TOOLE DESIGN

# MICROTRANSIT FEASIBILITY STUDY FOR THE LUDLOW/OKEMO AREA

Prepared For:

Mount Ascutney Regional Commission

The Town of Ludlow

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# CONTENTS





# ACKNOWLEDGMENTS

This report was guided by a steering committee who served as a valuable source of information and feedback throughout the process.

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# EXECUTIVE SUMMARY

The Town & Village of Ludlow is a small historic community with charm and character. The Village's compact, walkable urban form is ideally suited for the development of a highly functional transit system. Ludlow is well-known and well-frequented for the Okemo Mountain Resort, which has seen a trend of growth and investment. While the service provided by Southeast Vermont Transit provides mobility for visitors and workers, it is recognized that there are additional needs and opportunities for transit services to expand.

The Town of Ludlow and the Okemo region have long had an interest in improving public transit services in the area, as a means to provide more options for visitors and employees of the resort for getting around, and for the potential for reducing seasonal traffic congestion associated with tourism in the region. The Okemo Mountain Resort operates a shuttle during the winter months, with several routes that are open to the public. There are additional on-demand services provided for resort guests, that are typically used for transporting visitors to dining or other destinations in Ludlow. The resort provides these services to enhance the visitor experience, and also due to a requirement in the resort's Act 250 permit as a means to mitigate peak hour seasonal traffic congestion. In addition to the Okemo services, Southeast Vermont Transit offers fixed route service to Bellows Falls and beyond, with limited frequency.

The existing services provide some options for people seeking to use transit, but there are many gaps in the service in particular for evenings and weekends, after the Okemo service ends, but when visitors may still be out dining and visiting Ludlow. The Town of Ludlow and Mount Ascutney Regional Commission worked together to secure a grant to conduct this study to evaluate the feasibility of microtransit to address some of the region's mobility needs, given that flexibility in scale and schedule will be important.

*Microtransit brings together people with a need for mobility and available transit vehicles and drivers. Routes are dynamically generated with passengers making their way to and from common pick-up or drop-off points but can also be point to point. Vehicles can range from large SUVs to vans to shuttle buses. It is smaller and more flexible scale, somewhere between private transportation (taxis or TNCs) and public transit (bus).*

This study was undertaken to conduct research, develop alternatives, and evaluate the feasibility for microtransit in the Okemo Valley region, serving the Okemo resort area and Town of Ludlow, to extend and supplement the existing transit services offered by both public agencies and the resort. The study was guided by a steering committee with representatives from the Mount Ascutney Regional Commission (MARC), the Town of Ludlow, the Okemo Mountain Resort, and the Okemo Valley Chamber of Commerce. The committee met five times over the course of the study and provided input and direction.

A preferred service plan is described in this report that was concluded to address the primary gaps in evening seasonal transit services, while remaining economical in terms of cost, and use vehicles and technology that are tested and were readily available prior to the pandemic.

# PROJECT BACKGROUND

## ABOUT THE OKEMO VALLEY

Ludlow is an historic town along the Black River, chartered in 1761. The economy is diverse and has evolved numerous times over the years to include agriculture, woolen mills, mineral extraction, and tourism. This has left a legacy of unique architecture in a setting along a scenic river and nestled in the Green Mountains.

The year-round population of Ludlow is about 2,000 people, but swells to a significantly higher number in the summer, and even higher during the ski season. Okemo is a popular ski resort that draws visitors from throughout the Northeast and beyond. The resort employs about 1,200 people during the winter season.


## EXISTING TRANSIT SERVICES

There are four different services currently operating in Ludlow, though all are only operating during the winter. While service was interrupted during the winter of 2020-2021, the services are described below as they were operated before the COVID 19 pandemic. There is an expectation that these services will resume in the 2021-2022

season, but it is likely that there will be some variations.

