

# ROUTE 12

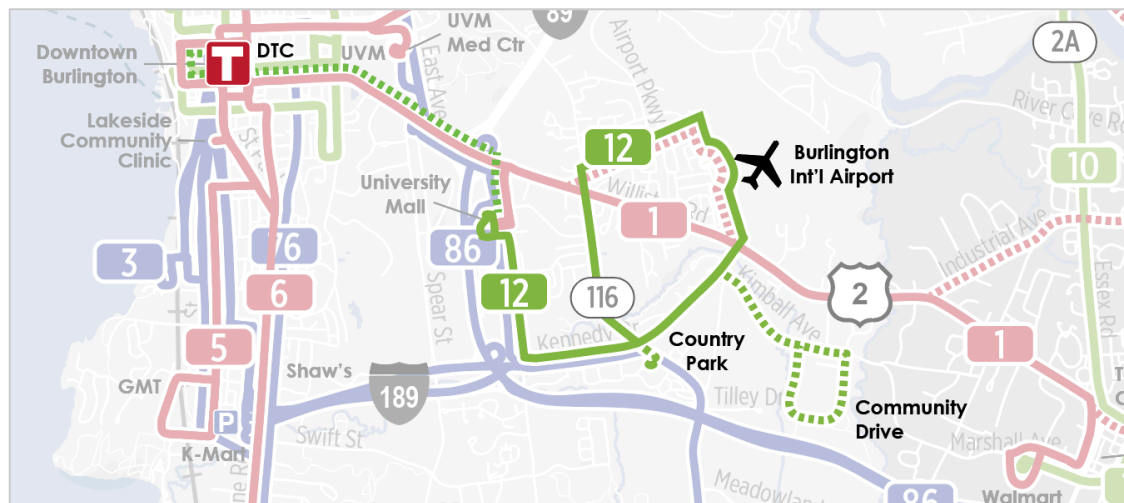
## UMall/Airport

### ROUTE OVERVIEW

Route 12 is an Urban Local route that operates between University Mall and Burlington International Airport, during the day on weekdays and Saturdays, and between downtown Burlington and the airport on weekday and Saturday evenings and all day on Sundays.. In addition to University Mall and the airport, it provides service along Dorsett Street, which is one of the Burlington area's major retail areas. (see Figure 1).

Route 12 provides service in the northern portions of South Burlington, serving University Mall, Burlington International Airport, Price Chopper on Hinesburg Road, and medical offices on Kennedy Drive, as well as service to downtown Burlington at some times.

**Figure 1: Route Map**



On weekdays, Route 12 operates from 6:25 AM to 10:00 PM, every 30 to 45 minutes during peak periods, every 30 minutes during the midday, and every 60 to 70 minutes during the evening (see Table 1). On Saturdays, service operates from 6:30 AM to 9:50 PM, and runs every 30 minutes during the day and every 50 to 60 minutes at night. On Sundays, service runs from 8:45 AM to 7:35 PM and operates every 75 minutes throughout the day.

**Table 1: Schedule Statistics**

SERVICE DAY	SPAN OF SERVICE	FREQUENCY (MIN)	DAILY TRIPS (OUTBOUND)
Monday-Friday	6:25 AM to 10:00 PM	30-45/30/60-70	27
Saturday	6:30 AM to 9:50 PM	30/50-60	28
Sunday	8:45 AM to 7:35 PM	75	9

Peak frequencies are calculated for service between 6:00 am – 9:00 am & 3:00 pm – 6:00 pm. Midday service is from 9:00 am – 3:00 pm. Evening service is for service after 6:00 pm. Saturday and Sunday frequencies are shown as AM/PM.

Although Route 12 is a short route, the service it provides is complex. In total, it has nine variants, all of which operate on weekdays, three on Saturdays, and one on Sundays (see Table 2). The primary alignment (12-11) runs from University Mall to Burlington International Airport via Dorset Street and around a large counterclockwise loop along Kennedy Drive, Airport Drive, White Street, and Hinesburg Road. All variants serve this primary alignment, but differ in how they serve three additional locations:

- Service into Country Park Apartments rather than direct service along Hinesburg Road in front of the apartments. Some trips provide scheduled service, while other trips operate into the apartments upon request. On weekdays there is no clear pattern for which trips provide scheduled service, but request service operates early and late. On Saturdays, early and late trips provide request service, and during the middle of the day, alternating trips provide scheduled service.
- Service to Kimball Avenue and Community Drive, which is a “lollypop” loop off of Kennedy Drive designed to serve a few scattered office buildings. There is one AM trip and one PM trip that are designed to serve commute trips.
- Direct service to and from Burlington’s Downtown Transit Center, which is provided after 7:00 PM on weekdays and Saturdays, and all day on Sundays. This service operates along the same alignment as Route 1 Williston between the University Mall and downtown Burlington.

