communities in evaluating zoning regulations and identifying opportunities for unbundling parking with land use regulations.				
1.2A	Develop standard guidelines for unbundling parking with land use.	0-1 year	CCRPC	Cities/Towns
1.2B	Assist communities that want to investigate paid parking and shared parking opportunities.	Ongoing	CCRPC	Cities/Towns
1.2C	Assist communities to develop and implement shared parking policies and conduct a pilot.	1-3 years	Cities/Towns	CCRPC
1.2D	Collaborate with developers and local authorities to establish parking monitoring systems that track parking maximums in land use regulations.	Ongoing	Cities/Towns	CCRPC/CATMA
1.2E	Monitor parking supply over time as a function of land use development.	Ongoing	Cities/Towns	CCRPC
1.3 - Support employer-sponsored TDM strategies.				
1.3A	Work with employers to develop new, or evaluate and build upon existing Parking Cash Out programs.	0-1 year	CATMA	CCRPC
1.3B	Assist employers to adopt a Parking Cash Out program.	1-3 years	CATMA	CCRPC
1.3C	Monitor employers providing a Parking Cash Out program.	Ongoing	CATMA	CCRPC
1.3D	Work with employers to support and promote carsharing as a business member/fleet option.	Ongoing	CarShare VT	
1.4 - Create a TDM toolkit for employers and property managers, establish and conduct related training courses.				
1.4A	Study TDM industry trends and best practices globally.	0-1 year	CATMA	CCRPC/GMT
1.4B	Develop a TDM toolkit for employers and property managers that can be customized as needed.	1-3 years	CATMA	CCRPC/GMT
1.4C	Develop and implement TDM training for employers and property managers.	Ongoing	CATMA	CCRPC/GMT
1.5 - Work with employers to maintain increases in teleworking from pre-pandemic levels.				
1.5A	Conduct employer outreach to understand their return-to-office and hybrid policies. Evaluate existing teleworking adoption rates.	0-1 year	CATMA	
1.5B	Develop a program to monitor telework policy adoption.	1-3 years	CATMA	
1.5C	Monitor changing work patterns and industry trends to adapt strategies that will maintain the MTP goal of 50% teleworking.	Ongoing	CATMA	
1.5D	Conduct regular outreach events promoting teleworking.	Ongoing	CATMA	
1.5E	Develop guidance to identify and create telework hubs or coworking spaces.	1-3 years	Cities/Towns/ Developers	CCRPC/GBIC/VCET/ others
1.6 - Collaborate with TMA/TDM organizations to support their long-term sustainability.				
1.6A	Identify opportunities to increase funding for TMA/TDM partners such as CATMA, CarShare VT, Local Motion and others.	1-3 years	CCRPC	TDM Partners
1.6B	Collaborate with key stakeholders, including the state legislature, to increase and sustain TMA/TDM funding	Ongoing	CCRPC	TDM Partners

MTP Goal 2: Improve transit services in the county and encourage housing growth along transit trunk routes. Long-term target: triple transit service from baseline level of revenue miles				
Action		**Timeline**	**Lead Entity**	**Supporting Entity**
2.1 - Collaborate with Vermont's Public Transit Advisory Committee (PTAC), transit providers, state agencies and the Legislature to identify sustainable transit funding and support system expansion.				
2.1A	Identify and secure stable funding sources to improve/expand transit service in the state and county.	0-3 years	Legislature/State	CCRPC/Cities/Towns/ PTAC/GMT
2.1B	With additional funding secured, create a phased transit growth plan that builds on the core system and serves future development.	When applicable	GMT	CCRPC/Cities/Towns
2.1C	Work with partners to identify innovative funding mechanisms (such as transit impact fees, land use value capture, etc.) that supplement and enhance public funding.	Ongoing	GMT/CCRPC	Public/Private Entities
2.2 - Survey and collect feedback on frequently raised transit concerns.				
2.2A	Develop rider engagement process to collect feedback and inform planning decisions.	0-1 year	GMT	CCRPC
2.2B	Analyze feedback and develop an action plan to address the concerns. Create a dashboard to transparently communicate the results and actions.	1-2 years	GMT	CCRPC
2.2C	Conduct annual ridership satisfaction surveys to monitor and collect feedback on the most frequently raised concerns to evaluate the impact of short- & medium-term strategies.	Ongoing	GMT	CCRPC

2.3 - Expand public awareness campaign to communicate the wider benefits of transit and improve communication regarding existing transit programs and benefits.					
	2.3A	Develop a transit awareness and promotion campaign.	1-2 years	GMT	CCRPC/CATMA
	2.3B	Conduct annual awareness events in conjunction with TDM partners in various communities throughout Chittenden County.	1-3 years	GMT	CCRPC
2.4 - Utilize a transit/carpool/TDM platform that provides multimodal trip planning, real time information and incentives.					
	2.4A	Evaluate use and success of existing platform(s) and determine if changes are needed.	1-2 years	VTrans	CATMA/GMT
2.5 - Support the development of a transit pass program.					
	2.5A	Evaluate staffing, technological or other needs to support the program in the long term.	0-1 year	GMT	
	2.5B	Develop and conduct a pilot transit pass program.	1-3 years	GMT	
	2.5C	Evaluate the pilot program and launch the final transit pass program.	3-5 years	GMT	
	2.5D	Encourage employers to subsidize transit passes for employees. Incentivize employers with discounted transit pass rates.	Ongoing	GMT/CATMA	
2.6 - Maximize positive impact of development projects on transit by encouraging TOD.					
	2.6A	Assist municipalities in the development and update of existing TOD ordinances. Find mechanisms to expedite permitting along transit routes.	0-1 year	CCRPC	Cities/Towns
	2.6B	Create standards for bus stop designs and amenity requests.	1-3 years	GMT	Cities/Towns
	2.6C	Explore ways by which private developments may contribute to transit services and amenities, and if/how transit impact fees might be possible.	2-7 years	Cities/Towns	GMT/CCRPC
	2.6D	Explore innovative mechanisms like reduced parking requirements or density bonuses if developers provide transit, carshare, parking/memberships/TDM education, etc.	Ongoing	Cities/Towns	CCRPC
MTP Goal 3: Implement complete streets to provide for safe, interconnected, and efficient walking & biking networks. Long-term target: double the number of walking & biking trips from pre-Pandemic levels					
Action			**Timeline**	**Lead Entity**	**Supporting Entity**
3.1 - Focus on areas that present the greatest opportunity for mode shifting to maximize returns on projects in these areas.					
	3.1A	Use data and analysis from the Regional Active Transportation Plan (ATP), as well as the Regional Safety Action Plan and other related plans, to identify and target areas with high level-of-traffic-stress, on the high injury network, and high return-on-investment opportunities, including regional connections, to provide safe, connected walking and biking infrastructure.	0-3 years	CCRPC/Cities/Towns	
	3.1B	Develop municipal and employer policies to support and maximize the return on those projects. These include preferential parking for bikes, showers/locker facilities, employer incentives, etc.	2-7 years	CCRPC/Cities/Towns	Employers/CATMA
	3.1C	Monitor and track progress on active transportation infrastructure development, and identify new opportunities for low stress routes.	Ongoing	CCRPC	Cities/Towns
3.2 - Work with municipal partners to create and implement local Active Transportation Plans (ATPs).					
	3.2A	Continue to assist municipalities to develop local ATPs that identify infrastructure projects, as well as programs and policies, for improving the local walk/bike networks and regional connections.	Ongoing	Cities/Towns/CCRPC	Other Entities
3.3 - Make walking and biking the preferred travel options.					
	3.3A	Develop a toolkit/design guide to improve safety through low-cost quick build treatments and opportunities for pilot projects.	1-2 year	Local Motion	CCRPC
	3.3B	Develop a wayfinding toolkit communities can adopt, and create maps/adequate wayfinding for visitors.	2-3 years	Local Motion	CCRPC
	3.3C	Integrate walking/biking infrastructure with transit stops.	Ongoing	Cities/Towns/GMT	
	3.3D	Work with partners to identify and launch a bikeshare program that meets local goals.	1-2 year	CATMA	Cities/Towns/CCRPC
3.4 - Market and create awareness for comprehensive walk and bike philosophy for short trips.					
	3.4A	Develop a public campaign about walking and biking as the first choice.	0-2 years	Local Motion	CCRPC/CATMA
	3.4B	Develop and conduct annually a county wide training for young adults, women and inexperienced riders focused on how to ride bikes safety on the streets.	Annually	Local Motion	
	3.4C	Identify and attend events to create awareness of walking and biking as transportation options.	1-3 years	Local Motion	CCRPC
3.5 - Promote e-bike use. Facilitate access to funding sources that assist individuals in purchasing bicycles/e-bikes/cargo bikes.					
	3.5A	Develop and publicize information on existing grants, rebates, or other funding options of e-bikes.	0-1 year & annual update	CCRPC	Local Motion/VTrans
	3.5B	Create and promote a one-stop resource to empower people to utilize funding opportunities to increase bike/e-bike/cargo bike access.	1-3 years	CCRPC	Local Motion
	3.5C	Collaborate with partners to address issues around indoor e-bike charging.	Ongoing	VTrans/CCRPC	Local Motion/CATMA/ Legislature
3.6 - Assess the performance of and identify ways to support Safe Routes to School programs around the county.					
	3.6A	Collaborate with schools and communities to evaluate existing Safe Routes to School programs	0-1 year	Local Motion	CCRPC
	3.6B	Identify key actions to support new and existing SRTS programs.	1-3 years	Local Motion	CCRPC
	3.6C	Support communities which do not have SRTS program to develop a program.	Ongoing	Local Motion	CCRPC
MTP Goal 4: Implement a mileage-based fee or other mechanisms to replace the gas tax.					
Support VTrans and the State Legislature in implementing a mileage-based fee or other alternatives to the gas tax for maintaining and funding the transportation system and takes into account the rural nature of the state by incorporating income sensitivity measures.			Ongoing	Legislature/VTrans	CCRPC
Action			**Timeline**	**Lead Entity**	**Supporting Entity**
	4.1A	Continue to advocate for the expansion of broadband.	Ongoing	Internet Providers/ Communities/ Vermont Public Service Department	CCRPC

Appendix B: Evaluation of MTP Travel Option Goals

TO:	Toole Design Group
FROM:	RSG
CC:	Bryan Davis, CCRPC
DATE:	April 29, 2025
SUBJECT:	Task 3 – Evaluation of MTP Travel Option Goals

1.0 OVERVIEW

This memo describes background and context that informed the development of the goals included in the 2023 CCRPC Metropolitan Transportation Plan (MTP) that pertain to Travel Demand Management (TDM), also referred to as Transportation Options (TO). The purpose of this memo is to inform Task 3 in the CCRPC TDM Plan, specifically review the derivation of the original MTP Goals and the status of the policies in the region and any potential gap between the future as envisioned in the MTP. As part of the evaluation, this memo explores the types of actions that may be necessary to achieve the MTP Goals by 2050, as well as those that should be undertaken in the next 10 years.

This memo is set out in multiple parts:

- **Section 2: Moving the MTP Into Action**. Summarizes the status of each MTP goal and identifies immediate, near-term, and long-term actions.
- **Section 3: Current Travel Behavior**. Summarizes the current data on population and travel behavior as summarized from Census data.
- **Section 4: Definition and Status of Each MTP Goal**. Assesses each of the MTP goals using available data.

Appendix A documents the methods and input assumptions that were used in the I89 Corridor Study engagement and modeling on transportation demand management.

2.0 MOVING THE MTP INTO ACTION

Background

The goals in the 2023 CCRPC MTP were informed through a scenario planning exercise conducted during the I-89 2050 Corridor Study. A subcommittee formed to identify a range of possible pathways to reduce VMT sufficiently to eliminate the need for interstate highway widening. The scenario planning process used the VisionEval Regional Strategic Planning Model (VE-[1] to evaluate hundreds of possible outcomes using a set of inputs created with the

[1] https://visioneval.github.io/docs/ for more information on VisionEval

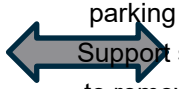
help of the subcommittee. The scenarios used inputs that widely varied and pushed the boundaries on possible policies and investments. The committee recommended the 'lowest VMT' option which informed the development of the MTP goals shown below:

- Increase telework share by 50%
- 90% of households in Existing Developed Areas
- Double walking & biking trips
- Triple transit service
- Increase employer sponsored TDM participation
- Reduce the supply of residential parking and increase the cost of paid parking
- Implement a mileage-based fee to replace the gas tax

The status of each of the MTP Goals is summarized in Table 1.

TABLE 1: MTP GOALS – STATUS AS OF 2024

MTP GOAL	CURRENT STATUS	CURRENT TREND	IMMEDIATE	NEAR-TERM (3-10 YRS)	LONGER-TERM (10+YRS)
Increase telework share by 50%	Met	Flat	Establish monitoring program. Conduct employer outreach.	Support expansion of high-speed internet access to cover the entire county. Support new telework hubs accessible by transit.	Reinforce role that digital connectivity has for reducing physical travel needs
90% of households in Existing Developed Areas	Not Met	Right Way	Support Act 181 implementation, housing targets, and engage with each community and reinforce local role in regional outcomes	Support each communities' housing targets . Work with appropriate communities to draft and adopt model TDM regulations.	Monitor and evolve the land use targets to meet on-going and changing demands
Double walking & biking trips	Net Met	Wrong Way	Review state and local projects for opportunities to address areas of high level of traffic stress and to close network gaps. Identify High ROI areas and projects and supportive policies. Develop a monitoring process.	Comprehensive "walk and bike first" philosophy for short trips	Comprehensive network of high quality sidewalks, paths, trails, & low stress facilities
Triple transit service	Net Met	Wrong Way	Work with transit providers, state agencies and legislature to shore-up the system by changing the way we fund transit, Review transportation	Initiate phased growth plan focused on the core with quality and frequent service	Deliver on the 2x and 3x serivce goals

			projects to maximize positive impact on transit use by providing safe access to transit , engagement to reinforce why transit matters.		
Increase employer sponsored TDM participation	Not Met	Flat	Support and strengthen employer participation in TDM Programs , Support municipal TDM land use regulations, monitor TDM trends, 3rd party validation	Support more municipal TDM regs for employers and developers. Setting countywide TDM targets	Sustainable funding for TDM activities
Reduce the supply of residential parking and increase the cost of paid parking	Not Met	Supply: Right Way Pricing: Flat	 Implement regulations that reduce or eliminate parking requirements. Encourage paid parking in appropriate areas. Support state and local polices to remove parking minimums.	Support communities with paid parking and policies to unbundle the parking. Monitor parking demands and vehicle ownership rates. Support car sharing.	Fewer parking spaces are built as part of land development projects. All parking is unbundled.
Implement a mileage based fee to replace the gas tax	Not Met	Right Way	Support State's efforts to implement mileage based fees.	Evaluate true costs of maintaining system. Expand participation in mileage based fees.	Implement true cost pricing for the maintenance and upkeep of the road system

Each of the goals is further described with the implementation pathways summarized below.

- Increase telework share by 50%
- 90% of households in Existing Developed Areas
- Double walking & biking trips

- Triple transit service
- Increase employer sponsored TDM participation
- Reduce the supply of residential parking and increase the cost of paid parking
- Implement a mileage based fee to replace the gas tax

Telework

MTP Goal: To increase telework share by 50% from pre-Pandemic levels.

The goal has been achieved with teleworking rates still well above pre-Pandemic levels. The Census Journey to Work data (Table 4) shows that Worked from Home remains over 200% higher in 2023 from 2015 levels.

Immediate

- Establish a monitoring program to track teleworking adoption rates across different industries and geographic areas within the county.
- Conduct outreach to employers to understand their return-to-office and hybrid policies, identifying opportunities to promote telework arrangements that can sustain or increase current levels of adoption.

Near-term

- Continue to monitor and support the expansion of broadband and internet access throughout the county and state.
- Develop/support telework hubs/coworking spaces in strategic locations to support remote workers. Survey respondents in high access areas, which tended to have more telecommuters, were most receptive to 10- or 15-minute headways for transit services and free, employer-paid transit passes among transportation option strategies tested.

Longer-term

- Reinforce the role that digital connectivity has in reducing the need for physical travel. Address disparities in how internet access and teleworking varies across different parts of the region.
- Integrate telework into comprehensive land use planning to support “15-minute neighborhoods”
- Monitor changing work patterns and adapt strategies as needed to maintain the 50% increase

What we heard

Survey Findings:

- High access areas showed higher current teleworking rates (47% vs. 36% in limited access areas) according to teleworking usage data[2]

[2] High-access areas are defined as areas with quality transit, biking, and walking facilities while limited access areas are more rural settings.

- The survey oversampled teleworkers relative to the county population, with almost half of the respondents (approximately 320 individuals) reporting they currently work from home, compared to less than one-sixth of workers county-wide according to Census data.
- The survey revealed widespread familiarity with teleworking, with most (over 80%) respondents being at least somewhat familiar with this option. This high awareness indicates the foundation for continued adoption is already established.
- Looking at interest in expanding teleworking, 14% of respondents were “Interested, willing to try if available” and an additional 7% were “Interested, but have questions” about teleworking. This suggests potential for further growth beyond current levels.

Focus Groups:

- While teleworking isn’t available for everyone and unavailable for many occupations, there are many that have implemented part-time teleworking. The results have flattened commuting peaks and provided greater flexibility for those workers that can telework. Hybrid work schedules have led to some individuals willing to drive further for fewer days per week. Land use pressure and residential location choice has been impacted by the ability for teleworking.
- Monitoring the actual travel behaviors for those teleworking, full time and hybrid, will be important to correctly understand the differences in travel and trade offs those workers are making.

Residential Growth

MTP Goal: 90% of households in existing developed areas

The goal is close to being achieved. As of 2022, the latest available data indicates that the goal has not yet been achieved but is trending in the right direction. The latest data from 2018 to 2022 indicates 87% of new homes have been constructed in areas planned for growth.

Immediate

- Support Act 181 implementation, targets, engage with each community and reinforce local role in regional outcomes. The HOME Act targets for additional housing, and related changes in nonresidential demand, will have a significant effect on the number of housing units built in the areas designated for growth.

Near-term

- Over the coming decade, each of the communities will need support as additional land use development occurs. This support may be transportation planning, land use planning, water, wastewater, schools, and other infrastructure.

- Creating opportunities for residents of these new homes to avoid driving a single occupancy vehicle will be critical to establish sustainable behaviors from the start, including supportive infrastructure and land development regulations.
- Support concentrated growth in existing developed areas by encouraging mixes of use and requiring new projects to contribute directly to transportation infrastructure through impact fees, transit stop investments, active transportation infrastructure, 'last mile' options such as dedicated carshare parking, or community benefits agreements.
- Develop and implement a model TDM ordinance with a menu of options for managing travel depending on the scale of new development and community characteristics (e.g., urban, suburban, rural). Create incentives, such as expedited permitting, within the policy for developers to build transit-oriented projects.

Longer-term

- A decade or more, the areas planned for growth will likely need to be evaluated and monitored. The land use targets should evolve to meet on-going and changing demands for land.

What we heard

Survey Findings:

- The survey did not directly assess public attitudes toward concentrated development goals.
- Survey data revealed that residents in high access areas consistently experience shorter travel times across all trip purposes, with nearly 60% of work commutes taking less than 30 minutes compared to about 40% in limited access areas. The contrast is greater for everyday errands, where more than four in ten high access residents completed grocery shopping trips in under 10 minutes—almost double the rate of those in limited access areas. There is an opportunity to shift these shorter trips to other modes besides driving.

Focus Groups:

- Housing costs and the lack of affordable housing close to work and proximate to areas where people would prefer to be, lead to individuals making a housing choice which then leads to poor transportation options. Noted from both residents and employers – housing choices – are so limited it affects the ability to retain employees but also it challenges the ability for those employees to get to work.
- Housing closer to work and closer to activities, recreation and entertainment, creates opportunities for taking transit, walking, and biking.

Active Travel

MTP Goal: To double the number of walking & biking trips from pre-Pandemic levels.

The goal has not yet been achieved. Journey to Work data indicate that walking and biking to work has decreased since 2015.

Immediate

- Identify the areas that present the greatest opportunity for mode shifting and attracting walking and biking uses. Use data and analysis from the Regional Active Transportation Plan to identify and target areas with high return-on-investment project potential. Develop supportive policies to maximize the return on those projects. These include preferential parking for bikes, showers/locker facilities, employer incentives, among many others.
- Survey and understand behaviors of users of the new infrastructure (are they new, did they divert, are they biking more often?)
- Target and address areas of high level of traffic stress and perceived safety risks for walking and biking.
- Develop a toolkit/design guide to improve safety and infrastructure improvements through quick-build treatments
- Promote e-bike use and continue incentives for the purchase of e-bikes. Survey respondents rated using an electric cargo bike during daily travel near the top of transportation options tested.

- Assess the performance of and identify ways to support Safe Routes to School programs around the county. Support local communities to pursue grant funding for planning and supportive infrastructure.

-

Near-term

- Comprehensive “bike first” philosophy for short trips. Look to market and build community awareness of the benefits of biking. Make biking the preferred option and make bike parking available, safe and clean. Prioritize walking and biking at signals. Integrate walking/biking infrastructure with transit stops. Create maps/adequate wayfinding for visitors. The survey revealed latent demand for biking, with over 21% of all respondents interested in trying bicycling but not currently doing so.

  Review state paving projects in Chittenden County to identify opportunities to improve or create wider shoulders or bike lanes.
- Review local and state projects to ensure they comply with Vermont’s Complete Streets law and maximize opportunities to improve active transportation. Identify gaps in the existing network. Look to address areas with high level of traffic stress segments.
- Complete necessary studies and identify funding to build projects that create a comprehensive low stress bicycle network to attract a wider range of users, ensuring it

incorporates the top priorities identified in the survey: protected bike lanes separated from traffic, better bicycle parking, and effective anti-theft measures.

- Develop a comprehensive bicycle/pedestrian action plan that addresses the key needs highlighted by survey respondents, including better maintained and connected sidewalks, improved pedestrian safety measures, and enhanced winter maintenance of walkways.

Develop a countywide initiative focused on training young adults and women about bicycle safety while navigating streets. Infrastructure-based strategies were rated much more highly than educational strategies, suggesting training is a complement to capital improvements.

Facilitate access to funding sources that assist individuals in purchasing bicycles/e-bikes/cargo bikes. Having an electric cargo bike for daily use was rated in the survey near the top of transportation options strategies and having shared e-bikes or e-scooters close to the home or workplace was rated near the middle of the strategies tested.

Longer-term

- Develop priority bicycle corridors through protected bike lanes and separated infrastructure throughout Chittenden County. The network of facilities should aim to link low-stress bicycling networks throughout the county.

What we heard:

Focus Groups

- A significant interest in biking. The concerns of weather and winter can be addressed, especially when the networks can be separated from cars and on low-stress facilities.
- Develop improved ways to maintain and prioritize clearing of bicycle and active travel infrastructure for use during the winter.
- E-biking is a growing interest and users are finding they can cover more ground more quickly and with less intense effort. This will widen the market for trips that can be taken by bicycle.
- Current bike networks are disjointed and do not go where individuals say they want to go.
- Safety is critical. Perceptions of safety. More interested/able to use facilities in poor weather when quality infrastructure exists
- Bike parking and safe intersection treatment needs to be more visible.
- Private bike parking and safety around long-term storage is an impediment to bring a bike and especially e-bike.

Survey Findings:

- Active transportation use was nearly four times higher in high access areas (22% combined - 15% biking and 7% walking) compared to limited access areas (6% combined - 4% biking and 2% walking) according to the most recent trip mode data.
- Exercise was a stronger motivator for active transportation in high access areas (40% vs. 33%), while cost savings were a much stronger motivator in limited access areas (17% vs. 10%). This indicates that residents in limited access areas may be choosing active transportation out of economic necessity rather than lifestyle preference.
- Infrastructure and safety concerns dominated feedback, with approximately 175 comments addressing bike safety needs and 45 specifically requesting protected bike lanes. Cross-cutting barriers included safety concerns, Vermont's winter climate, and family logistics challenges.

Transit

MTP Goal: To triple transit service from baseline level of revenue miles

The goal has not yet been achieved. Transit service has been cut back with a focus on core city services.

Immediate

- Focus on the core of the transit system. Address issues (real and perceived) of safety for those using the transit system.
- Foster a greater sense of engagement with the larger community and the value proposition of transit for the region. Survey and focus groups reinforced that transit provides a valuable travel mode, yet voters seem less willing to fund it. This focuses on communicating the wider benefits of transit and the value that the funding provides.
- Promote better integrated trip planning, real time information and incentives into GoVermont platform in coordination with CATMA.
- Develop a transit pass program at GMT and encourage employers to provide subsidized transit passes to employees.

Near-term

- Initiate phased growth plan that starts to build out from the core system. Innovative funding mechanisms. Implement regional transit funding study. This includes exploring ways by which private land development may contribute to transit services and exploring how transit impact fees might be possible.
- Continue to consolidate to focus on core system. 10-minute headways. Make the limited service really good. 10- and 15-minute transit frequencies were among the highest rated transportation options tested in the survey among both high and limited access respondents. Enhance services in the areas seeing rapid change and land development growth.

- Integrated modes and payment methods.
- Develop an integrated transit pass program with a tiered fare system. A free train/bus pass was rated among the highest transportation options tested in the survey, behind faster transit frequencies, among both high and limited access respondents.
- Continue to support TDM ordinance across the County with incentives like expedited permitting to encourage developers to build transit-oriented development around major transit hubs.

Longer-term

- Secure greater funding certainty to expand service and increase the annual revenue miles to deliver on the 2x and 3x service goals. Survey feedback on transit most frequently raised concerns about limited routes and long travel times due to transfers.
- Explore alternative transit delivery methods. Rural and microtransit for areas with limited fixed route services. Survey feedback mentioned extended transit service hours, particularly evenings and weekends to better serve off-peak commuters.

What we heard

Focus Groups:

- Frequent, reliable service is essential for increasing ridership.
- Payment, ticketing needs to be as frictionless as possible. When paying for parking is easier than the bus, that is a problem.
- Information on routes, and timing needs to be accurate, up to date, and readily available.
- It was noted that during the fare-free period, users enjoyed the ease of entering and exiting the buses.
- Choice riders are sensitive to the minor sources of friction; missed connections, issues with payment, safety issues.

Survey Findings:

- Despite comparable vehicle access rates across areas, residents in limited access areas show higher public transit usage (14% vs 10%) and significantly greater interest in expanded transit service (27% vs 18%), reflecting a dependency on these connections to access essential services and employment opportunities.
- When it comes to public transit use, financial considerations took center stage. Almost 30% of bus users cited cost savings as their primary motivation in limited access zones, with avoiding parking costs as the second most common reason.
- Time savings was the second most important mode choice factor in limited access areas at 16%, but only fifth in high access areas at 10%.

- High access respondents rated frequent bus service strategies most highly, while limited access respondents prioritized door-to-door transportation options suggesting different service needs based on geographic context.

Transportation Demand Management

MTP Goal: To Increase employer sponsored TDM participation

The goal has not yet been achieved. Participation in GoVermont and CATMA appear to be flat.

Immediate

- Develop metrics for TDM programs and track on a regular basis. What does it mean to participate in a TDM program. Survey respondents consistently chose cost savings as a motivation for choosing non-drive alone modes, suggesting savings versus driving would be a useful metric.
- Provide guidance and standardization of municipal TDM land use regulations, monitor demand management trends to inform new TDM strategies to explore. For example, respondents in the survey rated being able to use a shared car located near their residence near the top of transportation options, which could be incorporated into TDM land use regulations.
- Define partnership with CATMA and other organizations and explore how CCRPC could support the long-term sustainability of these organizations.
- Conduct periodic 3rd party validation to assess who is participating in TDM programs, to what extent, and what value is being derived.
- Create a TDM toolkit for employers and property managers.

Near-term

- Creating a county-wide TDM ordinance specifying employers of certain size offer TDM benefits.
- Creating a TDM monitoring evaluation system

Longer-term

Focus Groups & stakeholders' engagement:

- Develop a sustainable funding mechanism for a car-pool incentive program. Can this be scaled and managed at a countywide level to attract more participants, business, organizations, etc. Carpool showed moderate interest levels in the survey, with almost one-fifth (17%) of respondents willing to try carpooling if available. The survey found cost savings were a significant motivator for carpool/vanpool users (24% in limited access areas and 20% in high access areas), supporting the case for monetary incentives.

- Improve the roles and responsibilities of CATMA & GoVermont. Define the performance measures used for each organization. How are vanpools and other programs that GoVermont provide incorporated in Chittenden County? Can CATMA help facilitate and find employer support for vanpools for larger employers.

What we heard

- During stakeholder engagement, it was suggested that the TDM an ordinance used by Everett, Massachusetts, where property owners are required to join a Transportation Management Association. This self-policing model encourages property owners to keep each other accountable for promoting alternative transportation modes and would allow an organization such as CATMA to focus on its role as educator, rather than also acting as an enforcer.
- Employees are starting to recognize the branding efforts of GoVermont and CATMA. Few understand relationships, why they exist, how they are funded.
- Education remains critical and essential. Most employees were not clear whether their employer offered TDM benefits/services or not.

Survey findings:

- Limited access respondents showed strong interest in sustainable transportation options in our survey, with almost 27% willing to try public transit if available in their area, compared to 18% in high access areas. The analysis identified financial incentives such as employer-provided free bus/transit passes as one of the top five most effective transportation options strategies across the county.

Parking

MTP Goals:

- *Reduce the supply of residential parking and increase the cost of paid parking.*
- *Increase the places around the county where paid parking is anticipated to occur.*

The goal has not yet been achieved. Trends are moving in the right way, with parking minimums reduced as part of the HOME Act. Parking pricing appears to be becoming more common.

Immediate

- Continue to support communities as they implement the HOME Act.
- Conduct an updated countywide comprehensive parking inventory and utilization study.

- Implement a Parking Cash-Out Program and require employers who provide subsidized parking to provide a cash-out option for sustainable options.

Near-term

- Support communities as they consider paid parking and where it would be allocated to benefit TDM goals
- Support to communities to identify opportunities for shared parking and unbundling parking as part of local land use regulations.
- Monitor vehicle parking demands and vehicle ownership rates.
- Greater support for car sharing as an alternative to vehicle ownership. Develop a funding stream to promote (expand and subsidize) car sharing more widely. Provide greater land use regulation that reduces built parking supply when car sharing is offered.
- Collaborate with real estate developers and municipalities to establish comprehensive parking monitoring systems that track compliance with parking maximums in TDM land uses regulations

Longer-term

- Monitor the supply of parking over time as a function of the land use development.
- Maintain records of paid parking, costs, availability, etc. Evaluate vehicle ownership rates, paid parking, parking supply, are all related in different parts of the county.
- Redevelop excess or underused parking lots for housing and mixed-use development.

What we heard

Focus Groups:

- A diverse range of opinions on paid parking. Many felt it was worthwhile to pay for parking close to the destination.
- Paying for parking is easy; easier than paying for the bus.
- Paid parking is a powerful motivator to walk or bike.

Survey Findings:

- The survey shows that parking costs influence mode choice, with 42% of bus riders and 19% of walkers/bikers citing either “saving money” or “avoiding parking costs” as their primary motivation.
- Parking-related strategies that would adjust the cost and convenience balance of driving, such as parking cash-out or increased parking fees, were rated around the middle of transportation options tested in the survey.

Pricing

MTP Goal: To Implement a mileage based fee to replace the gas tax

The goal has not yet been achieved. The initial stages of a mileage based fee is happening with electric vehicles.

Immediate

- Support policies and procedures to implement mileage based fees.
- Study equity implications and potential mitigation strategies
- Support a stakeholder forum for expansion of EV registration fees to more vehicle types.

Near-term

- Chittenden County maintains the lead on the policy support and analysis for mileage based fees. The urban and rural parts of the county are a microcosm of the state as a whole and can be a testing ground.
- Design policies to widen the role of mileage based fees. Design programs to reflect vehicle specific impacts – heavier and less efficient vehicles pay more than highly efficient, low impact vehicles.

Longer-term

- Support the implementation of policy refinement framework for mileage-based fees that uses real cost pricing to determine optimal rates for maintaining and funding the transportation system, with clear mechanisms showing how the revenue is allocated.

What we heard

Focus Groups:

- Using pricing to nudge behavior is generally accepted.
- Provide and fund alternatives to the more expensive options.

Survey Findings:

- The survey doesn't include any questions about public attitudes toward mileage-based fees, nor does it specifically test receptiveness to mileage-based fees, focusing instead on other transportation options strategies like transit improvements and employer incentives.

3.0 CURRENT TRAVEL BEHAVIOR

The I89 Corridor Study used both the network based travel demand model and the VisionEval model to forecast future conditions in the county. Both models used 2015 as the base year and used the year 2050 as the future reference year. The reference conditions in 2050 were designed to model the year 2050, assuming many of the travel behaviors are similar to today, but they reflect future land use and future transportation networks. The VisionEval model was used because it is more flexible to account for changes in behavior that may occur due to an aging population, if fuel prices change, or if travel option incentives are available. These are just a few of the policies and investments that VisionEval can account for, adding depth and richness to the traditional travel demand model.

Changes from the base condition in 2015 are used to monitor progress toward meeting the MTP Goals. This section summarizes current travel behavior data to evaluate changes that have occurred since 2015. The COVID-19 Pandemic has played an outsized role in influencing some changes in behavior that overwhelm most of the policies and infrastructure changes that have occurred since 2015. Some of these changes include commute mode as well as population shifts. Others may be less obvious, such as home prices and demand for housing which continues to influence residential choices for Chittenden County residents.