- Marble Valley Transit operates a seasonal deviated fixed-route service between Rutland and the Okemo base lodge "between Thanksgiving and Easter." There are four round trips per day, two serving the morning commute and two for the evening commute. A fare of $2 per trip is charged, with discounts for seniors, disabled passengers and veterans.
- Southeast Vermont Transit operates the *Rockingham MOOver*, a deviated fixed-route service connecting the Okemo base lodge and downtown Ludlow to Rockingham, where connections to other routes can be made. The MOOver operates three trips per day to Ludlow year-round, and an additional two trips per day during the winter ski season, which serves the Okemo base in addition to Ludlow. The services both run seven days per week, and the seasonal service runs from Thanksgiving to the end of March each year.
- Okemo Mountain Resort operates two shuttle services. They are open to the public and are free to users, and particularly oriented towards serving visitors and employees. The services are limited to the winter ski season, December through March:
    - Resort Shuttle provides daily transit between different areas of the Okemo Resort. The locations served include the Okemo clock tower, Winter Place, Solitude, and Jackson Gore.
    - The Village Shuttle provides weekend and holiday services starting from the Okemo base through the village of Ludlow, serving shopping, lodging, and dining destinations.

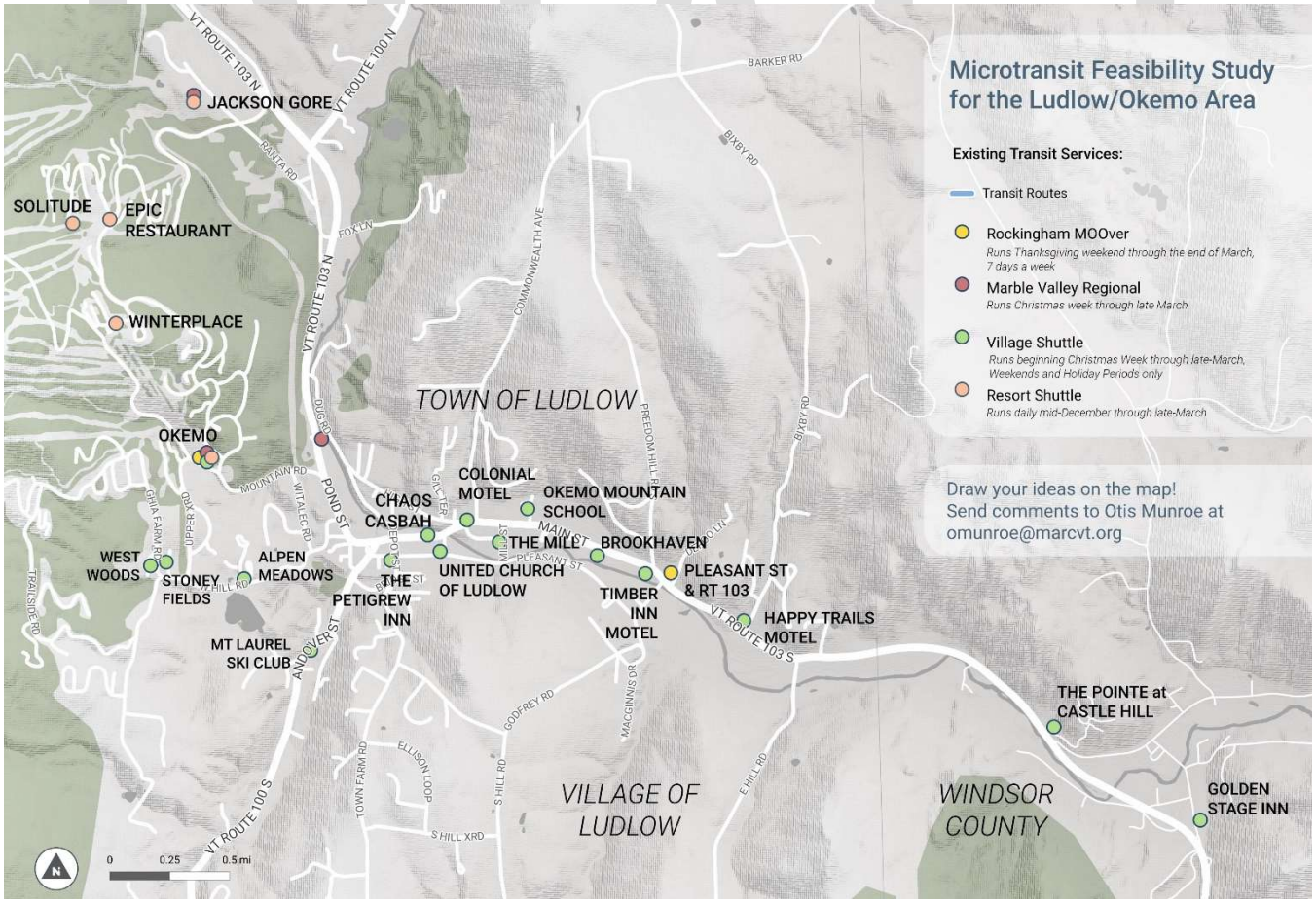


**Figure 1: Existing Transit Stops in Ludlow (this map was also used during public outreach activities).**

# PURPOSE AND NEED

This study is focused on the primary need to expand the transit connections and options between the downtown area of the Town of Ludlow, and the Okemo Resort during the evening hours. The need exists on the part of employees, residents and visitors due to the limited hours of operations of the existing services. While there is shuttle service available that goes a long way toward meeting this need, there are gaps in the services, particularly late in the evening (past 10 p.m.) on regular and holiday weekends during the busiest season of the year (winter). Filling the gaps in service is expected to increase the mode share for transit users to get around town, with accruing benefits of reducing traffic congestion, reducing driving under the influence of alcohol, and encouraging the patronization of local business. Addressing this need with microtransit service has the potential to provide improved employee transport, greater access to downtown business for those without a vehicle, and an improved visitor experience in an affordable and flexible manner.

While there are transportation and transit needs beyond these, the focus of this study is to evaluate the potential for microtransit to address the evening and weekend gaps of the existing services.