**Table 2: Service Variants**

				TRIPS PER DAY		
VARIANT	ORIGIN	DESTINATION	UNIQUE FEATURE	WKD	SAT	SUN
OUTBOUND				27	28	9
12-11	University Mall	University Mall	Primary Alignment	13	10	0
12-12	University Mall	DTC	Serves Kimball Ave/ Community Drive	1	0	0
12-13	University Mall	University Mall	Serves Kimball Ave/ Community Drive	1	0	0
12-14	DTC	DTC	Serves Country Park	3	3	9
12-15	University Mall	DTC	Serves Country Park	1	0	0
12-16	DTC	University Mall	Serves Country Park	5	0	0
12-17	University Mall	University Mall	Serves Country Park	5	15	0
12-18	University Mall	DTC	Serves Country Park	1	0	0
12-19	University Mall	DTC	--	1	0	0

## RIDERSHIP

Route 12 carries 256 passengers per weekday, 154 on Saturdays, and 161 on Sundays. By weekday ridership, it ranks 5<sup>th</sup> out of GMT’s seven Urban Local routes. As described further below, it is notable that Sunday ridership is higher than Saturday ridership.

## Ridership by Stop

### Weekdays

On weekdays, the highest ridership volumes are at the University Mall, with 145 boardings and alightings (see Figure 2). The University Mall is a major activity center and connection point with Route 1 Williston Village for trips to and from Burlington. The second higher ridership stop, somewhat surprisingly, is the DTC, with 30 boardings and alightings. This is notable because only evening service operates to and from Burlington. Considering that another 56 passengers board and alight on these evening trips between the UMass and the DTC, there is almost certainly demand for all day service to and from downtown Burlington. Other high activity stops include the airport, Price Chopper, and stops along Dorset Street.

Some segments of Route 12, however, have very low ridership. These include:

- The Kimball Avenue/Community Drive loop, which serves only one passenger.
- The Country Park deviation, which also serves only one passenger.
- Service along Kennedy Drive, between the airport and Hinesburg Road, with only two boardings and alightings.

### Saturdays

Weekend ridership patterns are similar to weekday patterns, but with generally lower volumes (see Figure 3). One exception is the UMass, where although total ridership is lower than on Saturdays, is proportionally higher relative to total ridership. This likely indicates a greater proportion of shopping trips on Saturdays than on weekdays.

### Sundays

Whereas on weekdays and Saturdays on evening service operates to and from downtown Burlington, on Sundays, all service does (see Figure 4). Because of this, Sunday ridership on Route 12 is higher than on Saturdays (161 passengers versus 154 passengers). This is unusual and unique among GMT routes that do operate on Sundays. This is another indicator of demand for direct service to and from Burlington.

