

July 31, 2025

# Acton Mobility Management Project Update



Town of  
**Acton** Massachusetts

**N** NELSON  
NYGAARD





# Agenda

- Review and discussion of demand-response services
- Review and discussion of CAT shuttle
- Next steps (NN and Acton)

# **Demand-Response Services**



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# Demand-Response Services Analysis

- The NN team:
  - Described service features (hours, schedules, operational rules)
  - Analyzed ridership (July 2024-May 2025)
  - Interviewed the COA driver (Bob)
  - Considered improvements



## Ridership by Service

- July 2024-May 2025 timeframe
- Council on Aging Van (COA) provides the most trips
- Minute Van and Road Runner provide roughly the same number of trips each month.

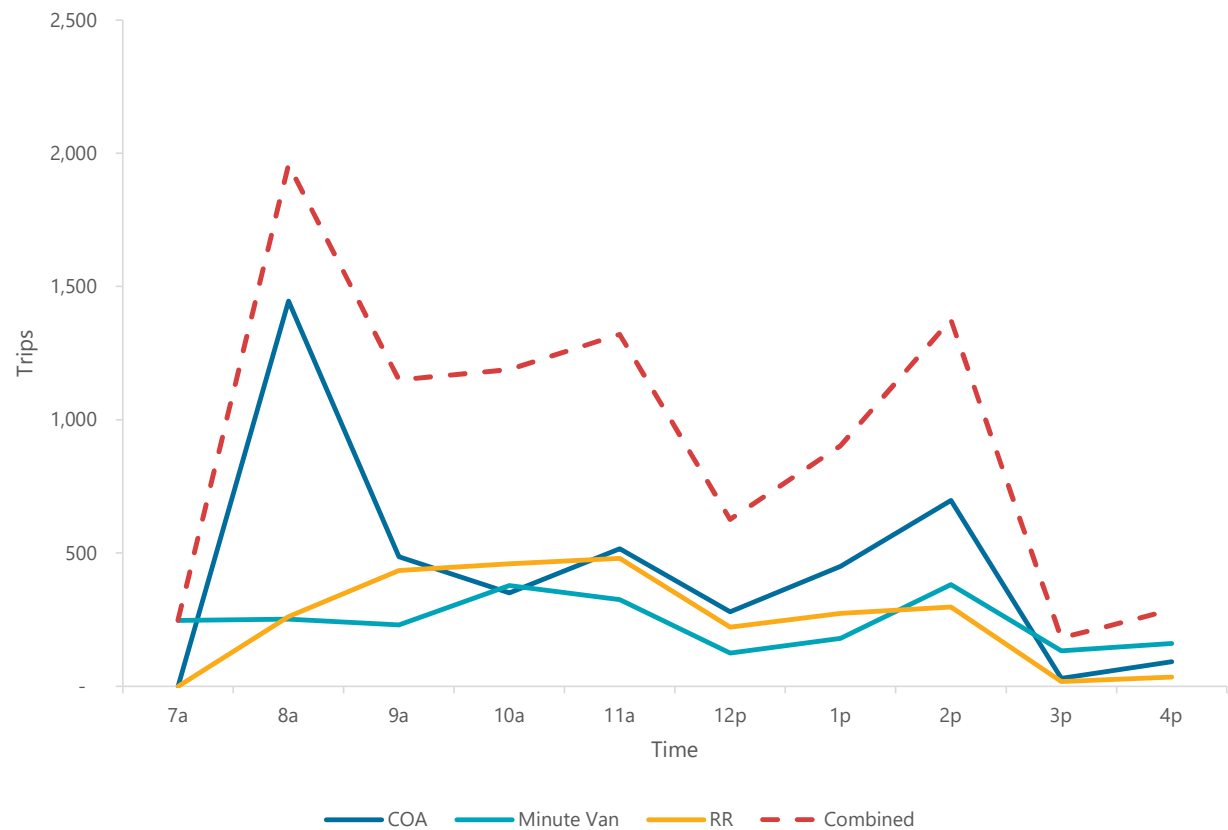
Service	Ridership (10-months)
COA	4,350
Minute Van	2,410
Road Runner	2,480
<b>Total</b>	<b>9,240</b>

Data from July 2024-May 2025

# Weekday Ridership by Time of Day

- Minute Van and Road Runner
  - MV operates 7 AM-6 PM
  - RR operates 7:45 AM-3:45 PM (5 PM on Fridays)
- COA
  - Operates 8 AM-4 PM
    - Some pickups occur before
  - Demand peaks at 8 AM and at 2 PM
  - Appears to be capacity to serve more midday demand

Average Hourly Trips by Service (July 2024-May 2025)



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## Areas Served

- The COA almost exclusively served trips within Acton.
- Minte Van and Road Runner generally served the same areas.

Town	Trip Destinations		
	COA	MV	RR
Acton	97%	65%	62%
Boxborough	0%	0%	8%
Concord	3%	28%	17%
Littleton	0%	4%	9%
Lowell	0%	0%	0%
Maynard	0%	1%	0%
Westford	0%	3%	2%

Data from July 2024-May 2025

# Popular Destinations Outside Acton

- Emerson Hospital area remains the top destination
- RR served more shopping destinations by design.
- MV and RR served non-shopping destinations at similar rates.