The following summarizes key data points important to track over time as the MTP Goals are being pursued.

Regional Population and Forecasts

The population of Chittenden County is estimated to be approximately 169,000 residents as of 2023, per US Census American Community Survey (ACS) (5-year) data. This is around 10,000 more residents than there were in 2015. The 2023 MTP uses the forecasts created during the 2018 MTP. Population, the rate of change, and the locations for that land use development in the county are essential ingredients for influencing the travel activities in the county. Creating the conditions that can enable efficient use of the existing capacity and allow for multimodal travel and minimize single occupant vehicle is essential in the land development pattern.

Forecasting population and land development change in the county has been difficult. The majority of the population growth forecasts have consistently overestimated the rate of growth expected in the county; one of the more recent forecasts used in the 2013 MTP expected the county to have around 10,000 more residents (about a 6% difference) than what has been experienced. Older forecasts were much more optimistic on the population growth of the county, with the 2001 Regional Plan forecasting a population close to 250,000 by the year 2035.[3]

The current population estimates from the ACS 5-year and the three most recent MTP forecasts are included in Table 2.

[3] See Appendix B.

TABLE 2: CHITTENDEN COUNTY POPULATION

YEAR	TOTAL POPULATION (5-YEAR ACS)	2035 MTP FORECAST (2013)	2050 MTP (2018 & 2023 ECOS)
2010	154,729	154,729	
2011	155,666	155,666	
2012	156,696	156,696	
2013	157,637		
2014	158,686		
2015	159,711	164,170	161,382
2016	160,510		
2017	160,985		
2018	162,052		
2019	162,646		
2020	163,414	174,348	
2021	167,523		
2022	168,309		
2023	168,831		
2025		184,694	
2030		195,070	172,596
2035		205,445	
2040			176,179
2045			
2050			183,172

Source: US Census ACS (5-year) and CCRPC MTPs

Travel Options enable residents to choose the travel method that works best for them, providing alternatives to driving, and specifically driving alone (single occupant vehicle – SOV). Assessing the rate of vehicle ownership across the county provides a high-level snapshot as to whether residents are able to rely on these alternatives and eventually reduce the number of owned vehicles. Table 3 shows that the rate of vehicle ownership per capita may be increasing. National data indicate that Chittenden County is not unique in this trend.[4]

TABLE 3: ESTIMATED VEHICLES AND VEHICLES PER CAPITA

	ESTIMATED NUMBER OF VEHICLES	POPULATION	PERSONAL VEHICLES PER CAPITA
2010	106,819	154,729	0.690
2015	110,741	159,711	0.693
2020	113,590	163,414	0.695
2023	120,467	168,831	0.714

Source: B08201: Household Size by Vehicles Available

Travel Mode Analysis

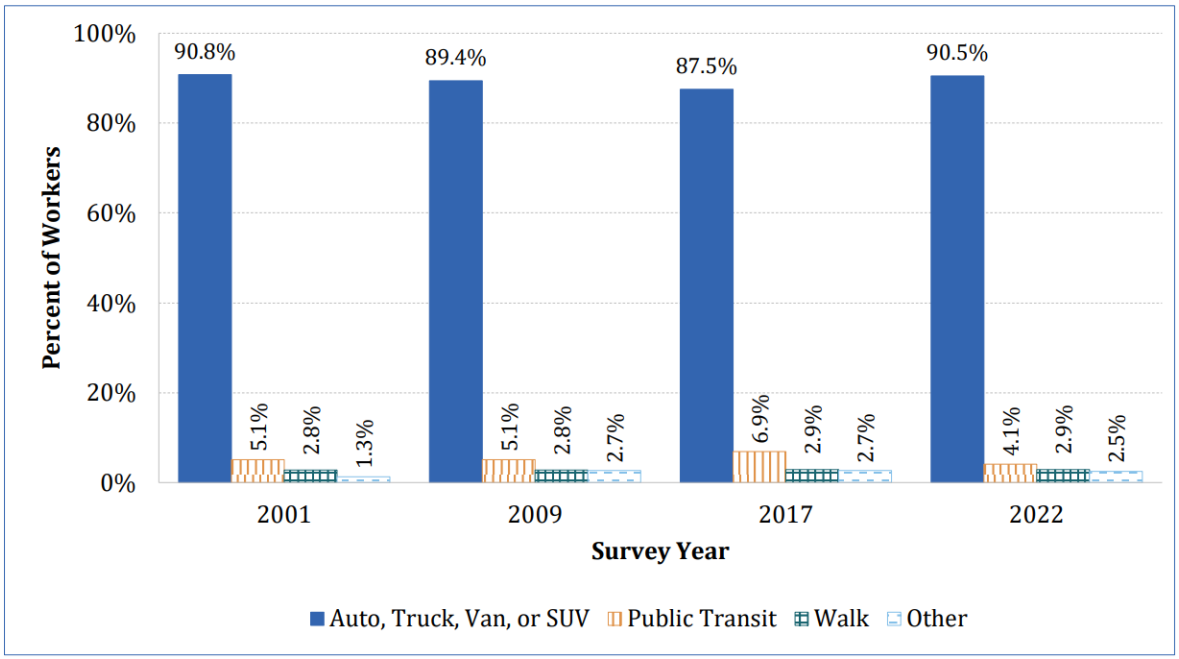
Methods of evaluating the current use of travel options and alternatives to SOV travel is not a straightforward or trivial task. Household travel surveys, also known as travel diaries, are the most common method to better understand how individuals travel. The US Department of

[4] https://www.forbes.com/advisor/car-insurance/car-ownership-statistics/ Nationally, vehicle registrations increased by 3.5%. In Vermont, an estimated increase in vehicle registrations per licensed driver increased by 1.4% between 2018 and 2022.

Transportation conducts the National Household Travel Survey (NHTS). While the full complement of daily travel is captured in household surveys, the commute trip has been historically the focal point of transportation planning. The most recent NHTS indicates that the share of commute VMT to total VMT remained the same in 2017 and 2022, around 30%.[5]

The consistency of commute travel and the influence that commute related travel has on congestion and the design of the transportation system are key reasons why it has remained a focus. Figure 1 shows notable changes in travel trends, likely attributed to the changes in travel instigated by the COVID-19 Pandemic and specifically the dramatic rise in teleworking.

FIGURE 1: 2022 NHTS DISTRIBUTION OF WORKERS BY USUAL COMMUTE MODE



Other modes include those not specifically cited, including motorcycle, taxi, biking, etc.

The US Census ACS includes Commuting, referred as Journey to Work, of residents in the workforce, age 16 and older. The stability of the data over time is an important source of data to identify trends in travel. Using the 5-year average, rather than the more volatile 1-year survey, benefits from the largest sample and data from all population areas. This is helpful in an area such as Vermont that already has a small population.

Census Data (ACS)

The ACS 5-year data is used to contrast how travel is changing as well as informing the current status of alternatives to SOV travel. The current conditions will guide the types of interventions that may be needed to achieve the CCRPC MTP Goals. The ACS data for the Census Block Groups in Chittenden County are summarized in Table 4.

[5] 2022 NHTS Summary. https://nhts.ornl.gov/assets/2022/pub/2022_NHTS_Summary_Travel_Trends.pdf

TABLE 4: JOURNEY TO WORK - MODE SHARE - BY CHITTENDEN COUNTY RESIDENTS

MEANS OF TRANSPORTATION TO WORK	2015	2019	2023	CHANGE FROM 2015 TO 2023
Car, truck, or van	81.6%	81.0%	71.9%	-11.9%
Drove alone	73.2%	72.7%	63.9%	-12.7%
Carpooled	8.4%	8.3%	8.0%	-4.8%
In 2-person carpool	7.3%	6.9%	6.6%	-9.6%
In 3-person carpool	0.7%	1.0%	0.8%	14.3%
In 4-or-more person carpool	0.4%	0.5%	0.6%	50.0%
Workers per car, truck, or van	1.1%	1.1%	1.1%	0.0%
Public transportation (excluding taxicab)	2.4%	2.8%	2.0%	-16.7%
Walked	7.4%	7.8%	5.9%	-20.3%
Bicycle	2.0%	2.0%	1.8%	-10.0%
Taxicab, motorcycle, or other means	0.6%	0.8%	0.8%	33.3%
Worked from home	5.9%	5.5%	17.7%	200.0%

Source: S0801 ASC 5-year data

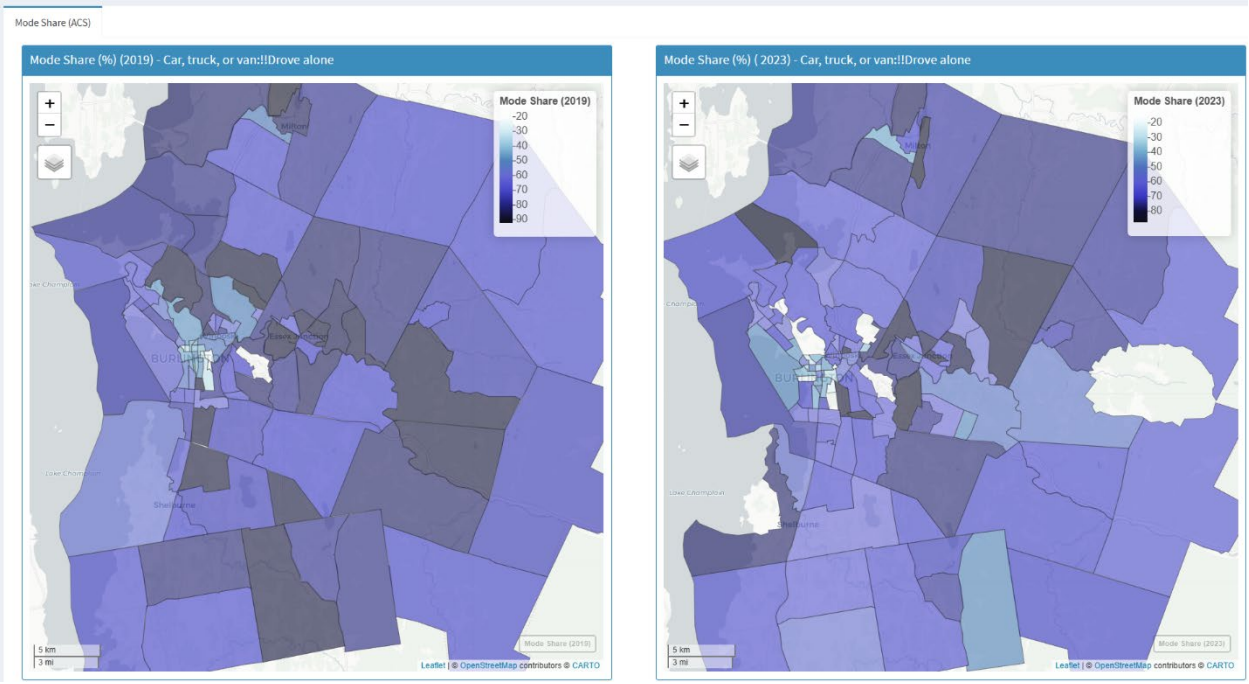
The ACS data illustrate the dramatic increase in the share of workers who "Worked from home." Less significant in magnitude, but related, is the decline in all other commute modes from the 2015 and 2019, pre-COVID conditions. The data for 2019 and 2023 ACS data is visualized in this online map https://rsginc.shinyapps.io/cc_dashboard/. Note that the census block groups changed shape between 2019 and 2022 after the decennial census making comparisons between specific geographies challenging.

The following maps illustrate the regional differences between 2019 and 2023 for the main travel modes: drove alone, public transport, bicycle, walking, and worked from home.

Drove Alone

The 2019 Drive Alone generally shows the common radial pattern, with most suburban communities having higher SOV rates. The 2023 maps show that pattern as well, but notably many areas have declined in absolute value. Figure 2 shows the Drive Alone mode shares.

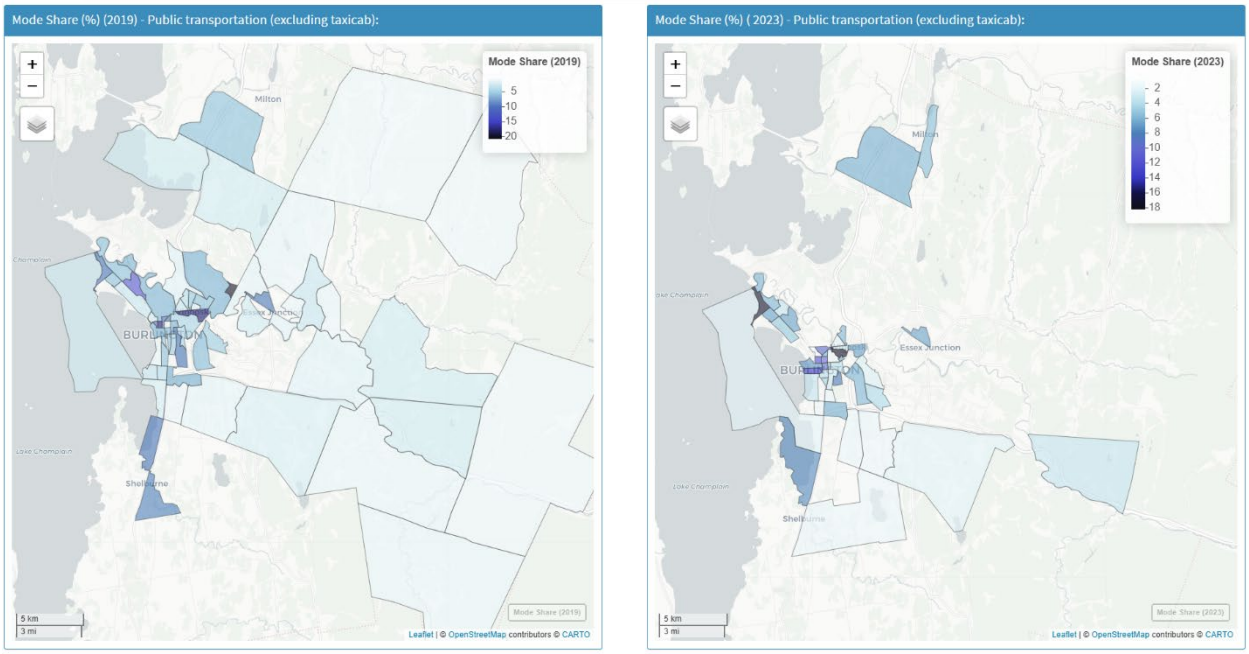
FIGURE 2: DRIVE ALONE MODE SHARE



Public Transportation

2023 shows a slight change in the absolute values relative to the 2019 use. The geographic distribution is nearly the same – areas of Milton, Essex Junction, Shelburne, South Burlington, Winooski, and Burlington have higher transit use. Figure 3 shows the Public Transportation mode shares.

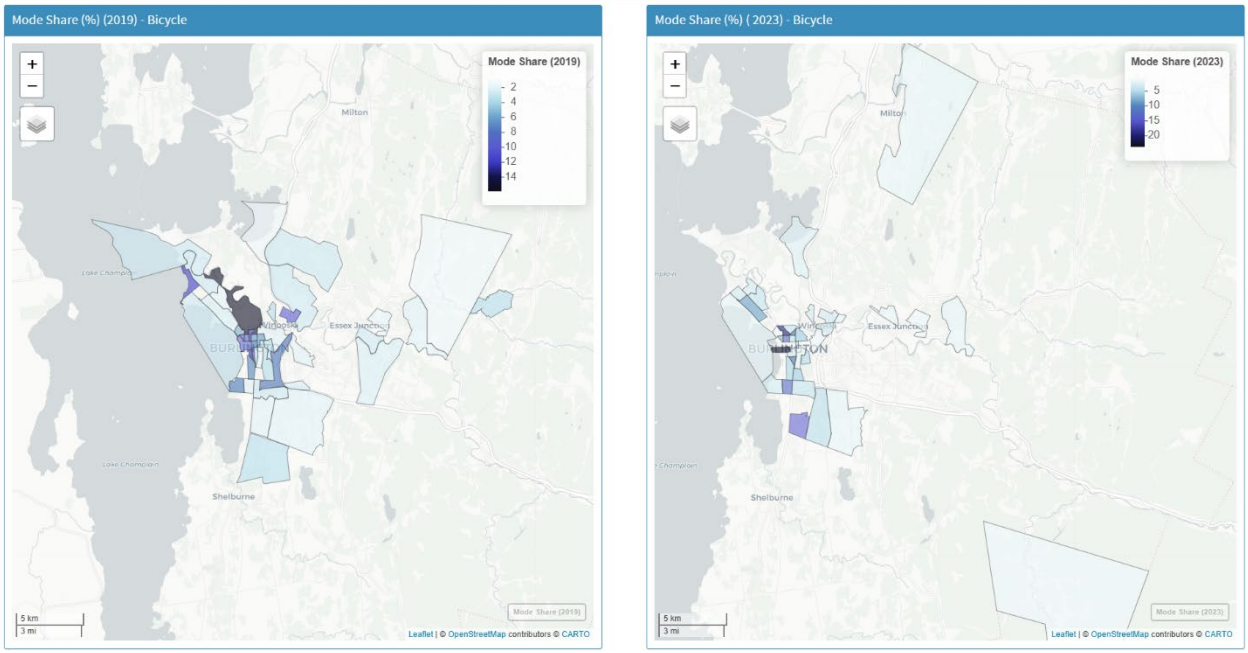
FIGURE 3: PUBLIC TRANSPORTATION MODE SHARE



Bicycle

The ACS data indicates a small absolute change in the level of bike commute use from 2019 to 2023. The maps indicate that there might be fewer bike commuters from within Burlington and South Burlington. Block groups further away also appear to decline in magnitude, albeit they are quite small differences. Figure 4 shows the bicycle mode shares.

FIGURE 4: BICYCLE MODE SHARE



Walked

The maps of the walking mode share look quite similar between 2019 and 2023. The change in the polygons make a direct comparison challenging. The small difference in the countywide values suggest that while the geographic distribution is similar, the absolute values are lower. The walking mode share shows the highest rates in the Burlington and Winooski downtowns. Figure 5 shows the Walk mode shares.

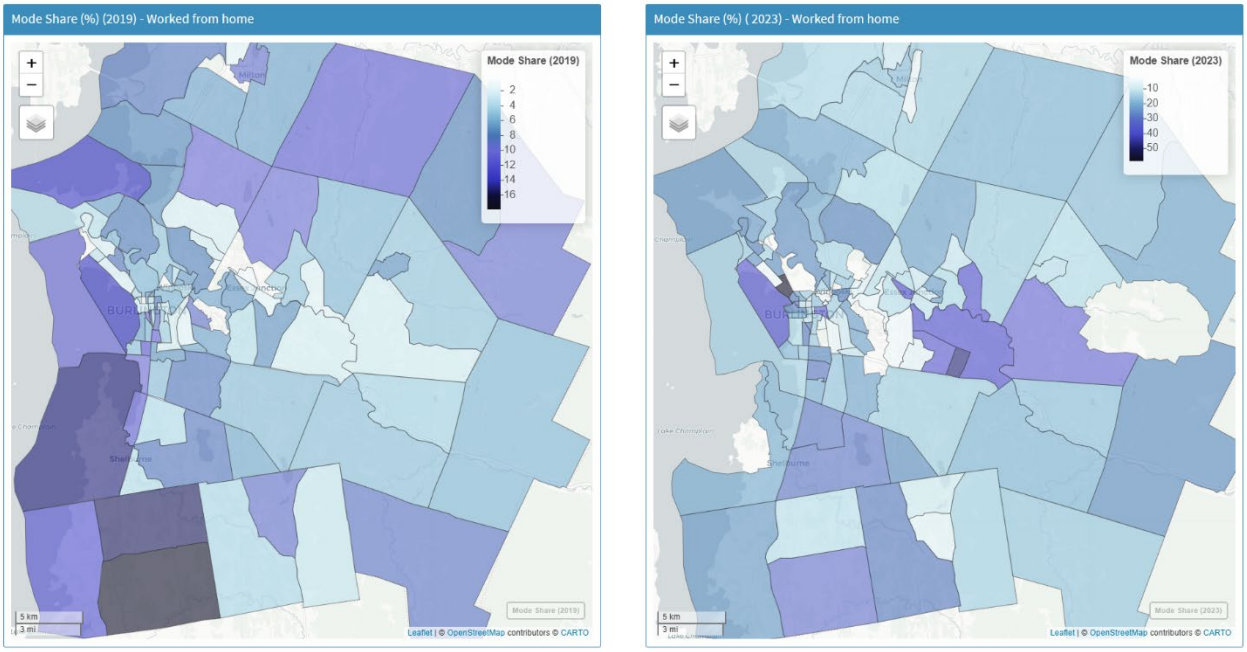
FIGURE 5: WALK MODE SHARE

Worked From Home

The rate of Working From Home increased dramatically throughout the county between 2019 and 2023. The increase is not limited to any specific geographic area, even zones in downtown Burlington increased in the rate of Work from Home commute mode. It appears that although the overall absolute values went up significantly, there were some notable changes in

distribution. The communities along the I-89 corridor and VT 116 corridor increased in 2023. Figure 6 shows the Worked from Home mode shares.

FIGURE 6: WORKED FROM HOME MODE SHARE



Vehicle Travel Demand

The State of Vermont maintains a handful of permanent count sites in Chittenden County. Two locations that are more tied to local activity as opposed to statewide or interstate travel include a count site on I-189 and a count site on US 2 – Williston Road.

Annual average daily traffic, AADT, is a helpful metric to evaluate changes in vehicle demand over time. As population changes over time, per capita measures in additional to absolute values are valuable performance measures. The analysis in Table 5 suggests that on a per capita basis the vehicle flows on I-189 and on US 2 are below the levels in year 2015.

TABLE 5: VEHICLE FLOWS AT TWO COUNT SITES

	I-189		US 2 EAST OF INDUSTRIAL AVENUE	
YEAR	AADT	AADT/ 1k Population	AADT	AADT/ 1k Population
2023	38,578	228.50	10,228	60.58
2019	33,927	208.59	11,456	70.44
2018	36,755	226.81	10,730	66.21
2015	38,095	238.52	10,641	66.63

Source: RSG analysis of VTrans CTC data

4.0 DEFINITION AND STATUS OF EACH MTP GOAL

MTP Goals

Teleworking Rates

MTP Goal: To increase telework share by 50% from pre-Pandemic levels.

The 2023-year ACS Census data indicate around 17.7% of workers are Working From Home (WFH). The ACS reflects data only on those who answered they "usually" work from home and on any given day there may be a slightly different rate. That compares to around 5.9% who worked from home back in the year 2015. The ACS data doesn't distinguish between those who always work at home, have a home-based business, or telework.

The change between 2019 (5.5%) and 2023 (17.7%) in the ACS WFH rates are most likely attributed to the dramatic increase in those telecommuting rather than an increase in those with full time home-based businesses. The 200% change shown in the 2023 data exceeds the 50% increase expected in the MTP Goal. The new Chittenden County workers (11.8% of employed residents) who "Worked from Home" as of 2023 are more than likely those who are teleworking and are associated with the decreased use of physical commute modes (drove alone, transit, biking and walking).

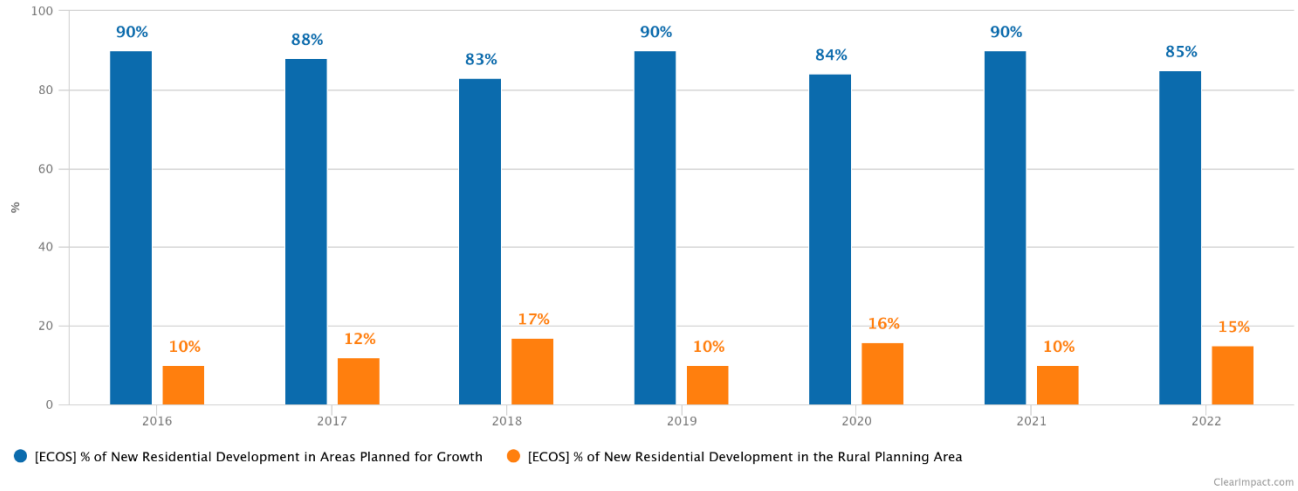
Developed Areas

MTP Goal: 90% of households in Existing Developed Areas.

Since the 2011 CCRPC long-range plan, the goal has been to achieve 80% of residential growth in existing developed areas. The 2023 MTP increased that percentage to achieve 90% of residential growth in existing developed areas. The most recent land use data (2018-2022) indicates that 87% of new development within Chittenden County has occurred in the existing developed areas, exceeding the 2018 ECOS Plan goal of 80% but just shy of the 2023 MTP Goal. Noted, as defined, the designated land areas won't grow, as they represent the areas established by each local community where growth is planned and allowed to occur to limit additional sprawl and development of the rural areas.

This goal measures the percentage of new homes in areas planned for growth. These are defined as Center, Metro, Enterprise, Suburban, and Village Planning Areas.

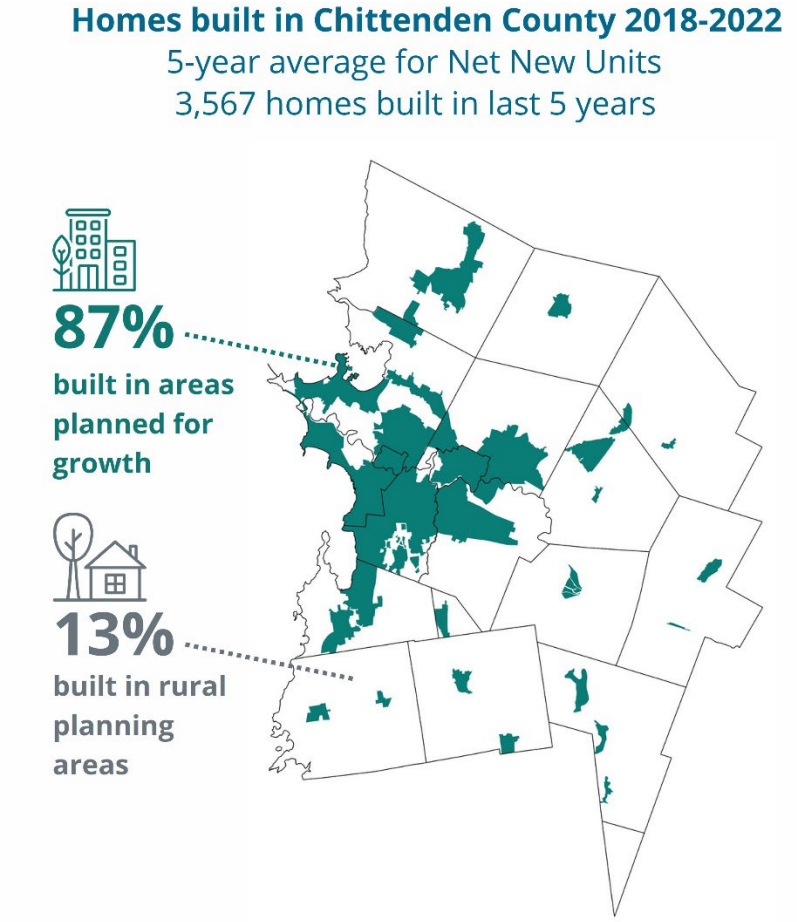
FIGURE 7: % OF NEW RESIDENTIAL DEVELOPMENT IN AREAS PLANNED FOR GROWTH



Source: Chittenden County Municipal Planning and Zoning

The CCRPC has determined "that infill in the right places has positive benefits of increased inclusivity and economic strength. For the ninth year in a row, Chittenden County has exceeded its ECOS Plan goal of 80% of development occurring in planned growth areas. In 2020, 419 of 508 units (82%) were in areas planned for growth." As shown in Figure 8, 87% of net new housing units between 2018 and 2022 occurred in the areas planned for growth.

FIGURE 8: HOMES BUILT IN CHITTENDEN COUNTY 2018-2022 (5-YEAR AVERAGE OF NET NEW UNITS)



Source: CCRPC

Policy directives from the State of Vermont with the HOME Act in 2023 and the subsequent passing of Act 181 in 2024 reinforce the state's attention to providing support for housing and specifically land development in areas already targeted for growth. Chittenden County municipalities are working with the CCRPC on housing targets and the state has revised the statewide rules involved in when land development is required to obtain a state Act 250 land development permit. These actions are moving the land use MTP Goal in the right direction.

Active Travel

MTP Goal: To double the number of walking & biking trips from pre-Pandemic levels.

The goal seeks to double the total share of trips made by walking and biking. The goal considers all trips, not only the share of trips made by commuters. Measuring and tracking progress toward this is a challenge, however, it is reasonable to presume that by tracking key measures such as the commute mode and tracking key locations where active travel is likely to occur in the county over time will provide a trend of active travel.

The ACS commute mode shown in Table 4 indicate that active modes for commuting have declined, moving the trend in the wrong direction.

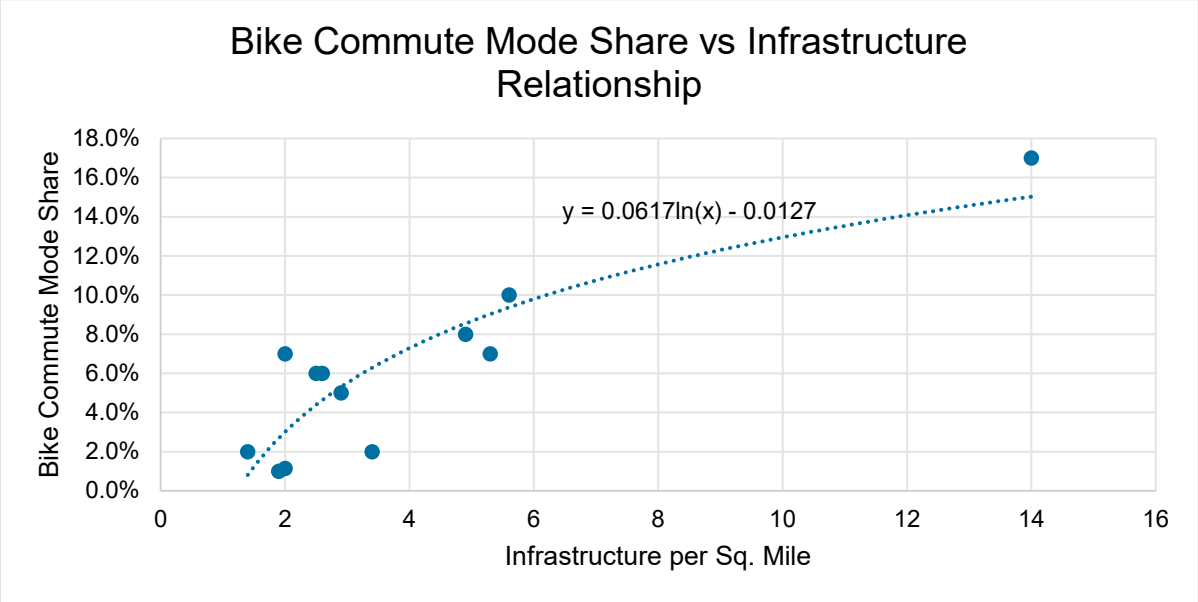
Walking and biking are essential alternatives to SOV travel, providing health and economic benefits along with improved environmental outcomes. They also are highly efficient modes, able to fit many users in a small amount of physical area. The primary limitations is the speed of travel and therefore the trip lengths. Winters in Vermont are also a major impediment to year-round use, although other cold climate countries have shown it doesn't have to be a deal breaker.

There are many activities that can encourage more users to use walking and biking modes of travel. They can loosely be grouped into these categories:

- **Education**: training people on how to travel safely, in all weather conditions, nighttime, and how to share infrastructure (roads, paths, etc.) with other users. Starting at young ages and providing opportunities to engage with all others in the community is important. Reinforcing the roles that organizations such as Local Motion have in the community and building greater awareness about active travel modes.
- **Encouragement**: Community awareness of the benefits of active travel can reinforce and encourage individuals to make this choice. Municipalities and organizations can positively message the role that active travel has in the community. Bike to school and bike to work days are important signals to reinforce these behaviors.
- **Policies**: Supporting active travel requires shifting priorities to where bike racks, clothing storage, locker rooms, or even showers are considered a routine part of land use planning. Policies that encourage people to avoid using a private car, such as parking cash buy out, preferential parking for carpooling and cyclists, and purchase and maintenance incentives for bicycles are among those that can nudge individuals toward active travel choices.
- **Equipment**: Electric bikes, cargo bikes, and new bike designs can improve speed and comfort as well as the types of activities that bicycles can be used for. Expanding the range of uses will be essential for shifting some trips away from private vehicles and toward bicycles.
- **Land Use**: Building diverse land uses closer to each other reduces the trip distances. Shorter trip distances provides more opportunities for walking and biking trips. Even with e-bikes and faster speeds, shorter trips are much more likely to be taken by active travel modes. Paired with the time and costs that may be required to take the same trip in a vehicle, short trips start to outweigh the comfort of a vehicle.
- **Infrastructure**: Building safe, dedicated facilities is the most important physical asset that can encourage active travel for the widest range of users and for the widest range of trips. Separation from heavy and fast moving vehicles will create more comfort and encourage more active travel use. Creating connected facilities with minimal conflicts and intersections is critical. Even a small part of the trip using a high-stress facility or route can discourage less confident cyclists.