# PROPOSED SERVICE

The consulting team gathered input from the public during the Ludlow Farmers Market (August 27, 2021); one-on-one conversations with business owners and other stakeholders in July, August, and September, 2021; and through regular meetings with the steering committee. The consulting team held several workshops with the steering committee to review and refine service options, vehicle types, and technology. After consideration of a number of alternatives, including variations on geographic area covered, time of day, and time of year, the committee reached consensus on the preferred alternative. The proposed service is among the most cost-effective options, easy to implement, uses available technology, and is focused on the specific needs identified in the grant proposal for after-hours services between the resort and Ludlow. The proposed service could be expanded in the future as demand grows.

Before settling on the preferred alternative, the steering committee members considered a variety of combinations of service characteristics.

### Time of year

Ludlow and the Okemo Mountain Resort are at their busiest during the winter, however summer can be quite busy too.

### Days of the Week

Scenarios ranging from seven-days per week service to weekends-only service were considered. Weekends are the busiest days with the exception of holiday weeks in December and February.

### Time of Day

Combinations of all-day service and evening-only service were evaluated.

### Service Area

All scenarios covered a connection between the resort area (both Jackson Gore and Clock Tower bases, and the surrounding area) and downtown Ludlow. Expanding the reach of service to Proctorsville and the Lake Region was also evaluated.

### Vehicles

A variety of vehicle types with varying capacities and leasing/purchase options were considered.

The table below summarizes the "long list" of alternatives evaluated and discussed by the steering committee. During discussions, the steering committee also considered additional combinations of services using the characteristics outlined in the table.

| Alt. # | Time of Year | Days of Week | Time of Day | Service Area | Vehicles |
|---|---|---|---|---|---|
| 1 | Winter Season | Thurs – Sat | 5 PM - Midnight | Okemo – Jackson Gore - Town | 1 - Shuttle |
| 2 | Winter Season | Wed – Sun | 5 PM - Midnight | Okemo – Jackson Gore - Town | 1 - Shuttle |
| 3 | Winter Season | Wed – Sun | 8 AM - Midnight | Okemo – Jackson Gore - Town | 2 - Shuttles |
| 4 | Winter Season | Every day | 6 AM - Midnight | Okemo – Jackson Gore – Town - Proctorsville | 2 - Shuttles |
| 5 | Winter Season | Wed – Sun | 4 PM - Midnight | Okemo – Jackson Gore - Town | 1 - Shuttle |
| 6 | Winter Season | Wed – Sun | 8 AM - Midnight | Okemo –Town<br>Jackson Gore – Town | 2 - Vans |
| 7 | Winter + Summer | Thurs - Sun | 4 PM - Midnight | Okemo – Jackson Gore – Town – Lake Region | 1 - Van |