Destination	Number of Trips Provided				
	Town	All	COA	MV	RR
Emerson Hospital area	Concord	835	198	456	526
Market Basket-301 Constitution Ave	Littleton	294	2	16	276
Acton Food Pantry-235 Summer Rd	Boxborough	193	0	0	193
Thoreau Club	Concord	130	124	4	2
DCI-Concord-56 Winthrop St	Concord	109	0	61	48
Westford Health Center-133 Littleton Rd	Westford	46	1	19	26
97 Lowell Rd	Concord	37	0	17	20
65 Russett Road	Concord	25	0	16	9
20 Meeting House Rd	Littleton	23	1	18	4

Data from July 2024-May 2025

# Distribution of Trip Purposes

- COA primarily serves Senior Center
- Minute Van and Road Runner serve similar trip purposes
- The most frequent trip purposes are:
  - Senior Center
  - Shopping
  - Medical
  - Employment, volunteering, and training
- Road Runner serves more shopping trips due to its weekly shopping route.

Trip Purpose	Trip Purpose Distribution		
	COA	MV	RR
Banking	1%	1%	1%
Employment, volunteering, training	2%	21%	10%
Medical	5%	68%	47%
Personal	1%	3%	4%
Senior Center	80%	2%	2%
Shopping	2%	3%	35%
Social/recreation	9%	1%	0%

Data from July 2024-May 2025



## Key Takeaways

- Minute Van and Road Runner are effectively the same but are branded differently and operate with different schedules, leading to potential confusion and inefficiencies
- Operating three demand-response services simultaneously within the town offers an opportunity to streamline operations and offer more trip flexibility

# Service Schedules

- Even though RR and MV are similar services, they have different schedules.
- The Minute Van has a scheduled lunch break.
- RR has different schedules depending on the day of the week.
- The COA has a different schedule from MV and RR.
- **Should MV and RR be merged into a single service to improve efficiency and the rider experience?**

Time	COA Schedule	MV Schedule	RR Schedule Mo, Tu, Th, Fr	RR Schedule Wednesday
7:00 AM				
7:15 AM		Service begins at 7:00		
7:30 AM				
7:45 AM	Service begins at 7:30			
8:00 AM			Service begins at 7:45	Service begins at 7:45
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM				
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM				
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM				
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM		Lunch Break		
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM				
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM				
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM				
3:15 PM			Service ends at 3:15	
3:30 PM				
3:45 PM				
4:00 PM	Service ends at 4:00			
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM				Service ends at 5:00
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM		Service ends at 6:00		
6:15 PM				

# Actual MV Service

- MV appears to skip its scheduled lunch break and instead goes out of service at 5:00, one hour before scheduled.
- It is unclear if there is significant unmet demand after 5:00.
- Data on actual trips delivered is from July 2024 – May 2025

Time	MV Schedule	MV Actual Trips Delivered
7:00 AM		
7:15 AM	Scheduled service begins at 7:00	
7:30 AM		Service begins 15 minutes late
7:45 AM		
8:00 AM		
8:15 AM		
8:30 AM		
8:45 AM		
9:00 AM		
9:15 AM		
9:30 AM		
9:45 AM		
10:00 AM		
10:15 AM		
10:30 AM		
10:45 AM		
11:00 AM		
11:15 AM		
11:30 AM		
11:45 AM		
12:00 PM	Scheduled Lunch Break	Trips are delivered during the scheduled lunch break
12:15 PM		
12:30 PM		
12:45 PM		
1:00 PM		
1:15 PM		
1:30 PM		
1:45 PM		
2:00 PM		
2:15 PM		
2:30 PM		
2:45 PM		
3:00 PM		
3:15 PM		
3:30 PM		
3:45 PM		
4:00 PM		
4:15 PM		
4:30 PM		
4:45 PM		
5:00 PM		Service ends early at 5:00
5:15 PM		
5:30 PM		
5:45 PM		
6:00 PM	Scheduled service ends at 6:00	
6:15 PM		

