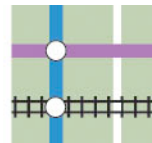


Transit Development Plan for Advance Transit

Final Report
Submitted to
Advance Transit

December 28, 2012

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TRANSIT DEVELOPMENT PLAN
FOR ADVANCE TRANSIT
DECEMBER 2012

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Chapter 1: Introduction and Executive Summary

1.1 Introduction

During 2012 Tom Crikelair Associates developed a *Transit Development Plan for Advance Transit*. This work was carried out for Advance Transit with funding from the New Hampshire Department of Transportation and the Vermont Agency of Transportation. A subcommittee of the Advance Transit Board of Directors provided guidance and oversight for this planning effort.

This report presents the findings and recommendations of the study. It includes eight chapters:

Chapter 1 Introduction and Executive Summary

Chapter one presents a summary of the project report, including key recommendations and findings.

Chapter 2 Review of Existing Services

Chapter two presents a critical review of existing Advance Transit routes and services. The review process included four steps: (1) analysis of ridership records, (2) calculation of route-by-route performance measures, (3) on-site inspections of Advance Transit bus routes, and (4) interviews with bus drivers and support staff. This chapter analyzes Advance Transit performance, describes how buses are currently being used, and identifies strengths and weaknesses of the current service design.

Chapter 3 Passenger Survey

Chapter three presents the results of a survey distributed to Advance Transit bus riders on Thursday, May 17, 2012. The survey examines trip purposes, transfer activity, frequency of use, residence and commute patterns, technology usage, and the employment status of Advance Transit users. It asked passengers to evaluate Advance Transit bus operations and to make suggestions for improving the service. The chapter includes comparisons with similar passenger surveys carried out in 1999, 2004, and 2008.

Chapter 4 Community Involvement

Chapter four describes efforts to involve members of the public in the transportation study and to obtain ideas and suggestions for the future of Advance Transit’s public transportation program. The first section describes Advisory Committee meetings held during the study. The second section describes discussions with stakeholders. The third presents findings from public workshops.

Chapter 5 Service Area Changes

Chapter five describes recent and anticipated changes in the Upper Valley that may be relevant for public transportation planning. It identifies development projects that have been completed since the 2008 Advance Transit plan, projects that are currently under construction, permitted projects, and projects where permit applications are incomplete and pending. Separate sections are included for individual municipalities.

Chapter 6: Short Term Service Adjustments

Chapter six recommends short-term changes to Advance Transit bus schedules. The chapter was written during the summer of 2012. It suggests Blue, Green, and Brown route adjustments that were implemented on November 12, 2012. It recommends Red route changes that were scheduled for implementation on January 2, 2013. These schedule adjustments were designed to improve the efficiency, reliability and on-time performance of existing Advance Transit bus routes.

Chapter 7: Longer Term Service Design Strategies

Chapter seven presents service design ideas that could be implemented by Advance Transit in the next two to five years. It focuses on service improvements for the four municipalities within Advance Transit’s core service area (Lebanon, Hanover, Hartford, and Norwich). The chapter presents a full range of possible strategies. Some require increased funding that may or may not be available in future years. Service design concepts are presented here to give Advance Transit and its partners a full range of choices for the next five years.

Chapter 8: Capital and Financial Plan

Chapter eight presents a five-year capital and financial plan for Advance Transit. It includes capital and operating cost projections for the period FY 2013 through 2018. It estimates the level of funding that will be required from Advance Transit’s federal, state, municipal, and private partners to support Advance Transit’s existing and proposed services.

1.2 Strategic Choices for Advance Transit

Because of limited funding and changing financial conditions, Advance Transit must carefully consider where to focus its available resources. During the course of this study, a number of strategic choices have emerged that can help determine Advance Transit's future. Answers to these strategic questions have helped guide the service design recommendations included in this five-year Transit Development Plan.

Recommended strategic choices include the following:

1. Advance Transit should focus on its core service area (Hanover, Lebanon, Norwich, and Hartford), and save regional commuter services for another time.
2. Advance Transit should focus on improving its existing trunk line routes (increasing frequency, extending hours, improving stops and shelters and pedestrian access), and save new off-route destinations (Centerra, Alice Peck Day, Airport, etc.) for another time.
3. Advance Transit should work to increase market penetration along its existing core routes, targeting Dartmouth College and DHMC commuters and others who live within walking distance of current bus stops.
4. Subject to available funding, Advance Transit should consider adding Saturday service to support a growing car-free constituency that includes graduate students without cars.
5. Advance Transit should consider replacing regularly scheduled free bus service from Canaan and Enfield with a redesigned commuter service that uses part-time drivers based in Canaan and that includes a weekly subscription fare.

1.3 Recommended Five-Year Implementation Plan

A recommended five-year implementation plan includes a number of proposed improvements to Advance Transit's core services. Highlights include:

- Fifteen-minute service and limited evening service on the Blue route beginning in FY 2015
- Subscription commuter service to replace free Canaan and Enfield buses beginning in FY 2015
- Continued operation of two Red route buses, with no diversions to the airport
- Introduction of a Sachem Shuttle in FY 2014, with half-hour service to the Dartmouth College campus from 7:00 a.m. until 11:00 p.m.
- Introduction of a Green Route Express in FY 2015, with two buses and 30-minute headways
- Introduction of revised Orange route service for Hartford Village, Bugbee Street, and The Haven in FY 2015
- New limited Saturday bus service beginning in FY 2017 (or earlier if funding becomes available)
- New commuter service from Hartford to Hypertherm facilities on Heater Road and Etna Road

During the five-year planning horizon, combined Advance Transit ridership is projected to increase by 17%, from 863,000 in FY 2012 to just over one million in FY 2018.

Proposed improvement strategies will require Advance Transit's partners to increase their financial contributions to support individual service components. Revenue assumptions are summarized in the following table.