# THE PREFERRED ALTERNATIVE

While towns with high levels of resort activities can have complex service models with multiple routes, varying schedules, and a high dependency on technology, the steering committee, after having evaluated a variety of options, directed the consultant team to focus on a service scenario that is relatively easy to implement, cost-effective, and directly responds to the need for evening service connecting the resort area and the town.

| *Service Characteristic* | Proposed Service | Discussion |
|---|---|---|
| *Number of vehicles* | 1 | The demand is not yet known to warrant additional vehicles, and in the current economic climate, recruiting more than one driver will likely be challenging. |
| *Fare* | Free fare | This is consistent with existing shuttle service and will greatly simplify management of the system. |
| *Service Area* | See Figure 2 | The existing shuttle service area is generally the proposed microtransit service area. This covers the majority of destinations within Ludlow. |
| *Technology* | Mobile Phone/Text | Due to the use of only one vehicle and driver, service technology will be “dial a ride” where riders contact the driver or, if available, a dispatch center by cell phone or text |

# OPERATING SCHEDULE

The proposed operating schedule is focused on meeting the identified gaps in service for resort visitors and employees needing after hours service on winter weekends. The service is proposed for 5:00 PM until the closing time for bars. While most bars and restaurants are currently operating on limited schedules due to the COVID pandemic, it is anticipated that service will run until 2:00 AM.

The proposed operating days are focused on weekends and holidays, and include:

- Christmas/New Year’s Holiday Period - 12/24-1/1 (9 days)
- Martin Luther King Junior Holiday Weekend - 1/14-1/16 (3 days)
- Presidents Day/Winter Vacation Week - 2/18-2/26 (9 days)
- All other Friday and Saturday Evenings between Christmas and the end of March (18 days)

This is a total of 39 days, though some years the exact start time may vary depending on how the holiday’s fall within the schedule.

# SERVICE AREA

The proposed service area is similar to the service area of the existing resort shuttle service, and includes all major resort destinations, resort lodging and rentals, neighborhoods in Ludlow with notable concentrations of employee housing and short-term rental housing, and shops and restaurants in downtown Ludlow.

# POTENTIAL RIDERS

Service is proposed to be open to anyone, including but not limited to, guests and employees of the resort, visitors staying at a location other than the resort, and local residents.