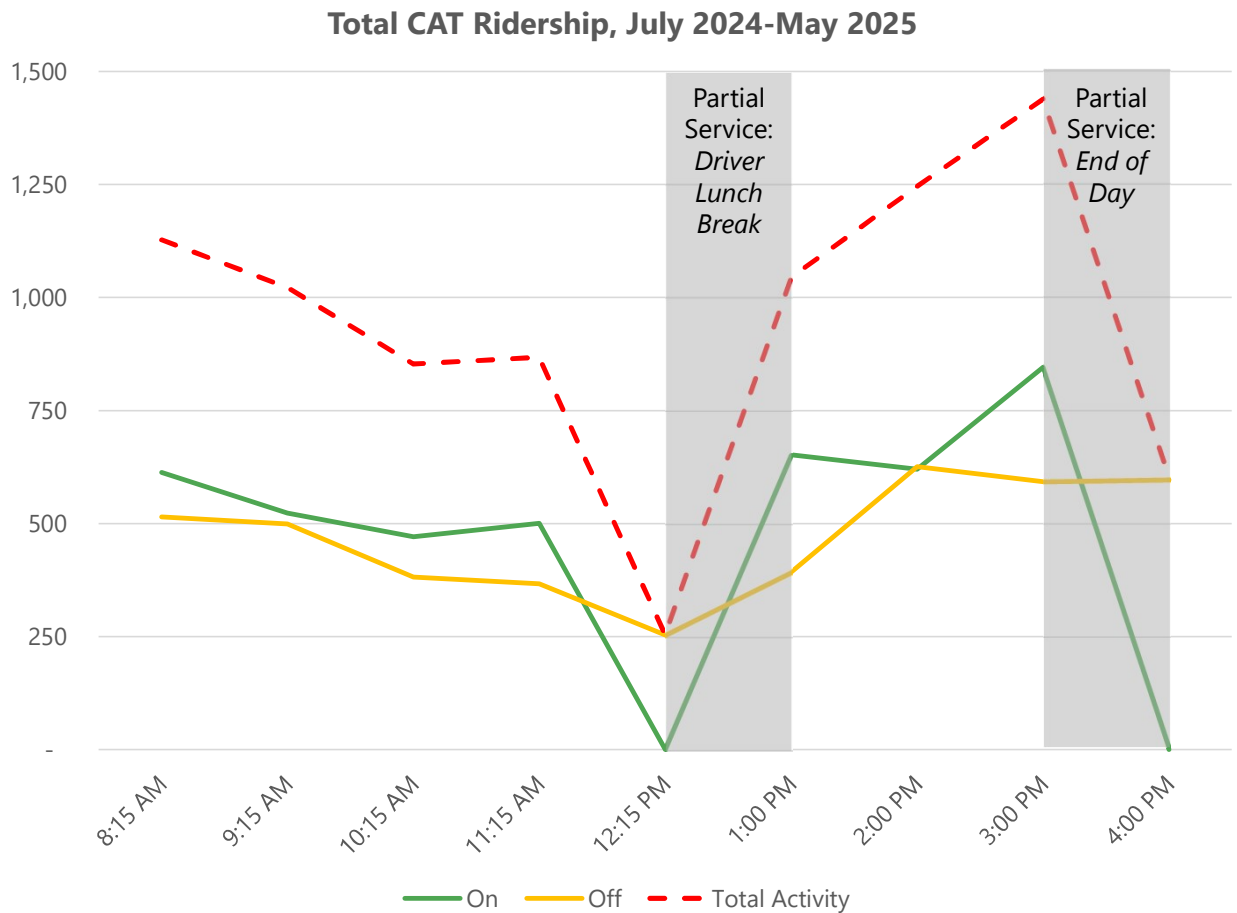
# Analysis of Fixed Route Services



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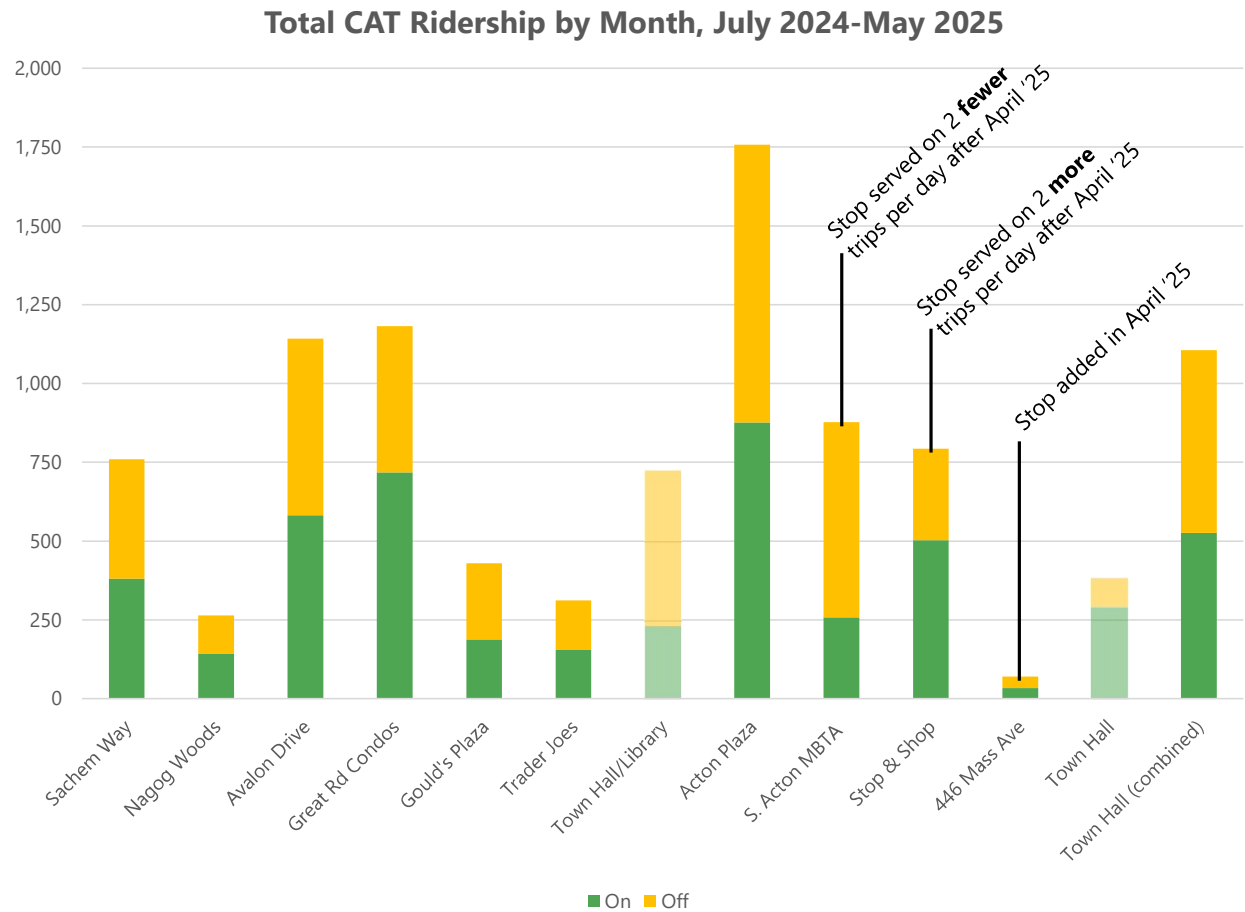
# Ridership by Trip - Historic