REVENUE ASSUMPTIONS

Route	Service	Revenue Assumptions
Blue	Blue - regular	No change other than adjustments for inflation.
Blue	Blue - DMS	Dartmouth Medical School will continue providing matching dollars for the extra midday bus linking DMS and DHMC.
Blue	Blue - Canaan	Commuter service to Canaan is heavily subsidized by NH FTA funding. The cost model assumes that the existing service will be replaced with subscription buses in FY 2015.
Blue	Blue - 15	Changes to Canaan service could free up FTA funding to cover 50% of the cost of increasing Blue route frequency. The remaining local share would be shared by Lebanon, Hanover, DHMC, and Dartmouth College.
Blue	Blue - 8 pm	Evening Blue route service might require a modest increase in NH FTA funding. The local cost would be shared by Lebanon, Hanover, DHMC, and Dartmouth College.
Red	Red - 2 buses	Ongoing support from NHDOT and the city of Lebanon should cover continuation of two-bus service on this route.
Red	Red - 1 bus	The model assumes that Red route service will not be cut back to one bus.
Green	Green - 1 bus	The model assumes that the Green Route Express will replace existing Green route service in FY 2014.
Green	Green - 2 buses	The model opts for the Green Route Express.
Green	Green - Express	The plan assumes that Vermont will provide 80% of the cost of adding a Green route bus. It assumes that Hartford and Norwich will each provide between \$5K and \$10K of additional annual support, and that Hanover and Lebanon will continue past levels of support for a West Lebanon-Hanover link.
Orange	Orange - 1 bus	The model calls for the existing Orange route service to be replaced by a restructured Orange route in FY 2014.
Orange	Orange - Hartford	The plan assumes that Vermont will provide 80% of the cost of new Orange route service in Vermont. If Hartford provides an additional \$9K per year, and current donations are used to cover \$14K, this will leave \$10K to be raised from The Haven, the Listen Center, and other Hartford partners.
Orange	Orange - a.m. bus	The cost model does not include an extra morning Orange route bus.
Brown	Brown - 1 bus	No change.
Downtown	Downtown -regular	No change.
Downtown	Downtown - summer	No change.
DHMC	Lot 9	No change.
DHMC	Lot 20	No change.

Sachem Shuttle	Sachem - regular 30	The model assumes that Dartmouth College will pay the full cost for a Sachem Shuttle.
Sachem Shuttle	Sachem - evenings 30	The model assumes that Dartmouth College will pay the full cost for a Sachem Shuttle.
Saturday	4 buses, hourly	The model assumes that NH FTA funds would cover 50% of the cost of Saturday service in New Hampshire, and that funds from VT would cover 80% of Saturday service in Vermont. Lebanon and Hanover would split the NH local share, and Hartford and Norwich would split the VT local share.
AP Day	Midday hourly	The cost model does not include service to Alice Peck Day Hospital.
Hypertherm	One round trip	The model opts for two sets of Hypertherm work trips.
Hypertherm	Two round trips	The model assumes that Hypertherm will cover the full cost of two sets of commuter round trips. Vermont may be willing to help support this service in the future.
Centerra Shuttle	One bus 30	The cost model does not include Advance Transit operation of the DHMC Centerra Shuttle.
Canaan	First round trip	The model assumes that fare box revenues will cover one-third of the cost, and NH FTA funds will cover one-third. The remaining third will be divided among Dartmouth College, DHMC, and the towns of Enfield and Canaan.
Canaan	Second round trip	Fare box revenues will cover one-third of the cost, and NH FTA funds will cover one-third. The remaining third will be divided among Dartmouth College, DHMC, and the towns of Enfield and Canaan.
ADA	ADA Paratransit	NH funds \$200K of ADA costs, while VT covers \$40K and \$56K. Donations are used to cover about \$15K per year of ADA costs. The model allocates the remaining \$100K of ADA expenses among towns according to the number of ADA boardings. Lebanon generates 69% of ADA boardings.
Rideshare	Rideshare	The plan assumes that NHDOT will continue to cover roughly 80% of the cost of this program. The cost model assigns 10% of the cost to municipalities and covers the remaining 10% with donations.
Philanthropy	Philanthropy Admin	Donations cover the full cost of administering this fund raising effort.
ADA Saturdays	ADA Saturday service	The plan assumes that VT and NH will each provide about \$10K per year for Saturday ADA service, and that the remainder will be divided among the four towns according to the distribution of weekday ADA boardings.

1.4 Five-Year Budget Projections

Five-year revenue and expense projections are summarized in the following two tables. Dollar amounts are supported by a spreadsheet cost model developed for Advance Transit as part of this planning process.

FIVE-YEAR REVENUE PROJECTIONS

Revenues	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Federal	2,145,057	2,312,169	2,414,247	2,474,603	2,646,028	2,712,178
Municipal	487,272	528,664	632,530	648,344	750,007	768,757
Partners	1,106,812	1,514,320	1,596,488	1,636,400	1,677,310	1,719,243
State	154,116	195,340	200,224	205,229	220,080	225,582
Fares	0	0	42,025	43,076	44,153	45,256
Philanthropy	111,000	113,775	116,619	119,535	122,523	125,586
Grand Total	4,004,257	4,664,268	5,002,133	5,127,186	5,460,101	5,596,604

FIVE-YEAR EXPENSE PROJECTIONS

Expenses	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,284
ADA	362,233	371,289	380,571	390,085	455,028	466,404
Commuter	0	86,000	217,298	222,730	228,299	234,006
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Regular	2,277,855	2,535,146	2,631,224	2,697,004	2,764,429	2,833,540
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Shuttles	1,215,077	1,551,776	1,590,570	1,630,334	1,671,093	1,712,870
Grand Total	3,999,900	4,692,564	4,971,725	5,096,018	5,428,154	5,563,858

1.5 Summary of Findings and Recommendations

Review of Existing Service

1. Advance Transit has experienced steady growth in regular route ridership over the course of the past twenty years. Current regular route usage is approaching 50,000 per month. This is nearly five times greater than regular-route demand experienced in 1993 and 1994.
2. From FY 2008 to FY 2012, regular route ridership grew from 456,233 to 546,735, a gain of 90,500 riders and an increase of 20%.
3. From 2008 to 2012, Red route ridership increased by 50%. This reflects the addition of a second bus to the Red route, with service frequency increasing from once an hour to every 30 minutes.
4. Despite the fact that Orange route buses continued to operate hourly, Orange route ridership increased by 39%. This appears to have resulted in part from improved

connections between Orange and Red route buses in West Lebanon. It also reflects increased use of Orange route buses by Dartmouth graduate students who live at Sagem Village.

5. During February, March, and April of 2012, Advance Transit's regular-route buses provided an average of 22.9 passenger trips per revenue service hour, and 24 rides per scheduled round trip. Advance Transit's routes and services are remarkably efficient and productive. Route-by-route performance analysis reveals no obvious candidates for cuts or reductions in service.