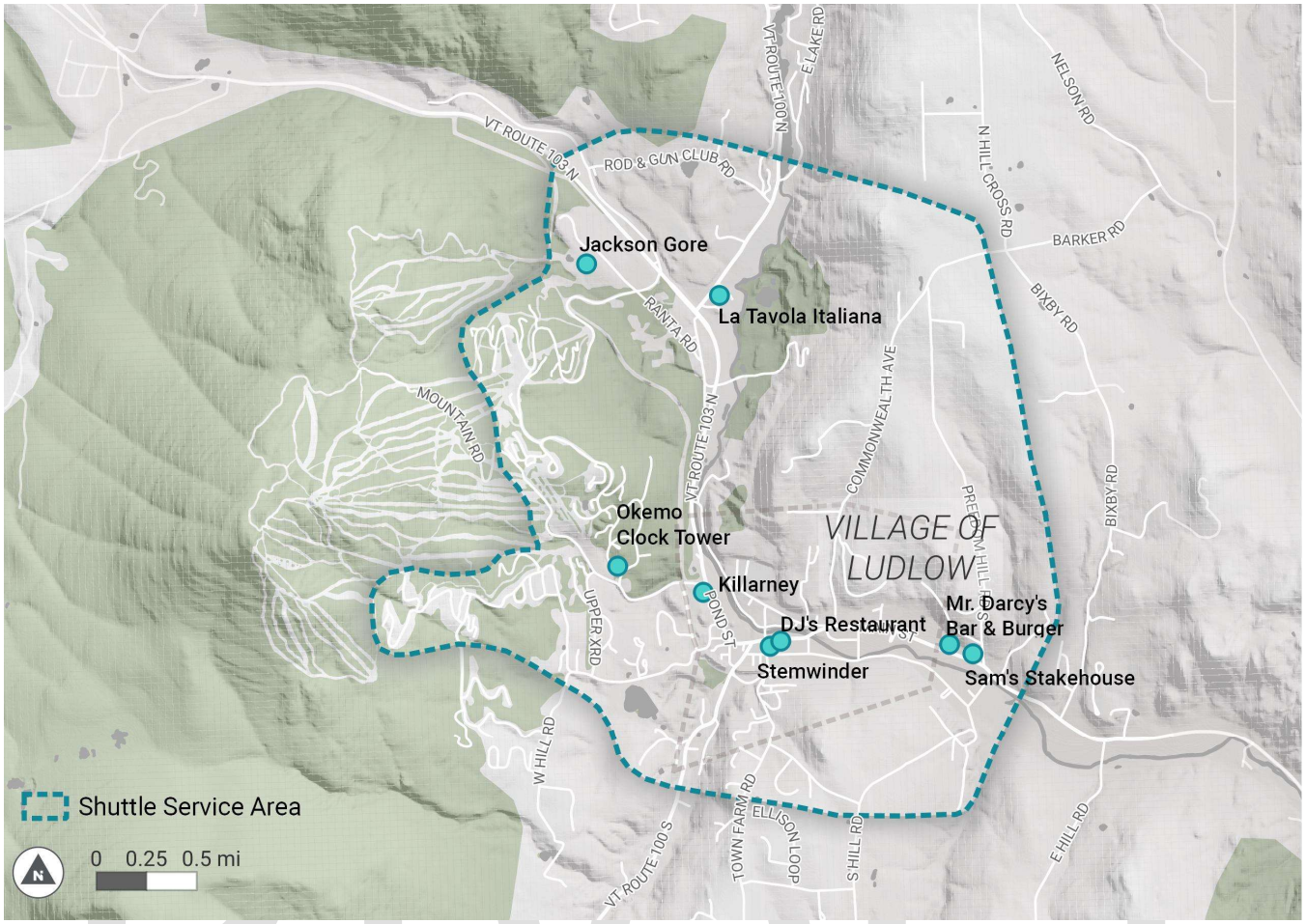


**Figure 2: Proposed Service Area (destinations are shown for reference; service is not limited to the businesses shown)**

# VEHICLE CONSIDERATIONS

Microtransit services utilize a wide range of vehicle types, ranging from a mini-van to a 16 passenger bus that requires a Commercial Driver's License (CDL).

**Figure 3: Vehicle types considered for Ludlow Microtransit Service (Clockwise from upper left: 14 passenger van, 14 passenger shuttle with ski rack, 14 passenger shuttle, 16 passenger cut-away)**

The following characteristics were important in narrowing the selection of a vehicle type for the proposed service.

- **Snow-worthy vehicles** are important, as service will be solely operated during ski season. If a vehicle is leased, the expense to purchase and install/remove snow tires during the lease period should be accounted for.
- **Ability to carry skis.** Carrying skis outside of the vehicle is not important, as this will be a night/weekend service that will primarily serve passengers after skiing. If needed, passengers can carry their skis onto the vehicle.
- **Size and capacity**: Larger size vehicle (16 passengers or more) will require a Commercial Driver's License (CDL). A driver must pass both skills and knowledge testing geared to the higher standards required of this license. In the current economic climate, that creates challenges. Smaller vehicles do not require a CDL but may not meet capacity needs or have desired accessibility features. A commonly used vehicle for microtransit is a 14-passenger shuttle which does not require a CDL and is more flexible due to its smaller size.

- **Accessibility**: If the service is operated by a public entity, an accessible vehicle is recommended, as that will expand eligibility for a wider variety of funding options. If the service is operated privately, then accessibility is optional; there could be tradeoffs in the passenger capacity and accessibility equipment.