Analysis of data compiled by The League of American Bicyclists allows for a comparison of bike infrastructure per square mile and the Journey to Work by bike mode share.[6] The data, which includes an outlier of Davis, California (17% mode share & 14 miles of bike infrastructure per square mile) shows a relationship between the amount of bike infrastructure per square mile and the bike mode share. Figure 9 plots the infrastructure vs mode share relationship. According to this data, Burlington has around 2.6 miles of bike infrastructure per square mile with a mode share of 6%. South Burlington is estimated to have 1.2 miles of bike infrastructure per square mile with a mode share of 1.5%.[7]

FIGURE 9: BIKE MODE SHARE VS INFRASTRUCTURE



The data show that Burlington and South Burlington are consistent with the other data collected nationally comparing infrastructure density and bike mode use.

This relationship between bike commute mode share and the infrastructure per square mile suggests that Burlington should look more like Boulder, Colorado at 5.6 miles of bike infrastructure per square mile and Eugene, Oregon with 5.3 miles of bike infrastructure per square mile. South Burlington could double the journey to work by bike if the infrastructure increases to around 2 miles of bike infrastructure per square mile, similar to Missoula, MT, Milwaukee, and Washington, DC.

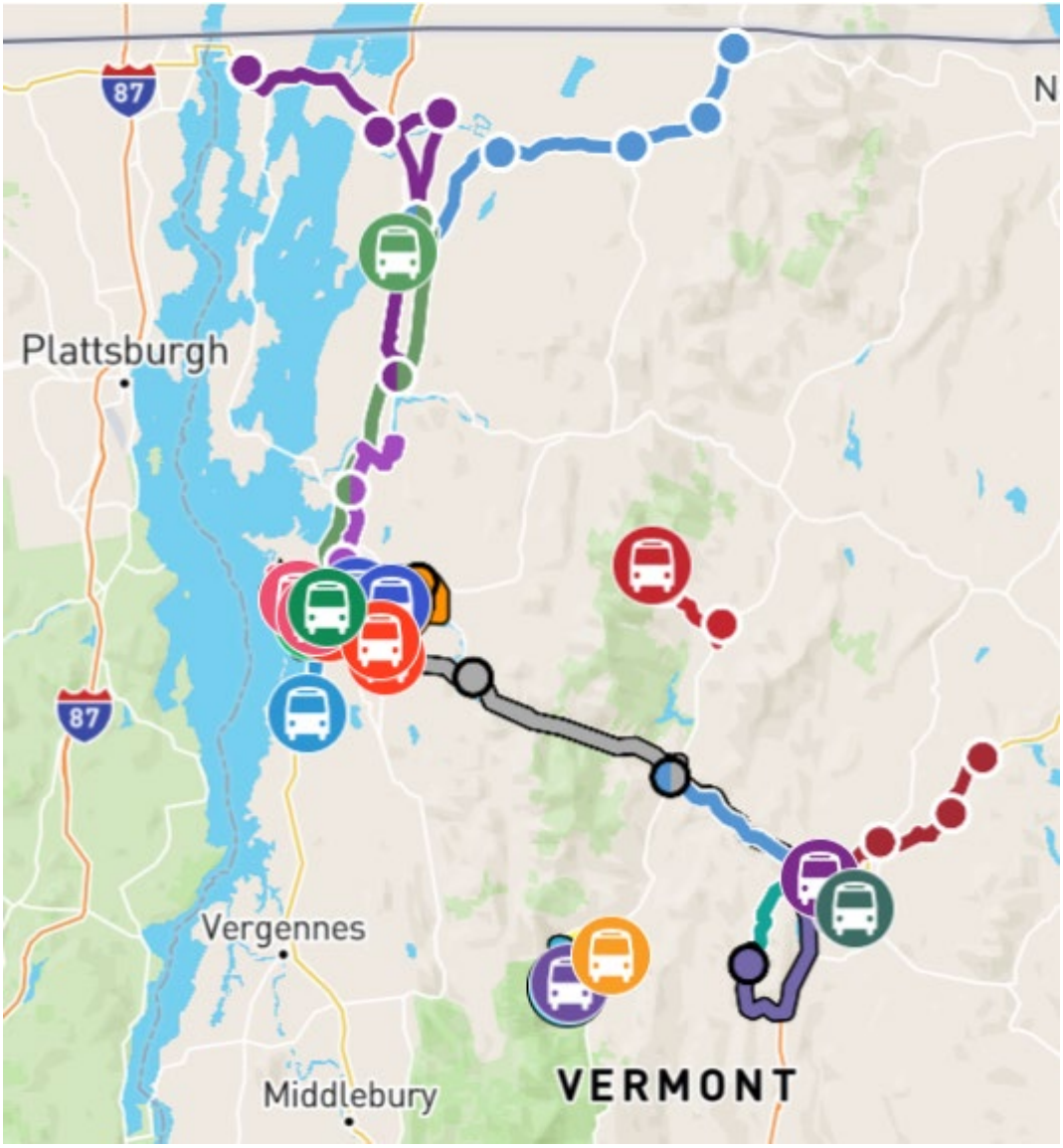
[6] https://data.bikeleague.org/data/cities-infrastructure-for-people-biking-walking/
[7] Miles of infrastructure for calculated from data RSG collected as part of an impact fee study for South Burlington.

Transit Service

MTP Goal: To triple transit service from baseline level of revenue miles

Chittenden County is served by Green Mountain Transit (GMT) which operates several routes throughout the county with commuter bus service extending to points north (St. Albans), east (Montpelier), and south (Middlebury, which has since been discontinued). Service levels have not expanded at this time as GMT reconsiders the coverage and frequency of routes.

FIGURE 10: GMT TRANSIT COVERAGE (MARCH 2025)



Source: GMT website

Transit service, along with ridership, are straightforward measures to monitor success of this MTP Goal. While the final result of increased ridership is the ultimate desired outcome, the goal of providing the service levels is more clearly within the control of the transit agency and

communities. The annual transit revenue miles for the various transit services were developed with GMT staff input.[8]

TABLE 6: ANNUAL TRANSIT REVENUE MILES

Year	Demand Response	Commuter Bus	Bus	Total Annual Revenue Miles
2019 baseline	2,240,156	700,358	1,459,555	4,400,069
2050 Goal (3x baseline)	6,720,468	2,101,074	4,378,665	13,200,207

The geographic distribution of those services and the relative frequency of transit service is an important aspect of the revenue miles. With the increase in annual miles there was also a doubling of the regional average frequency. The frequency of transit is modeled by the parameter, D4C, which is an estimate of aggregate frequency of peak hour transit service as assessed in the Environmental Protection Agency (EPA) Smart Location Database (SLD). The value is expressed as service frequency per hour of service for each transit route during the weekday evening peak hour for routes that have stops within 0.25 miles from the census block group boundary. The analysis used the publicly available SLD to develop the base case which was then used to scale the future scenario. The baseline and future values for D4C are shown in Table 7.

TABLE 7: TRANSIT FREQUENCY

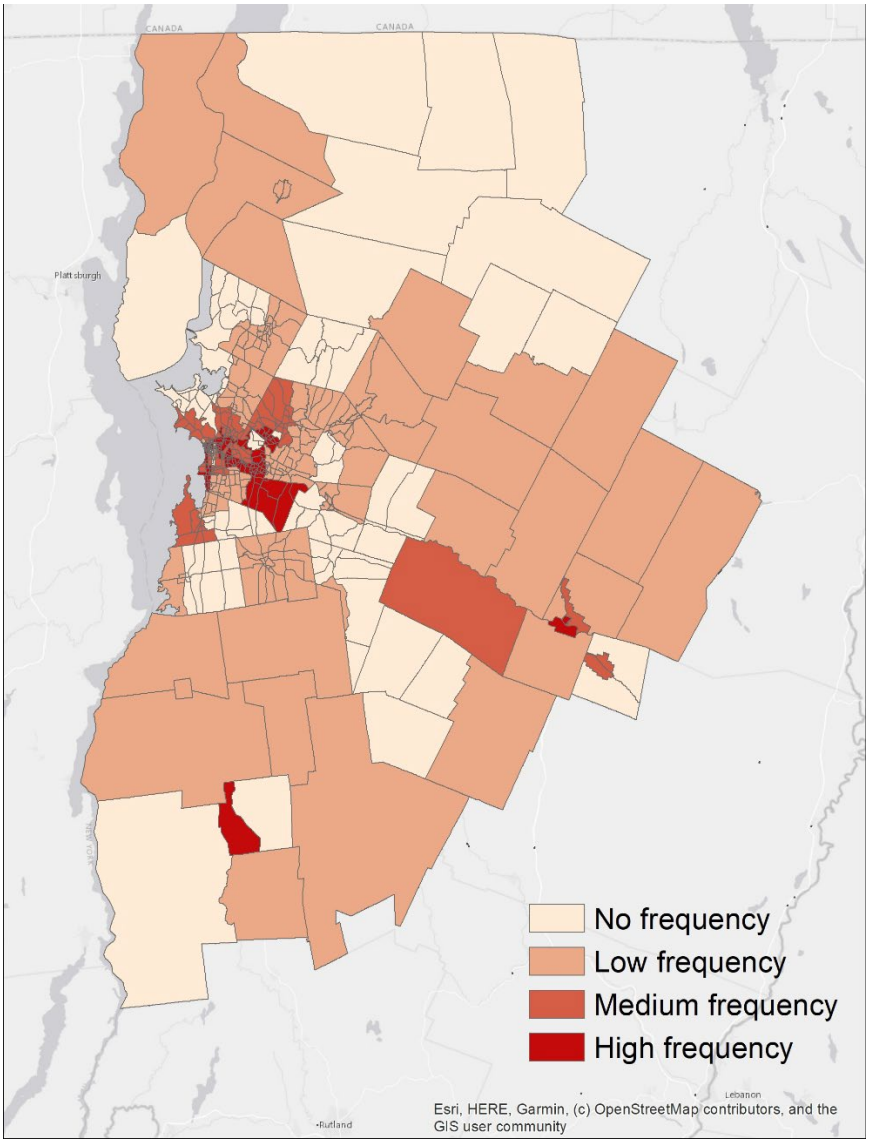
	CHITTENDEN COUNTY AVERAGE (D4C)
Baseline	5.5
2050 Scenario	10.8

For transit frequency, Figure 11 shows how the base model data was segmented into three separate tiers which were used to define the input levels for scenarios.[9] The future transit service scenarios simply scale the frequency of existing locations with transit service. For example, those with the highest frequency service will continue to receive the highest frequency service.

Note that the VisionEval model shown in Figure 11 covers the entire northwest area of Vermont including Middlebury to the south and Montpelier/Barre to the east.

[8] The values in demand response in the modeling account for additional services which were not reported or used within the NTD.
[9] The tiers were created using the SLD D4C dataset with the following cut-offs: low <= 3, medium <= 6.

FIGURE 11. TRANSIT FREQUENCY BASE INPUT LEVEL



Source: RSG with input from GMT

GMT ridership is rebounding but remains 12% below 2019 levels as of the end of FY2023.

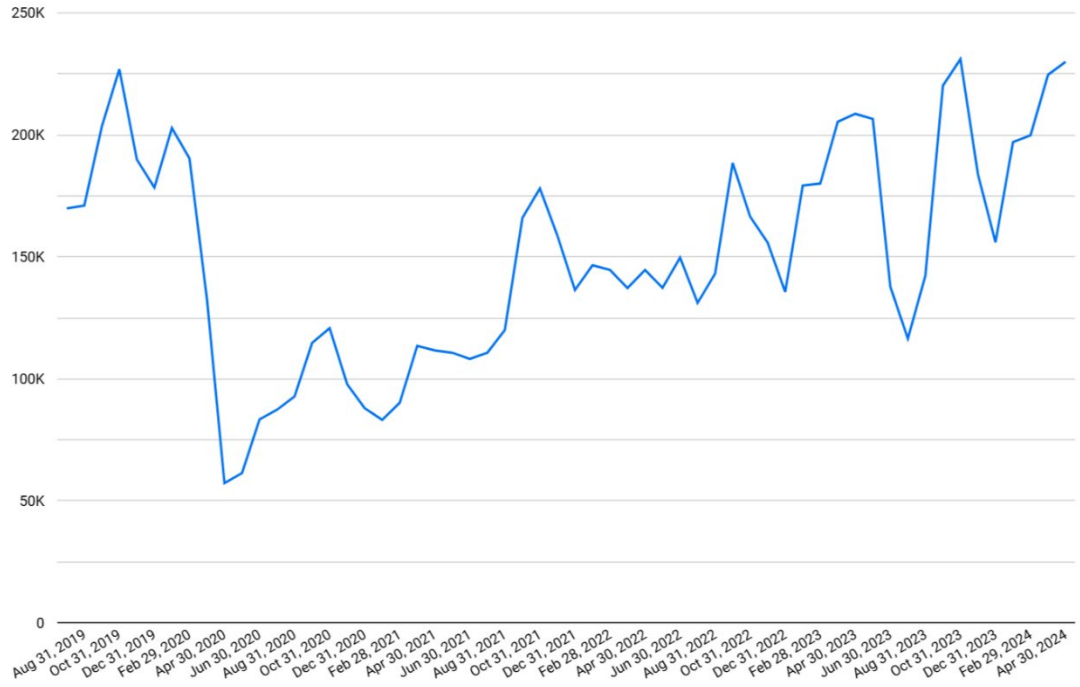
TABLE 8: ANNUAL GMT SYSTEM-WIDE RIDERSHIP

FY23 YTD	FY22 YTD	FY21	FY20	FY19	FY18	FY17
2,344,762	2,050,241	1,377,377	2,232,942	2,686,108	2,632,788	2,644,980

Source: GMT

Revenue miles have been strained and service is starting to be focused in the urban areas. The Urban Ridership numbers are approaching pre-Pandemic levels as shown in Figure 12.

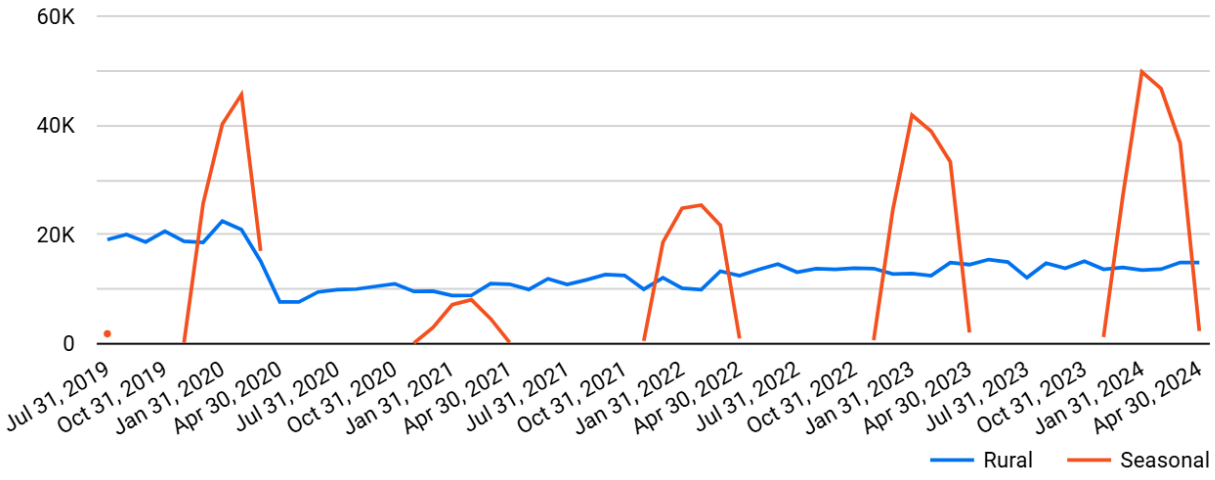
FIGURE 12: GMT URBAN RIDERSHIP FROM AUGUST 2019 - APRIL 2024



Source: https://ridegmt.com/performance-dashboard/

The rural routes continue to show demand below pre-Pandemic levels largely due to the commuter services. Northfield, Waterbury, and Alburgh-Georgia commuter services all show declines of over 25% from 2019 levels. Seasonal services are the red lines centered on ski area access. Figure 13 shows the rural ridership.

FIGURE 13: GMT RURAL RIDERSHIP FROM AUGUST 2019 – APRIL 2024



Source: https://ridegmt.com/performance-dashboard/

Travel Demand Management

MTP Goal: To Increase employer sponsored TDM participation

TDM or TO is a wide set of policies and incentives to reduce SOV travel and encourage use of more efficient modes like transit, walking, biking, and teleworking. The workplace programs include increased workplace bicycle parking, carpool and vanpool programs, or employer-subsidized transit passes. Household based programs, also referred to as Individualized Marketing (IM) programs, are customized to individual household and traveler needs. These are fewer and require a higher level of intervention and cost.

The worker program includes the following attributes:

- ***Carpooling:*** Includes in-house carpool matching and information services plus preferential (reserved, inside, and/or especially convenient) parking for carpools, a policy of flexible work schedules to accommodate carpools, and a half-time transportation coordinator.
- ***Vanpooling:*** Includes vanpool development and operating assistance, including financial assistance, such as vanpool purchase loan guarantees, consolidated purchase of insurance, and a startup subsidy.
- ***Bicycling:*** Includes secure bicycle parking and shower and locker facilities.

Discussions with the Chittenden Area Transportation Management Association (CATMA), which runs TDM programs in the greater Chittenden County area, helped to define the base level values for these programs.

- Workers: ~11k (approx. 10%) workers actively receive TDM resources through CATMA with a few thousand more indirectly through the workplace programs. Core employers in the downtown areas of the city. Lower participation rate outside of Chittenden County (5%). It is noted that there may be other employers offering TO services who are not involved with CATMA, especially Vanpooling and other incentives or bicycling. At the time of the I89 Corridor Study it was believed that CATMA had the most awareness of how prevalent TO planning is among Chittenden County employers.
- Households: ~300 households are enrolled in the CATMA program (~0.5% of households). No participation rate outside of Chittenden County.

The I89 Corridor Study identified that doubling the rate of TDM participation as an achievable stretch goal is one pathway to reduce SOV travel. The anticipated reduction in daily vehicle miles of travel (DVMT) due to participation in the TDM program is based on historical survey and meta-analysis in Oregon and the ULI's 2009 report, Moving Cooler.[10]

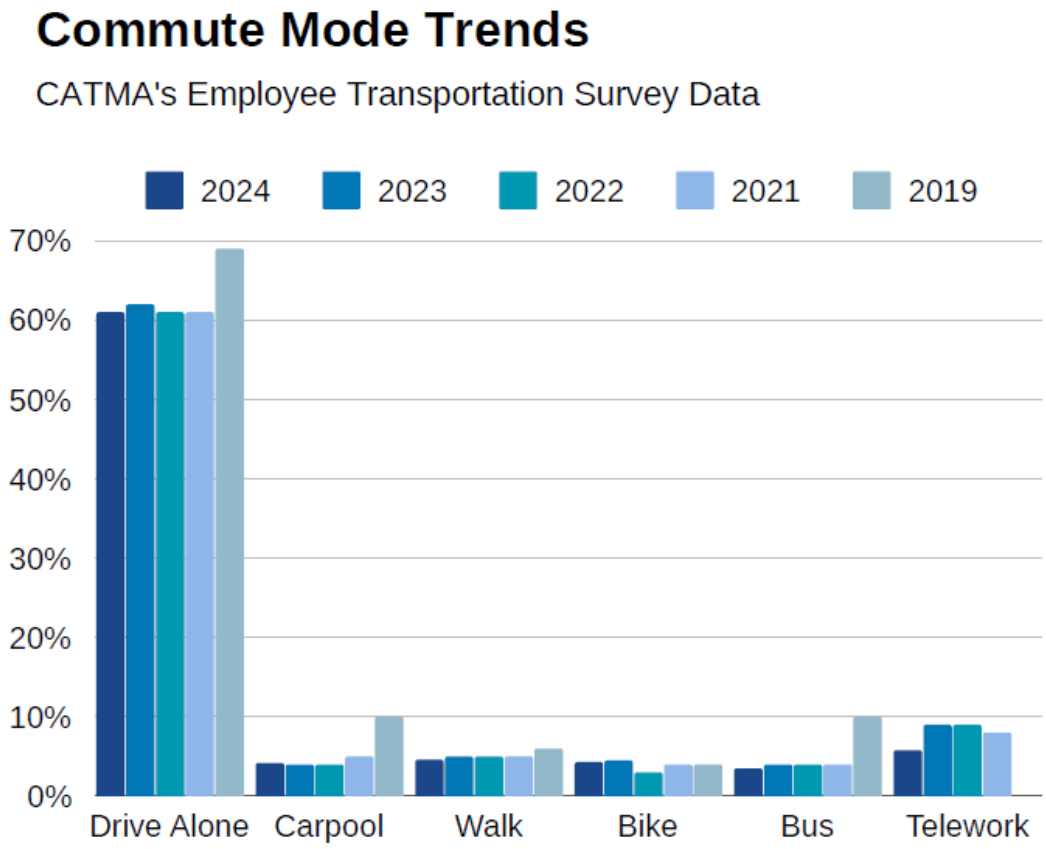
[10] The rate of reduction in household VMT for IMP programs is the rate found from Oregon studies (9%). The rate of reduction for ECO programs on commute VMT is taken from the "Moving Cooler" technical appendix (Table 5.13, p. B-54) for medium size urban areas, 5.4%.

Although there has been some tracking of progress over time, it isn't clear as to the level of participation and to the level of support those participants receive. This will be an important metric to start to track and better understand.

According to the 2024 CATMA annual report there were over 15,000 employees, 1,400 residents, and 15,000 college students in Chittenden County eligible to participate in CATMA's managed member commuter programs.[11] It is presumed that eligible participants include the employees working with organizations that have some affiliation with CATMA. The 2024 report mentions use of the CATMA app used to track program participation. 22% of the eligible members engaged with the app at least once during the year.

Figure 14 shows the recent trend in commute use among CATMA survey respondents. The chart suggests that CATMA members are driving less, teleworking less, and taking the bus more than the Chittenden County average mode share to work as measured in the ACS data (see Table 4). This difference is most likely attributed to the type of organizations that CATMA works with, and the occupations and household types involved.

FIGURE 14: CATMA COMMUTE MODE TRENDS



[11] 2024 CATMA Annual Report. https://catmavt.org/wp-content/uploads/2025/02/2024-CATMA-Annual-Report_Final-Draft.pdf

Parking

MTP Goals:

- *Reduce the supply of residential parking and increase the cost of paid parking.*
- *Increase the places around the county where paid parking is anticipated to occur*.

The MTP Goals expect the supply of free residential parking to be less plentiful than today and more of those spaces will require some form of payment. Specifically, in the I89 Corridor Study, the supply of residential vehicle parking was half what it is today. For multifamily dwellings, the supply of parking would be around 1 vehicle per 2 units and for single family, 2 spaces per unit.

Burlington and South Burlington had removed parking minimums from some land uses prior to 2023 and then the State of Vermont capped the minimum parking requirements as part of 2023 legislation.[12] Over time it is likely that in the areas planned for growth, the supply of parking per housing unit will reduce and align with market demands.

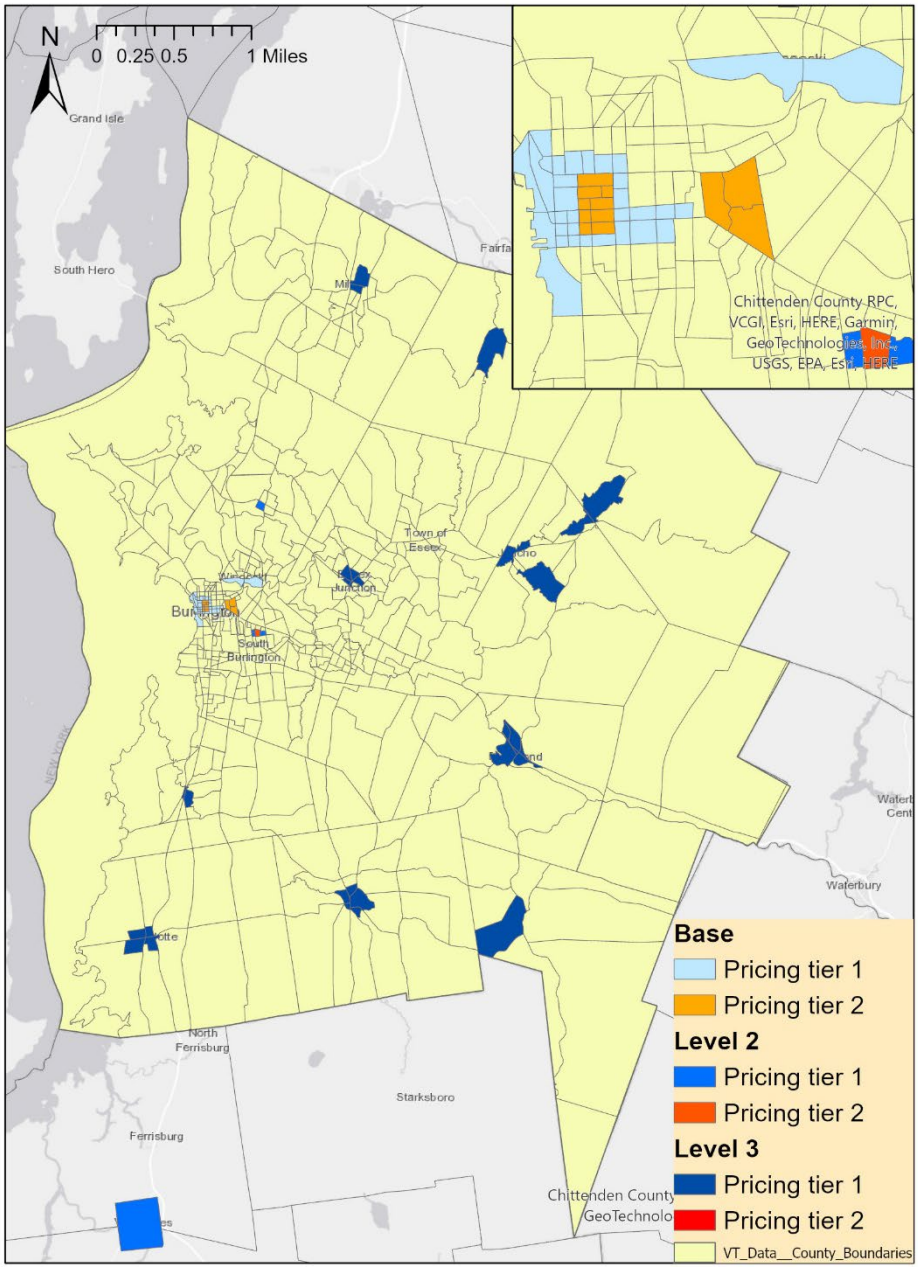
Paid parking is an effective policy that can nudge individuals toward alternatives to SOV travel. Pre-Pandemic (Base scenario) there were limited locations with paid parking in Burlington and Winooski. The Base scenario 2050 scenario includes paid parking throughout waterfront, the downtown core, and Winooski core. The more expensive, Tier 2 level occurs in the central downtown and for employee parking on the "hill" at UVM & UVM Medical.

An interim test, Level 2, included expanding paid parking to the City Center area of South Burlington. The MTP Goal scenario, Level 3, includes introducing paid parking in the areas targeted for growth within each community.

Figure 15 shows the map produced during the modeling showing the base level and the goal level for 2050.

[12] Act No. 47 of 2023.
https://legislature.vermont.gov/Documents/2024/Docs/ACTS/ACT047/ACT047%20Act%20Summary.pdf

FIGURE 15: PAID PARKING BY INPUT LEVEL (CHITTENDEN COUNTY)



Source: RSG

Table 9 shows the parking assumptions used in the I89 Corridor Study TO planning model for both the baseline and the scenario level used to inform the MTP Goals.

TABLE 9: VERSPM PARKING INPUT

	Space per Single Family Unit	Spaces per Multi- Family Unit	Cost (2024 $)	
			Pricing Tier 1	Pricing Tier 2
Level 1 (base)	4	1	$7.25	11.60
Level 3 (Goal)	2	0.5	$14.50	$29

The parking is shown in current year dollars for year 2050. This makes it easier to relate how the cost of parking compares to current rates of paid parking.

Parking supply can be tracked by monitoring land development permits and asking for additional information to be shared with the CCRPC. The CCRPC currently tracks housing units and other land development changes.

Paid parking can be tracked by monitoring the average costs of daily parking in key locations throughout the county.

Paid parking has not made any notable increases. While the daily rate of some Municipal Garages in Burlington are charging up to $14 (2024$) a day for parking, the actual realized cost for most parkers is likely lower due to monthly parking passes. The monthly parking permits in the Lakeview and College Street garages result in a lower cost per day when buying them month to month (as opposed to day to day).[13]

- 5-day monthly permit, Mon-Fri: $84 (~$4.20 per day)
- 6-day monthly permit, Mon-Sat: $100 (~4.00 per day)
- Pearl St Lot (7-day monthly permit): $55 (~$1.80 per day)
- Main Street Lot (7-day monthly permit): $65 (~$2.20 per day)

The day to day (non-permit) parking prices are approaching the MTP Goal levels. However, the majority of workers and households that are parking on a daily basis are likely realizing lower costs closer to the parking permit costs. These daily prices (in real terms) need to increase 2-3x to be closer to the prices estimated in the MTP Goal scenario.

Pricing

MTP Goal: To Implement a mileage based fee to replace the gas tax.

[13] Burlington city parking costs. https://parkburlington.com/downtown/ (queried July 2024)

Transportation user charges fund the transportation fund at the state and the federal level. Taxes assessed per gallon of fuel have remained the dominant source of revenue, with alternatives such as sales tax on fuel, registration fees, mileage based fees (also known as VMT fees), and congestion fees used in varying degrees around the country.

The I89 Corridor Study TO Committee considered several of these fees as means to provide much needed revenue to fund the transportation system but also provide incentives to drivers to use efficient means of travel. The Committee also considered the growing presence of electric vehicles and what fees may be best aligned with the changing nature of the vehicle fleet. A mileage based fee (VMT fee) was identified as the preferred method because of its systemwide impact on all vehicles equally. It was noted that a VMT fee could be designed in many ways, such as higher fees for heavier vehicles as well as subsidies based on the income of the driver. The most important issue is that the VMT fee is outside of the jurisdiction of the CCRPC and the responsibility of the state and federal government.

The MTP Goal Level 4 implements a VMT fee at 5 cents per mile traveled in 2010$ or around 7 cents in 2024$. The 7 cents per mile VMT in 2024$ is approximately 2.75x the cost per mile that a 20mph vehicle costs today.[14]

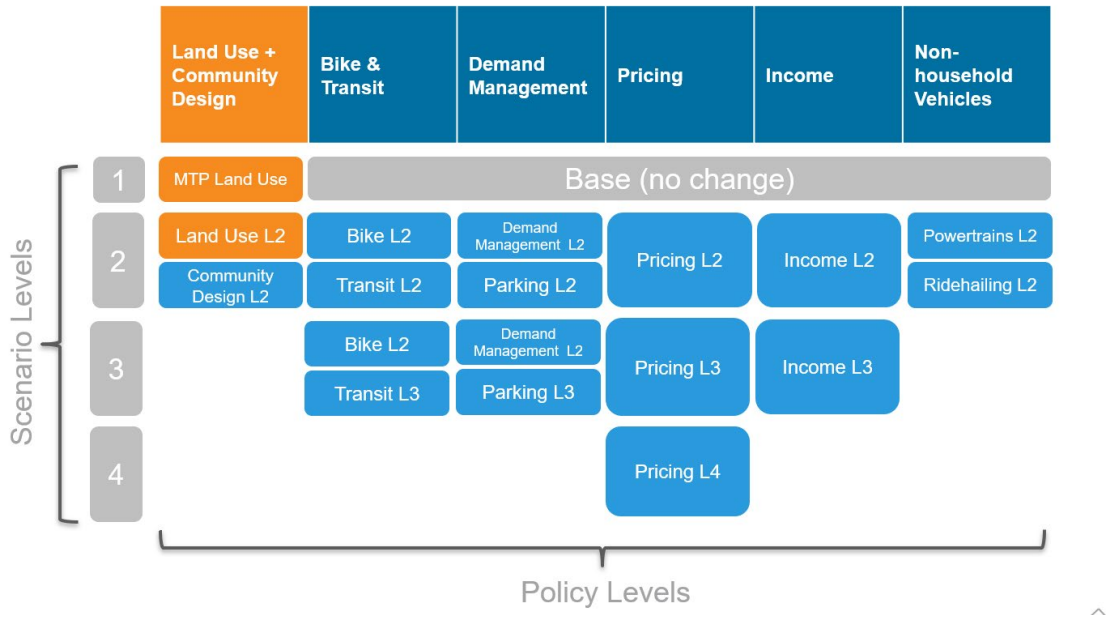
Vermont passed legislation in 2023 (H.479) setting up a program to implement a mileage based fee program for electric vehicles. The program is in an interim phase with an annual registration fee assessed to EVs that offset the gasoline taxes those users would have contributed to the transportation system.[15]

[14] 51 cents per gallon fuel taxes (state and federal) divided by 20 miles per gallon.
[15] https://dmv.vermont.gov/registrations/fees/ev-infrastructure-fee

APPENDIX A. SCENARIO INPUT DEVELOPMENT

This section describes the inputs used in the scenario development. The scenario inputs were grouped into six future alternative "packages" to align with the format of the VisionEval scenario viewer.[16] Each input is defined at different levels, level 1 representing the base scenario, used in the base "reference scenario" model. For the base scenario, inputs used in the scenarios were developed to reflect existing conditions and kept the same across both model years, so that subsequent levels representing future alternatives that can be evaluated against the base scenario. Figure 16 shows the six packages (columns), their associated inputs and levels (rows), and how those inputs combine to create different scenario levels.