6. Consideration should perhaps be given to separating the Canaan-Lebanon segment from the Lebanon-Hanover portion of the Blue route. Changes to Canaan service may be needed if Advance Transit experiences a reduction in Federal Transit Administration funding.

7. The convenience of Blue route service could be improved by offering 15-minute service between downtown Lebanon and DHMC. This would require the addition two peak-hour buses and one midday bus to the route.

8. Morning and afternoon Red route diversions to the Airport Industrial Park have generated minimal ridership. While typically benefiting only two or three riders each day, the resulting disruption of regular Red route service has inconvenienced a large number of Advance Transit's regular customers.

9. Green route drivers have difficulty completing some round trips within the available 60-minute schedule window. These problems arise when buses are scheduled to serve Hartford Village northbound and southbound during the same round trip. The best solution for the Green route would be to add a second bus to the route, increasing the frequency of service to every 30 minutes.

10. The Orange route bus stop adjacent to Sagem Village accounted for an average of 26 boardings a day in April of 2012. Sagem Village is likely to generate a much higher level of usage if residents are not required to walk out to Route 10, and if shuttle service to the Dartmouth campus is extended into the evening.

Passenger Survey

11. Surveys were distributed on Advance Transit's five regular bus routes on Thursday, May 17, 2012. A total of 593 surveys were distributed and 578 were returned, for a response rate of 97.5%.

12. Twenty-six percent of regular route riders said their trip involved a transfer between bus routes. Fifty-eight percent gave "work" as their primary trip purpose. The Blue and Green routes had the highest percentage of work trips. Sixty-nine percent of Blue route trips were work related, while 66% of Green route trips were work related. "Work" was

the primary purpose for 59% of Orange route riders, 45% of Red route riders, and 31% of Brown route riders.

13. Fifty-one percent of Advance Transit bus riders said they use the bus service five days a week. Another 29% said they ride 3 or 4 days a week. The combined total for people who ride 3 or more days a week was 81%.

14. Twenty-seven percent of survey respondents said they started using Advance Transit within the last year. Twenty-four percent said they have been riding 1-2 years. Twenty-two percent said 3-5 years. These findings suggest that 73% of Advance Transit passengers have been using the system for less than six years.

15. Nineteen percent of survey respondents indicated that they were enrolled as students at Dartmouth College. Thirty-seven percent of Dartmouth student bus riders were undergraduates, and 63% were graduate students.

16. Twenty-six percent of the Advance Transit passengers who participated in the survey are employed by Dartmouth College. Survey results suggest that Dartmouth employees and students together account for 36% of Advance Transit regular route ridership.

17. Ten percent of Advance Transit passengers said they are employed by the Dartmouth-Hitchcock Medical Center. The distribution of DHMC employees was 85% on the Blue route, 9% on the Red route, 4% on the Orange route, and 2% on the Green route.

18. Thirty-nine percent of Advance Transit survey respondents indicated that they had a car available for their trip. The percentage of Advance Transit riders who chose to ride instead of drive has varied from 25% in 1999, 43% in 2004, 53% in 2008, and 39% in 2012. Sixty-one percent of Advance Transit riders said they have a valid drivers license.

19. There has been some shift in passenger perception about the availability of seats. In 2008, a combined total of 89% said it was “nearly always” or “usually” easy to find a seat. In 2012, the combined total was 98%. In 2008, 13% of Blue route riders and 13% of Red route riders said it was only “sometimes” easy to find a seat. In 2012, only 3% of Blue and Red route riders said it was only “sometimes” easy to find a seat.

20. The survey did not ask any questions about weekend or evening service. Without prompting, eighty-nine Advance Transit riders used the comment section to ask for weekend service. Weekend requests were made by 16% of the Advance Transit riders who participated in the survey.

“What do you like about Advance Transit bus service?”

21. Many survey participants offered words of praise and appreciation for Advance Transit. They like that it is free. They like the friendly and helpful drivers. And they appreciate the convenience and the environmental benefits of the service. A Hanover

resident said: “The drivers are always friendly and helpful and the buses are always on time and reliable. I also like how frequently the buses come.”

22. A Lebanon resident said: “AT service is a wonderful and important resource in the Upper Valley. It seems very well run and I think over time it will become more important.”

23. A Blue route commuter who lives in Canaan said: “AT is a wonderful service and I so appreciate not having the driving and parking frustrations. Thank you!”

24. A Lebanon resident said: “I bought my house in Lebanon because it was within walking distance of a bus stop.”

25. Many riders said they would have difficulty getting to work without the service. A White River Junction resident on the Orange route said: “Without the AT, I wouldn’t have a way to work. I think it’s one of the Upper Valley’s best assets.” A Lebanon resident on the Red route said: “Without them, I’d lose my job. Very thankful we have you guys.” An Enfield resident on the Red route said: “Thank God for the bus. I would not have a job!”

26. A Lebanon resident on the Red route said: “I’m just glad to have the bus as an option. It saves me money and I don’t have to inconvenience my family by taking our one car.”

27. A Hanover resident on the Green route said: “I like the ‘Where’s my bus?’ service. It helps when the buses are late and I’m worried I missed it.” A Lebanon resident on the Blue route said: “I love the online program ‘Where’s my bus?’ It is very useful!”

28. A Lebanon resident on the Red route said: “Transfers between routes are very easy.” A senior citizen on the Brown route said: “I love the bus service. It enables me to maintain my independence while living at Kendal.”

“What can we do to improve the service?”

29. While passengers praised Advance Transit, they also offered suggestions for improving the service. The most common requests were for weekend buses and for later evening service.

30. A Lebanon resident on the Red route said: “Please, please, please start running the service during the weekend. I work five days a week. Two of them are Saturday and Sunday. I HATE taking taxis.” A Blue route passenger from Lebanon said: “Not running on weekends makes it hard to get groceries.” Another Blue route passenger said: “There should be at least two trips to the plazas on weekends. Many graduate students live in Lebanon and have no car. So grocery shopping is a problem for them.”

31. A Green route passenger who lives in West Lebanon said: “It would be nice to see buses run longer in the evening. It would make it a lot easier to get home when working

overtime.” A Blue route passenger said: “I often have classes and meetings until 9:00 p.m. in Hanover, but it’s hard to get back home to Lebanon sometimes.” A Hanover resident on the Orange route said: “It would be nice if the buses ran a little later in the evening.”