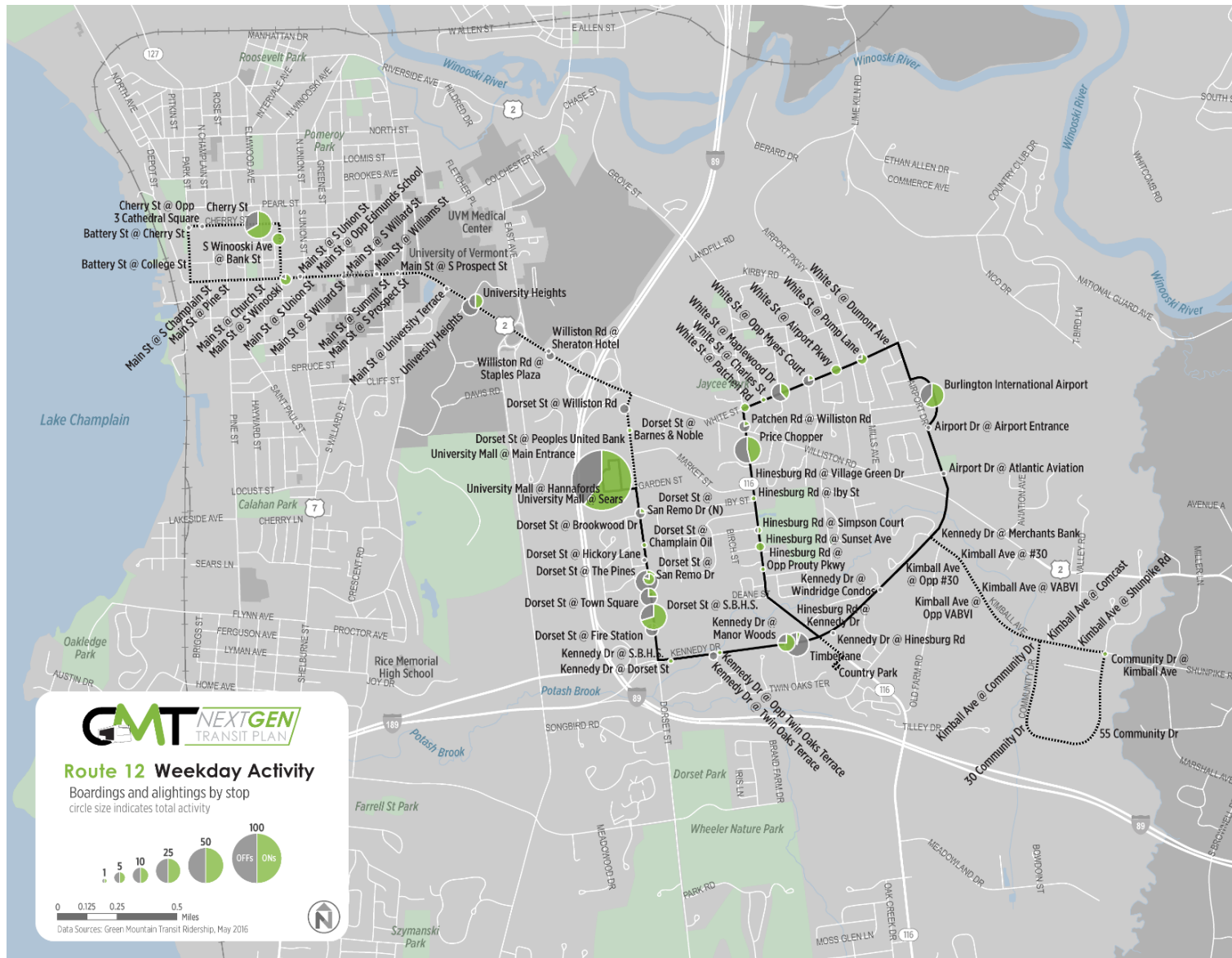
With the service to and from downtown, the highest ridership Sunday stop is the DTC, with 90 boardings and alightings. The UMass is the second highest stop, with 53 boardings and alightings. The third highest ridership location are the stops on Main Street/Route 2 that serve UVM. Stops on the primary Route 12 alignment between the UMass and the airport all have low ridership.

## Ridership by Trip

### Weekdays

Weekday ridership average 9.1 passengers per trip, with ridership highest in the morning from 6:55 to 7:25 AM, at 3:55 PM and peaks again at 8:00 PM (see Figure 5). These peaks suggest that Route 12 is used by early morning commuters and by shoppers and commuters during the afternoon. High ridership on the 8:00 PM trip is because this trip operates to the DTC. Ridership very low in the late afternoon and early evening.