FIGURE 16. VERSPM PACKAGES AND SCENARIO TESTING STRUCTURE



Source: RSG

Figure 16 highlights (in orange) the two significant inputs for the Land Use & Community Design that included the base MTP land use and a second land use option that increased housing growth in Chittenden County. However, the second option increased the housing at the expense of the adjacent counties (with a net zero) change in housing between the entire model region. The second land use created some oddities and was widely accepted as a viable future alternative but was discarded after the initial round of scenarios.

Land Use & Community Design

The land use & community design package contains inputs with data on mixed-use development in urban neighborhoods, walkability, and land use—in terms of housing,

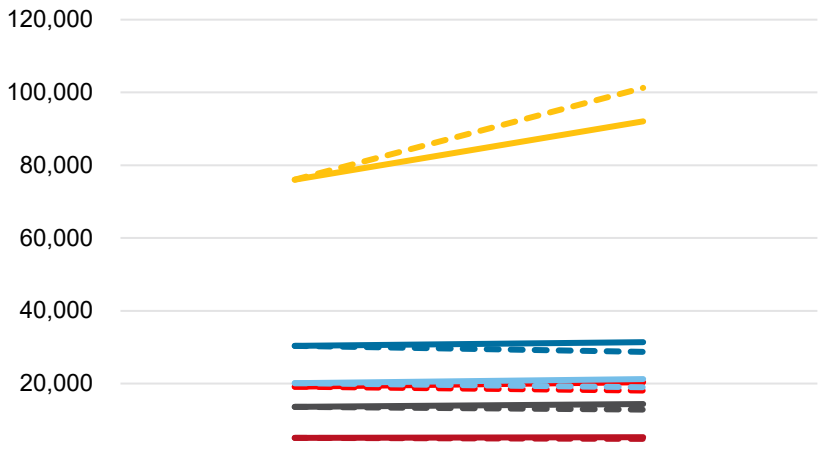
[16] https://github.com/VisionEval/VisionEval-Docs/blob/master/tutorials/verspm/Performance.md

population, and employment—to examine the impacts of an alternative future with more population growth in Chittenden County.

The land use inputs in the land use & community design package have one level in addition to the base scenario, for a total of two levels. The level 2 land use inputs model an alternative future with more population and housing growth occurring in Chittenden County at the expense of growth in the surrounding counties.[17] Level 2 land use assumes a 10% increase in future housing over the base scenario, or MTP adopted land use.

Figure 17 shows the total housing inventory by dwelling units in the level 2 land use and how the growth in Chittenden County compares to the dwelling units in the level 1 base land use.

FIGURE 17. LAND USE 2 TOTAL DWELLING UNITS



	2015	2050
Addison Land Use 1	19,163	20,395
Addison Land Use 2	19,163	18,093
Chittenden Land Use 1	76,031	92,060
Chittenden Land Use 2	76,031	101,261
Franklin Land Use 1	20,122	21,247
Franklin Land Use 2	20,122	19,009
Grand Isle Land Use 1	5,096	5,284
Grand Isle Land Use 2	5,096	4,818
Lamoille Land Use 1	13,619	14,394
Lamoille Land Use 2	13,619	12,863
Washington Land Use 1	30,375	31,390
Washington Land Use 2	30,375	28,728

Source: RSG

[17] The growth in housing within Chittenden County for this alternative land use future was informed by the D3 scenario that was developed during the most recent MTP.

To counter the growth in Chittenden County, housing in the surrounding counties was reduced to keep the total number of households the same across both land use alternatives. The input for household population was also altered in the level 2 land use. The alternative future population for Chittenden County was calculated by increasing the total population by 10%, an increase which also accounts for the group quarter population. For the surrounding counties, the population was decreased slightly from the population in the base land use to allow for the same population across both land use alternatives. Table 10 shows the future year household population for both land use levels.

TABLE 10. HOUSEHOLD POPULATION FOR VERSPM LAND USE LEVELS[18]

COUNTY	2015 BASE	LAND USE 1	LAND USE 2
Addison	34,477	36,746	32,669
Chittenden	152,443	173,788	192,105
Franklin	48,189	51,124	45,662
Grand Isle	6,959	7,215	6,594
Lamoille	24,414	25,906	23,134
Washington	57,102	59,492	54,108
TOTAL	**323,584**	**354,272**	**354,272**

Employment was also altered across the land use alternatives. For employment, a ratio was calculated for the base land use of jobs to housing units by bzone. That same ratio was then used to calculate the land use 2 employment using the land use 2 housing units. Table 11 shows the total employment across both land uses.

TABLE 11. EMPLOYMENT FOR VERSPM LAND USE LEVELS

COUNTY	2015 BASE	LAND USE 1	LAND USE 2
Addison	12,876	16,332	14,475
Chittenden	119,293	164,873	163,686
Franklin	15,130	20,481	18,406
Grand Isle	896	1,132	1,033
Lamoille	10,577	12,663	11,324
Washington	28,795	35,950	32,801
TOTAL	**187,567**	**251,431**	**241,725**

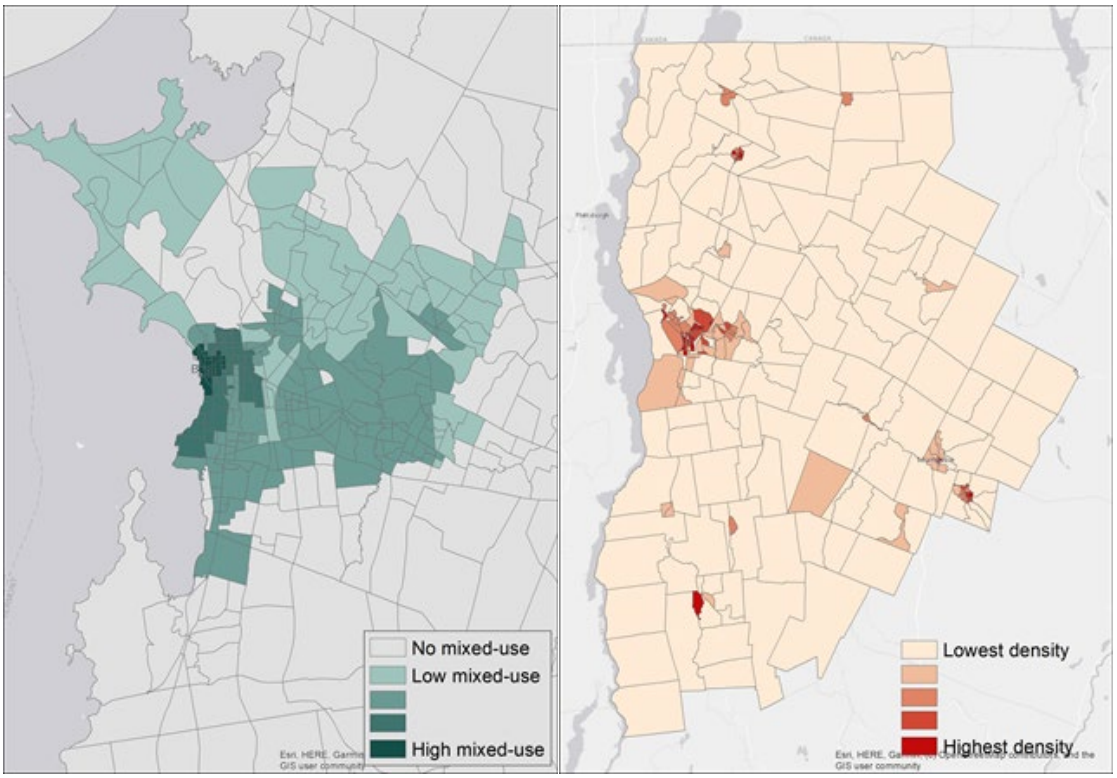
Community Design

The community design policy contained two separate policy inputs, one on mixed-use neighborhoods and another on walkability. The mixed-use input defines the share of urban households in a mixed-use neighborhood (characterized by higher levels walking, biking, and transit accessibility) at the bzone level. The walkability input represents the density of

[18] Household population does not include the group quarter population, which was kept the same across both land use levels

pedestrian-oriented intersections per square mile at the bzone level. Figure 18 shows the data for each of these inputs mapped for the base scenario.

FIGURE 18. BASE LEVEL FOR MIXED-USE (LEFT) AND WALKABILITY (RIGHT) INPUTS



Source: RSG

The community design policy files were also defined at two levels, with level 1 containing the base model inputs and level two representing a 50% increase over the base model for both inputs.

Bike & Transit

The bike & transit package combined policies around alternative modes, specifically bike and transit.

Bicycle

In VERSPM, bike trips, along with trips taken by any personal lightweight mode, are represented through the diversion of eligible household single occupancy vehicle (SOV) trips.[19]

[19] Personal lightweight modes refer to an evolving class of vehicles encompassing bicycles (both pedal-powered and electric), standing and seated electric scooters (e-scooters), electric skateboards, and other slow speed modes designed for a single user.

Trips are eligible for diversion to biking if they are within a round-trip distance of 20 miles or less and from households in urban and town location types. Rural households are excluded because it is less likely that biking and similar modes are used on a frequent enough basis to divert SOV mileage.

The policy input file provides goals for the proportion of eligible household SOV daily vehicle miles traveled (DVMT) to be diverted to bicycling or other personal modes at the Azone, or county, geography. This input was defined at two levels, level 1 being the base model data and level 2 doubling SOV Diversion to personal modes from the base. Table 24 shows the input value for both levels.

TABLE 12. BIKE INPUT LEVELS

COUNTY	LEVEL 1 (BASE)	LEVEL 2 (2X)
Addison	5%	10%
Chittenden	10%	20%
Franklin	5%	10%
Grand Isle	5%	10%
Lamoille	5%	10%
Washington	5%	10%

Transit

VERSPM contains two inputs pertaining to public transit service. The first is revenue miles, or miles in service, by transit mode (including demand response, commuter bus, and regular bus) model wide. The second input contains data on transit frequency by bzone, using data from the EPA SLD.[20]

Both of transit inputs are defined at three levels, with level 1 being the base model inputs. Table 13 show the levels for the miles in service input, with the second level being a 50% increase in transit miles in service over the base, and the third level representing a 200% increase, or tripling in transit service, over the base.

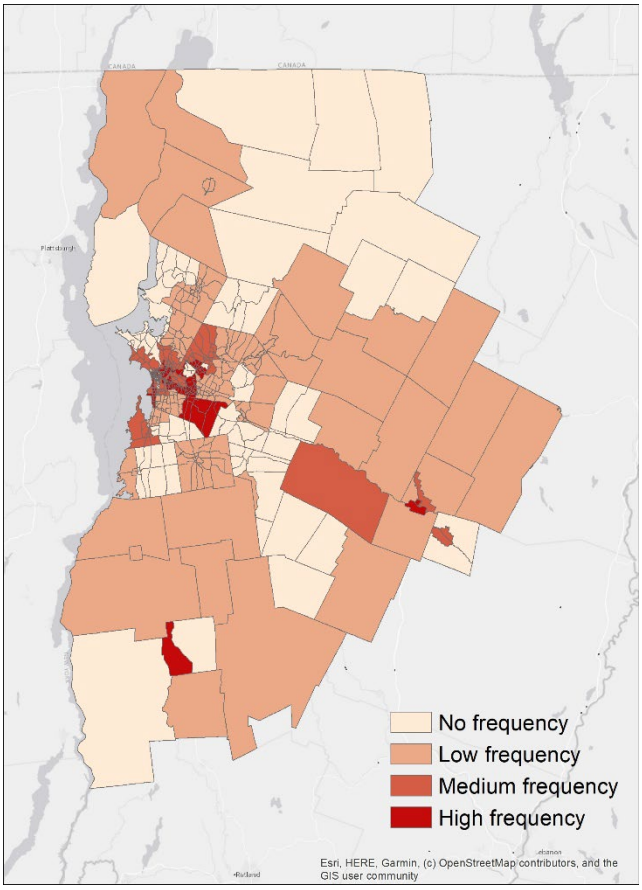
TABLE 13. TRANSIT INPUT LEVELS FOR MILES IN SERVICE (ANNUAL BY MODE)

	Bus	Commuter Bus	Demand Response
Level 1 (base)	1,459,555	700,358	2,240,156
Level 2 (1.5X)	2,189,333	1,050,537	3,360,234
Level 3 (3X)	4,378,665	2,101,074	6,720,468

For transit frequency, Figure 11 show how the base model data was segmented into three separate tiers which were used to define the input levels for scenarios.[21]

[20] The SLD transit frequency metric used is, defined as: Aggregate frequency of transit service within 0.25 miles of block group boundary per hour during evening peak period.
[21] The tiers were created using the SLD D4c dataset with the following cut-offs: low <= 3, medium <= 6.

FIGURE 19. TRANSIT FREQUENCY BASE INPUT LEVEL



Source: RSG

Using the three frequency tiers, the input levels defined are detailed in Table 14.

TABLE 14. TRANSIT FREQUENCY INPUT LEVELS

	Low Frequency	Medium Frequency	High Frequency
Level 1 (base)	-	-	-
Level 2 (1.5x)	25% increase	50% increase	50% increase
Level 3 (2x)	50% increase	100% increase	100% increase

Demand Management

The demand management package combined policies on travel demand management and paid parking programs.

Travel Demand Management Programs

The input for TDM/TO programs distinguishes between two separate types of programs, both implemented at the bzone level. The first program is a worker commute TDM program, with the input defining the proportion of worker participation by bzone. The second is a household TDM program, with the input defining the proportion of household participation by bzone.

Discussions with the CATMA, which runs TDM programs in the greater Chittenden County area, helped to define the base level values for these programs. For workers, 11,000 (approximately 10% of the employment base withing Chittenden County) actively receive TDM resources through CATMA, with few thousand more indirectly through the Employee Transportation Coordinator (ETC) program. This program has the most participation by core employers in the downtown Burlington area, with lower participation rate outside of Chittenden County.

For the base model, worker participation was assumed to be 10% within Chittenden County and 5% for the surrounding counties. For the household TDM program, around 300 households are actively enrolled CATMA program (~0.5% of households within Chittenden County), with no notable participation rate outside of Chittenden County. Household participation was assumed to be 0.5% for Chittenden County and 0% for surrounding counties. Table 15 summarizes the levels for this input, with one additional level doubling the base model participation.

TABLE 15. TDM PROGRAM INPUT LEVELS

	Worker TDM	Household TDM
Level 1 (base)	5 - 10%	0 - 0.5%
Level 2 (2x)	10 - 20%	0 - 1%

Parking

The input for parking defines the average number of free parking spaces per dwelling unit by dwelling unit type (SFDU, MFDU, GQDU) and average daily cost for parking by bzone. Three different levels were defined for parking, each with an increasing amount of bzones with paid parking for both work and non-work trips. Paid parking costs are imposed on the household, and increasing the household costs associated with vehicular travel and subsequently reducing household VMT. Table 16 shows the number of free parking spaces and parking costs for each level.

TABLE 16. PARKING INPUT LEVELS

	Single Family	Multi-Family	Group Quarters	Cost ($2010)	
				Pricing Tier 1	Pricing Tier 2
Level 1 (base)	4	1	0.5	$5	$8
Level 2	2	0.5	0.25	$10	$20
Level 3	2	0.5	0.25	$10	$20

The spatial implementation of paid parking by level is shown in Figure 20.

FIGURE 20. PAID PARKING BY INPUT LEVEL

Source: RSG

Note that each level adds paid parking zones on top of the previous level, so level 2 includes all the level 1 paid parking in addition to the zones specified for level 2, and level 3 includes level 2 and level 1 zones.

Pricing

The pricing package involves a variety of different inputs, all focused on pricing policies for vehicular travel. One of the inputs contains data on fuel costs, in terms of the retail costs of fuel and electric power and excise taxes on fuel by county. Another input is used to simulate a carbon tax and contains data on carbon pricing based on the embedded carbon in the fuel being consumed (gas, diesel, PHEVs, etc.) model wide. The third pricing policy included in the pricing package is an input on a VMT tax, or the tax per mile of vehicle travel. Table 17 shows how all these policies are implemented in each of the input levels.

TABLE 17. PRICING POLICY INPUT LEVELS

	Fuel Cost	Power Cost	Fuel Tax	VMT Tax	Carbon Tax

	2010$				
Level 1 (base)	$2.69	$0.22	$0.30	$0.00	0
Level 2 (carbon tax)	$2.69	$0.22	$0.30	$0.00	**$50.00/ ton CO2e**
Level 3 (2x fuel cost)	**$5.38**	**$0.44**	$0.30	$0.00	0
Level 4 (VMT tax)	$2.69	$0.22	$0.30	**$0.05**	0

Level 2 implements a carbon tax priced at $50 per ton of CO_2 equivalent. Level 3 doubles the retail cost of fuel, both in terms of gas and diesel and kilowatt hours. Level 4 implements a VMT tax at 5 cents per mile traveled.

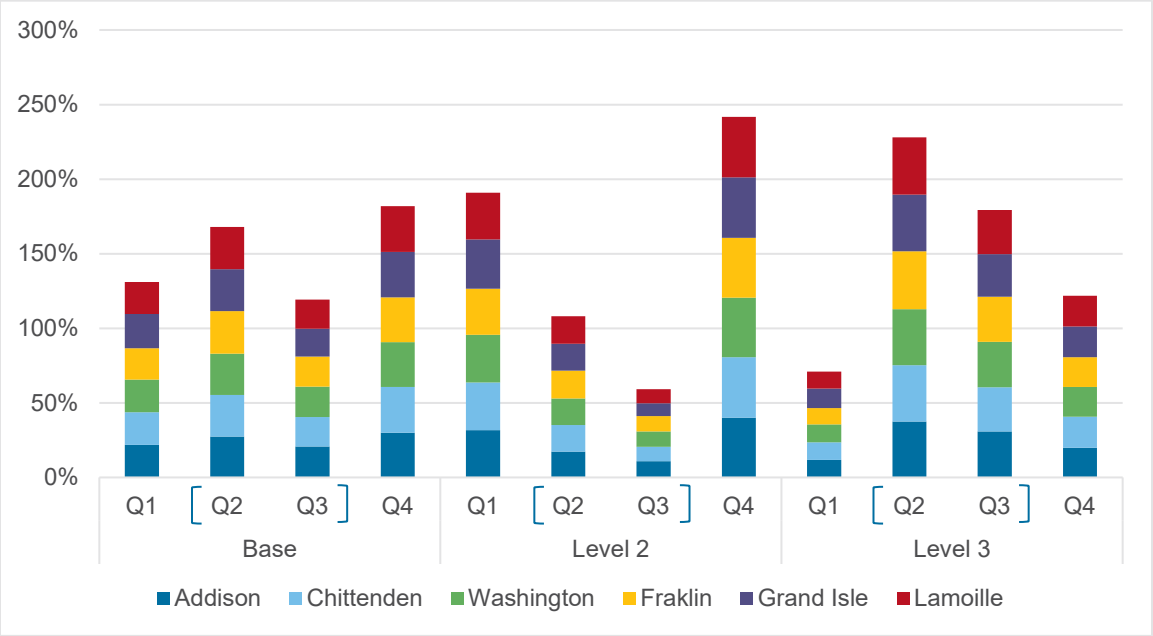
Income

The income package focused on defining various levels of income inequality, or income disparity. The input in the package is the share of households in 1st, 2nd, 3rd, and 4th quartile of household income by bzone. Three levels were defined, including the base, which varied future income disparity (households in 1st and 4th quartiles). The levels are detailed in Table 18 and visualized in Figure 21.

TABLE 18. INCOME INPUT LEVELS

	Income Disparity using household income quartiles
Level 1 (base)	-
Level 2 (increase disparity)	10% increase in households in Q1/Q4 10% reduction in households in Q2/3
Level 3 (decrease disparity)	10% reduction in households in Q1/Q4 10% increase in households in Q2/3

FIGURE 21. HOUSEHOLDS IN EACH INCOME QUARTILE FOR EACH LEVEL



Source: RSG

Level 2 increases households in the first and fourth quartiles, effectively simulating more inequality by shrinking the middle class. Conversely, level 3 adds households to the middle quartiles (i.e., the second and third quartiles), simulating less inequality by growing the middle class.

Vehicles

The vehicles package combined policies on vehicle powertrains and ride-hailing, referred to in VERSPM as car service.

Household Vehicle Powertrains

Changes in the household vehicle powertrain composition were included in both of the 2050 scenarios. Powertrains are the type of power source propelling the vehicle, ICE (internal combustion engine), HEV (hybrid electric vehicle), and BEV (battery electric vehicle).

TABLE 19. HOUSEHOLD POWERTRAINS

	ICE	HEV	BEV
2015	96%	3%	0%
2050	10%	20%	70%

Non-household Vehicle Powertrains

The powertrain inputs defined powertrain proportions for non-household vehicles, including commercial service light-duty vehicles, car service vehicles, and transit vehicles model wide.

Two levels were defined, with the second level increasing transit, car service, and commercial service vehicle presence of BEVs and HEVs.

Table 20 shows how the powertrain levels were defined, with one level in addition to the base that modeled a 90% BEV penetration in non-household vehicle markets and only 5% ICE vehicles.

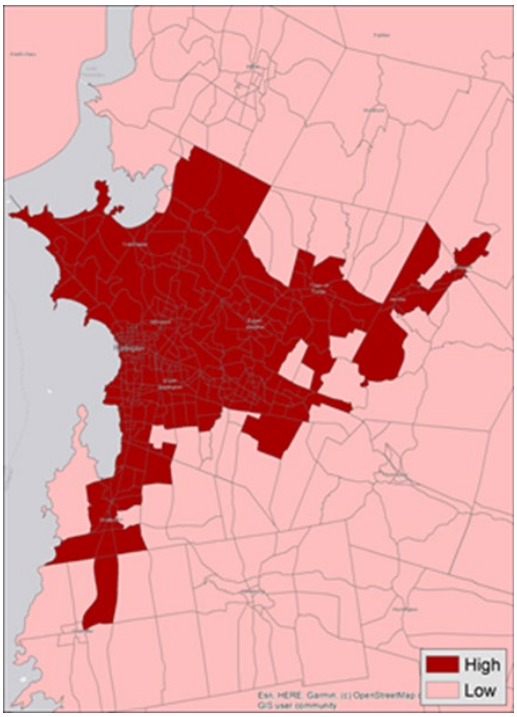
TABLE 20. POWERTRAIN INPUT LEVELS

	ICE	HEV	BEV
Level 1 (base)	99%	1%	0%
Level 2	5%	5%	90%

Car Service

'Car service' in VERSPM simulates modes such as ride-hailing and car sharing. The model defines key aspects, such as service prices and accessibility for two levels of car service, low and high (both in terms of geographic availability at the bzone level and the time it takes for a household to access the service). In the level 1, or base level, no high car service was available for any bzone. For level 2, high car service was available for the Burlington-South Burlington MSA, as visualized in Figure 22.

FIGURE 22. HIGH CAR SERVICE AVAILABILITY (LEVEL 2 ONLY)



Source: RSG

For level 2, the prices and access times for both low and high car service levels were reduced, making this mode more accessible and affordable.

Table 21 shows the pricing and access times for both levels.

TABLE 21. CAR SERVICE INPUT LEVELS

	Cost per Mile (2010$)		Access Time	
	High	Low	High	Low
Level 1 (base)	$3.00	$3.00	20	45
Level 2	**$1.00**	**$2.00**	**10**	**25**

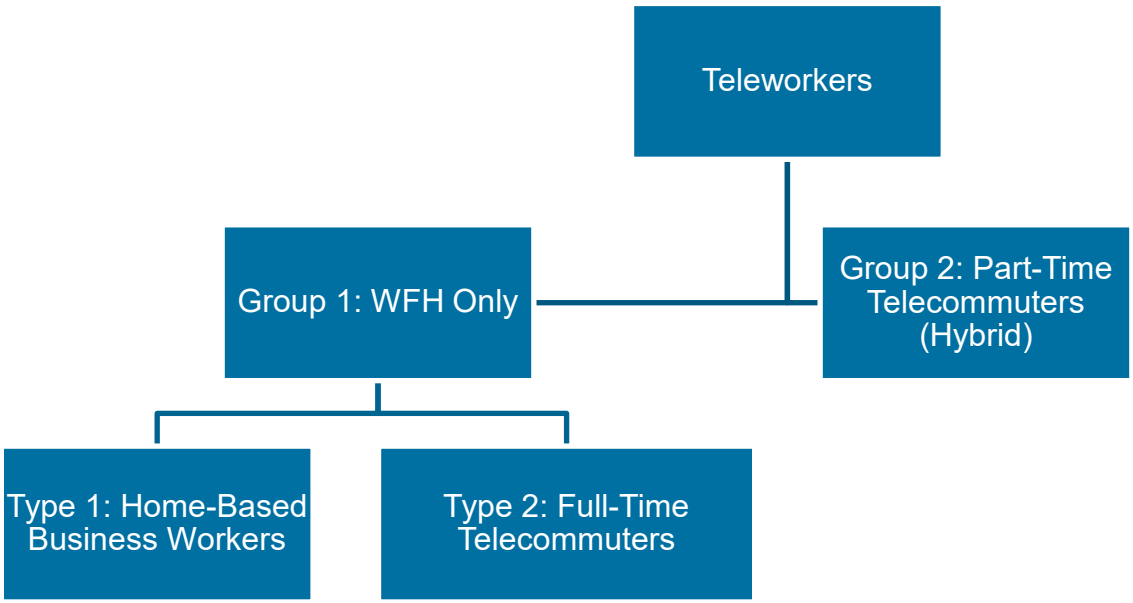
If a household has access to high car service, the model will allow households to substitute vehicle ownership with car service if the cost of car service use per mile is lower than the per mile cost of using a private vehicle, accounting for vehicle ownership and operating costs per mile. Note, vehicle ownership substitution is only applied to the high car service and not low car service.

Teleworking Background

Defining Teleworking Rates

WFH per the ACS definition is inclusive of those workers who have a home-based place of work (always Working From Home) and those who are telecommuting on the day of the survey. Another key source of travel survey data includes the NHTS. The NHTS defines the WFH Only workers (Group 1) as those who "did work in the last week for pay or profit" and did not have a regular workplace outside the home. Therefore, the WFH Only classification does not include "hybrid" workers, or workers who work from a non-home workplace any number of days per week. The WFH Only classification encompasses the Type 1 home-based workers and the full time Type 2 teleworkers as shown in Figure 1.

FIGURE 23: NHTS TELEWORK CLASSIFICATION SUBCATEGORIES



The ACS data summarized above and collected annually tracks WFH which is inclusive of Group 1 and Group 2 Teleworkers.

Derivation of Goal

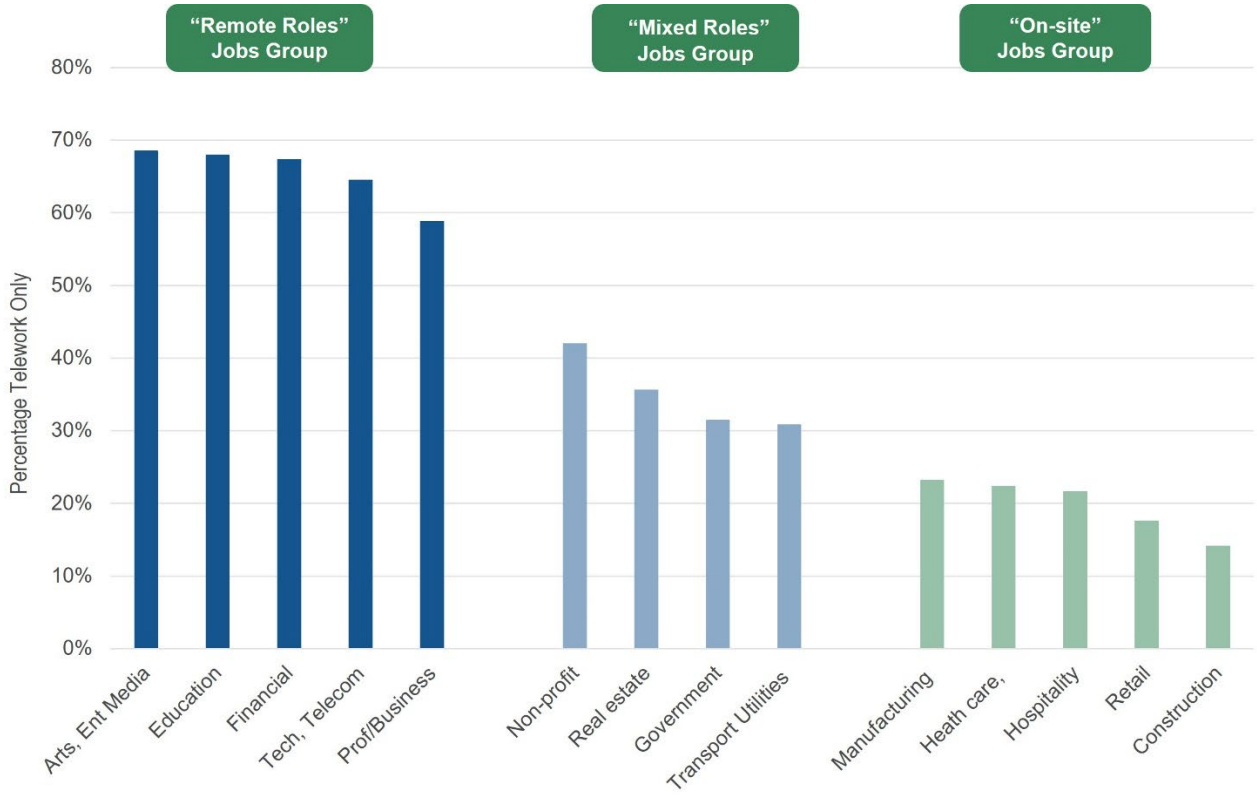
At the time of the I-89 Study the COVID-19 Pandemic was in full swing and shut downs were waning but there was still many people Working From Home. The TDM committee met during late 2021 and throughout 2022. The January 26, 2022 TDM Committee meeting explored the Teleworking policies and the scenarios for increased teleworking rates. Evident from the committee meeting, the teleworking scenarios were compared relative to the 2019 Pre-Pandemic rates of teleworking. Scenario 1 was adopted, representing a 50% increase in teleworking from pre-Pandemic levels.

The teleworking policy was originally modeled using a manual analysis of early research that was occurring as part of another study on teleworking, the Massachusetts DOT Teleworking Study. The findings as to how many workers might telework was used to change the home-based-work trip matrix in the Regional Travel Demand Model to model the network effects of reduced physical commuting during peak hours.

A detailed review of workers industry (i.e., NAICS) and occupations (i.e., BLS Standard Occupational Classification) found that occupation has a stronger relationship with teleworking. However, occupational data is less frequently sampled than industry data.

The three teleworking categories of “remote,” “mixed,” and “onsite” are used to define groups of occupations that had similar teleworking travel behaviors. The groupings of occupations into the three teleworking categories is a convenient way to monitor changes over time and are used in the modeling of future changes in travel behavior as a consequence of increases in teleworking. Figure 24 shows the occupations grouped by their degree of ability to telework.