- Total activity is highest at the beginning and end of the service day
- The last full trip at 3 pm has the most activity
  - 4 pm trip only serves 4 of the 12 stops
  - May indicate demand for later service
- Midday demand not fully known due to 12:15 pm trip serving 4 of 12 stops before driver break



# Ridership by Stop - Historic

- During the 11-month period, there were around 4,300 total boardings
- The **highest ridership** stop was Acton Plaza/Roche Bros by far.
  - Second highest were Avalon Drive, Great Road Condos, and Town Hall (combined)
- The **lowest ridership** stops were 446 Mass Ave,\* Nagog Woods, and Trader Joe's
  - 446 Mass Ave was only served for most recent 2 months





## Shuttle GPS Tracking

- GPS tracker was installed and active from June 3 to June 17.
- Analysis of the data from this period showed the following:
  - The shuttle rarely stops at all scheduled stops
    - Only picks up or drops off at 1 or 2 stops on most runs
  - Excluding runs where only 1 stop was made, the avg travel time between stops is 8.8 minutes.
  - When shuttle arrived at a stop several minutes early, dwell time is often significantly longer
    - Indicates driver tries to wait/follow the schedule
    - Confirmed during ride-along (8 a.m. run)



## On Time Performance

- On time performance (measured by 1 min early or 5 mins late) is relatively good
  - OTP is impacted by runs where only one stop is made.
- Stops where the driver most often arrived on time and then dwelled longest (dwell includes loading/unloading passenger and waiting)
  - Gould's Plaza/Donelan's and Stop & Shop
- Stops where the driver most often arrived early
  - Acton Plaza and South Acton MBTA Station
- Scheduling stops at 5-minute intervals make the route easier to understand for riders, but is creating unevenness resulting in the shuttle arriving early and dwelling longer than necessary

# Ridership by Stop - GPS

- During the June 3 – June 17 period (11 weekdays), there were 162 boardings
- Ridership was relatively stable across the day, but the **highest activity was on the last trip** serving all stops (3pm).
- The **highest ridership** stops were Great Road Condos, Avalon Dr, and Stop & Shop.
- The **lowest ridership** stops were Nagog Woods, Trader Joe's, and 446 Mass Ave.

	Sachem Way		Nagog Woods		Avalon Drive		Great Rd Condo		Gould's Plaza		Trader Joe's		Town Hall/Library		Acton Plaza		Stop & Shop		S. Acton MBTA		446 Mass Ave		Town Hall		Total	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
8:15 AM	3	0	0	0	2	0	12	0	0	2	0	0	1	3	0	1	1	6	5	7	0	0	0	0	24	19
9:15 AM	3	0	1	0	6	0	4	1	2	11	0	2	0	1	0	4	0	2	0	0	3	0	0	0	19	21
10:15 AM	0	0	1	0	2	0	5	0	6	2	1	1	0	1	0	4	6	5	1	5	0	0	0	0	22	18
11:15 AM	1	3	0	0	1	2	6	1	2	3	2	0	0	0	1	5	2	0	0	0	0	4	0	0	15	18
12:15 PM	0	0	0	1	0	1	0	1	Lunch Break																0	3
1:00 PM	2	0	1	0	0	0	8	0	0	0	0	1	0	0	2	7	6	3	0	0	2	1	2	3	23	15
2:00 PM	3	4	0	0	0	2	0	0	0	1	1	0	0	0	2	0	5	1	0	1	0	0	0	3	11	12
3:00 PM	0	3	0	1	9	1	7	2	0	7	0	0	4	0	5	5	17	4	0	4	0	5	6	0	48	32
4:00 PM	0	6	0	0	0	3	0	14																	0	23
Grand Total	12	16	3	2	20	9	42	19	10	26	4	4	5	5	10	26	37	21	6	17	5	10	8	6	162	
Avg Daily	1.09		0.27		1.82		3.82		0.91		0.36		0.45		0.91		3.36		0.55		0.45		0.73			



## Discussion

- What would make the service more efficient?
- Should Nagog Woods stop be maintained? Impacts of removing? Options?
- Other ideas