After considering a range of options, a 14-passenger shuttle, equipped with snow-tires, and accessible for all users is recommended. However, vehicle availability is highly constrained at the time of this report publication due to the COVID-19 pandemic and supply chain issues that are having widespread impacts on the automotive industry. There are many other types of vehicles that can work, with differing impacts on cost and requirements for drivers.

# COST AND FUNDING

The project cost will depend, in part, on who operates the service. Two operating scenarios are explored here:

- **Town** – leases vehicle, hires driver, obtains funding (donations from business, town funds, grant)
- **Resort** – extends their existing service to later hours on weekends/holiday weeks, using the vehicles and drivers that they already have in place. Town may provide funding/contract with resort

The cost estimates below assume that the Town of Ludlow will operate the service. There are efficiencies in having the resort operate the service with reimbursement from the Town or other private sources, based perhaps on a per-hour cost estimate.

It should be noted that SEVT was contemplated as a potential operating entity but ruled out in favor of the options above due to the focus of this service being very specific to connecting the Okemo resort area to the downtown area of Ludlow.  Other mobility needs in the region may be more appropriate for SEVT if sufficient funding is available.

## SERVICE COST ESTIMATES

The service cost includes both capital and operating costs and is dependent on the exact service characteristics. The following sections will explain the assumptions and estimated costs, with the understanding that as the plan for microtransit is further refined, the cost estimates may need to be recalculated. In summary, they are affected by the following factors: Season of operation, Time of day, Days of the week, and Vehicle type and quantity.


## *Capital Costs*

The primary capital cost is the cost of obtaining the vehicle, with options to lease or a purchase. The following estimates assume a 14-passenger shuttle, and the purchase of snow tires. The cost for installation and removal is included in the Operating Cost estimate. The costs are annual or per season of operation (generally December through March) and in the estimates provided, a season is estimated to be 39 days of operation. This is based on the winter 2021/2022 season and may vary in future seasons.

**Table 1: Capital Cost Options**

| | PURCHASE NEW | PURCHASE USED | LEASE |
|---|---|---|---|
| **14-PASSENGER VEHICLE** | $45,000 | $32,000 | $12,960[1] |
| **SNOW TIRES** | $2,000 | $2,000 | $2,000 |
| **CELLULAR PHONE** | $250 | $250 | $250 |
| **INSURANCE** | $4,710 | $4,710 | $4,710 |
| **TOTAL** | $51,960 | $38,960 | $19,920 |

There are numerous other ways that a vehicle could be procured more economically, ranging from purchasing a used vehicle from a local transit agency or arranging to sub lease a vehicle from Okemo Mountain Resort. There are also numerous opportunities for savings on vehicle maintenance costs if local forces can be used for these efforts. As we move toward implementation, these options can be explored to determine if there are cost savings. The consultant recommends leasing a vehicle for the first year (or few years) of service; if the service proves to be popular and cost effective, it is recommended that the Town consider purchasing a vehicle. Spread over several years, the cost of purchasing the vehicle is likely to be less than leasing.

## *Operating Costs*

The operating costs primarily consist of labor cost and fuel for operating the vehicle. They are therefore highly dependent on the operating schedule. The assumptions used in the operating costs include the following:

- The service schedule of 5PM to 2AM will require an employee to work from 4 PM to 3 AM to initiate and close the service.

[1] Assumes $2,160 per month for a 6 month lease. If leased, the lease would be an annual expense.

- The wage rate is assumed to be $25 per hour, which is consistent for a driver who does not have a CDL. If the vehicle requires a CDL, a higher wage rate should be assumed.
- A 9% allowance is included for payroll taxes.
- Calculation 1: $25/hour x 11 hours per shift x 1.09 taxes = $299.75 per employee service day
- Calculation 2: $299.75 x 39 service days in a season = $11,690.25

Fuel costs will depend on market rate and on the number of miles driven. For planning purposes, the assumptions on fuel consumption include:

- 6 hours of driving time for each service day (while the service is available 5 PM to 2 AM, there is typically some idle time)
- Average speed of 25 mph while vehicle is moving
- Vehicle fuel economy of 10 miles per gallon (typical of 14-passenger shuttles)
- Fuel price of $4.00 per gallon

The total cost for fuel with these assumptions is $2,400, calculated as follows:

6 hours/day x 39 days x 25 miles per hour = 5,850 miles per season

5,850 miles / 10 miles per gallon = 585 gallons per season

585 gallons x $4.00 per gallon = $2,340 fuel cost per season

The labor required to swap standard vehicle tires with snow tires is included in the operating cost below.