FIGURE 24: TELEWORKING ONLY PERCENTAGES BY TELEWORKING CATEGORY AND OCCUPATION DURING PEAK COVID-19 (MID-2020) PANDEMIC TELEWORKING RATES



Source: RSG COVID-19 Transportation Insights Survey[22]

The mix of workers' occupations directly informs the degree to which teleworking is a travel option. Without additional forecasting, the occupation mix was assumed to remain stable and increase the overall rate of teleworking into the future. Overtime, the BLS data can be monitored for the share of workers in the three teleworking categories changes. Table 22 shows the share of workers in 2021 and 2023 in the Burlington MSA.[23]

TABLE 22: WORKERS IN THE THREE TELEWORKING CATEGORIES FROM 2021 TO 2023

	2021	2023	% CHANGE
Remote	42.5%	42.9%	0.93%
Mixed	10.3%	10.5%	1.90%
On-site	47.2%	46.2%	-2.16%

[22] RSG initiated a national longitudinal panel survey during the early months of 2020 to track and better understand the quickly evolving nature of travel. As of the spring of 2022, RSG completed 10 waves of surveys and collected data from over 30,000 respondents from across the United States. The survey provided detailed information on occupation status, working status, travel behavior, and the degree to which teleworking was available and used by workers.[22]

[23] https://www.bls.gov/regions/northeast/news-release/occupationalemploymentandwages_burlington.htm

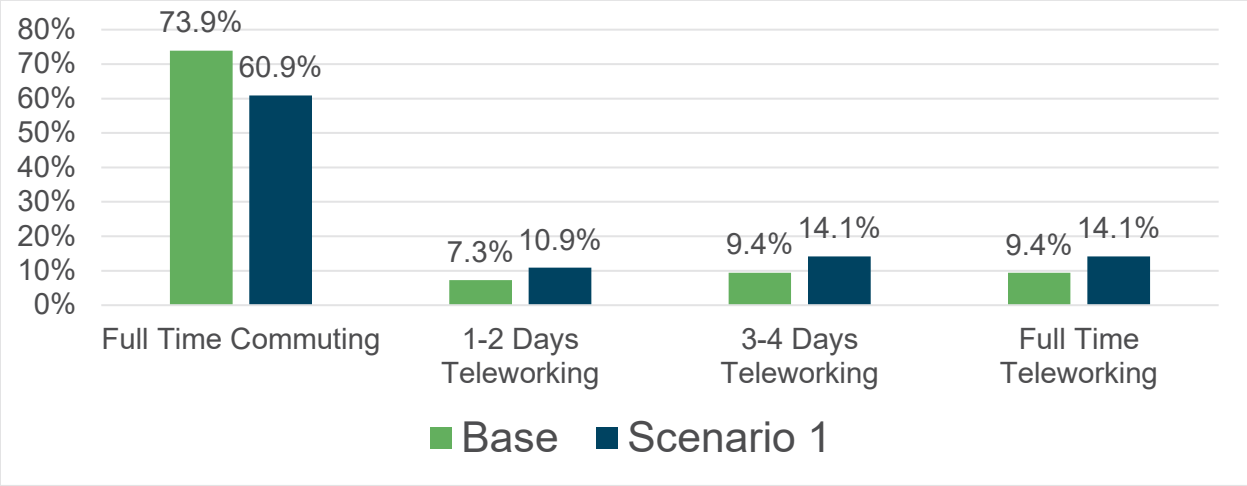
Source: RSG & BLS

RSG's analysis of detailed NHTS data and data from the COVID-19 Travel Behavior Survey provided insights on the share of workers teleworking zero days (full time commuting) through 5 days (fill time telecommuting). Because the ACS data for WFH includes those living and working at home and those telecommuting, the national data was used to establish a baseline with a greater insight of hybrid and part-time teleworking.

The pre-Pandemic reference case that informs the baseline future in the CCRPC modeling suggests that overall throughout the county, after accounting occupations of workers, 4.09 days per week commuting or 18% of days (0.91 days per week) teleworking.

Several scenarios were discussed and evaluated. Scenario 1 was identified by the CCRPC for use as the MTP Goal scenario. The scenario reduces the days commuting to 3.6 or 27% of days (1.37 days teleworking per week). The change in travel behavior between the baseline scenario and the MTP Goal scenario is shown in Figure 25.

FIGURE 25: SHARE OF WORKERS TELEWORKING



The increase in teleworking was manually applied in the regional travel demand model to make TAZ specific adjustment factors applied to the home-based-work trips in the trip tables (after trip generation and before distribution). Because trip generation is calculated for internal zones only, adjustments to commuters coming into the county required separate adjustments to the external trip productions, which are provided as scenario inputs to the model.

Teleworking Model Results

Table 23 shows the isolated effect of the increase in teleworking on the overall travel model performance measures. The weighted increase in the propensity to telework results in a 2.84% decrease in total VMT and a 1.36% decrease in total person trips.

TABLE 23: ISOLATED TELEWORKING SCENARIO

METRIC	MODEL A	MODEL B (MODEL A + TELEWORKING	DELTA
Total VMT	4,311,493	4,189,124	-2.84%
Total VHT	117,086	113,784	-2.82%
VMT/Person	26.9	26.1	-2.84%
VHT/Person	0.7	0.7	0.00%
VMT/Person Trip	4.47	4.41	-1.49%
VHT/Person Trip	0.12	0.12	-1.48%
Total Person Trips	963,724	950,575	-1.36%
Person Auto Trips	733,199	722,014	-1.53%
Person Walk/Bike Trips	203,968	202,244	-0.85%
Person Transit Trips	26,557	26,317	-0.90%
Auto Drivers	521,496	510,806	-2.05%
Passengers	211,703	211,208	-0.23%
Active, Transit, & Passengers	442,228	439,769	-0.56%

Source: RSG using the regional travel demand model

Only the commuting trips are affected by the teleworking adjustments in the travel demand model. This is an imperfect representation of a complicated set of trips that are often chained together. For example, if a commute goes to the grocery store after work before going home but during a teleworking day the person still goes to the grocery store. The teleworking behavior represented in the model is a simplified model that estimates the propensity for any given workday to be accomplished without the need for a physical commute.

Long-term Changes in Teleworking

The long-term trajectory in teleworking rates are extremely difficult to predict. Not only with the behaviors of the individuals continue to shift, the ability and willingness of employers and employees will evolve. Industries and sectors may increase (or decrease) their willingness to allow remote work. Land use changes are likely if teleworking remains a significant feature going forward. Buildings will not remain vacant – they will either host new occupants in the same office space (maybe two organizations occupy the space formerly only for one tenant space) or the land use will shift uses (offices may become apartments). Over time the market will drive a shift in land use to determine the best use for the space.

The teleworking analysis modeled assumes a fixed land use, which given the above statement, is unlikely to remain static. Instead, alternative planning and modeling approaches may be required if a more comprehensive teleworking analysis is to be considered which would account for a temporal change in land use associated with changes in teleworking and network accessibility. Further, as the analysis of travel volumes may indicate, even as teleworking remains elevated and physical commutes may be made less often, overall traffic volumes are approaching pre-Pandemic levels. Although exact reasons are unknown, several factors include: population growth and fewer transit trips leading to greater number of auto trips. Other

data also suggest that workers may shift their schedule, starting activities earlier in the afternoon which would have been made either as part of their afternoon commute, or as a trip after work; making the PM peak hour congestion worse than pre-Pandemic actually worse in many parts of the country.

Active Travel

The doubling of active travel was one of several inputs that were developed by the scenario planning committee during the I-89 Corridor Study. The committee considered various levels of active travel and the group coalesced around the 2x level being an achievable, yet significant target.

The active travel goal is part of the regional strategic modeling in VERSPM. The model explicitly accounts for this input as an estimate of the share of household trips that are eligible to divert from SOV trips.[24] Household trips are eligible for diversion if they are within a round-trip distance of 20 miles or less and from households the more urbanized areas. Rural households are excluded because it is less likely that biking and similar modes are used on a frequent enough basis to divert SOV mileage.

The policy input file provides goals for the proportion of eligible household SOV daily vehicle miles traveled (DVMT) to be diverted to bicycling or other personal modes at the Azone, or county, geography. This input was defined at two levels, level 1 being the base model data and level 2 doubling SOV Diversion to personal modes from the base. Table 24 shows the input value for both levels.

TABLE 24. BIKE INPUT LEVELS

COUNTY	LEVEL 1 (BASE)	LEVEL 2 (2X)
Chittenden	10%	20%

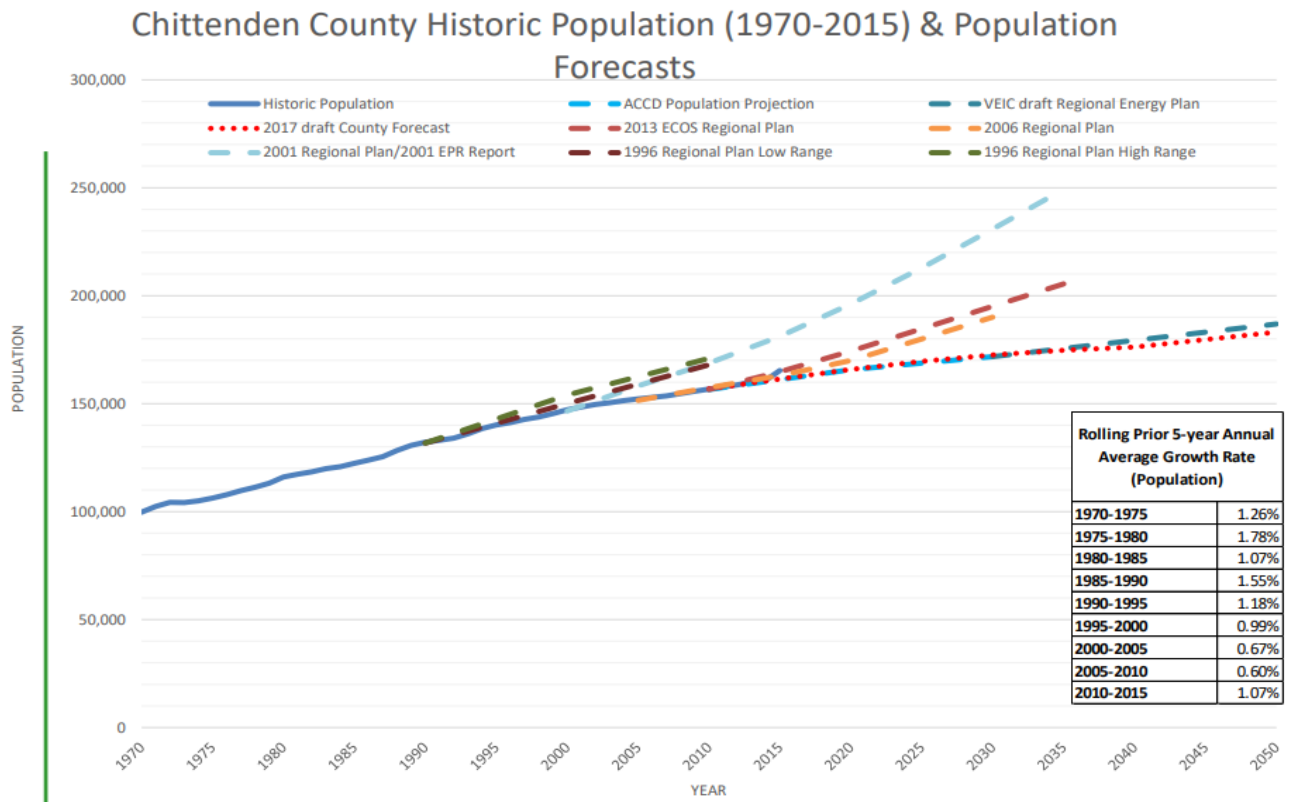
The 10% base value for Chittenden County is an estimate based on local judgement. A typical household around 8 trips a day, with a portion of the trips eligible for shifting to walking and biking. It is important to note that the SOV Diversion rate and increase by 2x is accounting for trips throughout the day, not only the commute trips.

[24] Personal lightweight modes refer to an evolving class of vehicles encompassing bicycles (both pedal-powered and electric), standing and seated electric scooters (e-scooters), electric skateboards, and other slow speed modes designed for a single user.

APPENDIX B. OTHER DATA

Chittenden County Population

FIGURE 26: CHITTENDEN COUNTY HISTORICAL POPULATION FORECASTS



Rolling Prior 5-year Annual Average Growth Rate (Population)	
1970-1975	1.26%
1975-1980	1.78%
1980-1985	1.07%
1985-1990	1.55%
1990-1995	1.18%
1995-2000	0.99%
2000-2005	0.67%
2005-2010	0.60%
2010-2015	1.07%

Source: https://www.ccrpcvt.org/wp-content/uploads/2016/01/Draft-CCRPC-2050-Forecast-20170215-Final.pdf

Number of Vehicles

	Single Person Households				Two Person Households				Three Person Households				4+ Person Households			
	2010	2015	2020	2023	2010	2015	2020	2023	2010	2015	2020	2023	2010	2015	2020	2023
No vehicle available	3,197	3,069	3,306	3,630	756	1,261	863	813	258	253	350	248	179	134	283	200
1 vehicle available	12,776	12,370	14,271	14,926	5,542	5,306	6,267	7,251	1,725	2,167	1,859	2035	1,409	1,404	1,440	1,275
2 vehicles available	1,323	1,780	1,770	1,538	12,677	14,543	14,823	15,948	4,731	3,987	4,472	5,011	6,312	6,057	6,198	6,246
3 vehicles available	298	191	153	296	2,458	2,536	2,428	2,591	2,621	2,697	2,868	3,046	2,416	2,780	1946	2,182
4 or more vehicles available	156	127	260	268	657	626	912	755	508	608	599	375	1,582	1,602	1,410	1,809
Est. Vehicles	16,956	17,024	19,336	19,989	40,964	44,567	46,936	50,016	21,133	20,725	21,863	22,733	27,767	28,426	25,455	27,730

DRAFT

Appendix C: 2024 Chittenden County Regional Transportation Options – Survey Analysis Report

Report

November 2024

2024 Chittenden County Regional Transportation Options – Survey Analysis Report

steer

Report

November 2024

2024 Chittenden County Regional Transportation Options – Survey Analysis Report

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Executive Summary

The Chittenden County Regional Planning Commission conducted a comprehensive "2024 Chittenden County Regional Transportation Options" survey to inform future planning efforts and assess the effectiveness of potential transportation options strategies. This survey, completed in August 2024, gathered valuable insights into travel behavior, mode preferences, and receptiveness to various transportation options and strategies across the county.

The survey received 739 complete responses, with representation from both high access areas (those with quality transit, biking, and walking facilities) and limited access areas (more rural settings).

While the survey gathered valuable insights, it is important to note that the sample was not intended to be representative of the county population. Most notably, transit users are significantly overrepresented at 22.73% of respondents compared to 1.9% of county residents who use transit for commuting according to ACS data. Additionally, certain geographic areas and demographic groups show notable differences from county-wide statistics.

Travel Patterns and Mode Choice

Analysis of travel patterns revealed distinct differences between high access (transit service with <20min headways, quality bike and pedestrian infrastructure) and limited access (transit service with >20 min headways, limited bike and pedestrian infrastructure) areas. Limited access commuters showed a higher reliance on personal vehicles, with 24.16% using cars five or more days per week compared to 14.68% in high access areas. High access commuters demonstrated more varied transportation habits, suggesting greater flexibility in mode choice. This contrast underscores the impact of land use and transit access on transportation choices.

The survey explored reasons for mode choice, finding that work necessity drove car use in limited access areas, while convenience was the primary factor in high access areas. Cost savings were a consistent motivator across all non-drive-alone modes, particularly in limited access areas.

Interest in Transportation Options

Notably, the survey uncovered a strong interest in more sustainable transportation options among limited access respondents, with almost 27% of respondents willing to try public transit if available in the area, compared to 18% in high access areas.

The Maximum Difference Scaling analysis identified the likely most effective transportation options strategies across the county. **The top strategies included frequent bus service during peak hours, all-day frequent bus service, door-to-door transportation options, employer-provided transit passes, and home pickup shuttle services**. While these strategies were consistent across areas, their relative importance varied, with high access respondents favoring bus-related strategies and limited access respondents prioritizing door-to-door options. As marketing and education strategies generally ranked lower in preferences, residents seemed more interested in tangible improvements to transportation services and infrastructure.

Implications and Next Steps

The results of this survey provide an important foundation for developing targeted transportation options, though they should be considered alongside other data sources given the overrepresentation of certain groups in the sample. To address this limitation and gather more representative insights, CCRPC is conducting focus groups with diverse community members to better understand transportation needs and barriers, interviews with peer regions to learn from their experiences implementing similar programs, and additional stakeholder engagement to ensure broad community representation.

These complementary research efforts will help create a more complete picture of transportation needs across all communities within Chittenden County. Combined with the survey findings, these insights will be invaluable in crafting policies and programs that effectively encourage sustainable transportation choices while serving the entire community.

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1 Setting the Stage: Background and Objectives

This first chapter provides the context and foundation for understanding the regional transportation options program for Chittenden County, the travel behavior, preferences and interests of the county residents (and visitors), and the specific objectives we aimed to achieve.

Background

Overview

The Transportation Options Survey was intended to help Chittenden County Regional Planning Commission (CCRPC), decision-makers, and key local partners gain a deeper understanding of the travel behavior and mode preference patterns of the county residents, and assess their interest towards potential transportation options strategies to induce a reduction of personal vehicle reliance in Chittenden County.

In particular, the aim was to demonstrate the barriers toward and propensity for choosing other modes of transportation over the personal car. Findings derived from the survey will help the CCRPC prioritize travel options strategies to help them achieve their ambitious multimodal transportation targets identified in the CCRPC's 2023 Metropolitan Transportation Plan.

Objectives and Approach

Overarching Goals and County-Specific Aims

The survey was designed with several overarching goals:

- **Collect Traveler Preference Data:** To assess people's perspectives on different transportation options across the county, while capturing the differences in context between urban and rural settings, including the unique constraints and opportunities each presents.
- **Test Travel Option Strategies:** To explore and evaluate the effectiveness of possible transportation option program designs to boost participation across a variety of mode shift initiatives.
- **Select Focus Group Participants**: To identify a variety of traveler perspectives for creating representative focus groups that supplement our understanding of travel behaviors across the county.

2 Survey Design and Deployment

This chapter details the process of designing and executing the Transportation Options Survey, from initial concept to final implementation.

Survey Design

Setting the Outline

The Transportation Options Survey was designed to gather comprehensive data about travel behavior, mode preferences, and attitudes towards transportation choices among Chittenden County residents and visitors. The survey consisted of the following sections:

- Demographic information, including characteristics of respondents, including age, gender, employment status, household composition, and access to a personal vehicle.
- Respondents' familiarity with and usage patterns of various transportation modes, from personal vehicles to public transit, walking, and bikesharing.
- Reasons behind mode choices, with separate sections asking why people drive, take transit, walk/bike, or use shared mobility services.
- Maximum Difference choice exercise, explained in the next subsection.
- Most recent trip, where respondents selected the general purpose and mode choice, helping to establish current travel patterns.

Maximum Difference (MaxDiff) Scaling Technique

Maximum Difference (MaxDiff) Scaling (also known as Best-Worst Scaling) is a survey research technique used to determine the relative importance or preference of various items within a set. This method is particularly effective for identifying the most and least important factors from a list of attributes, making it useful in a wide range of applications, including market research, product development, and service improvement. As a part of evaluating the regional transportation needs, a MaxDiff analysis was carried out in the survey, focusing on identifying transportation options strategies influencing the usage of non-drive-alone transportation options.

Potential Transportation Options Strategies

Twenty-four potential strategies were included in the MaxDiff exercise for evaluation. Each respondent was presented with 8 questions consisting of 6 factors. In each question, they were asked to select the factor they considered the most encouraging (or the best), and the factor they considered the least encouraging (or the worst).

This process ensured that each item appeared in various combinations and contexts, allowing for robust comparisons.

At a higher level, the tested strategies can be classified into the six following broad categories:

- Carpooling/vanpooling
- Transit
- Shared micromobility
- Carsharing
- Parking
- Marketing/education

These strategies are summarized in the table below, with their respective categories.

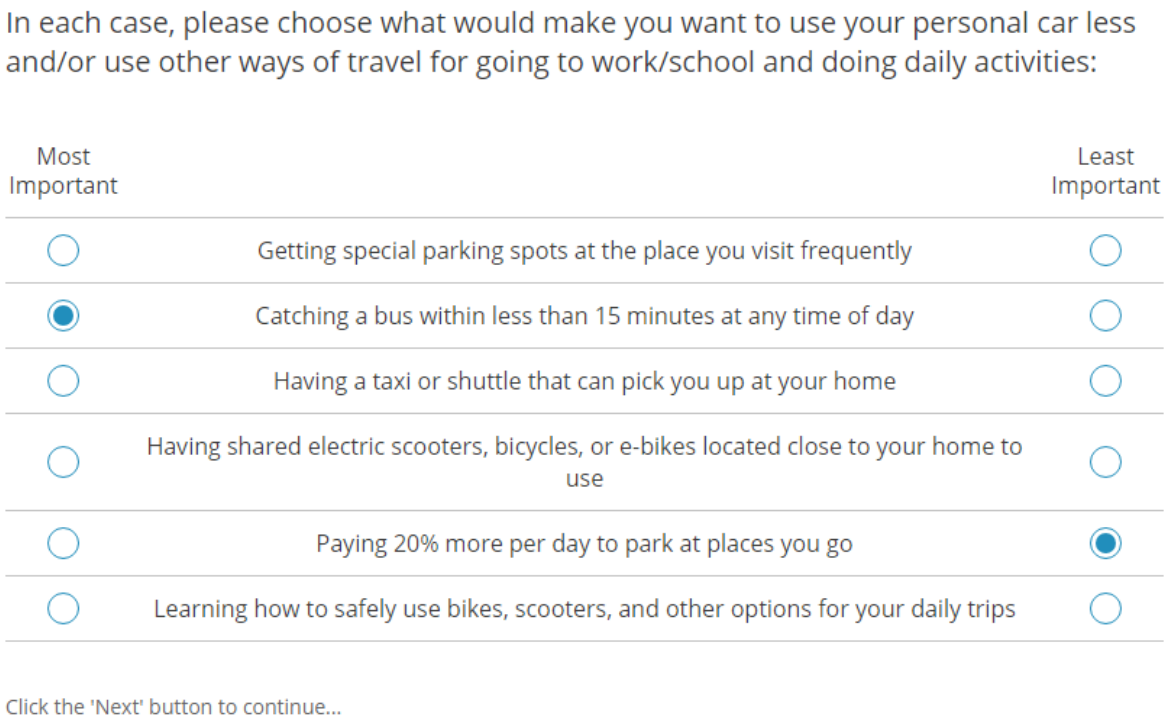
Table 2.1: Summary of transportation options strategies explored

#	Transportation Options Strategy Statement Shown in MaxDiff	Category
1	Getting help to find people to share an open vanpool program or a carpool partner	Carpooling/vanpooling
2	Getting special carpool/vanpool-only parking spots at the place you visit frequently	Carpooling/vanpooling
3	Paying me $5 per day to carpool or vanpool	Carpooling/vanpooling
4	Catching your bus within 10 minutes during busy travel times to go to work/school	Transit
5	Catching a bus within less than 15 minutes at any time of day	Transit
6	Getting a free bus/train pass from your workplace	Transit
7	Having a vehicle (e.g. door to door shuttle) that can take you directly from your home to where you need to go	Transit
8	Having a taxi or shuttle that can pick you up at your home	Transit/microtransit
9	Being able to use a shared car that is located near your home	Carsharing
10	Being able to use a shared car located at your workplace or other places you go	Carsharing
11	Being able to use a shared electric car	Carsharing
12	Having shared electric scooters, bicycles, or e-bikes located close to your home to use	Shared Micromobility
13	Having shared electric scooters, bicycles, or e-bikes located close to your workplace to use	Shared Micromobility
14	Getting an electric cargo bike to use for your daily travel	Shared Micromobility
15	Taking more than 5 minutes to find a parking spot at places you go	Parking
16	Paying 20% more per day to park at places you go	Parking
17	Your workplace giving you money to cash out your parking spot	Parking
18	Your workplace giving you money instead of a parking spot each day	Parking
19	Your workplace giving $5 to not drive alone	All modes / parking
20	Having to reserve a parking spot each day at the place you go	Parking
21	Someone helping you understand your different travel options	Marketing/education
22	Having one way to pay for all the different travel options	Marketing/education
23	Learning how to safely use bikes, scooters, and other options for your daily trips	Marketing/education

#	Transportation Options Strategy Statement Shown in MaxDiff	Category
24	Having someone teach you how to use bikes, buses, and other travel options	Marketing/education

It should be noted that statements #4 and #5 were not shown in the same MaxDiff question to prevent bias in the responses, and were spread across the eight questions seen by each individual respondent. Similarly, statements #3, #17, #18, and #19 were not shown in the same MaxDiff question. Figure 2.1 shows an illustrative MaxDiff question as presented to survey respondents.

Figure 2.1: Illustrative MaxDiff questions as presented in the survey



Survey Deployment and Fieldwork

Deployment Framework

To conduct the survey, we leveraged Sawtooth Lighthouse, an advanced survey conducting platform that allows the design and deployment of surveys with multilayered question piping and logics. For example, respondents who use a personal car or ride in their household vehicle as a passenger at least 4 times a week were asked to pick the top 3 reasons for using the former. The idea being that if a respondent does not drive at all, it is not logical to ask them to pick the top 3 reasons for driving. We have incorporated such question piping structure to extract useful information from the respondents in the context of this survey.

Fieldwork

The survey was first drafted in a Word document format. This Word format was finalized after incorporating feedback received from internal and client review. Afterwards, the survey was

coded into Sawtooth Lighthouse and was tested internally and externally to ensure that the question wording, options offered, and the question piping structures were working as intended.

After incorporating suggested/recommended modifications into the survey, the survey was opened to the public. The survey was distributed through a CCRPC press release, email, neighborhood listserve Front Porch Forum, and by partner organization's newsletters. Local print and online news publications also promoted the survey to the public.[1]

In terms of survey fieldwork timeline, the survey was open to respondents **from July 24, 2024 12:00AM until August 25, 2024 11:59 PM**. No new responses were collected after the latter date.

Once the survey was closed, the collected data were cleaned, processed and labelled for the descriptive and MaxDiff logit analysis. Specifically, only complete responses (i.e., respondents who provided answers to all survey questions) were kept for the analysis. To conduct the descriptive analysis, the raw dataset was relabeled with text description. The findings are discussed in the next section of this report.

[1] One example of an article promoting the Transportation Options in a local online news publication: **Working toward a more balanced transportation system | Vermont Business Magazine**

3 Survey Responses and Analysis

This chapter presents the results of the Transportation Options Survey, analyzing the responses received from residents and travelers visiting Chittenden County, providing insights into traveler behavior and preferences.

Participation and Engagement Metrics

Origins

Table 3.1 compares the self-reported zip code of residents and visitor destinations in Chittenden County to the ACS 2022 5-Year population estimates by zip code.

Observations

- Residents from zip codes 05401, 05403, and 05408 are overrepresented in the survey, particularly in 05408, which shows a stronger response relative to its population size.
- Zip codes 05452, 05446 and 05495 are notably underrepresented, with fewer responses compared to its population share.
- The "Other" category is slightly overrepresented, suggesting good coverage of less populous areas.

Table 3.1: Respondent zip code compared to ACS 2022 population by zip code

Zip Code	City/ Town	ACS Population	Survey Respondents	% County Population	% of Survey	Representation Index*
05401	Burlington	32,019	144	18.4%	22.6%	1.23
05403	South Burlington	20,177	78	11.6%	12.2%	1.05
05408	Burlington	10,067	56	5.8%	8.8%	1.52
05452	Essex Junction	22,338	48	12.8%	7.5%	0.59
05404	Winooski	8,082	48	4.6%	7.5%	1.63
05446	Colchester	16,292	21	9.4%	3.3%	0.35
05495	Williston	10,888	8	6.3%	1.3%	0.21
Other**		54,137	234	31.1%	36.8%	1.18
Total		174,000	637	100%	100%	-

*The Representation Index is calculated by dividing the "% of Survey" by the "% of County Pop." A value of 1.0 indicates proportional representation to the county population, above 1.0 indicates overrepresentation, and below 1.0 indicates underrepresentation. **The "Other" category includes all other zip codes in the county.
Source: 739 Respondents, August 2024

Socio-Demographic Profile of the Respondents

This section provides a quantitative overview of the responses collected from the survey. It includes data on the number of respondents, and their demographic profiles from the survey results. Respondents were required to answer each question.

Observations

The survey captured a diverse cross-section of Chittenden County residents, providing insights into the transportation needs and preferences of the community. While our sample size of 739 respondents limits broad generalizations, it offers a meaningful snapshot of the county's population.

The survey was conducted for informational reasons (i.e., descriptive statistics of the responses received are presented and discussed). Therefore, the survey findings, while valuable, should not be taken as statistically significant. We present a comparison of the survey response against selected socio-demographic elements of the American Community Survey 5-Year Estimates (2022) for Chittenden County.

Table 3.2 compares the age of survey respondents with ACS population by age data. Our respondents skewed towards mid-career professionals, with a notable concentration in the 30-49 age range. This group, often juggling career demands with family responsibilities, represented nearly half of our sample. Their perspectives are particularly helpful as we consider strategies to make sustainable transportation options more appealing to busy households. This overrepresentation may be linked to the outreach channels used to distribute the survey, which could have skewed responses towards a particular demographic.

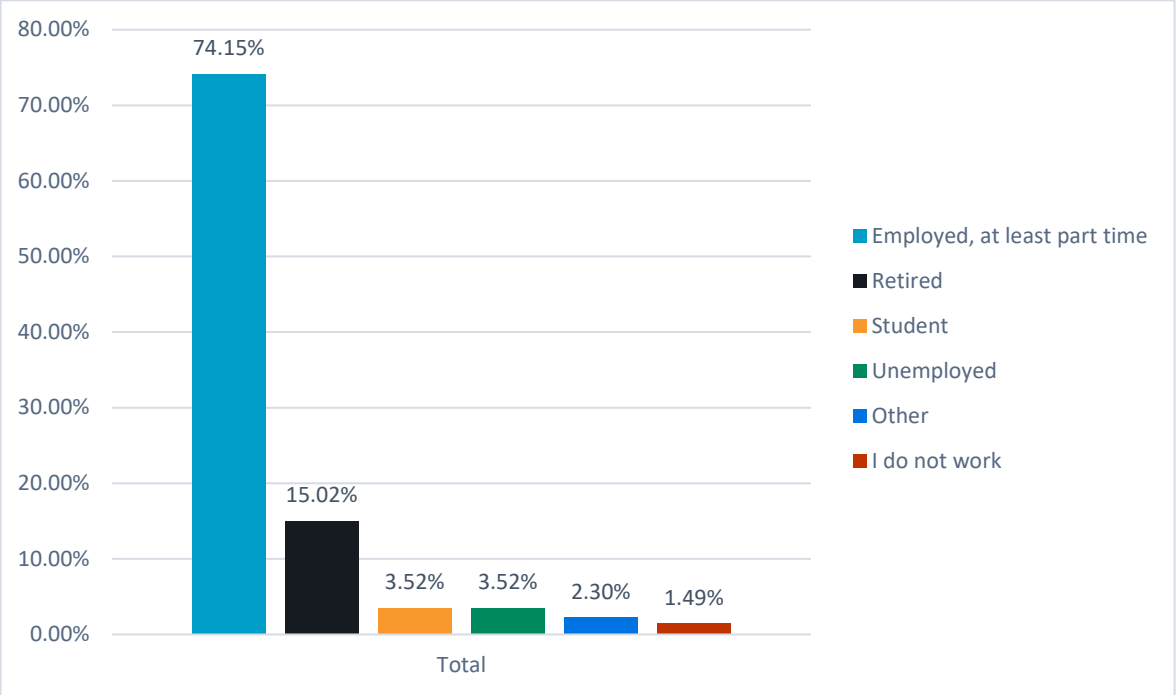
Table 3.2: Age: survey versus Chittenden County

Age Bracket	ACS Population	Survey Respondents	% of Survey	% County Population	Representation Index*
18 or younger	29,33	4	0.55%	17.43%	0.03
19-29	34,014	119	16.30%	20.21%	0.81
30-39	22,425	221	30.27%	13.32%	2.27
40-49	18,813	122	16.71%	11.18%	1.49
50-59	20,251	85	11.64%	12.03%	0.97
60 or older	38,090	179	24.52%	22.63%	1.08
Total	168,309	730*	100%	100%	-

*The total excludes those who selected “prefer not to answer” for this question.
Source: 739 respondents, August 2024

There was strong representation from employees (see Figure 3.1), with almost three-quarters of respondents employed at least part-time (32-40 hours/week). The survey overrepresents the employed population (74.15% vs. 68.4% in Chittenden County) as described in Table 3.3. This high employment rate underscores the importance of commute-focused transportation solutions. However, it is important not to overlook the quarter of respondents outside the traditional workforce, including retirees, students, and caregivers, who have distinct transportation needs. Engaging with schools, senior living facilities and advocacy groups may be worth considering in the future to gain more insights about how seniors, students, and caregivers travel.

Figure 3.1: Respondent employment status distribution



Source: 739 respondents, August 2024

Table 3.3: Employment status: survey versus Chittenden County

Employment Status	Survey	Chittenden County (ACS)	Representation Index
Employed	74.15%	68.4%	1.08
Unemployed	3.52%	2.0%	1.76
Not in labor force	22.33%	29.6%	.75

Source: 739 respondents, August 2024

Income distribution among respondents was fairly broad (see Table 3.4), with a concentration in middle to upper-middle income brackets. Over 60% reported household incomes between $50,000 and $149,999 annually. Note that nearly 10% chose “Prefer not to answer,” which may skew the results. Overall, this suggests a population that are not transit-dependent and would be potentially open to trying new transportation options if they prove convenient.

Table 3.4: Household income: survey versus Chittenden County

Income Bracket	Survey	Chittenden County (ACS)	Representation Index
$150,000 or more	15.70%	24.43%	0.64
$100,000-$149,999	23.68%	19.89%	1.19
$75,000-$99,999	19.89%	13.04%	1.53
$50,000-$74,999	19.35%	14.72%	1.31
$25,000-$49,999	8.53%	15.36%	0.56
Less than $25,000	3.25%	12.55%	0.26
Prefer not to answer	9.33%	-	-

Source: 739 respondents, August 2024

The survey slightly overrepresents households with two adults compared to the county's ACS data (Table 3.5). Interestingly, our survey captured a higher proportion of households with children compared to county-wide statistics (Table 3.5). This can present both a challenge and an opportunity as we consider family-friendly transportation choices that can compete with the perceived convenience of personal vehicles.

The survey also provides strong representation of respondents with disabilities (14.07% vs. 10% in the county). This higher representation ensures that the perspectives of individuals with disabilities are well-reflected in the survey findings.

Another significant finding is the overrepresentation of work-from-home arrangements in the survey (43.17% vs. 15.1%). This could indicate that teleworkers were more likely to respond or that the survey was distributed during a time when remote work was particularly high, skewing the overall transportation preferences towards those who commute less frequently.