# Fixed Route Service Options



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## Service Design

- Currently, CAT essentially operates as a single-direction loop.
- Riders making a trip to the grocery store need to ride out of direction in order to make it back home after their errand.
  - Going from Great Rd Condos to and from Acton Plaza = 15 minutes there and 45 minutes back
- CAT service also has multiple trip variants, where the shuttle doesn't serve every stop on all trips.
  - South Acton MBTA Station is only served on 4 of the 9 daily trips
- Using the same resources (1 vehicle and 1 driver), the bus route can be redesigned to operate bidirectionally
  - Riders would need to look for the inbound or outbound trip, but actual time riding may be much shorter
- Discontinuing shuttle service at the lowest ridership stops also makes the service more efficient for most people riding
  - Not spending time and resources on places very few are actually going to

# Bidirectional CAT Service

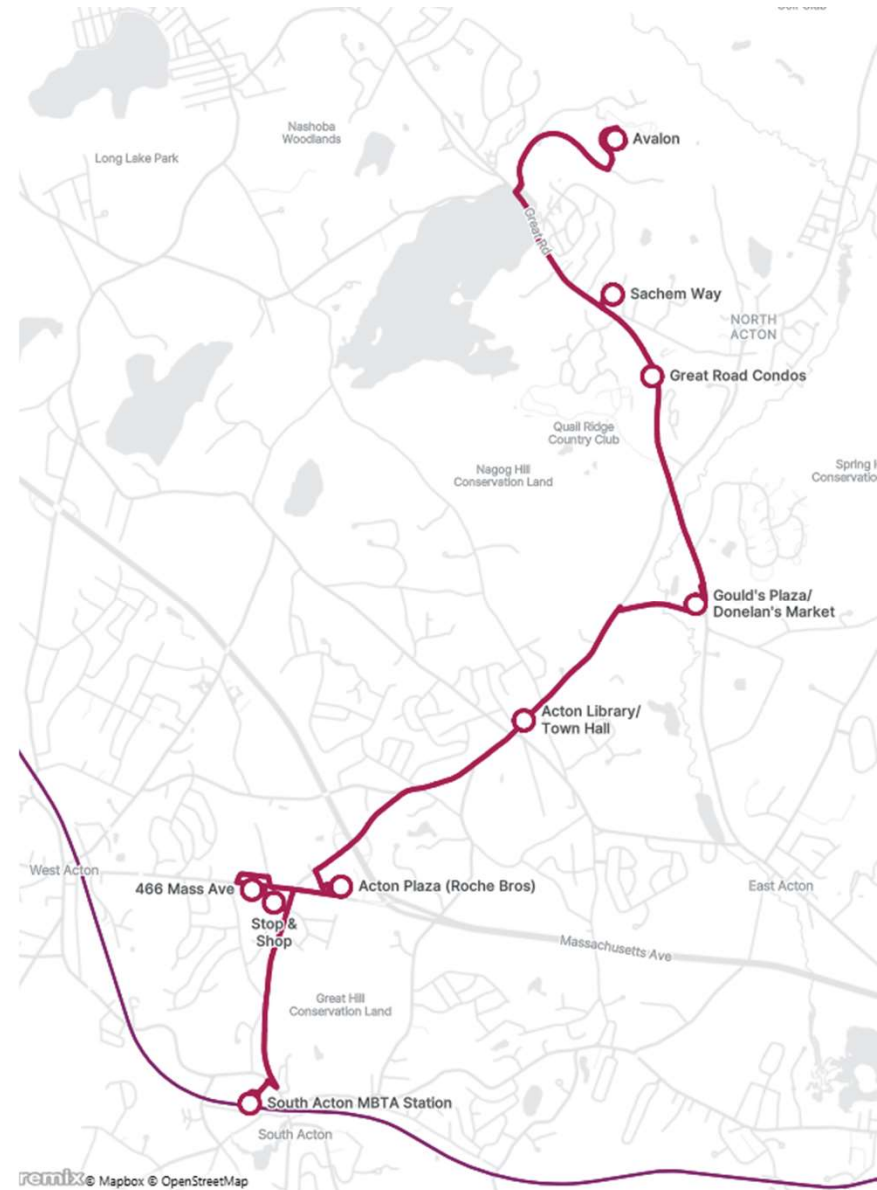
- Using **the same resources** as today:
  - 1 driver, 1 vehicle, similar average speed (18.5 mph)
- Discontinue service to lowest ridership stops (Nagog Woods and Trader Joe's)
- The following service design is possible:
  - Bidirectional route alignment
  - Hourly service
  - Serve each stop in both directions on all trips (including S. Acton Station)

Route 1\_alt A · Weekday · To south acton

Avalon	Sachem Way	Great Road Condos Plaza/Donelan's Market	Acton Library/Town Hall	Acton Plaza (Roche Bros)	466 Mass Ave	Stop & Shop	South Acton MBTA Station	
8:30a	8:36a	8:38a	8:42a	8:45a	8:50a	8:52a	8:53a	8:57a
9:30a	9:36a	9:38a	9:42a	9:45a	9:50a	9:52a	9:53a	9:57a
10:30a	10:36a	10:38a	10:42a	10:45a	10:50a	10:52a	10:53a	10:57a
11:30a	11:36a	11:38a	11:42a	11:45a	11:50a	11:52a	11:53a	11:57a
12:30p	12:36p	12:38p	12:42p	12:45p	12:50p	12:52p	12:53p	12:57p
1:30p	1:36p	1:38p	1:42p	1:45p	1:50p	1:52p	1:53p	1:57p
2:30p	2:36p	2:38p	2:42p	2:45p	2:50p	2:52p	2:53p	2:57p
3:30p	3:36p	3:38p	3:42p	3:45p	3:50p	3:52p	3:53p	3:57p
4:30p	4:36p	4:38p	4:42p	4:45p	4:50p	4:52p	4:53p	4:57p