Advertising costs are also factored into the overall estimate and are projected to include flyers for restaurants and bars to post in downtown Ludlow, flyers for public spaces at Okemo Mountain Resort, information cards for hotel rooms and independent rentals, business cards for the driver that include directions on how to request a ride, and vinyl decals for the vehicle.

The table below summarizes the total operating costs for this scenario.

**Table 1: Annual Operating Cost Summary[2]**

| | |
|---|---|
| **LABOR** | $11,690.25 |
| **FUEL** | $2,340 |
| **MAINTENANCE** | $2,000 |
| **SEASONAL TIRE CHANGE** | $1,500 |
| **CELLULAR SERVICE** | $600 |
| **ADVERTISING** | $2,500 |
| **TOTAL** | $20,630.25 |

## TWO OPERATING/COST SCENARIOS

Costs estimates outlined above are based on a scenario in which the Town of Ludlow manages this service independently. The steering committee identified potential cost efficiencies in an alternative scenario in which the Okemo Mountain Resort manages the service. A summary of estimated costs for each of these scenarios is

[2] Based on a 39-day operating season annually

summarized below. This in no way implies the resort's interest in operating additional service, nor a commitment on behalf of the resort to absorb or share any costs. This evaluation is intended only to show the potential costs and identify any shared benefits.

Certain costs – such as the labor required to operate the service, communications, fuel, and advertising – would not vary regardless of the operating entity. Cost savings could be achieved as a benefit to both the town and the resort through sharing costs associated with the vehicle, snow tires, and insurance. In the scenario where the resort oversees the service, a new vehicle would not need to be procured. The service would be provided in a resort-owned or leased vehicle that is typically not in use during evening hours. The town would pay for a portion of the resort's cost of purchasing or leasing the vehicle. For the purpose of this evaluation, it is assumed that the town would contribute 50% of the estimated cost it would otherwise pay for the lease of the vehicle, the snow tires and their installation, and insurance. The actual contribution could be higher or lower but would be negotiated.

| Cost in Dollars by Operator | | | |
|---|---|---|---|
| | **Town/Village** | **Resort** | **Cost Difference** |
| VEHICLE LEASE | 12,960 | 6,480 | 50% reduction |
| SNOW TIRES | 2,000 | 1,000 | 50% reduction |
| CELLULAR PHONE | 250 | 250 | |
| INSURANCE | 4,710 | 2,355 | 50% reduction |
| LABOR | 11,690 | 11,690 | |
| FUEL | 2,340 | 2,340 | |
| MAINTENANCE | 2,000 | 2,000 | |
| SEASONAL TIRE CHANGE | 1,500 | 750 | 50% reduction |
| CELLULAR SERVICE | 600 | 600 | |
| ADVERTISING | 2,500 | 2,500 | |
| **Total Estimated Annual Cost** | **40,550** | **29,965** | |

There are several potential benefits to both the town and the resort when service is operated by the resort:

- An annual cost savings to the town and any funding partners of approximately $10,000
- The opportunity to move beyond supply-chain issues that are currently affecting the automotive market and that are foreseen to continue into 2022. As of December 2021, there are no vehicles available for lease in the eastern U.S., and as a result of the scarcity, the available vehicles for lease elsewhere in the U.S. are 30-40% more expensive than pre-pandemic market rates.
- Resort guests, residents, and other visitors not staying at the resort would have easy access to bars and restaurants for evening and late-night socializing
- Since the resort already has experience operating shuttle-type services; there would be a minimal learning curve

## PROJECT FUNDING

This service is proposed to be open to the public and fare-free. While funding for public transportation is highly localized – meaning available grant monies vary widely by geography, most federal funding is limited to capital expenditures, like the purchase (not lease) of a vehicle or the construction of transit stops. There are more than 100 microtransit systems or deployments across the U.S. and most use local sources of revenue to fund operations.