Table 3.5: Summary comparison of other survey demographics versus Chittenden County demographics

Characteristic	Survey Results	ACS 2022 5-Year Comparison	Comparison
Household Composition – Adults	55.80% have 2 adults	48.9% are married-couple families	Slightly overrepresents 2-adult households
Household Composition - Children	50.07% have no children	69.9% have no children under 18	Overrepresents households with children
English Fluency	88.77% speak English "Very well"	94.5% speak only English or speak English “Very well”	Slightly underrepresents English fluency
Disability	14.07% report having a disability	10% have a disability	Slightly overrepresents people with disabilities
Vehicle Access	40.60% have two vehicles; 42.49% have one vehicle; 83.09% total have 1-2 vehicles	35.7% have two vehicles; 35.7% have one vehicle; 71.4% total have 1-2 vehicles	Overrepresents households with 1-2 vehicles by about 11.7 percentage points
Work from Home	43.17% use teleworking/work from home	15.1% of workers worked from home	Significantly overrepresents work-from-home arrangements

Source: 739 respondents, August 2024

Limitations

While the survey received a relatively high number of respondents, it is important to acknowledge the following limitations of the survey which affect the interpretation of the findings:

- There is an overrepresentation of Burlington (22.6% and 8.8% for the two zip codes on the survey vs 18.4% and 5.8% based on ACS data) and Winooski residents (7.5% vs 4.6% based on ACS) where there is higher access to transit, biking, and walking facilities.
- Our survey respondents reported much higher transit usage (22.73%) than the general population (1.9% according to ACS data), suggesting potential response bias favoring transit users. This may skew our findings in favor of transit-related strategies, such as fare subsidies.
- There is also an overrepresentation of work-from-home arrangements in the survey (43.17%) compared to the County average (15.1%).

Respondents' Travel Behavior, Modal Familiarity and Usage Patterns

This section summarizes findings from questions that asked respondents:

1. how familiar they were with their travel options in the county.
2. their frequency of using a personal/household car for commuting, either driving alone or as a passenger.
3. duration of their trips by their trip purpose.

Familiarity with Mobility Options, Weekly Usage Patterns

Overall Observations

Our survey revealed a community with a strong familiarity of various transportation options, but often defaulting to personal vehicles for daily travel as presented in Table 3.6. This gap between awareness and usage presents a clear opportunity for targeted interventions. Walking and cycling emerged as the most familiar transportation modes, with over 90% of respondents expressing familiarity.

Public transit also enjoyed high familiarity, with nearly 88% of respondents aware of bus services.

Teleworking ranked as the fourth most familiar transportation option, which is probably a reflection of the respondents' profile (43.17% use teleworking/work from home, see Table 3.5).

Shared modes, particularly carsharing, bikesharing, carpooling, and vanpooling have lower overall familiarity, especially in limited access areas.

Although respondents were overall familiar with public transit and ridesharing services, most stated that they were "somewhat familiar" given the levels of familiarity. Therefore, education and awareness-building of these services as drive-alone alternatives is still needed.

Table 3.6: Ranking of mode by familiarity

Rank	Mode	Somewhat Familiar	Very Familiar	Extremely Familiar	Total
1	Walking	15.16%	25.58%	51.42%	92.16%
2	Personal bicycle	25.30%	28.82%	34.37%	88.49%
3	Public transit (bus)	33.96%	32.34%	21.38%	87.68%
4	Teleworking/work from home	17.05%	23.68%	40.87%	81.60%
5	Rideshare service	35.32%	29.09%	10.01%	74.42%
6	Carshare VT	39.38%	18.00%	8.25%	65.63%
7	Shared bicycle	36.13%	19.35%	8.12%	63.60%
8	Carpool	34.51%	18.81%	8.25%	61.57%

9	Paratransit service[2]	43.71%	12.72%	5.14%	61.57%
10	Motorcycle	20.57%	18.40%	7.98%	46.95%
11	Enterprise Vanpool[3]	17.59%	10.69%	2.57%	30.85%

Source: 739 respondents, August 2024

High Access Versus Limited Access Descriptive Comparison

To assist with tailoring strategies to specific communities, we compared responses from two groups based on the availability of high-quality transit, walking and biking facilities in their stated place of residence or visit destination:

- High access zips (470 respondents)[4]
- Limited access zips (269 respondents)[5]

High access respondents were more familiar with:

- **Walking:** High access zip code respondents (94.68%) were more familiar with walking as a mode of transportation than limited access zip code respondents (87.73%).
- **Personal bicycle**: Again, high access zip code respondents showed greater familiarity with personal bicycles. The difference was similar to walking, with 90.85% familiarity in high access areas versus 84.39% in limited access areas.
- **Teleworking/work from home**: High access zip code respondents were slightly more familiar with teleworking, but the difference was minimal (82.13% vs 80.67%).
- **Rideshare service:** High access zip code respondents were significantly more familiar with rideshare services, with a 20.58% higher familiarity rate (81.92% vs 61.34%).
- **Carshare VT**: Respondents from high access zip codes were more familiar with Carshare VT, showing a 12.02% higher familiarity rate (70.01% vs 57.99%).
- **Shared bicycle**: High access zip code respondents were considerably more familiar with shared bicycle services, with a 17% higher familiarity rate (69.79% vs 52.79%).

Limited access respondents were more familiar with:

- **Carpool:** Limited access zip code respondents were more familiar with carpooling, showing an 8.99% higher familiarity rate (67.29% vs 58.30%).

[2] Paratransit is a shared ride public service intended for people with disabilities that prevent them from riding ADA compliant fixed route bus systems for some or all of their travel. It is curb-to-curb by default.

[3] Enterprise Vanpool, in partnership with Go! Vermont, operates Commuter Co-op VT, a vanpool service. Commuter Co-op VT is offered statewide. Groups of co-workers and friends who share a similar commute and schedule each pay a small fee to rent and maintain an SUV or van provided by Enterprise.

[4] For this preliminary planning analysis, zip codes with access to access to high-quality transit (<20 min headways), walking and biking facilities include: 05401, 05402, 05403, 05404, 05405, 05406, 05407, 05408, 05439, 05449, 05446, 05452, 05453, and 05495.

[5] Rest of the study area is classified as limited access zip codes

- **Motorcycle:** Limited access zip code respondents were notably more familiar with motorcycles as a mode of transportation, with a 13.84% higher familiarity rate (55.76% vs 41.92%).
- **Enterprise vanpool**: Limited access zip code respondents were significantly more familiar with Enterprise Vanpool, showing a 15.80% higher familiarity rate (40.90% vs 25.10%).

High and limited respondents had a similar level of familiarity with:

- **Public transit (bus):** Interestingly, there was no difference in familiarity with public transit between high access and limited access areas, with both groups showing 87.68% familiarity.
- **Paratransit service**: There was a very slight difference in familiarity with paratransit services, with limited access respondents showing a 0.22% higher familiarity rate (61.71% vs 61.49%).

Observations
Building on the descriptive analysis of the results above, the main differences between high access and limited access populations are:

- **Active transportation modes:** While both walking and personal bicycles have high familiarity in both area types, more people in high access areas were familiar with biking (68.08%) and walking (83.62%) than in limited access areas (54.65%and 65.43%, respectively).
- **Shared mobility services:** The largest gaps in familiarity are for rideshare services (20.58% higher in high access areas) and shared bicycles (17% higher). This suggests these newer mobility services have much less presence or visibility in limited access areas. CarShare VT also shows a significant difference (12.02% higher in high access areas). As expected, this suggests a general trend of greater exposure to or availability of shared mobility options in high access areas.
- **Carpooling, motorcycles, and vanpooling**: All show higher familiarity in limited access areas. The differences are particularly notable for Enterprise Vanpool (15.80% higher) and motorcycles (13.84% higher) in limited access areas. This could reflect a reliance on these modes in areas with fewer public transit options or less walkable/bikeable infrastructure.
- **Paratransit:** The very small difference in paratransit familiarity (0.22% higher in limited access areas) is notable given the larger gaps seen in most other modes. This could most likely be due to the dependence of this service by individuals, regardless of location.

Mode Usage Patterns

Respondents were asked a series of questions about how often during the week they commute by driving alone and as a passenger in a personal or household car. Figure 3.2 through Figure 3.5 summarize these responses by high access and limited access respondents. Table 3.7 summarizes responses to follow-up questions about the duration of typical trips by trip purpose, presented as a comparison of high access and limited access respondents.

Observations

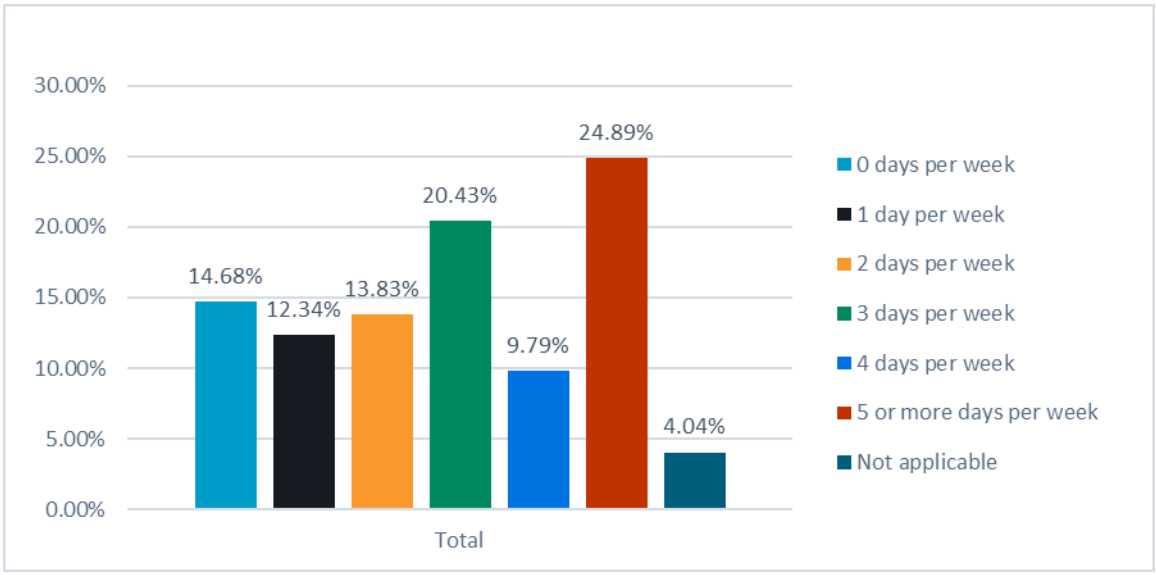
Usage patterns revealed a persistent reliance on personal vehicles across both high and limited access areas, though with some differences in frequency patterns. In limited access areas, 24.16% of respondents reported using a personal car for commuting five or more days per week, while in high areas the rate was similar at 24.89%. However, high access commuters showed more varied transportation habits overall, with higher percentages using cars 1-3 days per week (40.85% total)

compared to limited access commuters (35.36% total), suggesting greater flexibility in mode choice for high access area residents.

Further observations indicate that:

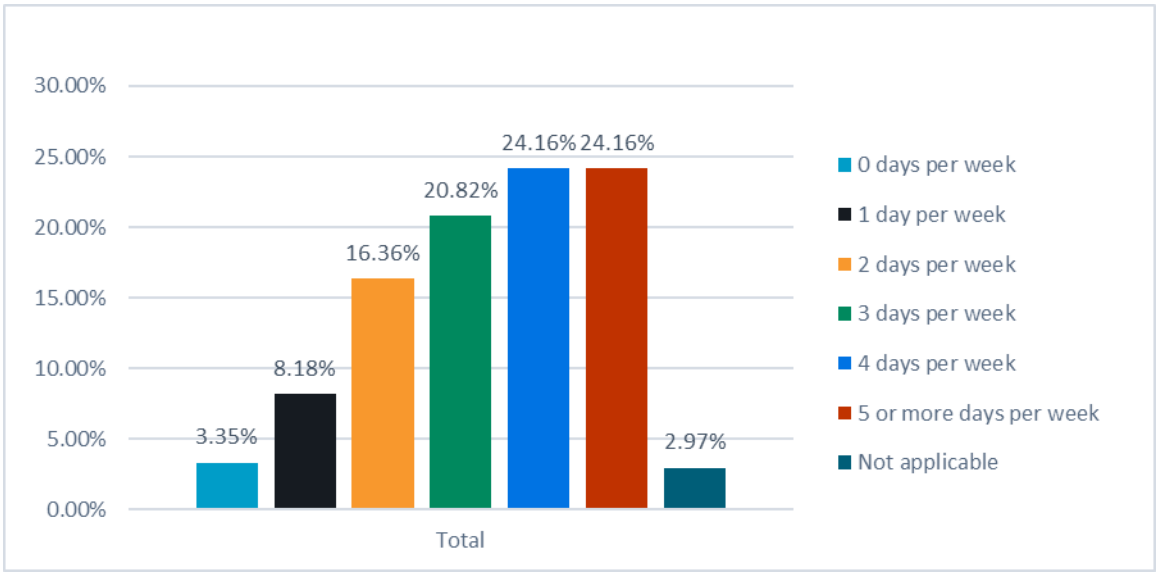
- High access commuters have more varied usage patterns, with higher percentages using cars 1-3 days per week, followed by walking, biking, rideshare services, carpool, and public transit. There is also a large group of employees (76.16%) who are able to telework at least one day a week.
- As expected, limited access commuters show higher reliance on personal cars for regular commuting compared to high access commuters.
- Work trips tend to be shorter for high access travelers, with a higher percentage taking less than 30 minutes.
- Grocery trips are notably shorter for high access travelers, with 43.62% under 10 minutes compared to 23.42% for limited access.
- Medical trips also tend to be shorter for high access travelers.
- Childcare trips are more common for limited access travelers (lower "Not applicable" percentage), but durations are fairly similar with high access travelers.

Figure 3.2: High access: Weekly usage of personal/household car for commuting – Driving alone



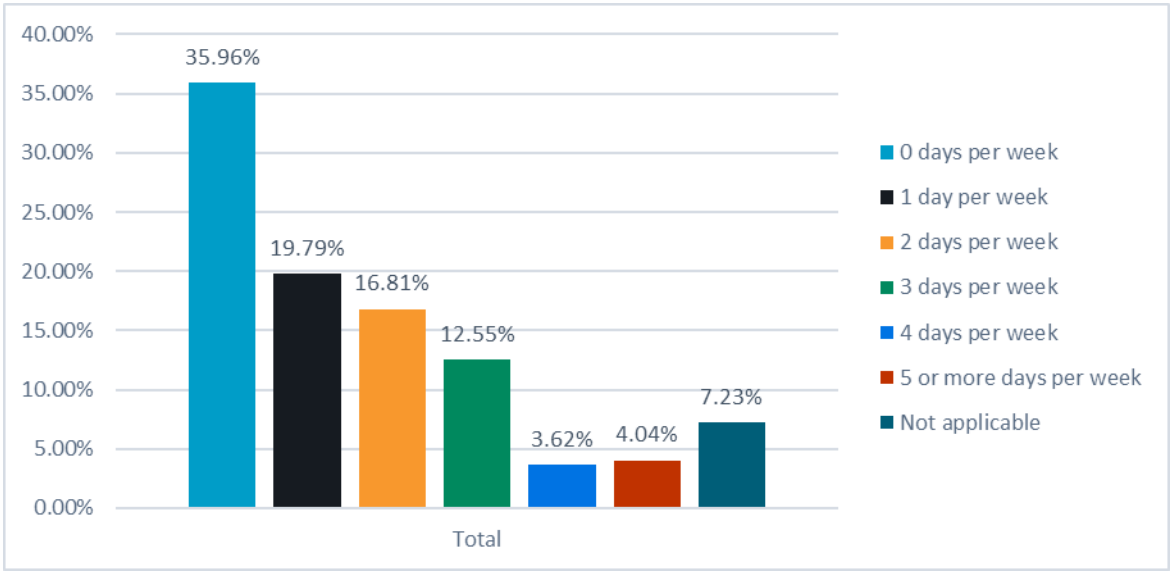
Source: 470 respondents, August 2024

Figure 3.3: Limited access: Weekly usage of personal/household car for commuting – Driving alone



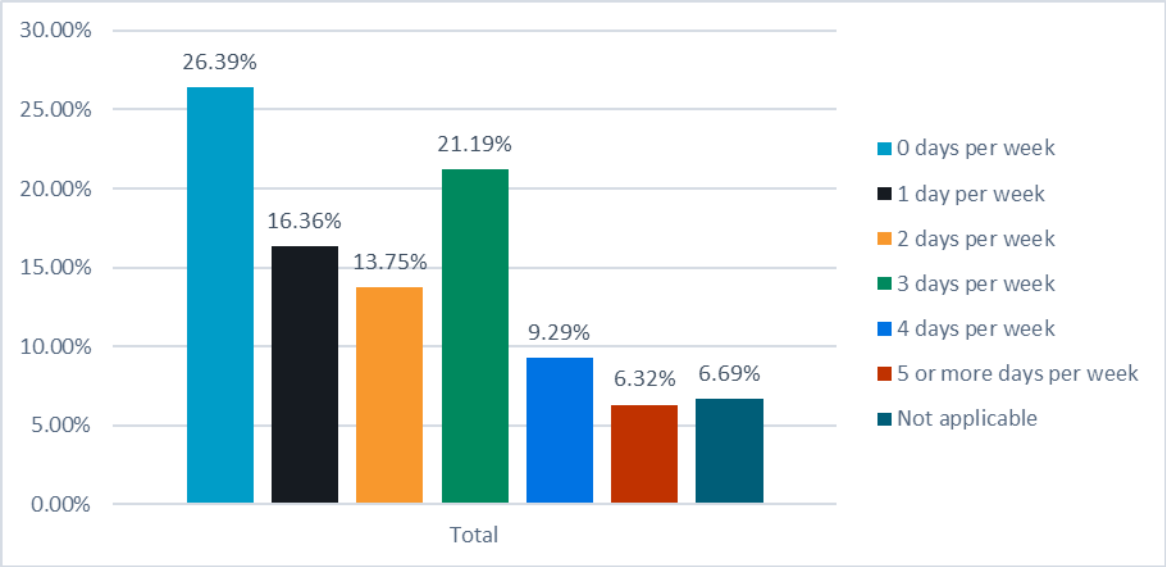
Source: 269 respondents, August 2024

Figure 3.4: High access: Weekly usage of personal/household car for commuting – as a passenger



Source: 470 respondents, August 2024

Figure 3.5: Limited access: Weekly usage of personal/household car for commuting – as a passenger



Source: 269 respondents, August 2024

Trip duration analysis (Table 3.7) further illuminated the influence of location on travel behavior. High access area residents reported notably shorter trips across various purposes, from work commutes to grocery runs.

Table 3.7 Duration of trips by trip purpose comparison for high and limited access areas

Trip Purpose	Duration	High access	Limited Access
Work	Under 10 minutes	16.38%	7.06%
	10-30 minutes	42.34%	35.69%
	31 minutes – 1 hour	12.77%	25.28%
	More than 1 hour	6.60%	10.41%
	Not applicable	21.91%	21.56%
Recreation	Under 10 minutes	16.38%	13.75%
	10-30 minutes	52.13%	49.44%
	31 minutes – 1 hour	24.04%	28.25%
	More than 1 hour	4.47%	4.83%
	Not applicable	2.98%	3.72%
Social	Under 10 minutes	16.17%	8.18%
	10-30 minutes	57.45%	52.79%
	31 minutes – 1 hour	15.74%	28.62%
	More than 1 hour	7.87%	8.18%
	Not applicable	2.77%	2.23%
Grocery	Under 10 minutes	43.62%	23.42%
	10-30 minutes	38.30%	47.58%
	31 minutes – 1 hour	12.77%	22.68%
	More than 1 hour	4.47%	5.58%
	Not applicable	0.85%	0.74%
Medical	Under 10 minutes	19.36%	8.18%
	10-30 minutes	57.66%	48.70%
	31 minutes – 1 hour	16.17%	28.62%
	More than 1 hour	4.89%	10.78%
	Not applicable	1.91%	3.72%
Childcare	Under 10 minutes	7.87%	9.67%
	10-30 minutes	21.06%	27.88%
	31 minutes – 1 hour	8.08%	15.99%
	More than 1 hour	3.40%	3.35%
	Not applicable	59.57%	43.12%

Source: 739 respondents, August 2024

Last Trip Characteristics

Respondents were asked to select the purpose and mode choice of their most recent trip within the county. Table 3.8 summarizes the responses to the last trip purpose question, presented as a comparison of high access and limited access respondents. Table 3.9 and Figure 3.6 summarize the response to the mode choice of most recent trip by high access and limited access respondents. Figure 3.7 lists the 'other' modes reported by respondents. Of these modes, 30 out of 39 responses involved a vehicle and were people either driving, carpooling, or riding as a passenger.

Table 3.8: Last trip purpose comparison for high and limited access areas

Trip Purpose	High access	Limited Access
Commute to work/school	39.79%	35.32%
Shopping/errands	32.34%	33.46%
Leisure/recreation	22.13%	24.16%
Other	5.74%	7.06%

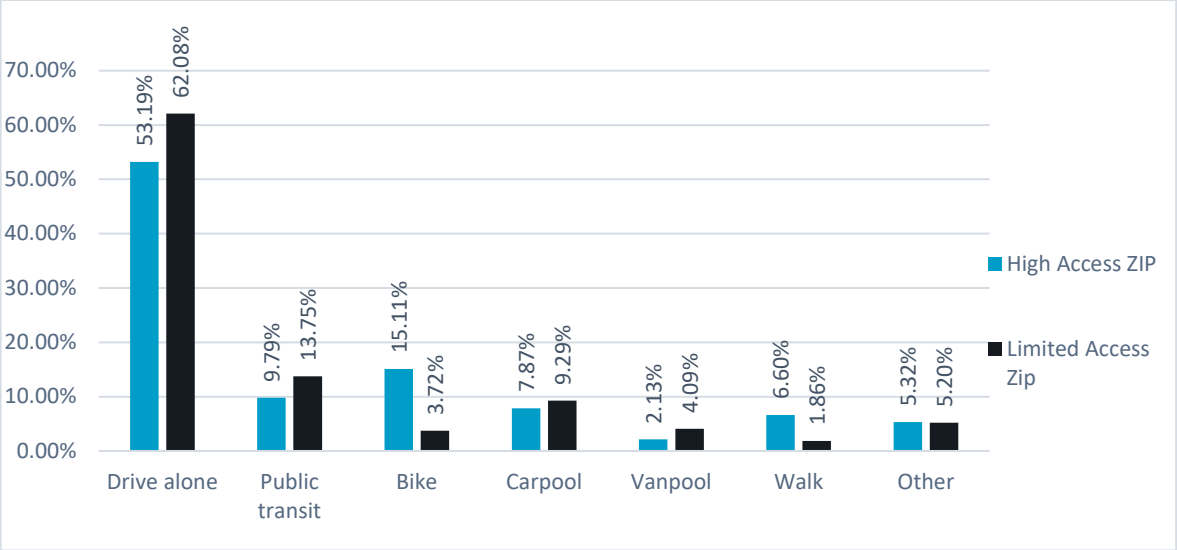
Source: 739 respondents, August 2024

Table 3.9: Mode of respondent's most recent trip

Mode of respondent's most recent trip	High access ZIP	Limited Access Zip
Drive alone	53.19%	62.08%
Bike	15.11%	3.72%
Public transit	9.79%	13.75%
Carpool	7.87%	9.29%
Other	5.32%	5.20%
Vanpool	2.13%	4.09%
Walk	6.60%	1.86%

Source: 739 respondents, August 2024

Figure 3.6 High access: Mode of respondent's most recent trip by for high and limited access areas



Source: 739 respondents, August 2024

Figure 3.7 "Other" responses regarding mode used during respondent's most recent trip

Count of TripMode_7_other	Column Labels	
Row Labels	High Access ZIP	Limited Access Zip
Another person with a car took me. Buses don`t alow very many bags per person	1	
Drive and Walk	1	
Drive as passenger		1
Drive my husband to medical appointments		1
Drive personal car with family	1	
drive with 2 in the car	1	
Drive with another		1
Drive with husband	1	
Drive with my child	1	
Drive with partner		1
drive with pet	1	
Drive with small children	1	
drive with spouse	1	
Drive with two kids		1
Driving my kids somewhere		1
driving w family member	1	
Driving with spouse		1
Driving with spouse and kids	1	
Drove child to apts		1
Drove my child	1	
Drove there with my daughter; biked home (she took the car to go to work)	1	
Drove with a friend		1
Drove with a passenger from my household.	1	
drove with family		1
Drove with family member		1
Drove with kids		1
drove with passenger	1	1
Drove with spouse	1	
Husband drove me	1	
I ride my eBike to the bus stop in Montpelier, take the bus to UVMC then ride bike to BTV southend		1
I took the bus there, walked home	1	
lyft	1	
Met someone half way to reach destination	1	
Para transit	1	
S.S.T.A.	1	
SSTA	1	
Transported my adult, non-driving children to work via car	1	
Uber	1	
Grand Total	**25**	**14**

Observations

There was a dramatic difference in active transportation usage between high and limited access areas. While over one-fifth (21.71%) of trips in high access areas are made by walking or biking, these modes account for just 5.58% of trips in limited access areas - a nearly four-fold difference that demonstrates how land use and infrastructure shape transportation choices.

Further takeaways include:

- Drive-alone rates are substantially higher in limited access areas (62.08%) compared to high access areas (53.19%), despite high access areas having a larger share of commute trips.
- Counterintuitively, public transit usage is higher in limited access areas (13.75%) than high access areas (9.79%), potentially indicating higher transit dependency in outlying areas. It is important to note that access to a personal vehicle was similar in high transit (98.94%) and limited access (98.51%) areas.
- Trip purposes are relatively similar between the areas, with only modest differences – the largest being a 4.47 percentage point higher share of commute trips in high access areas (39.79% vs 35.32%), likely due to a higher working age population in these areas.

Reasons for Choosing Preferred Mobility Options

This section summarizes responses to a series of questions in which people were asked why they chose the modes that they typically used to commute. Each mode lists the top five reasons selected as “most important.” While most respondents had access to at least one vehicle, slightly more respondents in high access areas (98.51%) reported having access than those in limited access areas (92.13%). This indicates there is a population of people in limited access areas who may be transit dependent.

For driving:

- Using a personal car for work purposes (22.19%)
- Most convenient and quickest option (20.06%)
- Needing to transport children or family members (8.81%)
- Other modes don't fit the work schedule (6.99%)
- Health/safety concerns with other modes (6.38%)

For those who primarily drive, convenience and necessity emerged as the dominant factors. Over 20% of all respondents cited driving as the most convenient and quickest option. However, in limited access areas, using a personal car for work is the main reason for driving, with 29.14% citing it as most important compared to only 16.29% in high access areas – a substantial 12.85% difference. Conversely, convenience is the top factor in high access areas (24.16%) but ranks second in limited access areas (15.23%). Table 3.10 summarizes the top three reasons for driving by high and limited access areas. This stark contrast underscores the impact of land use and infrastructure on transportation choices, and points to the potential benefits of extending high-quality transit and active transportation networks to more parts of the county.

Table 3.10: Top reasons for driving for high and limited access areas

	Using personal car for work		Convenience		Needing to transport children or family members	
	High Access ZIP	Limited Access Zip	High Access ZIP	Limited Access Zip	High Access ZIP	Limited Access Zip
Important	3.37%	3.97%	16.85%	10.60%	5.06%	10.60%
More important	5.62%	4.64%	15.73%	10.60%	6.18%	5.30%
Most important	16.29%	29.14%	24.16%	15.23%	8.43%	9.27%

Source: 739 respondents, August 2024

For taking the bus:

- Saving money (29.22%)
- Avoiding parking costs (13.17%)
- Not owning a car (12.76%)
- Wanting to help the environment (12.76%)
- Saving time (11.93%)

When it comes to public transit use, financial considerations took center stage. Almost 30% of bus users cited cost savings as their primary motivation in limited access zones, with avoiding parking costs as the second most common reason. Notably, environmental concerns also factored significantly, with nearly 13% of transit users citing a desire to help the environment as their main reason. The most striking difference is in time savings: it is the second most important factor in limited access areas at 16.25%, but only fifth in high access areas at 9.82%. Time savings for bus use are more important for limited access residents (16.25% vs 9.82% in high access areas).

For walking/biking:

- Getting exercise (37.99%)
- Saving money (12.01%)
- Helping the environment (11.81%)
- Saving time (9.84%)
- Avoiding parking costs (7.48%)

For those who chose to walk or bike, health benefits were the overwhelming motivator, particularly in high access areas (40.17% vs 32.65% - a 7.52 percentage point difference). Conversely, cost savings were a much stronger motivator in limited access areas (17% vs 10%). Environmental concerns played a slightly larger role in limited access areas (13.61% vs 11.08%), while avoiding traffic uniquely appeared in the top five reasons for limited access respondents (6.12%). The higher emphasis on cost savings in less connected areas suggests that walking and biking may be more of an economic necessity than a lifestyle choice for many residents - pointing to a need for initiatives that enhance the appeal and safety of active transportation in these areas.

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For carpool/vanpool/paratransit/carshare:

- Saving time (22.34%)
- Avoiding parking costs (21.99%)
- Saving money (21.63%)
- Avoiding traffic (14.18%)
- Not owning a car (10.99%)

For those using carpools, vanpools, or shared mobility services, the benefits were more evenly distributed across several factors. Time savings, avoiding parking costs, and general cost savings were all cited as primary motivators by 21-22% of users. For shared transportation, cost savings are also more important in limited access areas (23.62% vs 20.00%).

Time savings is the top reason in limited access areas (25.98%) and also ranks high in high access areas (19.35%). Cost savings, both in terms of money and parking, are more important in limited access areas (23.62% for both vs 20.00% and 20.65% in high access areas). Avoiding traffic is more crucial in high access areas (16.77% vs 11.02% - a 5.75 percentage point difference).

Interest Towards Available Mobility Options

Table 3.11 summarizes the response to a question where respondents were asked to select their interest in trying different commute modes.

Table 3.11: Interest by mode

Mode	I would never consider	Not interested based on past experience	Interested but doesn't work with current situation	Interested, but have questions	Interested, willing to try if available	I currently use	High vs. Limited Access Differences
Carpool	14.75%	10.42%	36.13%	12.31%	16.91%	9.47%	Limited access slightly more interested (32.71% vs 38.09%)
Carshare VT	21.24%	9.07%	31.26%	18.67%	12.72%	7.04%	Limited access more willing to try if available (18.22% vs 9.57%)
Enterprise Vanpool	30.31%	10.28%	25.17%	21.65%	10.01%	2.57%	Limited access more interested and willing to try (13.38% vs 8.09%)
Motorcycle	53.72%	6.77%	13.80%	10.28%	9.61%	5.82%	Limited access slightly more interested (15.99% vs 12.55%)
Paratransit	31.26%	11.23%	26.25%	17.73%	11.50%	2.03%	Limited access more interested and willing to try (13.75% vs 11.50%)
Personal bicycle	12.31%	8.93%	21.79%	10.69%	11.10%	35.18%	High access much more likely to currently use (42.55% vs 22.30%)
Public transit (bus)	6.36%	9.20%	26.12%	14.61%	20.97%	22.73%[6]	Limited access much more willing to try if available (26.77% vs 17.66%)
Rideshare	19.22%	17.19%	26.12%	13.13%	11.64%	12.72%	Limited access more willing to try if available (15.61% vs 9.36%)
Shared bicycle	28.82%	12.04%	22.60%	14.07%	15.29%	7.17%	Similar interest levels
Teleworking	8.66%	3.38%	23.95%	7.04%	13.80%	43.17%	High access more likely to currently use (47.02% vs 36.43%)
Walking	7.17%	5.95%	23.00%	7.17%	11.23%	45.47%	High access much more likely to currently use (55.74% vs 27.51%)

Source: 739 respondents, August 2024

[6] Compared to ACS 2025 5-Year Estimates which show 1.9% of the County's employed population using public transit to commute to work.

Overall Observations

- Less familiar modes like Enterprise Vanpool and paratransit had much lower current usage (2-3%) but higher percentages saying they were interested in trying it.
- Limited access respondents showed more interest in trying transit options they were less familiar with. For example, 26.77% of limited access respondents were willing to try public transit if available, compared to only 17.66% of high access respondents.
- Modes with mid-range familiarity like rideshare, carshare, and public transit had the highest percentages of respondents saying they were interested but it didn't work with their current situation (26-35%) or that they were willing to try if available (13-21%).
- Enterprise Vanpool and Motorcycle had the lowest familiarity (31 and 47%, respectively) and also the highest percentages saying they would never consider using the mode (30 and 54%, respectively).

Assessing Receptiveness of Transportation Options Strategies

To gain deeper insights into residents' preferences for various transportation options, we conducted a Maximum Difference (MaxDiff) scaling exercise. This advanced survey technique allowed us to quantify the relative appeal of 24 different strategies across six categories: carpooling/vanpooling, carsharing, transit, shared micromobility, parking, and marketing/education. The results offer valuable guidance for prioritizing initiatives that will resonate most strongly with Chittenden County residents.

In Logit modeling, a unitless utility-based score is estimated for each of the tested alternatives (here, each tested strategy is an alternative) against a baseline alternative. In this analysis, statement number 24 from Table 2.1 was selected as the baseline alternative to estimate the Logit model. A higher utility score indicates higher receptiveness of respondents toward the alternative.