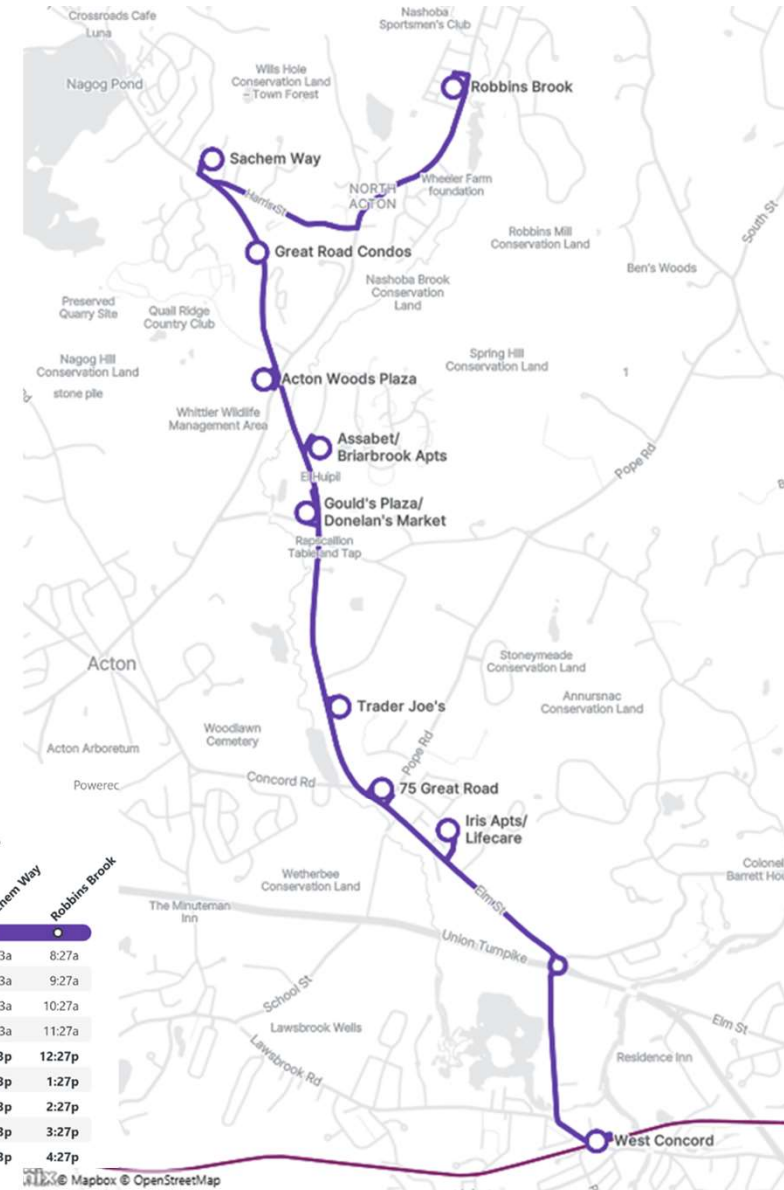
Route 1\_alt A · Weekday · To avalon

South Acton MBTA Station	466 Mass Ave	Stop & Shop	Acton Plaza (Roche Bros)	Acton Library/Town Hall	Gould's Plaza/Donelan's Market	Great Road Condos	Sachem Way	Avalon
9:00a	9:05a	9:06a	9:07a	9:12a	9:16a	9:20a	9:22a	9:27a
10:00a	10:05a	10:06a	10:07a	10:12a	10:16a	10:20a	10:22a	10:27a
11:00a	11:05a	11:06a	11:07a	11:12a	11:16a	11:20a	11:22a	11:27a
12:00p	12:05p	12:06p	12:07p	12:12p	12:16p	12:20p	12:22p	12:27p
1:00p	1:05p	1:06p	1:07p	1:12p	1:16p	1:20p	1:22p	1:27p
2:00p	2:05p	2:06p	2:07p	2:12p	2:16p	2:20p	2:22p	2:27p
3:00p	3:05p	3:06p	3:07p	3:12p	3:16p	3:20p	3:22p	3:27p
4:00p	4:05p	4:06p	4:07p	4:12p	4:16p	4:20p	4:22p	4:27p
5:00p	5:05p	5:06p	5:07p	5:12p	5:16p	5:20p	5:22p	5:27p



# New Route to West Concord Station

- Using **more resources** than today:
  - 2 drivers, 2 vehicles, similar average speed (18.5 mph)
- The following service design is possible:
  - Recommended Rte 1 + Rte 2 (1 driver/vehicle per route)*
  - Hourly service to Robbins Brook (senior housing), Acton Woods Plaza, Assabet/Briarbrook Apts, Trader Joe's, 75 Great Road (Yankee Line connection), Iris Apts, Life Care, West Concord MBTA Station
  - May be possible to extend to Concord Emerson Hospital