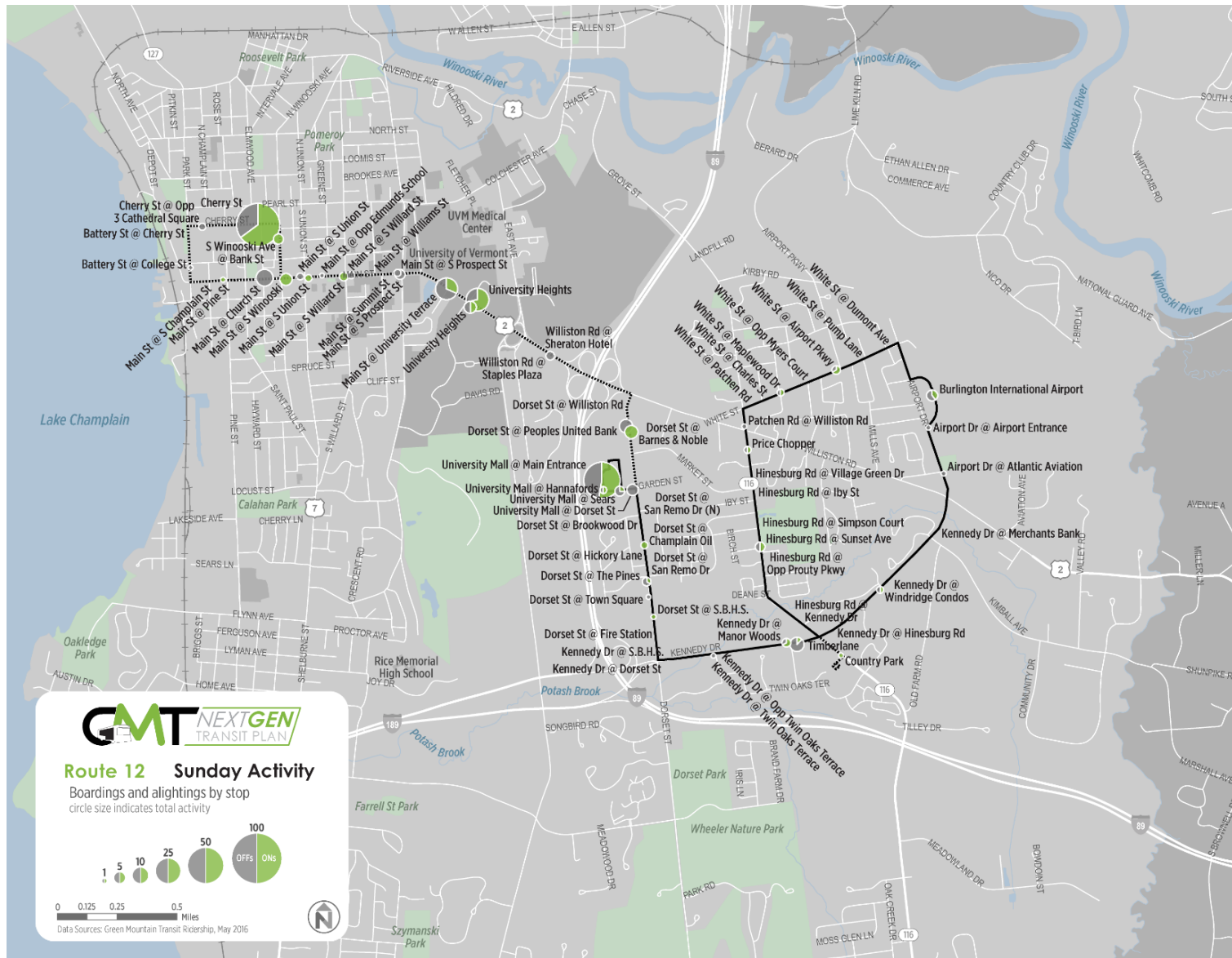
**Figure 2: Weekday Ridership by Stop**



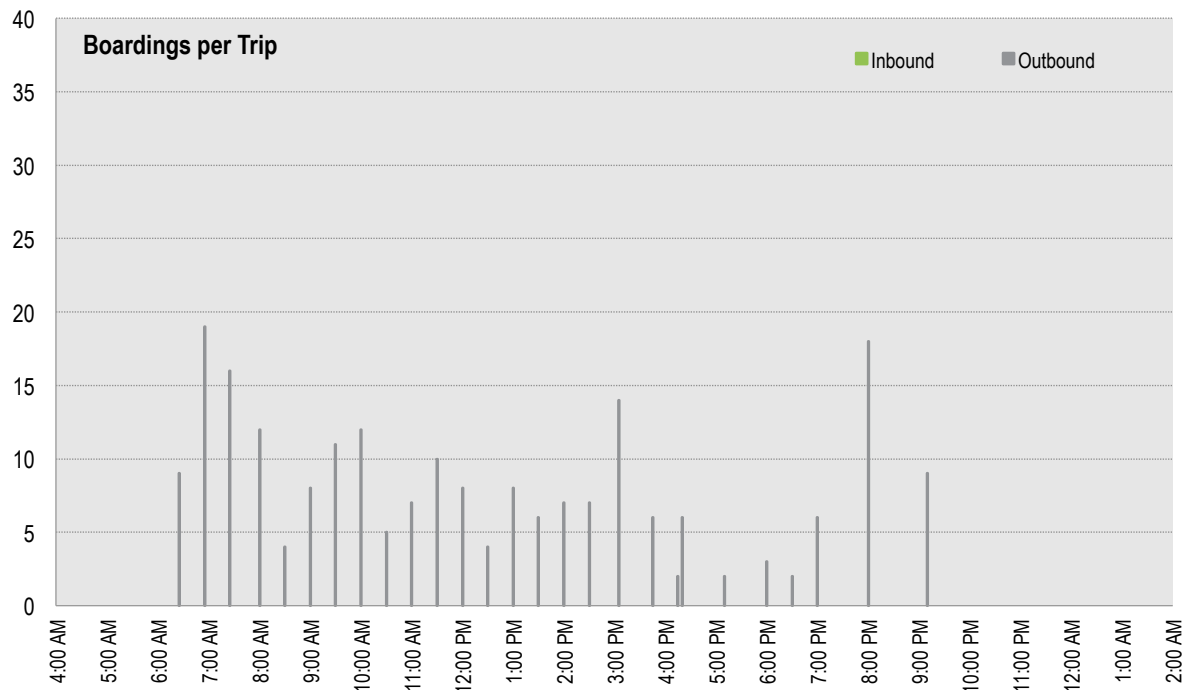




**Figure 4: Sunday Inbound Ridership by Stop**



**Figure 5: Weekday Ridership by Trip**



## Saturdays

Saturday ridership averages only 2.8 passengers per trip. This is because ridership is lower than on weekdays but the amount of service provided is higher (by one one-way trip). As a result, there is a large mismatch between demand and the amount