32. Several Green route and Orange route riders asked for more frequent service. A Green route rider who lives in White River Junction said: “It would be nice to have an option to arrive in Hanover at 8:00 or 8:15 a.m.” An Orange route rider who lives in West Lebanon said: “It could improve if buses ran more often around commute times (7:30 – 9:30 a.m., 4:40 – 6:30 p.m.)” A Red route rider said if you missed your Orange route connection in West Lebanon, you would be “stuck there for one hour.”

33. Several people asked for midday service to Enfield and Canaan. A Canaan resident said: “I work 6:30 a.m. to 2:00 p.m. everyday and the bus doesn’t head back to where I live until 4:20 p.m.” An Enfield resident said: “I wish there was a noon bus to Enfield. I do not drive and have to have to leave my home at 8:50 a.m. when I have a 2:00 p.m. appointment.”

34. Several people asked for improvements in printed schedules. An Enfield resident on the Red route said: “I would make the paper schedules a lot easier to follow!” A Hanover resident on the Orange route said: “Better maps are needed to know where stops are.”

35. Bus riders asked Advance Transit to add bus service to additional locations. Suggestions included service to:

- Lyme
- Thetford
- Claremont
- Quechee
- Hartland
- Alice Peck Day Hospital
- Dartmouth Coach terminal in Lebanon.

36. A Lebanon resident on the Red route said: “Drivers need to ask young folks to move farther back when handicapped folks enter the bus.” A Lebanon resident on the Blue route said: “Please discourage cell phone use on the bus.” Another Lebanon resident on the Blue route said: “Drivers should not play radios/music in the bus.”

37. Other suggested improvements included:

- 15-minute headways from DMS to DHMC earlier in the morning
- 30-minute service on the Red route earlier in the morning
- More Blue route buses via Old Etna Road and the Wolf Road bus stop
- Bus service for Sachem Village
- A Red route bus stop at K-Mart

- A consistent stop pattern for all Red route buses
- Shelters, benches, and trash bins at more bus stops
- Low-floor buses on the Green and Orange routes to better accommodate strollers
- Seat belts for passengers

Community Involvement

38. A subcommittee of the Advance Transit Board of Directors served as the Advisory Committee for this planning effort. The Advisory Committee met during the planning effort to discuss the goals of the project, to review draft materials, and to provide guidance to the consultant on future steps.

39. The consultant and Advance Transit management discussed the future of Advance Transit services with key Upper Valley stakeholders. Interested groups included:

- Dartmouth College officials
- Dartmouth Hitchcock Medical Center officials
- Town and city managers and planners
- Alice Peck Day Hospital representatives and supporters
- Representatives and employees of Etna Road businesses

40. Public workshops to discuss the future of Advance Transit's fixed-route transit program were held on Tuesday, May 15, 2012. Workshops were held at the Kilton Library in West Lebanon, at Lebanon City Hall, and at the Dartmouth-Hitchcock Medical Center.

Service Area Changes

41. Since the 2008 study, the Sachem Village graduate student housing complex was expanded to 250 residential units. This complex is owned by Dartmouth College and appears to be a good candidate for dedicated shuttle service to the Dartmouth College campus.

42. Two residential developments on Mount Support Road are nearing completion. Timberwood Commons includes 252 residential units, while Quarry Hill has 40 units. Nearby Wolf Road has an estimated 400 previously existing residential units. This residential development is likely to impact Blue route ridership once buses are shifted to Mount Support Road from Route 120.

43. Hypertherm is nearing completion of a 156,000 square foot manufacturing facility on Heater Road near the Interstate 89 underpass. Hypertherm would like transit service added to this facility, to assist commuting workers and to ensure environmental certification for the new building.

44. Dartmouth-Hitchcock Medical Center plans to construct a new building on the main DHMC campus. The Williamson Building is expected to accommodate 200 new

employees. This development is likely to result in increased utilization of Lot 9 for employee parking. During construction, some visitors may be directed to Lot 9. Additional Lot 9 shuttle capacity may be needed during peak commute hours.

45. The Listen Center envisions expanded facilities and programs at its Maple Street site in White River Junction. The organization envisions an improved retail store, a teen center, a job skills training center, and a dining room that will offer 80-100 evening meals a day. Two possible transit-related improvements may be important for an expanded Listen Center: (1) Well-designed bus stops will be needed, with linking sidewalks and cross walks, so that a single pair of bus stops benefits and accommodates locations on both sides of the railroad tracks. (2) Evening transportation will likely be needed linking the Listen Center with locations such as the Shady Lawn Motel, the Haven, and subsidized apartments on Bugbee Street.

Short Term Service Adjustments

46. The plan recommended changes for Advance Transit bus schedules that were implemented in the fall of 2012. These schedule adjustments were designed to improve the efficiency, reliability, and on-time performance of existing Advance Transit bus routes.

47. Two sets of service adjustments were recommended for the Blue route. The first set involved minor adjustments to schedule times for selected trips. The second involved moving Blue route buses from Route 120 to a reconstructed Mount Support Road.

48. The plan recommended eliminating Red route diversions to the Airport Industrial Park. This change was recommended because airport diversions inconvenience a large number of regular Advance Transit bus riders, while serving only a small handful of individuals.

49. The plan also suggested minor adjustments to schedule times for the Green and Brown routes. Short-term schedule adjustments are expected to have little or no impact on Advance Transit's operating costs.

Longer-Term Service Design Strategies

50. Advance Transit could offer 15-minute Blue route service throughout the day between downtown Lebanon and downtown Hanover. Fifteen-minute service would require two extra buses at the start and end of the day, and just one extra bus between 9:00 a.m. and 4:15 p.m. The net impact on service hours, vehicle miles, and operating costs will depend on whether offsetting changes are made to Canaan and Enfield service.

51. DHMC nurses cannot commute via Advance Transit because bus schedules do not match the hospital's 12-hour nursing shifts. The solution would be to extend Blue route service until 8:00 p.m.

52. While it has traditionally been treated as part of the Blue route, bus service to Canaan and Enfield is quite different from Advance Transit's other routes and services. Advance Transit may want to consider restructuring Canaan and Enfield service to reduce costs and to save money that could be used elsewhere. The most obvious strategy would be to focus on reducing deadhead costs. This could be accomplished by using part-time drivers who live near the end of the route and who work during the day in Hanover. This service could include a weekly subscription fare.

53. Advance Transit should consider eliminating the West Lebanon-Hanover Orange route segment, relying instead on a Green Route Express to connect these two locations. This change assumes implementation of 30-minute headways on a new Green Route Express and a new Sachem Shuttle at the northern end of the current Orange route.