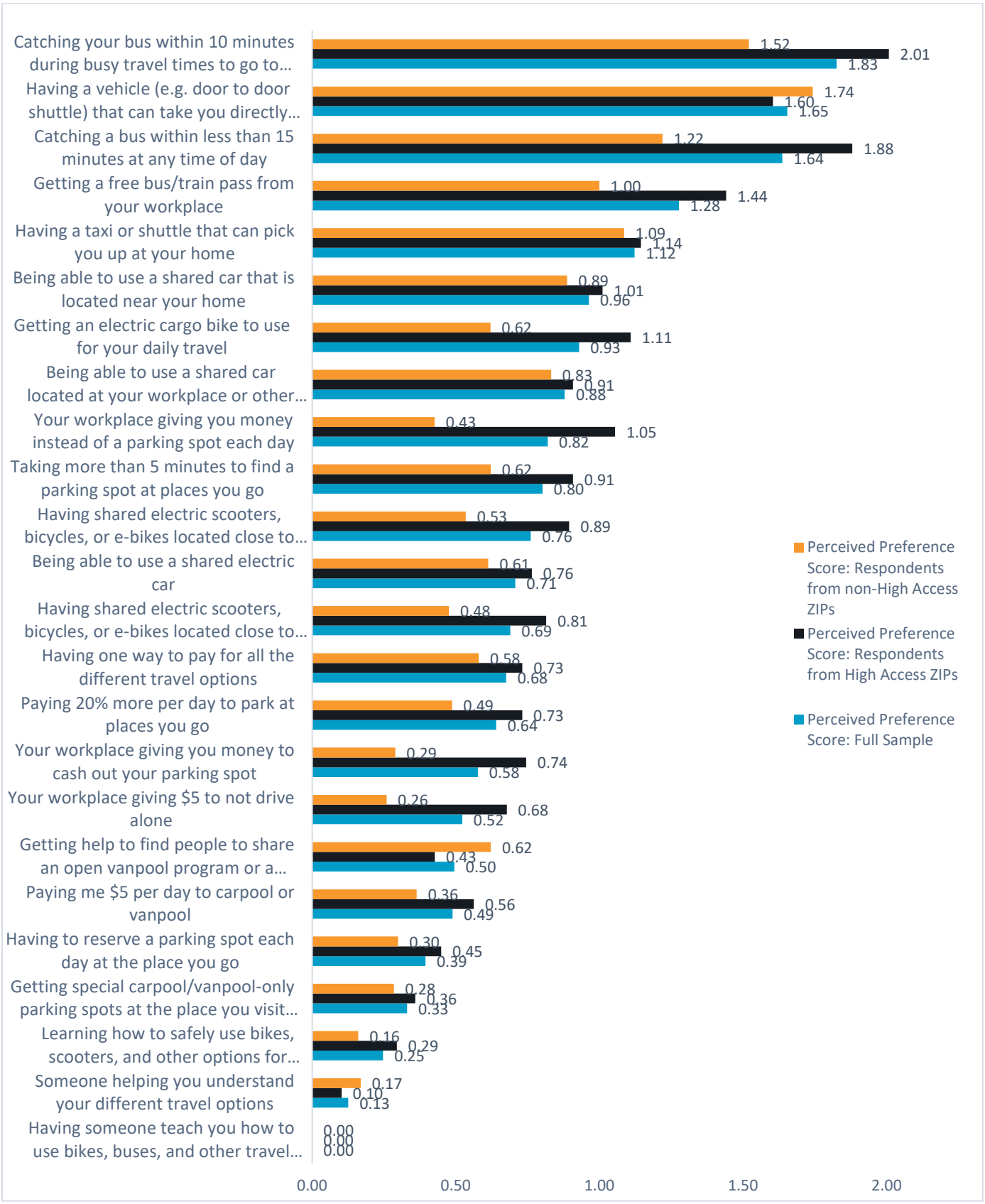
Difference in Receptiveness Across Respondents from High Access vs Limited Access Areas

We evaluated if there is a difference in receptiveness to transportation options strategies across respondents from high access (470 respondents) and limited access (269 respondents) areas by estimating two Logit models.

The separate models revealed minor differences in receptiveness scores of the tested transportation options strategies. The scores are shown in Figure 3.8 below.

Overall, the findings reveal a strong appetite for improved public transit services, with strategies focused on enhancing bus frequency and accessibility ranking highly across the board. This interest in transit improvements spans both high access and limited access areas.

Figure 3.8: MaxDiff receptiveness scores of the transportation options strategies



Receptiveness of respondents from high access areas

In high access areas, which have higher frequency transit service (<20 mins) and more walking/biking infrastructure, the top five identified strategies are (ranked 1st to 5th):

1. Catching a bus within 10 minutes during peak hours for work/school trips,
2. Catching a bus within 15 minutes throughout the day,
3. Door-to-door transportation option,
4. Free bus/transit pass from workplace,
5. Taxi/shuttle offering home pickup service.

These results underscore the importance of frequency and reliability in making transit a competitive option for daily travel.

Receptiveness of respondents from limited access areas

Respondents from limited access areas ranked door-to-door transportation options as their top preference. The top five identified strategies are (ranked 1st to 5th):

1. Door-to-door transportation option,
2. Catching a bus within 10 minutes during peak hours for work/school trips,
3. Catching a bus within 15 minutes throughout the day,
4. Taxi/shuttle offering home pickup service.
5. Free bus/transit pass from workplace,

Comparison between high access and limited access areas

Both high access and limited access residents showed strong interest in workplace-based incentives, with free bus/transit passes from employers ranking in the top five preferences for both groups. This may reflect the oversampling of transit users among survey respondents even though the fare-free transit program during the pandemic did not result in significant ridership increases. This points to the potential for impactful partnerships with local businesses to promote sustainable commuting options among more transit-inclined users.

The high ranking of taxi/shuttle services offering home pickup across both area types indicates a desire for convenience and reliability that spans the county. This could inform the development of new transit services or the expansion of existing ones to include more flexible routing options.

It's worth noting that while the top five preferences were consistent across high access and limited access areas, the order of these preferences differed. Lower on the preference list, but still showing significant interest, were strategies related to shared micromobility (like bike and scooter sharing) and parking management (pricing, cash out, availability, etc.). While not top priorities, these options could play important supporting roles in a comprehensive transportation strategy, particularly in denser urban areas.

Respondents from high access areas are more open to using the bus (since they presumably observe the accessibility of buses in their area), whereas respondents from limited access areas are more inclined towards having door-to-door services. This suggests that promoting slightly different transportation options strategies across these two areas may help increase trips made by transportation modes other than personal/household cars.

Notably, marketing and education strategies generally ranked lower in preferences. It could suggest that while outreach and information campaigns have their place, residents are more interested in tangible improvements to transportation services and infrastructure.

The insights from the MaxDiff exercise provide the beginnings of a roadmap for expanding transportation options in Chittenden County. As the project moves forward, it will be essential to balance these expressed preferences with broader goals for sustainability, equity, and long-term regional development. Some lower-ranked options, such as shared micromobility or parking management strategies, may still play critical roles in achieving these broader objectives and should be considered as part of a holistic approach to transportation planning.

Assessment of Open Field Comments

Analysis of 1,116 open field responses, primarily from the question "What are the actions we could take to encourage you to drive less or use a different mode more frequently?", revealed key patterns regarding transportation barriers and opportunities in Chittenden County. Supplemental insights came from "Other" response options across mode choice questions, though these represented a small portion of total responses.

Public transit limitations were the most frequently cited barrier in responses to the action question (~200 comments), with specific concerns about limited routes, infrequent service (mentioned ~150 times), and long travel times due to transfers (mentioned ~100 times). The strong focus on transit improvements suggests respondents see enhanced public transportation as the most promising avenue for reducing car dependency.

Infrastructure and safety concerns dominated active transportation feedback in the action responses, with approximately 175 comments addressing bike safety and infrastructure needs. Protected bike lanes were specifically requested in ~45 comments, while dangerous road conditions were mentioned in ~30 comments. This feedback often appeared in relation to specific corridors: Shelburne Road (~7 mentions), Route 15 (~5 mentions), and Williston Road (~4 mentions).

Among supplemental "Other" responses and action suggestions, rural accessibility challenges appeared in ~125 comments, while weather-related concerns were noted in ~75 responses. Trip chain complexity, particularly involving childcare, was mentioned in ~90 comments. Opportunities identified in the action responses included expanded e-bike access (~60 comments, with cost concerns in ~25), enhanced car-sharing services (~40 comments), and workplace incentives (~35 comments).

Key Takeaways

The Transportation Options Survey was intended to help Chittenden County Regional Planning Commission (CCRPC), decision-makers, and key local partners gain a deeper understanding of the travel behavior and mode preference patterns of the county residents, and assess their interest towards potential transportation options strategies to induce a reduction of personal vehicle reliance in Chittenden County. Key insights from the survey include:

- **Convenience reigns supreme**: Respondents had a strong preference for hassle-free travel experiences. Driving was often perceived as the quickest and easiest option, especially in areas with limited transportation alternatives.
- **Cost sensitivity**: Cost savings played a significant role in transportation decisions, particularly in limited access areas.

- **Flexibility**: The high ranking of door-to-door transportation solutions and home pickup shuttles reflected a desire for flexibility and adaptability.
- **Tangible Service Enhancements**: Respondents are more responsive to direct improvements in service frequency, accessibility, and cost than education and marketing efforts.

Top-ranked strategies identified through the survey and stakeholder focus groups include:

- **Frequent Bus Service During Peak Hours**: Both survey respondents and stakeholders identified frequent and reliable bus service as a top priority.
- **All-Day Frequent Bus Service**: Expanding frequent bus service beyond peak hours to provide consistent and convenient transit options throughout the day.
- **Door-to-Door Transportation Options**: Strong preference for door-to-door solutions, aligning with stakeholder feedback on providing accessible options for those unable to drive or use fixed-route transit.
- **Employer-Provided Transit Passes**: Offering free or subsidized transit passes through employers can incentivize transit use and reduce drive-alone rates.
- **Home Pickup Shuttle Services**: Providing flexible shuttle services with home pickup options can enhance convenience and accessibility, especially in areas with limited transit infrastructure.

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Appendix D: Stakeholder Interviews-Stakeholder Engagement Summary Report

To	Chittenden County Regional Planning Commission	**Memo v2**	
Cc	Toole Design		
From	Steer		
Date	February 2, 2026		
Project	2024 Chittenden County Regional Transportation Options Plan	Project No.	24601801

Stakeholder Engagement Summary Report

Introduction

Context

The Chittenden County Regional Planning Commission (CCRPC) identified nine key regional stakeholders whose input would be instrumental in understanding the current state of TDM practice in the region (Table 1). These stakeholders represent various organizations and entities actively involved in transportation planning, policy development, and service provision within the County.

Steer led comprehensive in-person interviews (60-90 minutes each) with representative(s) from each of the nine regional stakeholders in March 2024 (Table 2). These in-person interviews followed a semi-structured format, allowing for an exploratory dialogue while maintaining a guided discussion based on prepared questions. The interview approach aimed to facilitate an open exchange, enabling stakeholders to freely describe their respective organizations' current alternative transportation program successes, challenges, and opportunities. Representatives from CCRPC and Toole were present during these meetings to ensure a collaborative and well-informed discussion.

To provide context, Table 1 summarizes the identified stakeholders and their roles in relation to alternative transportation initiatives within Chittenden County.

Table 1 Current TDM Initiatives by Stakeholder Type

Stakeholder Groups	Names of Organizations	TDM Support Provided
University	• Champlain College • University of Vermont (UVM)	• Street parking management • Bike infrastructure • Free transit passes
TMA (membership organization)	• CATMA	• Off-site parking management • Guaranteed Ride Home Program • App-based incentive program (Agile Mile platform) • Active transportation incentives • Education and Outreach
Non-Profit	• Local Motion • Special Services Transportation Agency (SSTA) • United Way of Northwest Vermont (UW) • CarShare Vermont	• Safe Routes to School (Local Motion) • Paratransit and Demand Responsive Services (SSTA) • Shuttle services (SSTA) • Carsharing Services (Carshare Vermont) • Employee vanpool services (UW) • Education and Outreach (Local Motion, UW)
Public Sector	• VTrans/Go Vermont • Green Mountain Transit (GMT)	• Mobility Q&A hotline (VTrans) • Trip Planner app and bus tracker (VTrans) • App-based incentive program (Agile Mile platform) (VTrans) • Guaranteed Ride Home (VTrans) • Education and Outreach (VTrans) • Transit services (GMT)

Table 2: Interviewees and Meeting Schedule – March 2024

Stakeholder Organization	Interviewee	Meeting Date (In-Person)
UW	Connie Beal	Mon, Mar 11, 8:30 am
CATMA	Sandy Thibault	Mon, Mar 11, 2:30 pm
VTrans	Ross MacDonald	Tues, Mar 12, 10 am
Local Motion	Jonathon Weber	Tues, Mar 12, 2:30 pm
CarShare Vermont	Annie Bourdon	Wed, Mar 13, 9 am
GMT	Chris Damiani	Wed, Mar 13, 10:30 am
SSTA	Adam Lawrence	Wed, Mar 13, 12:45 pm
UVM	Jamie Smith, Abby Bleything	Wed, Mar 13, 2 pm
Champlain College	Nic Anderson	Wed, Mar 13, 3 pm

Process

To ensure a consistent and structured approach during the stakeholder interviews, Steer developed a comprehensive questionnaire that served as a guiding framework for the discussions. The questionnaire was crafted to cover a broad range of topics relevant to TDM practices, including but not limited to existing programs and initiatives, policy and regulatory frameworks, best practice, governance, data collection and analysis, and perceived barriers and opportunities.

Table 3 summarizes the key thematic topics and questions that were explored during the interviews:

Table 3: Interview Structure

Topic	Questions
Transportation Challenges	• What do you feel are the three most significant challenges those living or working in Chittenden County face when trying to use transportation options other than driving alone?
Organizational Initiatives	• What has your organization tried or are doing to support the use of transportation options? How does your organization approach equity and community involvement? • Tell us about your success stories and lessons learned.
Best Practice	• Where have you seen transportation options programs that have effectively reduced VMT and SOV elsewhere?
Role of CCRPC	• What role do you think the CCRPC can play in supporting the increased use of transportation options in the county and reaching the state's GHG goals? • How would you go about achieving those goals?
Funding	• If your organization has dedicated staff/funding to encourage the use of transportation options, can you please describe what that looks like? – Do you have a breakdown of the funding sources (e.g. grants, user fees, debt, others)? – What's the available staffing/funding and what can it be used for? – Are the current revenues sufficient to cover costs?
Evaluation and Monitoring	• Does your organization monitor the impact of your transportation option programs? • Can funding scale with program growth? • Can you share the metrics, users feedback and/or any data, is possible?

Outcomes

The insights and perspectives gathered from these stakeholder interviews will form the basis of this comprehensive summary report. This report will consolidate and synthesize the key findings, challenges, and opportunities identified across the various organizations involved in alternative transportation initiatives within Chittenden County.

The summary report highlights areas of success, identifies potential gaps or barriers, and outlines strategic opportunities for the future Regional Transportation Options Plan. It serves as a guiding document, that inform the feasibility and financial viability recommendations in Task 4 through feedback on:

- Needs assessment of transportation options program;
- Best practice cases study identification;
- Funding sources and scaling;
- Possible governance structures;

- Design of the individual traveler questionnaire.

Key Take-aways

What we have learned from the stakeholders meetings:

- Defining and measuring "success" in alternative transportation programs remains a challenge in the County. Organizations that we have interviewed have different goals and metrics for evaluating the effectiveness of their initiatives.
- Many organizations rely on grants and lack stable, ongoing funding to implement County's bold TDM goals. Sustainable and reliable funding sources are crucial for the long-term success and expansion of alternative transportation programs in the region.
- Integrating land use planning with transportation planning is critical for supporting alternative transportation programs and reducing VMT in the long run. Policies that encourage dense, mixed-use development and discourage sprawl are needed to make those programs more effective.
- Collaboration and partnerships among regional stakeholders are key to providing comprehensive TDM services and addressing transportation challenges effectively. Organizations like CATMA and CCRPC play vital roles in facilitating these partnerships across public agencies and with employers.
- Engaging with diverse communities, particularly immigrants, low-income populations, and shift workers, is essential for ensuring equitable access to transportation options, but remains a challenge for many organizations within the region.

Interview Summary

This section summarizes themes from across the nine interviews with regional stakeholders, finding common approaches and challenges as well as differences by stakeholder role. Key themes include incentivization strategies, enhancing parking management and fees, improving employer vanpool ridership, increasing bus ridership, and expanding education and outreach to both employers and employees. The interviews are summarized in the following sections: Perceived transportation challenges, organizational initiatives to address these challenges, best practices, successful initiatives, evaluation and monitoring, and the role of CCRPC in promoting TDM.

Organizational Initiatives

The following initiatives describe the current efforts by the interviewed organizations to provide transportation options in the region – they do not directly address the ongoing challenges described above. This subsection summarizes: partnerships at federal, state, and regional level, education and outreach programs, incentives to encourage sustainable travel options, disincentives to driving, expanding employer vanpool ridership, increasing bus ridership, and planning and permitting to support density:

- **Federal Partnership**
  - **Medicaid Service:** SSTA primarily serves elderly and disabled individuals who cannot use regular public transportation to assist them with accessing medical appointments and essential services. As a recipient of federal Medicaid funds, they focus on Medicaid clients and those using ADA paratransit services, providing vital transportation for treatments such as dialysis, cancer treatments, and opioid addiction programs. UW, GMT, and SSTA, in cooperation with CCRPC, coordinate to provide this volunteer-driven service.
- **State Partnerships**
  - **Commuter Database:** CATMA and VTrans share a dataset of participating commuters using the Agile Mile platform, providing a more comprehensive picture of commute patterns in the county. Both

CATMA and VTrans would like to incorporate more data-driven insights into their decision-making. Go Vermont, operated by the state Department of Transportation, works closely with CATMA to coordinate carpooling and vanpooling services.

- **Regional Partnerships**
  - **Resource Coordination at Jobsites:** UW works closely with local employers and community partners to develop transportation solutions as part of their mission to "meet basic needs," in addition to other social support programs that they provide. Typically, they work with employers with at least 100 employees, a few have 500-600 employees, with their largest partner being the University of Vermont Medical Center with over a thousand employees. In their role as a transportation options educator, they engage with employers to offer on-site transportation resources and commute alternative education sessions to address transportation challenges. UW believes that a human engagement component, through resource coordinators at the worksite for example, significantly increases the likelihood of behavior change. In Vermont, UW has observed a culture where people navigate certain problems through personal networks, rather than online resources. UW's employer partnerships help ensure that state-level resources and policies support local transportation initiatives.
  - UW is also working with CATMA to share resources, such as their employer database, and eventually develop an employer-based vanpool network.
  - **Bike Education and Advocacy:** Local Motion collaborates with municipalities and schools to improve infrastructure and promote walking and biking , demonstrating effective community collaboration.
- **Education, Outreach, and Accessibility**
  - **Employer Engagement:** CATMA and UW emphasized the importance of engaging local communities and leveraging local resources to create effective transportation programs. In particular, UW has in-person resource coordinators that share information about travel options directly with employees who may be recent immigrants or refugees. UW currently works with 29 employers across central and northern Vermont to provide resource coordinators who engage with employees directly to discuss transportation options and gather feedback. CATMA informs its member employers about TDM programs through employers' own employee resource coordinators.
  - **Educational Programs**: UVM require students to complete a parking permit course that educates them on the environmental impacts of driving and promotes transportation options.
    Translated Print and Video Media: VTrans is working on developing communications and marketing assets in multiple languages to reach more potential riders. VTrans recognizes that accessibility is not limited to physical accommodations; it also encompasses reducing language barriers by providing accurately translated print and video media in people's native languages. This initiative aims to promote sustainable transportation modes to a wider audience, ensuring that information is easily understandable for all, regardless of their primary language.
- **Incentives and Rewards**
  - **Low-Income and Student Populations**: Carshare Vermont provides free membership and subsidized membership rates for income-eligible individuals and students at UVM and Champlain College. Carshare Vermont also works with affordable housing partners and social service agencies to reach vulnerable populations. Currently, GMT provides free transit benefits to students, as well as staff.
  - **Guaranteed Ride Home Programs:** Safety and convenience are primary concerns for employees considering alternatives to driving, especially car-dependent populations living in areas without reliable transit. These programs, administered by organizations like CATMA and Go Vermont, ensure that commuters who use alternative modes have a reliable way to get home in emergencies.
  - **Rewards Programs:** Through an Agile Mile-based commute logging app, VTrans' Go Vermont program and CATMA provide participants with points-based rewards (i.e., rewards are typically a

discount at a participating retailer). CATMA also provides a special Bike-Walk Rewards program oriented towards Burlington residents (the reward is a $15 gift card to the participant's choice of selected retailers).

- **Parking Management and Fees**
  - **Campus Parking:** UVM is considering raising parking fees to reflect market rates and using tiered pricing and permit restrictions to discourage use of parking. They also provide Green Zone access for carpoolers, which offers prime parking locations as an incentive. Champlain College implements high parking fees and a hybrid parking system that includes both permit and pay-per-use options. This approach is designed to discourage driving and promote alternative transportation modes.
  - **Unbundling Parking at Worksites and Multifamily Buildings:** CATMA supports unbundling parking from residential units in new developments. This means that residents would pay separately for parking, which can discourage car ownership and use. Such an approach makes parking a distinct and visible cost, which can compel residents to consider transportation options.
- **Supporting Transportation Options**
  - **Expanding Employer Vanpool Ridership:** VTrans is actively promoting its vanpool program, which remained active through the COVID-19 pandemic. They focus on marketing the financial and social benefits of vanpooling to encourage participation. The goal is to increase the number of vanpools significantly. CATMA and UW are coordinating in their partnership to expand employer vanpool offerings in the future.
  - **Service Planning**: GMT has made adjustments to service post-COVID, noting that local routes have seen higher ridership, particularly those serving UVM students, while commuter routes have declined. They emphasize the need for reliable funding and regional cooperation to maintain and improve bus services. VTrans is considering strategic investments in rural transit, potentially around specific corridors rather than a broad-based network and a realignment of routes and schedules, to better connect rural populations with job centers.
  - **Free or Subsidized Transit:** Several organizations, including UVM and CATMA, provide free or subsidized transit passes to students and employees to encourage the use of public transportation.
- **Planning and Permitting**
  - **Support for Densifying Urban Areas:** VTrans stresses the importance of integrating regional land use and transportation planning to support mobility options. They advocate for policies that incentivize living in urban areas to reduce sprawl and promote transit use.
  - **Enforcing Local TDM Ordinances:** CATMA works with developers and municipalities to include TDM strategies in local ordinances and development plans. This ensures that new developments support sustainable transportation options and align with regional TDM goals. They verify that members are compliant with their TDM implementation requirements.
- **Financial Assistance and Support**
  - **Shared Mode Discounts:** Institutions like UVM and Champlain College offer discounted or free bus passes, discounted bike sharing, and carsharing memberships for their students, faculty, and staff. This helps reduce the cost burden of commuting by public transportation.
  - **Healthy Car Fund:** UW's Healthy Car Fund, offered only at Wake Robin Nursing Home due to a special donation, provides grants and loans for car maintenance and purchases, ensuring low-income workers can sustain their vehicles. UW noted that there are many instances where families work at the same manufacturing plant and carpool together. UW also stated that could indirectly support carpooling by encouraging people with safe, reliable cars to become drivers.

Transportation Challenges

Interviewees identified several barriers to using more sustainable travel modes that exist within the county, both in urban and rural areas. A clear primary challenge to reducing drive alone travel – and tripling transit – emerged from the interviews: As a predominantly rural county outside of Burlington, traditional fixed-route transit is unable to adequately provide a reliable option for low-income populations living outside the urban core. Interviewees acknowledged that, for many rural residents, driving alone is perceived as a reliable way to commute when transit service may not reach them, and schedules may not fit their commute hours. Certain challenges were identified around accessing transportation options by elderly residents, individuals with disabilities (permanent or temporary), and the county's immigrant population, some of whom have limited English proficiency. This subsection summarizes key challenges among the interviewees:

- **Service Reliability Gaps**
  - **Transit Fixed Route Services Are Insufficient:** Stakeholders believed that traditional fixed route transit cannot reliably provide sufficient frequency and connectivity to residents living outside of urban city of Burlington to replace drive-alone car commuting. GMT also noted their challenges with service frequency and reliability, which are critical for maintaining and increasing ridership, and complaints from UVM students about the reduced frequency of the number 2 bus route, which led to overcrowding and reduced reliability.
  - **On-Demand and Microtransit Services**: Local Motion and UVM observed that shared, on-demand micromobility services, particularly shared e-bikes were available in Burlington but unavailable in other towns, only addressing urban demand.. SSTA noted that they were the sole provider for all paratransit services in Chittenden County, providing critical transportation to medical care for disabled and elderly populations. UW felt there is a need for a flexible and responsive transportation services that can adapt to sudden needs (such as picking up a child at school) and late night work schedules and that these services need to become more widely available in the county.
- **Lack of Supportive Infrastructure**
  - **Bike/Ped Infrastructure**: Local Motion and UVM noted the absence of secure and covered bike parking, as well as the need to expand protected infrastructure to bike lanes and paths. They felt that infrastructure that makes active modes less stressful for users and connects to more destinations would encourage more people to shift away from driving.
  - **Electric Vehicle Charging**: UVM is installing more electric vehicle charging stations to support the use of electric vehicles (cars and e-bikes) among commuters. CarShare Vermont struggled with EV investment since they have been unable to claim grant funding for that purpose. GMT is transitioning to electric buses, but faces challenges related to infrastructure and funding. Ensuring the availability of necessary infrastructure for electric buses is a prerequisite to follow deploying the five new buses that have been delivered. Only two are currently in service.

- **Engagement Challenges**
  - **Immigrants and Working Poor:** CATMA and UW recognize that providing information about commute options is challenging, especially reaching entry-level or blue collar positions. These workers tend to speak English as a second language and work shift and off hours with limited opportunities for on-site engagement.
- **Lack of Sustainable Options**
  - **Shared Mode Availability**: Carsharing, carpools, vanpools, and on-demand transit and paratransit help fill mobility gaps for different segments of rural residents, but availability of these options and awareness by rural residents remains limited. According to both CATMA and UW, expanding carpools and vanpools is challenging both from recruiting participating employers and establishing a

dependable base of volunteer drivers. CarShare Vermont mentioned that a lack of accessible public funding or policy recognition for carshare, and minimal dedicated parking in Burlington.

Successes

Interviewees were asked to highlight their successes towards creating more sustainable mode shift in the region. The following is a non-exhaustive summary of these successes, focusing on selected programs that could be expanded upon to help achieve the ambitious goals outlined in Chittenden County's I-89 2050 Study, particularly increasing employer-sponsored TDM participation and doubling biking and walking trips:

- **Vanpool**
  - **VTrans:** VTrans emphasized the success of their vanpool program, which remained active during the COVID-19 pandemic. They mentioned that essential workers continued to use vanpools, helping sustain and even strengthen the program post-pandemic. VTrans actively promotes the vanpool program as a key TDM strategy and is considering new marketing approaches to increase participation.
  - **UVM**: UVM is working on increasing subsidies for vanpools to make them more affordable for rural employees. This is part of their broader strategy to promote commuting options.
  - **UW**: Currently, UW promotes existing vanpool programs already offered by employers. UW found vanpooling successful when an employer offers it. However, most employers that UW works with are not operating a vanpool, apparently prioritizing other benefits. Notably, UW found employers do not want to mix employees from competitor companies for fear of wage information sharing. Manufacturers and healthcare providers, two of the largest employer types in the region, are concerned that if a vanpool driver is unable to make their route, then many workers could be unable to get to work, impacting operations. From the rider's perspective, vanpooling requires that one or both parents leave their car at home, which means they need a plan to be able to reach their children in case of an emergency.
- **Carpool**
  - **CATMA:** CATMA emphasized the success of carpooling within its membership. They noted that carpooling within employer networks was more effective than broader, regional databases. Building relationships within workplaces helps foster trust and safety among carpool participants. CATMA supports the idea of providing carpool spaces and other incentives to encourage this mode of commuting**.**
  - **VTrans:** Go Vermont's Trip Planner offers automated carpool matching services for 60,000 people statewide. They cited this program as a success and an example of the robust statewide services they can provide as a relatively well-funded department compared to their rural peer states like Iowa. CATMA and VTrans have partnered to offer this service jointly through the Agile Mile platform.
- **Safe Routes to School**
  - **Local Motion:** Local Motion established Safe Routes to School task forces in both Burlington and South Burlington. These task forces aim to leverage resources by combining efforts from the municipalities and the schools to achieve better outcomes for school transportation safety. The current Safe Routes to School efforts are more event-focused due to the absence of dedicated infrastructure funding.

Best Practices

In addition to their current successes, interviewees were asked to describe where they've seen TDM successfully implemented. They were not restricted to what they thought they could achieve with their existing resources. Table 4 presents best practices identified by the interviewees:

Table 4: Best Practices Suggested by Interviewees

Topic	Location	Interviewee	Summary
TMA Requirements	Everett, MA	CATMA	In Everett, property owners are required to join a Transportation Management Association (TMA). This self-policing model encourages property owners to keep each other accountable for promoting alternative transportation modes, ensuring compliance with TDM strategies. Adopting this structure would allow CATMA to focus on its role as educator, rather than also acting as an enforcer.
Mobility Hubs	Downtown Burlington	CATMA	In Burlington, transit, bikeshare, and carshare all conveniently co-located, alongside Greyhound bus for longer distance inter-city trips. However, there is a lack of information at the downtown transit center about the different options, such as costs and real time schedules for travelers without a smartphone-based trip planner app. Hub networks could be developed by expanding from the downtown to UVM or the UVM Medical Center, but it requires public and private partnerships.
Publicly Funded Carsharing	California	CarShare Vermont	State grants from California's cap-and-trade program directed through California Air Resource Board partially funded Miocar, an EV non-profit cooperative carsharing service in the rural Central Valley. Miocar's model could be applied to the similarly rural Chittenden County.

Community Engagement and Infrastructure Projects	St. Albans and Shelburne, VT	Local Motion	Local Motion facilitated community engagement in St. Albans and Shelburne to develop work plans and infrastructure projects. In St. Albans, they successfully converted a sidewalk to a shared-use path. In Shelburne, they implemented traffic calming strategies and added shared-use paths to enhance pedestrian and cyclist safety. This could be replicated and expanded in Burlington.
Transportation Master Plan	Ann Arbor, Michigan	Local Motion	City of Ann Arbor implemented a comprehensive transportation master plan that prioritized non-motorized modes. They committed to limiting road capacity and instead focused on improving infrastructure for biking and walking. This included the development of protected bike lanes and a network of pathways to encourage cycling and walking. Making active transportation safer and better connected is crucial to promoting mode shift.
Transfer of Development Rights	New Jersey	VTrans	The State of New Jersey has a statewide transfer of development rights law that seeks to reduce housing costs through increased supply and densification in urban areas and protect green space unaffected by sprawl. This would help align land use with reduced VMT and, by increasing housing supply, equitably provides more opportunities for lower income rural residents to relocate to city centers. The purpose of a similar program in Vermont would be to provide an incentive for someone living in a rural area to reduce their tax burden,

			versus someone living in an urban area paying a higher amount in property taxes.

Role of CCRPC

Interviewees were asked how CCRPC interacts with their organizations and how CCRPC could enhance their organizations' capacity to build upon their current successes or integrate the best practices they had described. The following summarizes common themes from that discussion:

- **Strategic and Focused Investments**
  - **Targeted TDM Efforts:** Several interviewees emphasized the importance of CCRPC's strategic and focused investments in TDM initiatives. This involves concentrating resources on high-impact areas and corridors to maximize the effectiveness of TDM programs. For example, VTrans mentioned the idea of focusing investments on specific regions or corridors rather than spreading resources too thinly statewide.
  - **Regional Coordination and Support:** CCRPC's support in coordinating regional TDM efforts was highlighted as crucial. This includes providing a unified approach to TDM across different municipalities and ensuring that regional strategies are aligned with broader transportation goals. The collaboration between CCRPC and local transit providers helps create a cohesive strategy for promoting travel options.
- **Funding and Resources**
  - **Providing Financial Support:** CCRPC provides funding for various TDM initiatives through its annual work plan and other grant programs. This financial support is critical for sustaining and expanding TDM programs across the region. Among the interviewees, CATMA most directly benefits from CCRPC's funding to maintain its TDM efforts and develop new initiatives. CCRPC funding supported CarShare Vermont's research and planning efforts for its first EV pilot.
  - **Mobility and Transportation Innovation Grants:** VTrans mentioned the importance of CCRPC's Mobility and Transportation Innovation grant program, which funds projects aimed at reducing VMT and greenhouse gas emissions. CCRPC plays a role in facilitating access to these grants for regional TDM projects.
- **Policy and Ordinance Development**
  - **Mandating TDM Measures:** CATMA highlighted the role of CCRPC in supporting the development and implementation of TDM policies and ordinances. This includes working with municipalities to integrate TDM strategies into local development regulations, ensuring that new developments contribute to regional TDM goals.
  - **Support for Municipal Climate Action Plans:** CCRPC assists municipalities like Burlington and South Burlington in implementing TDM measures as part of their climate action plans. This support helps cities achieve their sustainability goals by reducing VMT and promoting sustainable transportation options.
- **Educational and Outreach Programs**
  - **Continuous Education and Engagement:** CCRPC's role in providing continuous education and engagement with businesses, developers, and municipalities about the benefits and implementation of TDM strategies was frequently mentioned. CATMA, for instance, relies on CCRPC's support for its Transportation Coordinator Network, which educates stakeholders about TDM and shares best practices.

- **Promotion of TDM Programs:** CCRPC is instrumental in promoting TDM programs like Go Vermont, which involves direct engagement with employers and public transit entities. This promotion helps increase awareness and adoption of alternative commute options among the community.