of service provided, with more service provided than warranted by demand.

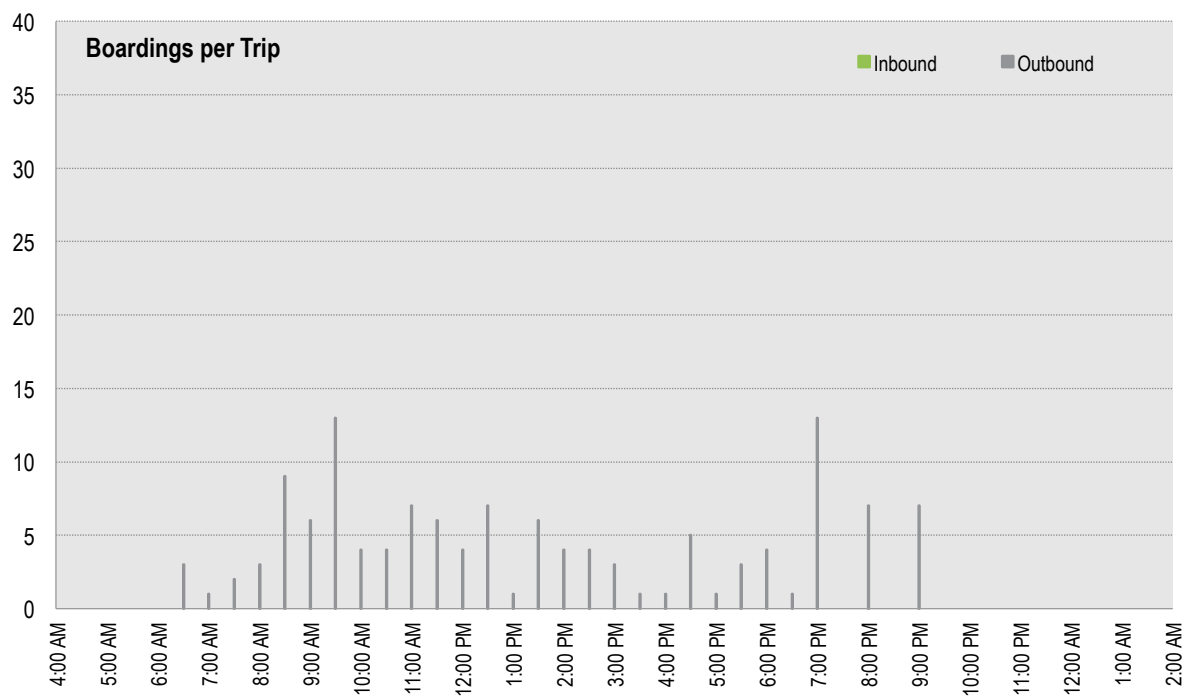
By trip, Route 12 ridership peaks around 9:30 AM with up to 13 passengers per trip and in the evening after 7:00 PM, where one trip also carries 13 passengers. Similar to weekdays, high ridership on the evening trips is because of the extended service to the DTC (see Figure 6). Most midday trips carry fewer than five passengers, and some carry as few as one.