54. Advance Transit currently operates two parallel routes linking West Lebanon and downtown Hanover. Each route is served hourly. Consolidating the two routes will significantly reduce the cost of increasing service frequency between these locations. The Green route is the obvious choice for a consolidated express service. With two buses and no Hartford Village diversions, time pressures should be eliminated for the foreseeable future. Green route buses would have 20 minutes of travel time plus 10 minutes of layover in each direction.

55. Elimination of the West Lebanon-Hanover segment would allow the Orange route bus to serve a new Vermont loop linking West Lebanon, Hartford Village, Bugbee Street apartments, and The Haven. The new Orange route loop would also serve a bus stop on Maple Street shared by the Listen Center and the Hartford Town Office.

56. An alternative for the Green route would be to add a second Green route bus without changing the Orange route. One Green route bus could serve Hartford Village northbound, while the other could serve Hartford Village southbound.

57. A Sachem Shuttle could provide fast and frequent service between Dartmouth's graduate student apartment complex and the Dartmouth College campus. This route should allow the college to reduce the demand for on-campus parking by 100-200 cars per day. It should be possible to provide reliable 30-minute service on this route with one bus. A Sachem Shuttle would operate year round Monday through Friday, from 7:00 a.m. until 11:00 p.m. The estimated net cost for a Sachem Shuttle is \$270,000 per year.

58. Advance Transit could introduce limited Saturday service, with two buses for Vermont and two buses for New Hampshire. A New Hampshire Saturday route would link Hanover, DHMC, Lebanon City Hall, West Lebanon, and the Route 12A plazas. A Vermont Saturday route would link Hanover, Norwich, Wilder, West Lebanon, and White River Junction. All four buses would operate eight hours a day, with hourly service beginning at 9:00 a.m. and continuing until 5:30 p.m.

59. There are multiple industrial and research facilities located along the Etna Road, including Hypertherm and Creare. Hypertherm has developed a new manufacturing facility on Heater Road near the Interstate-89 underpass. Hypertherm and Creare are both interested in providing their employees with improved car-free commuter options.

60. A counterclockwise Hypertherm route could serve Advance Transit bus stops along Route 4 in White River Junction and Lebanon, including transfer hubs in West Lebanon and Lebanon. The bus could proceed via Bank Street to the Hypertherm Heater Road facility, and then continue to Etna Road.

PRELIMINARY INCREMENTAL COST ESTIMATES

	VT	NH	Total Cost	Comments
BLUE ROUTE: 15-MINUTE SERVICE WITH 4 BUSES	0	268,409	268,409	This is the estimated additional cost for all day 15-minute service. If FTA covers half, and if four major partners divide the local cost evenly, the cost per partner would be \$33,551.
BLUE ROUTE: NURSING SHIFTS	0	58,698	58,698	This is the estimated marginal cost of extending Blue route service until 8:00 p.m. If FTA subsidies cover half, the local share cost would be \$29,349.
BLUE ROUTE: CANAAN/ENFIELD	0	277,692	277,692	This is the estimated marginal cost of current Canaan/Enfield service. It may be possible to reduce this cost by replacing the existing Blue route extension with a regional commuter service.
CANAAN/ENFIELD SUBSCRIPTION ROUND TRIP	0	61,463	61,463	If 20 subscribers pay \$20 per week, this would generate \$20,000 per year. This would leave a net cost of \$41,463 per bus.
RESTRUCTURED ORANGE ROUTE: HARTFORD VILLAGE	108,902	-132,158	-23,256	A revised Orange route would involve 12,000 fewer miles. The net increased cost for Vermont would be \$108,902. If VT will provide 80% funding, this leaves an estimated local match requirement of \$21,780.
ORANGE ROUTE EXTRA MORNING BUS	47,545	0	47,545	This is the estimated cost to add two morning round trips per day. An evening Amtrak connection and an evening Listen Center loop together would add another \$40,000 in estimated annual costs.
GREEN ROUTE: 2 BUSES	218,714	0	218,714	This is the estimated marginal cost for a second Green route bus. If VT will provide 80% funding, this would leave a local match requirement of \$43,743.

GREEN EXPRESS	218,714	0	218,714	Costs are the same as the Green 2-bus option. Hanover and Lebanon should be willing to support an express link between West Lebanon and Hanover, because this will replace and enhance the current Orange route link. If Hanover and Lebanon each continue to provide \$10,935, this would leave an increased VT local match requirement of \$21,872.
SACHEM SHUTTLE	0	298,850	298,850	The Sachem Shuttle would operate every 30 minutes from 7 a.m. to 11:00 p.m. It would replace the existing evening Dartmouth Shuttle, resulting in an estimated net cost of \$270,000.
SECOND SACHEM BUS: SCHOOL YEAR ONLY	0	114,000	114,000	A second bus could be added during the school year, resulting in 15-minute peak-hour service.
SATURDAY SERVICE	67,740	67,740	135,481	Saturday service would require increased funding from federal, state, and municipal partners. If Vermont covers 80% of Vermont service costs, the combined net local share for Vermont towns would be \$13,548. If NHDOT covers 50% of NH costs with 5311 funding, the combined net local share for Lebanon and Hanover would be \$33,870.
ALICE PECK DAY: MIDDAY SERVICE	0	125,812	125,812	AP Day Hospital may cover 25% of this cost. Can NH FTA 5311 cover half of the cost with former New Freedom dollars? Who will pay the remaining \$31,453?
ETNA ROAD: 1 ROUND TRIP	55,937	0	55,937	Hypertherm, Create, and other Etna Road employers might be willing to pay for this service. The estimated fully-allocated cost is \$56K per bus.
ETNA ROAD: 2ND ROUNDTRIP	55,937	0	55,937	A second pair of round trips would benefit Hypertherm industrial shift workers.
CENTERRA SHUTTLE	0	172,743	172,743	Advance Transit could operate this service for DHMC if the medical center is willing to pay for it. Other Centerra partners might be willing to contribute.
DARTMOUTH ROUTE 120 SHUTTLE	0	421,317	421,317	Three buses would offer 10-15 minute headways from 7 to 10 a.m. and from 3 to 7 p.m. The DHMC Lot 9 Shuttle would provide access to this lot midday.
ADA SATURDAY SERVICE	19,713	46,538	66,250	ADA paratransit service will need to be added on Saturdays if regular-route service is offered on Saturdays.