Route 2 · Weekday · Outbound

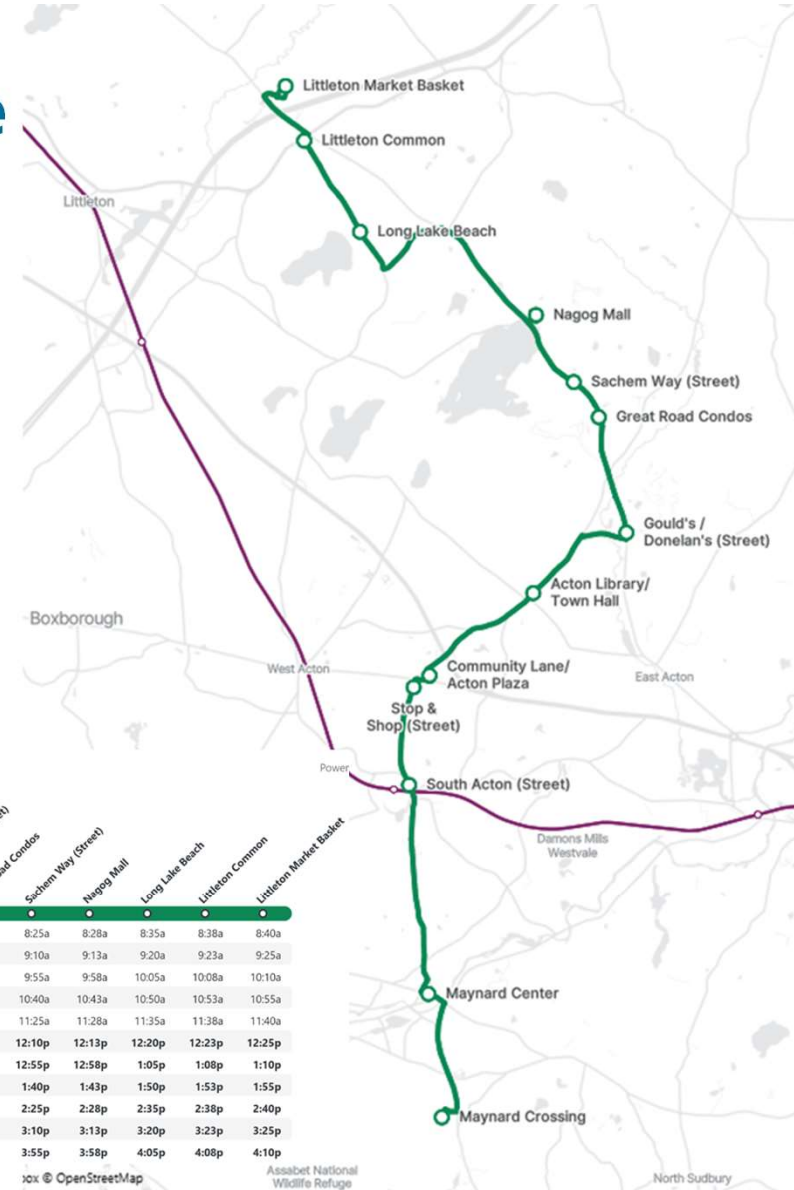
Robbins Brook	Sachem Way	Great Road Condos	Acton Woods Plaza	Assabet/Briarbrook Apts	Gould's Plaza/Donelan's Market	Trader Joe's	75 Great Road	Iris Apts/Lifecare	West Concord MBTA Station
8:30a	8:36a	8:37a	8:39a	8:41a	8:43a	8:46a	8:48a	8:50a	8:55a
9:30a	9:36a	9:37a	9:39a	9:41a	9:43a	9:46a	9:48a	9:50a	9:55a
10:30a	10:36a	10:37a	10:39a	10:41a	10:43a	10:46a	10:48a	10:50a	10:55a
11:30a	11:36a	11:37a	11:39a	11:41a	11:43a	11:46a	11:48a	11:50a	11:55a
12:30p	12:36p	12:37p	12:39p	12:41p	12:43p	12:46p	12:48p	12:50p	12:55p
1:30p	1:36p	1:37p	1:39p	1:41p	1:43p	1:46p	1:48p	1:50p	1:55p
2:30p	2:36p	2:37p	2:39p	2:41p	2:43p	2:46p	2:48p	2:50p	2:55p
3:30p	3:36p	3:37p	3:39p	3:41p	3:43p	3:46p	3:48p	3:50p	3:55p
4:30p	4:36p	4:37p	4:39p	4:41p	4:43p	4:46p	4:48p	4:50p	4:55p

Route 2 · Weekday · Inbound

West Concord MBTA Station	Iris Apts/Lifecare	75 Great Road	Trader Joe's Plaza/Donelan's Market	Assabet/Briarbrook Apts	Acton Woods Plaza	Great Road Condos	Sachem Way	Robbins Brook
8:00a	8:06a	8:09a	8:11a	8:15a	8:17a	8:19a	8:21a	8:27a
9:00a	9:06a	9:09a	9:11a	9:15a	9:17a	9:19a	9:21a	9:27a
10:00a	10:06a	10:09a	10:11a	10:15a	10:17a	10:19a	10:21a	10:27a
11:00a	11:06a	11:09a	11:11a	11:15a	11:17a	11:19a	11:21a	11:27a
12:00p	12:06p	12:09p	12:11p	12:15p	12:17p	12:19p	12:21p	12:27p
1:00p	1:06p	1:09p	1:11p	1:15p	1:17p	1:19p	1:21p	1:27p
2:00p	2:06p	2:09p	2:11p	2:15p	2:17p	2:19p	2:21p	2:27p
3:00p	3:06p	3:09p	3:11p	3:15p	3:17p	3:19p	3:21p	3:27p
4:00p	4:06p	4:09p	4:11p	4:15p	4:17p	4:19p	4:21p	4:27p