## Sundays

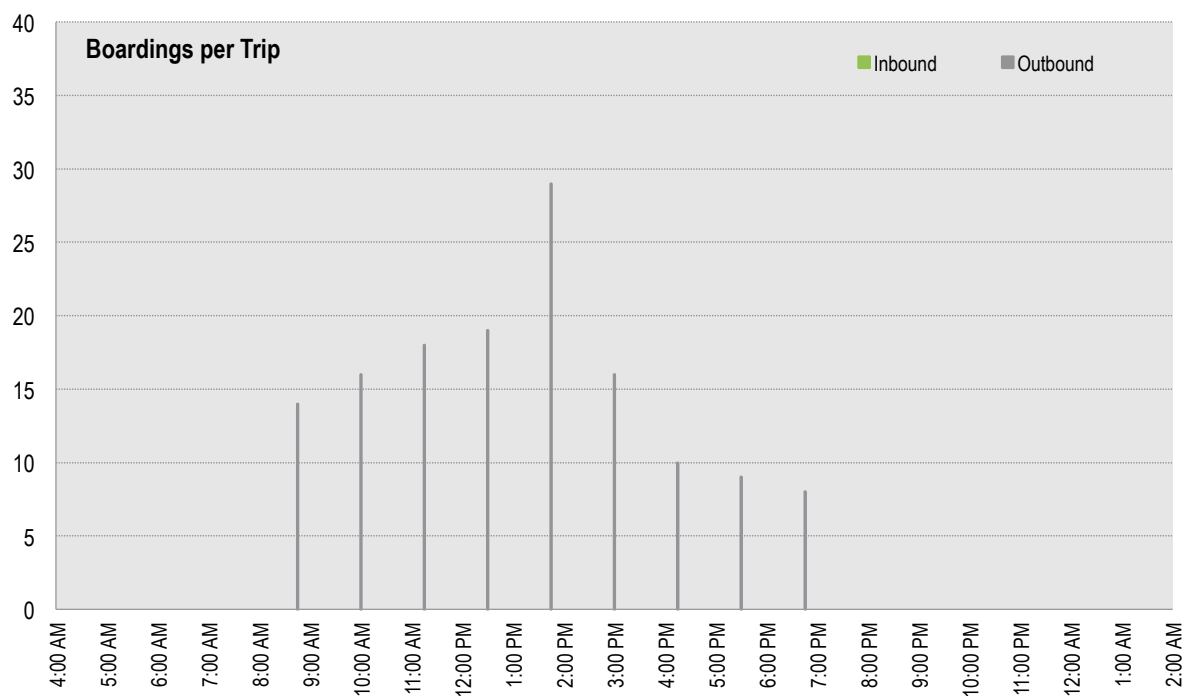
On Sundays, Route 12 serves an average of 17.9 passengers per trip, which is nearly twice as high as on weekdays and over six times as high as on Saturdays. This is for two reasons (1) all service operates to and from the DTC, which increases demand, and (2) the amount of service provided is low, which service operating only every 75 minutes. In this case, there is also a mismatch between demand and the amount of service provided, but with too little service provided.

All trips between 9:00 AM and 3:00 PM carry 14 or more passengers, while ridership tails off after 3:00 PM (see Figure 7). The first trip at 9:00 AM carries 14 riders, which indicates that there is demand for earlier service.

**Figure 6: Saturday Ridership by Trip**



**Figure 7: Sunday Ridership by Trip**





## SERVICE PRODUCTIVITY

Route 12 ranks fifth of the seven Urban Local routes in terms of weekday ridership and passengers per revenue hour (see Table 3). On weekdays, the route carries an average of 256 passengers per day, and 20.3 passengers per revenue vehicle hour. On Saturdays, Route 12 carries 154 passengers, and 11.6 passengers per revenue vehicle hour. On Sundays, Route 12 carries 161 passengers, and 21.5 passengers per revenue vehicle hour. Because Sunday ridership is strong but much less service is provided than on weekdays, Sunday passengers per revenue vehicle hour is higher than on weekdays.