Funding

To assess feasibility for recommendations, interviewees were asked to describe their current funding sources and any desired funding channels to scale their programs. Some interviewees identified new programs or capabilities their organizations could have with appropriate funding. Table 5 summarizes their responses:

Table 5: Funding Sources and Outlook

Organization	Funding Sources	Funding Outlook
CarShare Vermont	• 90% of budget covered by fees from participating businesses, universities, and individuals • CCRPC funds for planning	• CarShare Vermont perceived a lack of funding and policy support to bolster their services from CCRPC, the City of Burlington, and at the state level. They noted that they are mostly self-sufficient from revenues but struggle to sustainably grow their services. • They have previously requested funding from CCRPC for fleet electrification planning, but funding was denied with feedback that it was unclear how money would be spent on individual towns.
CATMA	• Membership dues • CCRPC annual work plan budget allocation • Grants, such as the state's Mobility Transportation Innovation grant for specific projects • Annual transportation summit ticket fees	• Sustainable funding sources are needed. They acknowledge that grants, while helpful, are not always reliable, and there is a continuous need for stable, ongoing funding. • CATMA is currently reassessing its programs and processes to maximize the effectiveness of existing funds. This includes a reassessment of whether to focus on education awareness, surveys or program administration and management. • The interviewee suggested that funding could come from new taxes such as increasing the registration fee for luxury vehicles and electric vehicles (EVs). However, there is uncertainty about whether these funds would be allocated by the legislature to TDM versus traditional infrastructure projects like roadways and bridges.

Organization	Funding Sources	Funding Outlook
Champlain College	• General budget • Revenue from parking permits and enforcement	• The College's goal is to reduce revenues from parking permits and fines by encouraging non-drive-alone modes. • The shuttle system is considered an institutional priority and is not expected to be revenue generating. There is a potential for optimizing existing funds by improving administrative procedures, such as cost-sharing with contractors and management of transit benefits provided to external contractors.
Green Mountain Transit (GMT)	• Direct federal funding from formula for capital and operating expenses • State budget allocation - Some main commuter routes are funded through a mix of state and federal dollars, with no local contributions required. • Property taxes from member municipalities	• GMT has been significantly impacted by the COVID-19 pandemic, with a reliance on federal COVID relief funds. As these funds are depleting, GMT faces a funding gap that needs to be addressed by fiscal year 2026. • There is a concern about sustainable funding sources as GMT has historically avoided making tough decisions regarding service cuts and funding allocation. This has led to an unsustainable funding model, especially as they attempt to recover post-pandemic. • GMT is in the process of engaging with municipalities to discuss future service cuts and the need for increased budgeting for transit services. • Any significant changes to the funding model would require legislative action, as identified by GMT's recent planning studies.
Local Motion	Roughly 1/3 of total funding from each: • Federal grants – tied to specific staff roles and require 20% funding match bike rental operations • Donations from community members and local businesses	• Local Motion identified a number of sources for new funding: – Competitive state and federal grants – Local partnerships from businesses and utilities, such as Burlington Electric – Philanthropic foundations – Corporate sponsorships • They listed several options for spending new funds, not prioritized:

Organization	Funding Sources	Funding Outlook
		– Developing better cycling infrastructure – Enhancing Safe Routes to School programs – Expanding community programs and outreach events to promote active modes – Increasing the reach and capacity of Bike Smart Program to more schools and communities.
Special Services Transportation Agency (SSTA)	• About 40% federal Medicaid grant • About 40% ADA Complementary Service with GMT • About 10% Private Contracts • Remainder revenue: Federal Transit Administration Formula Grant for Rural Area Section 5311 Program	• SSTA proposed pursuing more public and private grants to increase their funding: – State and federal competitive grants eligible for paratransit – More private sector grants and contracts from private entities and healthcare organizations – Requesting additional financial support from local governments – Increased community fundraising and donations • With increased funding, SSTA would modernize their vehicle fleet to ensure reliable and efficient services. They would also introduce new routes and services to underserved areas. • Increased state and federal funds would likely be directed to enhancing ADA complementary services in collaboration with GMT and improving and expanding Medicaid transportation to meet growing demand.
United Way of Northwest Vermont (UW)	• 70% employer fees • 30% philanthropy (mix of grants from various foundations and donor funds).	• UW noted that 2024 will see a significant increase in grants because there was additional staff capacity to proactively seek grants. • With more funding they can increase the number of businesses they work with and expand on-site support for accessing vanpools and other resources.
University of Vermont (UVM)	• General budget	• Additional sources of new funds were not discussed other than

Organization	Funding Sources	Funding Outlook
	• Revenue from parking permits and enforcement	parking fee revenues, which would not be sustainable since goal is to reduce parking and are currently below market rate. • UVM suggested they would use additional funds to improve campus infrastructure, such as installing over 100 EV charging ports within the next year and supporting regional TDM planning.
VTrans/GoVT	• $50 million annually from both state budget allocations and federal formula funds	• VTrans relies significantly on its Federal Transit Administration formula funds. They receive about $13 million per year from this source alone. • New revenue sources are needed to take on additional/expanded programming. Speculation on new funding sources, which would be implemented at state level, included: – Mileage-based user fee, which other states have piloted. – Delivery surcharges on, for example, Amazon or UPS deliveries, which could generate $7-8 million annually based on legislative study. – Utility bill surcharges, such as adding $3 per month as part of carbon reduction program. – Car rental surcharges. • VTrans noted that they were well funded compared to other peer rural statewide TDM programs, such as Iowa.

Monitoring and Evaluation

Structured program monitoring and evaluation remains an emerging area of practice for transportation providers. However, CATMA and VTrans have already established monitoring and evaluation programs for commute modes in Chittenden County. The following summarizes their current approach:

- **Surveys**
  - **CATMA Member Survey**: CATMA conducts annual surveys to monitor the transportation modes used by employees at member institutions, including University of Vermont, the University of Vermont Medical Center, and Champlain College. These surveys help track changes in transportation behavior, such as a decrease in drive-alone rates and shifts towards telework and other sustainable modes. As

founding members, UVM and Champlain College have been participating in these surveys for many years, allowing CATMA to track long-term trends and assess the effectiveness of various transportation initiatives. CATMA shares the survey data with partner institutions and members, but the raw data is not available.

- **App-Based Trip Logging:**
  - **Traveler Data:** VTrans and CATMA use Agile Mile to collect data on various transportation modes, as well as teleworking. The app allows them to generate detailed reports and dashboards to monitor trends. For example, they observed a significant increase in teleworking during the COVID-19 pandemic, which has since stabilized at a higher level than pre-pandemic. There are 90,000 Agile Mile users statewide, about one third to one half of them commute within Chittenden County.
  - **Dashboard Monitoring:** VTrans noted they would like to analyze the data available to them more closely, but lack the time given their other current responsibilities.
- **Go Vermont Strategic Plan (2023)**
  - VTrans's Go Vermont **Strategic Plan** (2023), which was informed by stakeholder focus groups and a survey, sets the understanding of TDM's status throughout the state as a goal with monthly data collection and survey standardization as key strategies. The **Strategic Plan Data Analysis supplement** includes a TDM Opportunity Map that uses existing U.S. Census Bureau and Replica Travel Trend data to evaluate the potential for TDM in Chittenden County and neighboring states.

Appendix E: Public Focus Groups Summaries

MEMO

TO:	Bryan Davis; CCRPC
FROM:	Jon Slason & Eric Kapner; RSG
CC:	Thom Cerny; Toole Design
DATE:	December 5, 2024
SUBJECT:	Chittenden County Regional Transportation Options Plan Focus Group 1 Summary: Employees with Vehicle Access and Dependents

As part of the Chittenden County Regional Planning Commission's effort to manage transportation demand, three focus groups were conducted with residents of the county. Participants for these groups were recruited from cohorts developed by the project team to elicit a broad array of employed residents with varied transportation needs and options.

This document summarizes the discussion of Focus Group 1, which included participants who have reliable access to personal vehicles for their transportation and also have dependents who may affect their transportation needs. The focus group was conducted in-person at the CCRPC's office in Winooski on November 8th at 5 PM.

Participant Profiles

Town	Age	Household Size	Household Income
Winooski	30-39	5	$75,000-$99,999
Essex	40-49	3	$50,000-$74,999
Shelburne	60 or older	4	$150,000 or more
Burlington (South End)	40-49	4	$100,000-$149,999
Burlington (Old North End)	50-59	4	$100,000-$149,999
South Burlington	50-59	1	$150,000 or more
Winooski	30-39	3	$100,000-$149,999

Burlington	60 or older	5	$100,000-$149,999

Discussion Summary

Participants were first asked to introduce themselves, including the town where they live and their occupation. They were also asked to describe what transportation options were available to them where they live.

- Most participants were middle-aged, with two in their 30s and two in their 60s.
- Nearly all participants had children, either school-aged or younger, which affected their transportation needs.
- Participants came from more central municipalities in Chittenden County, where bike infrastructure and transit services are at least somewhat available.
- Most participants owned one or two vehicles, with some owning more, particularly those with children of driving age.

Next, participants were asked to describe how they travel to work, and why they chose that mode of transportation. They were also asked about other common trips they make.

- Three of the eight participants worked from home full-time. One worked from home some of the time. Noted that this was a shift that occurred after the year 2020 and the respondents plan to continue finding jobs that offer full or hybrid work schedules.
- Of those who commuted to work at least some of the time, several walked, biked, or e-biked to work. Three participants explained that they drive to work at least some of the time. While the communities in which the Focus Group members live have a higher rate of non-auto use relative to the rest of the county and state, the participants appeared to be more likely to be non-auto users. This is consistent with the self-section nature of the survey participation and interest in participating in the focus groups.
- For running errands, such as traveling to medical appointments or taking their children to school or other activities, cars were generally preferred. One participant took their child to school using an e-bike.
- Some participants who biked only did so when the weather was fair.
- Most participants reported using the bus no more than occasionally. One used it frequently in the winter.

Participants were then asked about policies and programs which may decrease the frequency of personal vehicle trips they take.

- Participants were intrigued by the idea of being paid not to park at work daily. The three participants who drove to work stated they would at least consider such a program.

- While most participants did not pay to park at work, one participant who worked at UVM did.
- When asked about parking in downtown areas, most participants said they tried to avoid it. Either those who live closer to downtown are more interested in walking, biking in. Those outside of the city sometimes look to park where it is free and walk in. Cost was not as much of a concern as was stress over payment methods and time limits. However, the Paymobile phone app has been a benefit. However, they perceived a lack of parking enforcement which made parking costs ineffective.
- Those participants who were familiar with CATMA programs viewed them favorably. One participant who was employed by the City of Burlington explained that there was an internal effort to carpool or otherwise reduce vehicle trips related to work. It was unclear whether CATMA was facilitating this.

There was discussion about the bus system, and why participants did not make more frequent use of it.

- Participants expressed a desire to support a good bus service, but many felt that GMT fell short of their needs.
- Some participants had trouble paying bus fares. The cost was not an issue, but the hassle was. One participant pointed out that after fares had been reinstated, there was significantly less bad behavior on busses.
- Participants noted that interconnectivity with other modes was lacking in the bus system. Particularly, it was difficult to take the bus to or from the airport, from other parts of town or region (i.e., Winooski, Shelburne). They also pointed to the success of the limited existing park and ride operations.

Finally, as many participants biked regularly, there was discussion about how to improve bike infrastructure and improve the experience of bikers.

- The newly constructed Champlain Parkway was a frequently referenced example of proper bike infrastructure by participants.
- Participants found standard bike lanes to be better than nothing, but preferred physical separation from motor vehicles on the road.
- Of the participants familiar with Bird bikes in Burlington, most had mixed feelings about its efficacy and utilization.
- One participant said, their location choice limited options. They could be encouraged to bike more often, with better off-street travel options, and improved education on the ‘how’ to bike in more varied conditions.
- Pedestrian infrastructure was also discussed. One participant remarked that the sidewalks in their neighborhood were too narrow.

Conclusions

The purpose of this particular focus group was to hear from Chittenden County residents with reliable access to vehicles and dependents with the aim of understanding how the CCRPC can formulate goals to better meet their unique needs and reduce the frequency of single-occupancy vehicle trips. This group mostly consisted of participants who had families with children, which adds additional complexity to their transportation needs.

Participants in this group drove their vehicles more frequently than other groups, which is to be expected. However, they were still aware of and largely committed to reducing the impact of their travel. Hybrid work schedules play an important role in overall reductions in commute travel. Some participants pointed to their electric vehicles as an avenue for reducing impacts of car travel and those using them, are happy to broadcast to others about their ability to substitute for a vehicle in many instances. Unfortunately, the current state of transportation in Chittenden County did not offer enough reliable and safe alternatives to driving.

Promoting CATMA, improving the reliability and interconnectivity of bus service, and improving bike infrastructure were all discussed as possible strategies to increase the viability of alternatives to driving. Participants all expressed a preference for carrots over sticks: penalizing those who drive would make things harder for their families, but incentivizing alternative modes and investing in their improvement would lead to greater success.

MEMO

TO:	Bryan Davis; CCRPC
FROM:	Jon Slason & Eric Kapner; RSG
CC:	Thom Cerny; Toole Design
DATE:	December 16, 2024
SUBJECT:	Chittenden County Regional Transportation Options Plan Focus Group 2 Summary: Employees with Limited Vehicle Access

As part of the Chittenden County Regional Planning Commission's effort to manage transportation demand, three focus groups were conducted with residents of the county. Participants for these groups were recruited from cohorts developed by the project team to elicit a broad array of employed residents with varied transportation needs and options.

This document summarizes the discussion of Focus Group 2, which included participants who do not have reliable access to personal vehicles for their transportation. The focus group was conducted virtually using Microsoft Teams on October 28th at 3 PM.

Participant Profiles

Participant	**1**	**2**	**3**
Age	19-29	60 or older	40-49
Pronouns	She/Her	She/Her	He/Him
Municipality	Burlington	Burlington	South Burlington
Occupation	Caregiver	Caregiver	Employed by Vermont Department of Health
Household Income	$50,000-$74,999	$25,000-$49,999	$50,000-$74,999
Household Size	6	3	4

Several additional individuals joined the focus group call to participate, but they were unable to turn on their cameras and microphones. They provided intermittent comments through the chat function, but the comments lacked the background and detail required to be of use for this purpose.

Discussion Summary

Participants were first asked to introduce themselves, including the town where they live and their occupation. They were also asked to describe what transportation options were available to them where they live.

- Participant 1 explained that she lives and works in Burlington as a caregiver. She does not have a personal vehicle to drive. She mainly gets around using her bike or by walking, but she uses the bus about twice a week as well.
- Participant 2 explained that she lives in Burlington's Old North End. For work, she provides support for a disabled person in Burlington. To travel, she uses her bike or walks for most trips. She has access to transit, but the bus schedule is not ideal for her needs. She does not have access to a personal vehicle.
- Participant 3 explained that he lives in South Burlington and works for the Vermont Department of Health. His family does not own any personal vehicles. For most trips, he walks or e-bikes. He could use the bus but believes that the fares are not worth it for most short trips he takes.

Next, participants were asked to describe how they travel to work, and why they chose that mode of transportation. They were also asked about other common trips they make.

- Participant 1 explained that she bikes to work and for quick errands.
- Participant 2 also bikes to work but will take the bus if the weather is bad. She had previously used Uber to get to the airport but found it too expensive.
- Participant 3 works from home and does not have a commute. He takes his e-bike on most other trips. For certain trips like taking his child to the doctor, he will take the bus.

Participants were then asked to think about what travel would look like around Chittenden County in their ideal world. Then they were asked to discuss some of the changes that they would like to see to achieve this aspiration.

- Participant 1 desires more safety from vehicles when walking and biking. She proposed more dedicated walking and biking paths which are physically protected from automobiles. Additionally, she explained that more frequent transit service would make taking the bus quicker and more efficient.
- Participant 2 explained that she chose to live in Burlington because she planned to live without a car. Like Participant 1, she also desires more safety when walking and biking. She wants more physical separation between the bike lanes and vehicle lanes, as well as better marked, more visible bike lanes. She would

like to see better education for local drivers to improve road safety. When it comes to transit, she wants improvements to the usability of the GMT app. With the reinstitution of fares, she finds it not worth it to ride the bus unless she is traveling outside of Burlington. However, she also pointed out that that it is difficult to access locations which are not too far outside of Burlington, such as Shelburne Farms, using transit. She proposed running smaller buses more frequently to better serve riders, and to introduce a micro transit system where one can preschedule rides.

- Participant 3 agreed that better infrastructure is needed for walking and biking, pointing out that paint alone is not sufficient to create a safe bike lane. He also noted that after winter storms, the roads are cleared of snow much faster than the sidewalks, if the sidewalks are cleared at all. Relating to transit, he suggested more transit availability during the weekends. He agreed that the bus fare is just not worth it for shorter trips.

Finally, discussion was opened to the whole group to talk about what kinds of changes would lead them to walking, biking, and using transit more frequently. No participants were aware of any incentives from their employer which gave them benefits for not driving or provided them with subsidized transit passes. When it came to the topic of safety, participants reported feeling generally safe on the bus, although they would appreciate more assurance that the buses frequently receive maintenance. Some described feeling unsafe while waiting for the bus at the stop, particularly at night. Overall, participants described biking as feeling most unsafe out of all the modes they use. Some participants like the idea of making parking more difficult in downtown Burlington, either through reducing spaces or increasing fares, to disincentivize driving. They believed that, if more people had to walk, bike, or take the bus, those modes would receive more attention and resources.

Conclusions

The purpose of this particular focus group was to hear from Chittenden County residents without reliable access to vehicles with the aim of understanding how the CCRPC can formulate goals to better meet their unique needs.

Overall, participants expressed a preference for walking and biking over transit. Walking and biking can be done on one's own schedule, and without an upfront cost. That said, participants repeatedly noted the inadequacy of walk and bike infrastructure in the region. They utilize existing bike lanes and paths because they are their best option for travel on a bike, but they would feel safer and more comfortable with more tangible protections for bikers and more awareness from the drivers around them.

The participants all use GMT for at least some of their trips. However, they feel they would be better served by more frequent routes. Additionally, the current bus fares make the tradeoff of taking the bus versus another mode more difficult, especially if they would be taking the bus frequently such as for their commute to work.

The participants in this focus group get around fine without owning personal vehicles, and none expressed any interest in or plans to acquire one. Although one noted that as they age, biking and walking may become less viable and the bus will be an important resource or they may be forced to consider a private vehicle. Still, they described many ways in which biking could be a safer option for them, as well as how transit could be more viable for their needs.

MEMO

TO:	Bryan Davis; CCRPC
FROM:	Jon Slason & Eric Kapner; RSG
CC:	Thom Cerny; Toole Design
DATE:	December 2, 2024
SUBJECT:	Chittenden County Regional Transportation Options Plan Focus Group 3 Summary: Employees with Vehicle Access and no Dependents

As part of the Chittenden County Regional Planning Commission's effort to manage transportation demand, three focus groups were conducted with residents of the county. Participants for these groups were recruited from cohorts developed by the project team to elicit a broad array of employed residents with varied transportation needs and options.

This document summarizes the discussion of Focus Group 3, which included participants who have reliable access to personal vehicles for their transportation, but do not have dependents who may affect their transportation needs. The focus group was conducted in-person at RSG's Burlington office on November 7th at 5 PM.

Participant Profiles

Town	Age	Household Size	Household Income
Burlington (South End)	19-29	5	$150,000 or more
Burlington (South End)	40-49	2	$100,000-$149,999
Burlington (South End)	19-29	5	$100,000-$149,999
Burlington (New North End)	30-39	3	$150,000 or more
Winooski	19-29	2	$150,000 or more
Winooski	30-39	3	$150,000 or more
Burlington (Downtown)	30-39	3	$100,000-$149,999

Williston	60 or older	6	$75,000-$99,999
Burlington (New North End)	30-39	3	$150,000 or more

Discussion Summary

Participants were first asked to introduce themselves, including the town where they live and their occupation. They were also asked to describe what transportation options were available to them where they live.

- While most participants were in their 20's or 30's, one was in their 40's and another 60 or older.
- All but one participant resided in Burlington or Winooski. The remaining participant resided in Williston.
- Nearly all had access to the bus system, but few used it regularly.

Next, participants were asked to describe how they travel to work, and why they chose that mode of transportation. They were also asked about other common trips they make.

- Five of the nine respondents worked from home or had a hybrid work schedule.
- Of those who commuted to work at least some of the time, several walked, biked, or e-biked to work. Four participants explained that they drive to work at least some of the time.
- For running errands, participants largely drove their cars. One had a cargo bike for trips to the store. Another used the bus for some errands.

Participants were then asked about policies and programs which may decrease the frequency of personal vehicle trips they take.

- Some participants had carpooled for their work commute, but only intermittently and/or in the past. One participant noted that their employer tried to implement a carpool system, but it had limited success. There was some interest in a program that facilitated carpooling. It appeared to be a single company initiative rather than leveraging services from CATMA or something more regional.
- None of the participants who drove to work had paid or reserved parking, and they generally had no issues when parking at work. One participant who walked to work did have a reserved parking spot and was most intrigued by the concept of a parking buyout.
- Participants expressed that costs to park in downtown areas were minimal, and that the availability of open parking spaces was a more significant obstacle to parking downtown. In fact, participants reacted favorably to the idea of increasing parking fares, to increase turnover and availability, encourage people to consider

alternatives, and increase revenue if needed, especially if those revenues fund travel options.

There was significant discussion about the shortfalls of the bus system, and why participants did not make more frequent use of it.

- Participants expressed frustration at the reliability of the bus system. Some had first-hand experience of waiting for a bus to come that never came, came too early, or came very late.
- Participants also expressed dissatisfaction with the efficiency of the bus system. For them to use it, they wanted more frequency (such that knowing the bus schedule is not needed at peak times), fewer stops to shorten travel times, and fewer transfers required.
- Although the cost of the bus fare did not prohibit participants from utilizing it, the hassle of having to pay for the bus was a barrier. Some expressed confusion with the method of payment.
- Cost was not considered a major barrier, but the method was – it was noted that when the buses were fare free, many rode the bus more because the hassle was gone and people were willing to trade off frequency and other challenges with the ease of on and off travel.
- Other pain points of using the bus noted by participants were the confusing GMT mobile application, and the difficulty of loading a large bicycle on the bus.
- Multiple participants favorably recalled using the bus for longer trips, particularly to Montpelier.

Finally, as many participants biked regularly, there was discussion about how to improve bike infrastructure and improve the experience of bikers.

- The Burlington Bike Path was the most frequently referenced example of the best proper bike infrastructure by participants. However, the recent Pine Street and Champlain Parkway infrastructure was also given high marks and are excited to see more of that level of infrastructure – because dedicated facilities are the only way more users are considering biking, especially in less than ideal weather conditions.
- Participants found standard bike lanes to be better than nothing, but preferred physical separation from motor vehicles on the road.
- A major obstacle for participants who wanted to use their bike for trips was interconnectivity. They remarked that while there is bike infrastructure around Chittenden County, much of it is disconnected, making it extremely difficult to make certain trips on a bike without at least some of the route involving riding in motor vehicle lanes on busy roads.

Conclusions

The purpose of this particular focus group was to hear from Chittenden County residents with reliable access to vehicles and no dependents with the aim of understanding how the CCRPC can formulate goals to better meet their unique needs and reduce the frequency of single-occupancy vehicle trips.

Overall, participants expressed a desire to drive less and walk, bike, and take the bus more. Many actively made efforts to do so in their everyday travel. However, deficiencies in bike infrastructure make biking feel unsafe and difficult for some, and limited bus frequency, reliability, and frustration with payment methods makes public transit too much of a hassle.

These participants used their cars for many trips because it was the best option for them. There was no cost to park at work, and parking in downtown areas was considered affordable. Weather also played a role, in that being in a car in the winter is more comfortable than alternatives. Carpooling was met with a mix of interest and skepticism; some found it an attractive option if it were available, while others were concerned that carpooling would not fit with their personal circumstances.

In the group, attitudes were broadly supportive of reducing personal vehicle trips. But participants would only do so when it made sense. It follows that by improving bike infrastructure, making bus service more efficient, and putting up more barriers to driving personal vehicles will alter the tradeoffs for employees in Chittenden County and promote more sustainable modes of transportation.

Appendix F: Peer Communities Interview Summaries

Chittenden County Regional Travel Options Plan

Peer Communities Interview Summaries

05/10/2024

PEER	BOULDER CO	BUFFALO NY	FORT COLLINS CO	MADISON WI	PORTLAND ME
Contact Information and date of interview	Chris Hagelin (May 2, 2024)	Christine Krolewicz (June 13, 2024)	Melina Dempsey, Jeff Puckett (May 2, 2024)	Trent Schultz (May 2, 2024)	Bruce Hyman (April 29, 2024 & September 5, 2024)
How long has your TDM program been in place? Is it an adopted plan and/or a municipal requirement? Is it managed by the municipality, TMA or other entity?	Included in the 2006 Transportation Master Plan. TDM Coordinator was hired in April 2007. Managed by both the city and a TMA.	Buffalo's TDM effort is a newer program. It has been in place for the last 3 years. The TMA is a part of an existing nonprofit "Go Bike Buffalo" which is involved with complete streets development and has been evolving over the last 20 years. Though Buffalo Niagara Regional Transportation authority had been doing a lot of TDM work over the years.	Many decades, but not with a formally staffed TDM program. That is launching now. The 2023 "Shift Your Ride" program is the first TDM specific plan Fort Collins has had. Managed by the city.	1990's. City ordinance approved in 2022. Managed by university, city, county, TMA, but mostly by the MPO.	Mid-2000's. Currently managed by the city. Years ago, the Greater Portland Council of Governments had a regional rideshare program, then turned it over to the Turnpike Authority. Today it's the State DOT's GO Maine program. The city & GPCOG considered a TMA 3-5 years ago, but it didn't take off. The bigger organizations in the area have significant TDM programs too.
What carrots and sticks have you found to be the most impactful to reduce drive-alone trips?	Carrots: Without a doubt the RTD's EcoPass program. Many employees, students and residents get them for free. Buses run so frequently on some routes (5-minute headways) people really don't need to pay attention to schedules. Bike/ped infrastructure (100+ miles of multi-use paths & 98 underpasses) also a significant contributor. Bikeshare/ Carshare memberships are also often provided free or at a discount. New state tax credits may prove to be helpful. Sticks: Parking costs, regulations, not adding lane miles to roadways	Carrots: The guaranteed ride home program has been popular. The program allows people to link their personal uber account to the business account and the ride is directly paid through the program. Each person can use up to $200 every year up to $50 a ride and twice per month for rides from their work location. They have not utilized the full funding available per year so far. Another program that has been popular is the commuter rewards program where a raffle is conducted for 3 x $50 dollar prizes. Bike to work is growing and is another carrot that has worked in Buffalo. Another carrot that seems to be working is the free 20 min transportation consultation which is paired with the on-demand rewards program where if they bike to work $5 is automatically dropped in their wallet. Sticks: Form based codes which mandate TDM requirements for properties over a	Carrots: Incentive programs, engagement teams working with underserved populations, Sticks: They have talked about them, but none have been implemented. All of downtown still has free on-street parking.	Carrots: Allowing existing developments that are changing their land use to have greater flexibility in what they become by adopting TDM measures. New BRT line should also have a positive impact on sustainable mode shift. Sticks: The enforcement of the ordinance itself. Important to have developers address TDM early in the process.	Carrots: The ability of development that are close to a transit route to avoid parking minimums if they have a TDM plan. Sticks: 1) Cost to park in some areas during limited times. 2) TDM Ordinance compliance hasn't been tested yet.???

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		certain size. Buffalo eliminating the parking minimum requirements has been a help, but this is hard to track to understand actual conversion of mode.			
Where do you get the biggest bang for the buck? What is your most efficient way of reducing drive-alone trips?	Paid parking and bulk transit/Eco pass discounts. Multi-use paths and associated underpasses also function as flood control drains, so construction costs had two funding sources.	Bike share memberships would be the biggest bang for the bug. At present a lot of companies have agreements with a local bike share company for employee bike share memberships.	In-person engagement. TDM needs to be broken down to reach specific individual interests. It's also helping humanize government goals.	Having multiple city departments working together and having a comprehensive approach to securing mode shift. Reduce parking. Offering lots of TDM options. Having a TDM ordinance.	1) Work from home. 2) Bigger institutions such as the University of Southern Maine, Maine Medical Center, University of New England have taken the effort to heart and are doing the most to have an impact. Getting more standardized data from impacted properties is helping them to learn too.
What type of VMT reduction investment initiatives have worked under what specific circumstances?	Boulder doesn't track or assign specific VMT reduction to any one program/initiative. When rolled up together, they are making a significant impact.	n/a	Can't say yet. Asked us to check back in a year. They feel the unified ridematch/ incentive platform Ride Amigos will be very helpful, and that their $100 per month vanpool subsidy is helping the handful of vans that are currently operating.	Can't answer yet as major investments are still in development. WFH has made a significant impact.	Measuring VMT reduction is difficult, but standardized mode-share reporting has helped.
How do you track the impact of your VMT reduction efforts? How accurate would you say this approach is?	Residential and employee surveys every three years. They track travel trends and mode split. The city also uses aggregated cell phone data to track vehicle trips, VMT and greenhouse gas emissions. Their Boulder Junction area is currently at only 38% of ITE projected trips.	VMT reduction is tracked by the County. It is not necessarily associated with the Buffalo TMA's program.	n/a	They don't yet but are working with the city's sustainability office and their new sustainability plan to do so. They recognize it's hard to track TDM's direct VMT impact.	Surveys and their results turned in by properties that must comply with the TDM requirements. Mode share targets are set and mode share data, collected via the surveys, are reported annually.
If you were asked to triple transit service, how would your community do it?	Sacrifice coverage for frequency. Make the service so regular people don't even need to look at a schedule. Unbundle parking, parking maximums, no minimums, no free parking. High density development Sustainable funding	Bus rapid transit. They have one street where there is bus rapid transit which is working well. They are also evaluating the Buffalo All Access program which is a grant funded on demand shuttle program.	Greater service with a focus on high frequency and sustainable funding. They currently only have a 2% transit share (50% of that is CSU students) but hope permanent free fares and a greater corridor/frequency focus will help.	Improve service, frequency and secure stable funding. Also look to target new routes to specific suburban areas and the airport.	Strong leadership, stable funding and a clear vision for the transit system. Dedicated ROW for BRT and frequent service too. Consider elimination of school bussing for high schools – it's been very successful in Portland and is creating a new generation of transit-savvy youth. Universal pass for college students.
If you were to reduce the parking supply, how would you do it?	Use data to develop and monitor a curbside management program. Use space for things the community wants, like on-street dining, designated Uber/Lyft pick up and drop off zones, and loading/short-term parking zones.	Buffalo Niagara Medical Campus (BNMC) in downtown Buffalo is the only place where there is high parking demand and the BNMC. The University, which is in the suburbs, has its own transportation	They do not have a lot of experience with parking, but charging and no minimums seems like a good start.	Eliminate parking minimums and set maximums. Need to be careful on the impact to small businesses. Use space for popular options like bike facilities, curb management and outdoor eating.	Better site planning to emphasize the building vs. parking. Get lenders to stop requiring so much parking in developments they fund. Eliminate parking minimums and set maximums.

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		department and they do charge for parking on campus.			
If you were to increase the cost of parking, how would you do it?	Variable pricing. Increase costs as parking becomes full. Also, charge significantly more for on-street parking. Encourage people to use the parking decks (lowers searching and associated VMT.)	Earlier people had to pay for parking on-street from 9am to 5pm, in recent times the city has increased it incrementally and people have been okay with that.	Eliminate free parking and make parking garage fees less than those for on-street parking.	They offer the least expensive parking in town and get significant pushback even at the thought of matching private garage prices. Political will would be the most important factor in increasing parking prices.	Include an option of free transit passes and bike share. Reduce the hours of free parking past the current 6PM time into the early evening.
Do parking fines play a role in your TDM strategy?	Only in that it might discourage some from driving.	n/a	No. They are somewhat optimistic that if there ever are charges for on-street parking some of the collected funds will support TDM.	No.	No. Separate divisions within the city and parking revenue goes into the General Fund.
If your community committed to doubling walking and bicycling, how would you accomplish this?	Fully commit to a network of off-street paths, underpasses and protected bike lanes. They have to be separated to encourage new users. Need caution with e-bikes as the differences in speeds can be dangerous.	E-bike rebate program would help. Also, road design needs to change if more people are to feel comfortable walking/biking.	They have a similar goal. By 2032 they want 50% of their trips to be made by active mode (its currently at 22%.) Infrastructure is key – particularly protected bike lanes and off-street paths. But they also feel education and training will play a significant part.	Infill development. Separated facilities are very important. E-bike speed limits are becoming an issue.	Improve facilities and expand the network. Cycle Tracks seem important as do neighborhood bike boulevards. We are designing several street transformations to create high quality pedestrian and bike environments.
How big is the annual budget (estimated) for Transit, TDM, Bike/Ped, etc. programs?	Pending…	1,000,000/3 years	Pending… TDM roughly $200K per year (all local)	Pending…	Pending… The costs of the big efforts in TDM are covered by the institutions themselves.
Is there anything else you would like to share that we haven't talked about?	The city is hopeful that they've reach a point where sustainable travel has become the norm for many, and that kids raised there will carry that legacy over to their families, even if they move away. The term "riding the Verbs" has become part of the youth culture.	The TMA needs to cultivate a good relationship with the government.	Getting various governmental agencies to work together is crucial.		