# New Littleton-Acton-Maynard Route

- Using **more resources** than today:
  - 2 drivers, 2 vehicles, higher average speed (20.5 mph)
- The following service design is possible:
  - 45-min service
  - Service on street for Sachem Way, Gould's Plaza, Acton Plaza, Stop & Shop, South Acton MBTA Station
  - New service to Littleton Market Basket, Littleton Common, Long Lake Beach, Maynard Center, Maynard Crossing



Route 3\_Alt A · Weekday · Outbound

Littleton Market Basket	Littleton Common	Long Lake Beach	Nagog Mall	Sachem Way (Street)	Great Road Condos	Gould's / Donelan's (Street)	Acton Library / Town Hall	Community Lane / Acton Plaza	Stop & Shop (Street)	South Acton (Street)	Maynard Center	Maynard Crossing
8:45a	8:48a	8:50a	8:58a	9:00a	9:01a	9:05a	9:08a	9:12a	9:13a	9:15a	9:21a	9:25a
9:30a	9:33a	9:35a	9:43a	9:45a	9:46a	9:50a	9:53a	9:57a	9:58a	10:00a	10:06a	10:10a
10:15a	10:18a	10:20a	10:28a	10:30a	10:31a	10:35a	10:38a	10:42a	10:43a	10:45a	10:51a	10:55a
11:00a	11:03a	11:05a	11:13a	11:15a	11:16a	11:20a	11:23a	11:27a	11:28a	11:30a	11:36a	11:40a
11:45a	11:48a	11:50a	11:58a	12:00p	12:01p	12:05p	12:08p	12:12p	12:13p	12:15p	12:21p	12:25p
12:30p	12:33p	12:35p	12:43p	12:45p	12:46p	12:50p	12:53p	12:57p	12:58p	1:00p	1:06p	1:10p
1:15p	1:18p	1:20p	1:28p	1:30p	1:31p	1:35p	1:38p	1:42p	1:43p	1:45p	1:51p	1:55p
2:00p	2:03p	2:05p	2:13p	2:15p	2:16p	2:20p	2:23p	2:27p	2:28p	2:30p	2:36p	2:40p
2:45p	2:48p	2:50p	2:58p	3:00p	3:01p	3:05p	3:08p	3:12p	3:13p	3:15p	3:21p	3:25p
3:30p	3:33p	3:35p	3:43p	3:45p	3:46p	3:50p	3:53p	3:57p	3:58p	4:00p	4:06p	4:10p
4:15p	4:18p	4:20p	4:28p	4:30p	4:31p	4:35p	4:38p	4:42p	4:43p	4:45p	4:51p	4:55p

Route 3\_Alt A · Weekday · Inbound

Maynard Crossing	Maynard Center	South Acton (Street)	Stop & Shop (Street)	Community Lane / Acton Plaza	Acton Library / Town Hall	Gould's / Donelan's (Street)	Great Road Condos	Sachem Way (Street)	Nagog Mall	Long Lake Beach	Littleton Common	Littleton Market Basket
8:00a	8:04a	8:10a	8:13a	8:13a	8:17a	8:20a	8:24a	8:25a	8:28a	8:35a	8:38a	8:40a
8:45a	8:49a	8:55a	8:58a	8:58a	9:02a	9:05a	9:09a	9:10a	9:13a	9:20a	9:23a	9:25a
9:30a	9:34a	9:40a	9:43a	9:43a	9:47a	9:50a	9:54a	9:55a	9:58a	10:05a	10:08a	10:10a
10:15a	10:19a	10:25a	10:28a	10:28a	10:32a	10:35a	10:39a	10:40a	10:43a	10:50a	10:53a	10:55a
11:00a	11:04a	11:10a	11:13a	11:13a	11:17a	11:20a	11:24a	11:25a	11:28a	11:35a	11:38a	11:40a
11:45a	11:49a	11:55a	11:58a	11:58a	12:02p	12:05p	12:09p	12:10p	12:13p	12:20p	12:23p	12:25p
12:30p	12:34p	12:40p	12:43p	12:43p	12:47p	12:50p	12:54p	12:55p	12:58p	1:05p	1:08p	1:10p
1:15p	1:19p	1:25p	1:28p	1:28p	1:32p	1:35p	1:39p	1:40p	1:43p	1:50p	1:53p	1:55p
2:00p	2:04p	2:10p	2:13p	2:13p	2:17p	2:20p	2:24p	2:25p	2:28p	2:35p	2:38p	2:40p
2:45p	2:49p	2:55p	2:58p	2:58p	3:02p	3:05p	3:09p	3:10p	3:13p	3:20p	3:23p	3:25p
3:30p	3:34p	3:40p	3:43p	3:43p	3:47p	3:50p	3:54p	3:55p	3:58p	4:05p	4:08p	4:10p

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