Financial Plan

61. Operating cost projections are based on Advance Transit's average unit costs for FY 2013. These cost factors are adjusted for anticipated inflation in future years. The model is currently set to 2.5% inflation per year. Mileage and service hour calculations for individual service components include costs associated with moving buses to and from Advance Transit's bus garage in Wilder. The cost model uses fully allocated costs.

PROJECTED COSTS BY SERVICE CATEGORY

Service Category	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,284
ADA	362,233	371,289	380,571	390,085	472,965	484,789
Commuter	0	86,000	217,298	222,730	228,299	234,006
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Regular	2,269,893	2,526,985	2,631,934	2,697,732	2,765,175	2,834,305
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Shuttles	1,215,077	1,551,776	1,590,570	1,630,334	1,671,093	1,712,870
Grand Total	3,991,938	4,684,402	4,972,435	5,096,746	5,446,837	5,583,008

REVENUES BY FUNDING SOURCE

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Federal	2,083,043	2,297,802	2,404,057	2,464,159	2,635,323	2,701,206
NH 5311	1,753,044	1,687,177	1,778,166	1,822,620	1,916,610	1,964,526
VT 5311	329,999	610,625	625,891	641,538	718,713	736,680
Municipal	487,272	513,625	619,383	634,868	754,132	772,985
Canaan	8,360	8,569	9,307	9,540	9,778	10,023
Enfield	4,854	4,975	9,307	9,540	9,778	10,023
Hanover	198,288	203,245	252,419	258,730	288,996	296,221
Hartford	44,650	50,249	51,505	52,793	71,290	73,072
Lebanon	220,960	226,484	276,239	283,145	344,142	352,746
Norwich	10,160	20,103	20,605	21,120	30,147	30,900
Partners	1,106,812	1,537,053	1,622,058	1,662,609	1,704,175	1,746,779
AP Day	0	0	0	0	0	0
Dartmouth	345,255	660,208	686,887	704,060	721,661	739,703
DHMC	669,735	686,478	740,044	758,545	777,509	796,947
DMS	91,822	94,118	96,470	98,882	101,354	103,888
Hypertherm	0	86,000	88,150	90,353	92,612	94,927
Other	0	10,250	10,506	10,769	11,038	11,314
State	154,116	194,921	199,794	204,789	219,629	225,120
NH	74,116	75,969	77,868	79,815	81,810	83,855
VT	80,000	118,952	121,926	124,974	137,819	141,264
Fares	0	0	42,025	43,076	44,153	45,256
Fares	0	0	42,025	43,076	44,153	45,256
Philanthropy	111,000	113,775	116,619	119,535	122,523	125,586
Donations	111,000	113,775	116,619	119,535	122,523	125,586
Grand Total	3,942,243	4,657,177	5,003,937	5,129,035	5,479,934	5,616,933

62. During the five-year planning horizon, combined Advance Transit ridership is projected to increase by 17%, from 863,000 in FY 2012 to just over one million in FY 2018. The most significant changes include:

- A 5% increase in Blue route ridership resulting from improved service to residences along and near Mount Support Road.
- A 20% increase in Blue route ridership when 15-minute service is instituted.
- 200 boardings a day on a Sachus Shuttle beginning in FY 2014, with 5% annual increases in the subsequent two years.
- A 14% decline for a restructured Orange route beginning in FY 2014, followed by 2% annual increases for each of the next three years.
- A 25% increase in Green route ridership when a two-bus express is instituted in FY 2015, followed by 5% annual increases for the next two years.

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Chapter 2: Review of Existing Services

This chapter presents a critical review of existing Advance Transit routes and services. The review process included four steps: (1) analysis of ridership records, (2) calculation of route-by-route performance measures, (3) on-site inspections of Advance Transit bus routes, and (4) interviews with bus drivers and support staff. This chapter analyzes Advance Transit performance, describes how buses are currently being used, and identifies strengths and weaknesses of the current service design.

This review effort is important in part because it helps to identify needed service improvements. It also helps ensure that any proposed changes do not undermine the strengths of existing services.

The consultant spent time riding Advance Transit buses at different times of the day. This was done to gain a first-hand understanding of who is riding and how buses are being used. He looked for strengths in the service design and service delivery. And he looked for inconveniences, inefficiencies, scheduling and on-time performance problems, missed connections, and other issues that might discourage use or reduce customer satisfaction.

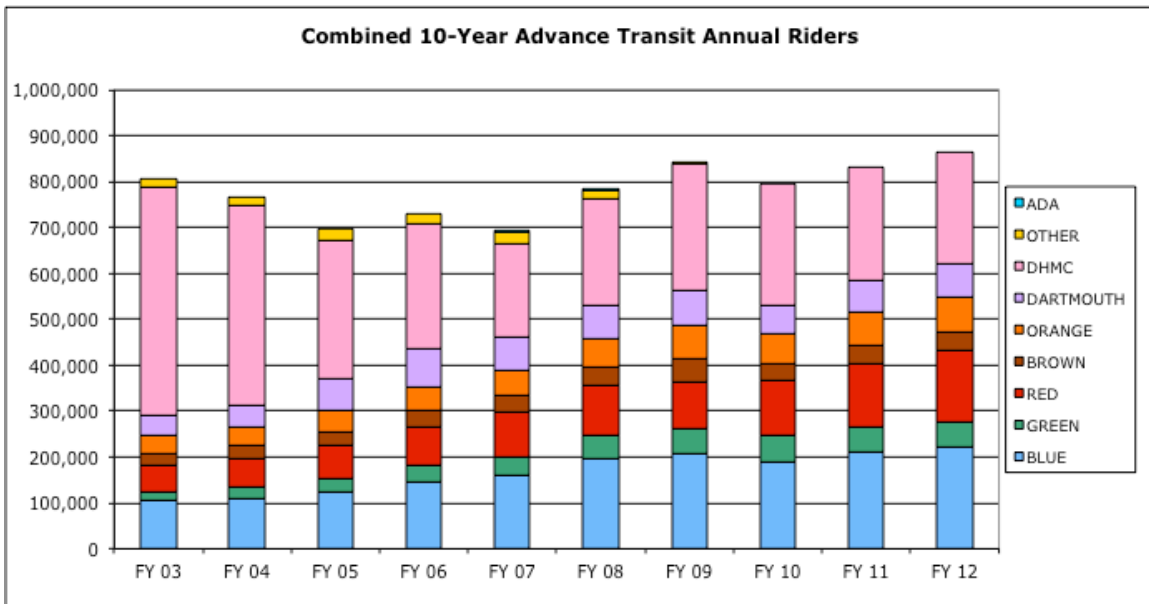
The chapter begins with an overview of Advance Transit ridership patterns. The second section examines performance and productivity for individual bus routes. Sections 2.3 through 2.9 discuss individual Advance Transit bus routes. Section 2.10 takes a brief look at the DHMC Centerra Shuttle. The chapter is structured as follows:

Section 2.1	System Ridership
Section 2.2	Route-by-Route Performance Measures
Section 2.3	Blue Route
Section 2.4	Red Route
Section 2.5	Green Route
Section 2.6	Orange Route
Section 2.7	Brown Route
Section 2.8	Hanover / Dartmouth Shuttle
Section 2.9	DHMC Parking Lot Shuttles
Section 2.10	DHMC Centerra Shuttle

2.1 System Ridership

Combined Advance Transit ridership increased from 784,078 in FY 2008 when the last Transit Development Plan was done, to 863,561 in FY 2012. Regular fixed-route ridership accounted for 64% of the FY 2012 total. The Dartmouth Downtown Shuttle accounted for 8% of combined system ridership, while DHMC parking lot shuttles accounted for 28%.

Figure 2.1 10-Year Advance Transit Riders



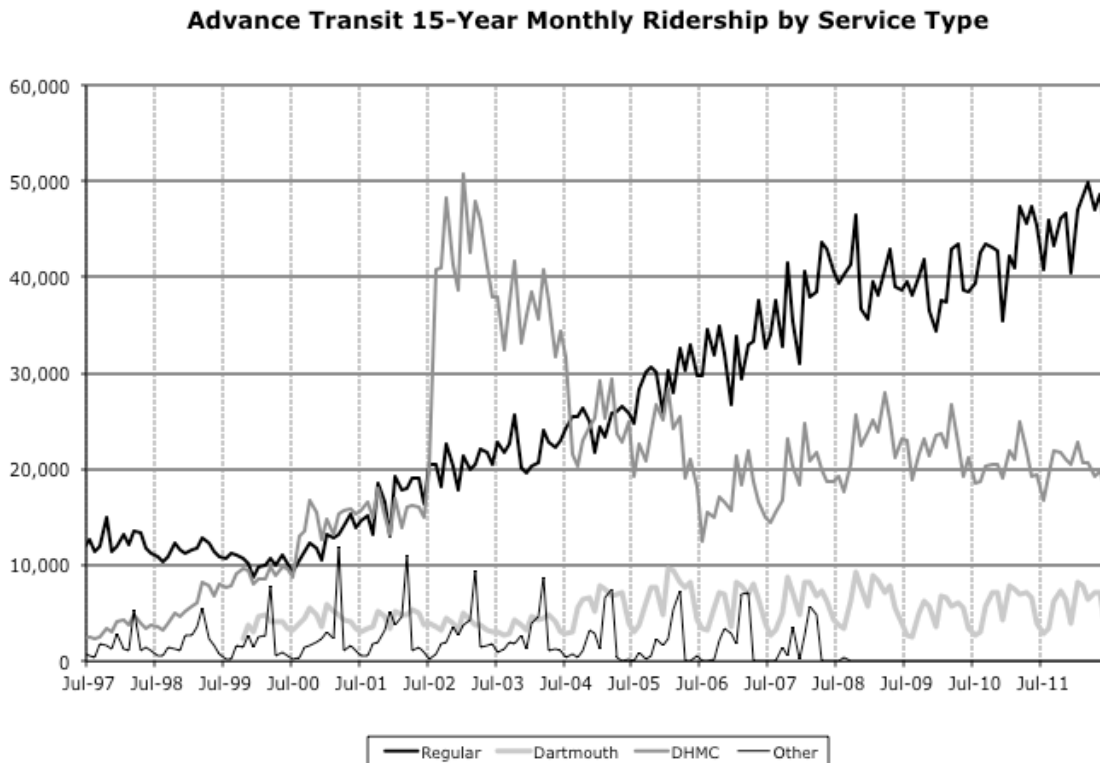
Note: DHMC parking lot shuttle usage was higher in FY 2003 and FY 2004 during construction at the medical center's main campus.

Fixed Route Ridership

Advance Transit has experienced steady and remarkable growth in regular route ridership over the course of the past fifteen years. In the mid 1990's, the system provided roughly 10,000 passenger trips per month. During FY 2011, fixed-route ridership averaged 42,956 per month. In March 2012, the fixed-route total was 49,791. This is nearly a fivefold increase compared with regular-route demand experienced in 1993 and 1994.

From FY 2008 to FY 2012, regular route ridership grew from 456,233 to 549,472, a gain of 93,239 riders and an increase of 20%.

Figure 2.2 Advance Transit 15-Year Monthly Ridership



Dartmouth Downtown Shuttle

Parking lot shuttle service in Hanover was separated from regular route service in FY 2000. In FY 2005, two parking lot routes were combined to create a combined campus / downtown shuttle. In the five-year period from FY 2003 to FY 2008, shuttle ridership in Hanover increased by 58%, from 45,860 to 72,676. Since 2008, Dartmouth Shuttle ridership has varied from a low of 60,030 in FY 2010 to a high of 77,827 in FY 2009. Shuttle ridership totaled 70,974 in FY 2012, a decrease of 2% from FY 2008.

DHMC Parking Lot Shuttles

Advance Transit has operated parking lot shuttles serving patients, visitors, and employees at Dartmouth-Hitchcock Medical Center since March of 1995. Ridership grew steadily between FY 1998 and FY 2002, and then increased dramatically in FY 2003. Shuttle usage remained high for two years during a construction project at the main campus, and then gradually leveled off to between 20,000 and 23,000 rides per month, or roughly 1,000 rides per day.

2.2 Route-by-Route Performance Measures

Performance measures were calculated for individual routes and service components for the months of February, March, and April 2012. Measures include rides per month, rides per day, rides per revenue service hour, and rides per scheduled round trip. The results are presented in Figure 2.3.