The funding landscape at the time of the publication of this report is in flux. Federal formula funds and competitive grant programs would not be likely to cover costs of the service in Ludlow prior to the pandemic. However, during the pandemic, the FTA's Emergency Relief provision and the HEROES Act allow more flexibility but tend to be focused on benefits to essential workers and the elderly. The post-COVID sources of federal funding should be explored during the first two quarters of 2022 – ideally in collaboration with SEVT – to identify possible opportunities.

Likewise, state-level funding opportunities should also be explored in early 2022. The tourism industry was hit hard during the pandemic; many states have or are considering grant funding programs to entice visitors. The proposed service would be of great benefit to resort- and non-resort visitors alike.

The funding for this service will likely be a combination of private or municipal funds, as the proposed service's focus on resort visitors has more of an economic development orientation rather than a broad public transit focus.

Cost-sharing arrangements are frequently used to support microtransit service in resort towns such as Ludlow. For example, a commitment of $800 by 25 businesses (bars, restaurants, inns/hotels) would cover about half ($20,000) the cost of service during a season. Arrangements are highly customizable: contributions can be tiered based on type of business, hotels or rental homes may consider an additional guest fee to offset the cost. A collaborative negotiation is necessary to determine mutually agreeable cost-sharing arrangements.



# RECOMMENDATIONS

On-demand transit service on weekend and holiday evenings would result in a variety of benefits to the Town and businesses of Ludlow as well as to the Okemo Mountain Resort and the individually owned rental properties in the resort area:

- More people would have access to later evening dining and entertainment offerings
- Restaurants and bars in town would generate more business and revenue
- The Town and the resort would be more competitive with other ski-resort areas in Vermont
- The service offers an easy-to-access alternative to driving while under the influence of alcohol
- Traffic congestion may be reduced during busy periods
- Employers may attract more workers, and workers may have more opportunities, for late-evening shifts
- It bridges one gap in service that existing transit and taxi service do not cover
- It mitigates parking limitations in certain areas

Based upon the identified mobility needs and anticipated benefits, a microtransit service pilot is recommended with the following characteristics:

- Service is offered during the peak ski season, from just before the Christmas holiday to the end of March

- Service is offered in the evenings from 5 PM to 2 AM (when bars close)
- Service is open to the public and fare-free
- Service is limited to Fridays and Saturdays generally, but includes Sundays on holiday weekends and full-week service between Christmas and New Year's, and for a holiday week in February (in 2021/2022 this totals 39 service days, however the total service days may vary in other years)
- Communication between riders and the driver will primarily be via cellular phone
- Use a 14-passenger accessible shuttle-type vehicle to maximize passenger capacity while not requiring the driver to hold a CDL. This vehicle is recommended to be leased during the pilot.

A "pilot" is recommended to test the demand for and efficacy of the service. Adjustments should be considered in future years based on rider and business feedback, and demand for service. While there are no formal industry standards for productivity and performance of microtransit services many use metrics that measure how well the service meets the needs of individuals and groups, how far in advance a rider must request a trip, and whether the service is being used with frequency and consistency.

The consultant team recommends the Town and the Okemo Mountain Resort explore opportunities for partnership in this effort to achieve cost savings and other mutual benefits.

The consultant team recommends a targeted marketing program in which all potential users of the service are aware of its availability, how to use the service, and what businesses and activities are accessible using the service. Use of the service is highly dependent on awareness.

Finally, the consultant team recommends a survey of users, businesses, and the driver mid-season (end of January) and at the end of the season to gather feedback on what is working and what aspects of the service could be improved. A mid-season evaluation will provide the opportunity to make changes prior to the February holiday week. Customer satisfaction can make or break the success of the service and the Town must be responsive to their experiences and feedback.

As service matures, the Town may consider purchase (rather than lease) of one or more vehicles to realize cost-savings over time and use of more advanced technology to request and schedule rides as well as to dynamically route driver(s).