**Table 3: Productivity Statistics**

	MONDAY-FRIDAY	SATURDAY	SUNDAY
<b>Average Daily Ridership</b>	<b>256</b>	<b>154</b>	<b>161</b>
<b>Pax/Revenue Vehicle Hour</b>	<b>20.3</b>	<b>11.6</b>	<b>21.5</b>
Urban Local Average	21.9	13.8	14.4
<b>Pax/One-Way Trip</b>	<b>9.1</b>	<b>2.8</b>	<b>17.9</b>
Urban Local Average	6.9	4.0	14.7
<b>Pax/Revenue Mile</b>	<b>1.2</b>	<b>0.8</b>	<b>1.5</b>
VTrans Productivity Threshold	1.95	1.95	1.95
<b>Cost/Passenger</b>	<b>\$5.03</b>	<b>\$7.48</b>	<b>\$3.77</b>
VTrans Effectiveness Threshold	\$4.37	\$4.37	\$4.37

Source: Green Mountain Transit, May 2016; VTrans Performance Reviews (2016)

On weekdays and Saturdays, Route 12 does not meet VTrans' thresholds for either productivity or effectiveness. On Sundays the route meets the VTrans threshold for cost effectiveness but not productivity.

## SERVICE IMPROVEMENT OPTIONS

There are a number of issues with Route 12. First, it is circuitous and complex. Second, it serves many of the metro area's major activity centers, but does not connect well with the rest of the system (only Route 1 Williston at the UMass) except in the evening and on Sundays. Third, ridership to some locations is very low. Finally, the amount of service provided on weekends is poorly matched with demand. Opportunities to strengthen Route 12 are listed below. Some suggestions may be contradictory, as there is usually more than one approach to improving a route.

### Reconfigure Service

- **Operate all Service to and from Downtown Burlington:** Transit passengers are typically willing to make one connection, but not two or more. Consequently, Route 12 ridership is significantly higher during the times that it operates to and from the DTC. At other times, ridership on Route 12 is limited due to a lack of full-time connections to the rest of the system at the DTC, and the route would be much stronger if all service operated to and from the DTC.
- **Serve Airport with Route 1 Williston:** Some Route 1 service now operates via the airport along Airport Drive and White Street. Full time operate in this manner would provide

more direct and faster service than is now provided by Route 12, and would provide for opportunities to reconfigure Route 12's outer loop.

- **Reconfigure Outer Loop:** With service to the airport via Route 1, Route 12's outer loop could be reconfigured. Potential options would be to discontinue service beyond Kennedy Drive and Hinesburg Road, or more extensive changes.
- **Discontinue Low Ridership Variants:** The Community Drive and Country Park deviations each serve only a single passenger and could be discontinued to make service simpler and schedules more consistent.

### Revise Schedules

- **Reduce Weekday Midday Service from Every 30 Minutes to Every 60 Minutes:** Route 12 currently runs every 30 minutes during midday, but ridership is fewer than 10 passengers on nearly all trips. A reduction in service from every 30 minutes to every 60 minutes would better balance service levels with demand and provide resources for other improvements. (However, with extended service to the DTC, a continuation of 30 minute frequencies could be warranted.)
- **Reduce Saturday Service Frequencies from Every 30 Minutes to Every 60 Minutes:** Route 12 currently runs every 30 minutes during the day on Saturdays, but ridership averages fewer than three passengers per trip. A reduction in service from every 30 minutes to every 60 minutes would better balance service levels with demand and provide resources for other improvements. (However, with extended service to the DTC, a continuation of 30 minute frequencies could be warranted.)
- **Improve Sunday Service Frequencies from every 75 Minutes to Every 60 Minutes:** Service frequencies that are greater than every 60 minutes deter most potential riders. Sunday service already performs relatively well in spite of poor headways, and would perform better with 60 minute service frequencies.
- **Begin Sunday Service Earlier:** The first Sunday trip at 9:00 AM carries 14 riders, and indicates that there is demand for earlier service.