Figure 2.3 Advance Transit Performance, February-April 2012

	Monthly Rides	Daily Rides	Rides per Hour	Rides per Round Trip
BLUE	60,163	940	22.7	28
GREEN	13,978	218	19.0	20
RED	39,934	624	28.4	28
BROWN	10,470	164	14.1	10
ORANGE	20,655	323	27.1	27
DARTMOUTH	21,568	337	13.0	6
DHMC	60,527	946	27.8	7
TOTAL	227,295	3,551	22.3	13
REGULAR ROUTES	145,200	2,269	22.9	24

During February, March, and April of 2012, Advance Transit provided a total of 227,295 one-way trips, for an average of 3,551 per day. System-wide, Advance Transit buses averaged 22.3 riders per revenue service hour. During the same three-month period, regular-route buses carried 145,200 riders, for an average of 2,269 riders per day. Regular-route buses provided an average of 22.9 passenger trips per revenue service hour, and 24 rides per scheduled round trip.

Figure 2.4 compares route-by-route performance measures for February, March, and April 2012 with the same measures for February, March, and April 2008.

- Growth in total riders was greatest on the Red route, with a net increase of 209 riders per day. This reflects the addition of a second bus to the Red route, with service frequency increasing from once an hour to every 30 minutes.
- Red route ridership increased by 50%, while riders per service hour on this route decreased from 34.6 to 28.6. Higher per-hour results in 2008 reflect overcrowding that was occurring on the single bus that served this route at that time.
- Despite the fact that Orange route buses continued to operate hourly, Orange route ridership increased by 39%. This appears to have resulted in part from improved connections between the Orange and Red route buses in West Lebanon.

It also reflects increased use of Orange route buses by Dartmouth graduate students who live at Sachem Village.

- Like the Orange route, the Green route benefited from improved connections with the Red route in West Lebanon. Between 2008 and 2012, average daily Green route ridership increased 9%, to 218 riders per day. It is worth noting that the Green route experienced large increases in usage prior to 2008. The daily average for February 2012 of 218 compares with a February 2003 average of 74 riders per day.
- The frequency of Brown route service decreased in 2009, resulting in fewer scheduled trips per day. These changes were necessary to improve on-time performance and to maintain important connections with other routes. Following these changes, average daily Brown route ridership dropped 6%, from 174 per day to 164 per day. Average riders per scheduled service hour dropped by 11%, from 15.8 to 14.1. At the same time, the average number of riders per scheduled round trip increased by 23%, from 8.3 to 10.2. The Brown route bus now makes fewer trips during the course of a day, but the average number of people boarding per trip is higher.

Advance Transit's routes and services are remarkably efficient and productive. Performance analysis reveals no obvious candidates for cuts or reductions in service. Even the Brown route, which has the lowest productivity among the system's five fixed routes, carries an average of 164 rides per day and 14.1 rides per service hour. These figures are well above the typical performance for non-urban transit services.

The components with the lowest productivity are midday buses on the Dartmouth and DHMC shuttle routes. The medical center, the college, and the town of Hanover subsidize these services. These sponsoring institutions understand that demand for parking lot shuttles varies by time of day, and that while midday buses may be less productive, employees and visitors need to be able to get back to their cars during the middle of the day.

Consideration should perhaps be given to separating the Canaan-Lebanon segment from the Lebanon-Hanover portion of the Blue route. Changes to Canaan service may be needed if Advance Transit experiences a reduction in Federal Transit Administration funding. Possible adjustments to Canaan service are discussed in Chapter 7.

Figure 2.4 Advance Transit Performance, 2008 and 2012

FEBRUARY, MARCH, APRIL 2008 AND 2012				
RIDERS PER DAY				
	2008	2012	Change	
BLUE	851	940	10%	
GREEN	200	218	9%	
RED	415	624	50%	
BROWN	174	164	-6%	
ORANGE	232	323	39%	
DARTMOUTH	348	337	-3%	
DHMC	982	946	-4%	
TOTAL	3,203	3,551	11%	
REGULAR ROUTE	1,873	2,269	21%	
RIDERS PER HOUR				
	2008	2012	Change	
BLUE	20.5	22.4	9%	
GREEN	17.4	19.0	9%	
RED	34.6	28.4	-18%	
BROWN	15.8	14.1	-11%	
ORANGE	19.3	27.1	40%	
DARTMOUTH	11.2	13.0	15%	
DHMC	28.9	27.8	-4%	
TOTAL	20.9	22.4	7%	
REGULAR ROUTE	21.3	22.9	8%	
RIDERS PER ROUND TRIP				
	2008	2012	Change	
BLUE	25.0	27.6	10%	
GREEN	18.2	19.9	9%	
RED	34.6	28.4	-18%	
BROWN	8.3	10.2	23%	
ORANGE	19.3	26.9	39%	
DARTMOUTH	5.6	6.5	15%	
DHMC	7.3	7.0	-4%	
TOTAL	11.2	12.6	13%	
REGULAR ROUTE	20.8	23.9	14.8%	

2.3 Blue Route

Advance Transit's Blue route includes three components:

- All-day 30-minute service between downtown Lebanon and downtown Hanover, including service to the Dartmouth-Hitchcock Medical Center and Dartmouth College
- Limited commuter service to Enfield and Canaan
- 15-minutes scheduled service between the Dartmouth Medical School and DHMC during midday hours

Blue route market segments include:

- Commuters traveling to jobs at Dartmouth College, DHMC, downtown Hanover, downtown Lebanon, and elsewhere
- Dartmouth Medical School students and staff traveling between the medical school and the hospital
- DHMC patients and visitors
- Dartmouth College students traveling to classes
- Area residents who use the bus for shopping and errands
- Residents of Hanover, Canaan, and Enfield who transfer to the Red Route in Lebanon to reach West Lebanon and the Route 12A shopping plazas

The Blue route is Advance Transit's busiest route, with over 900 riders per day. Blue route ridership has increased by 12% since the 2008 Transit Development Plan.

During April of 2012, four Blue Route bus stops accounted for two-thirds of passenger boardings on the route. The busiest stop was DHMC, with 28% of Blue Route boardings. Since most people travel round trip, this figures suggests that travel to and from the medical center accounts for approximately 56% of Blue route usage. The bus stop at Lebanon City Hall generated 19% of Blue route boardings, while the Dartmouth Bookstore accounted for 13% of boardings and Vail/DMS generated 7%. Stops in Canaan and Enfield accounted for 1,243 boardings in April of 2012, or 6.5% of the Blue route total.

Stops in downtown Hanover and on the Dartmouth College campus generated a combined total of 6,055 boardings, or 32% of the Blue route total. This suggests that about 64% of Blue route rides involve trips to or from Hanover or the college.

Figure 2.5 *Advance Transit 10-Year Monthly Riders by Route*

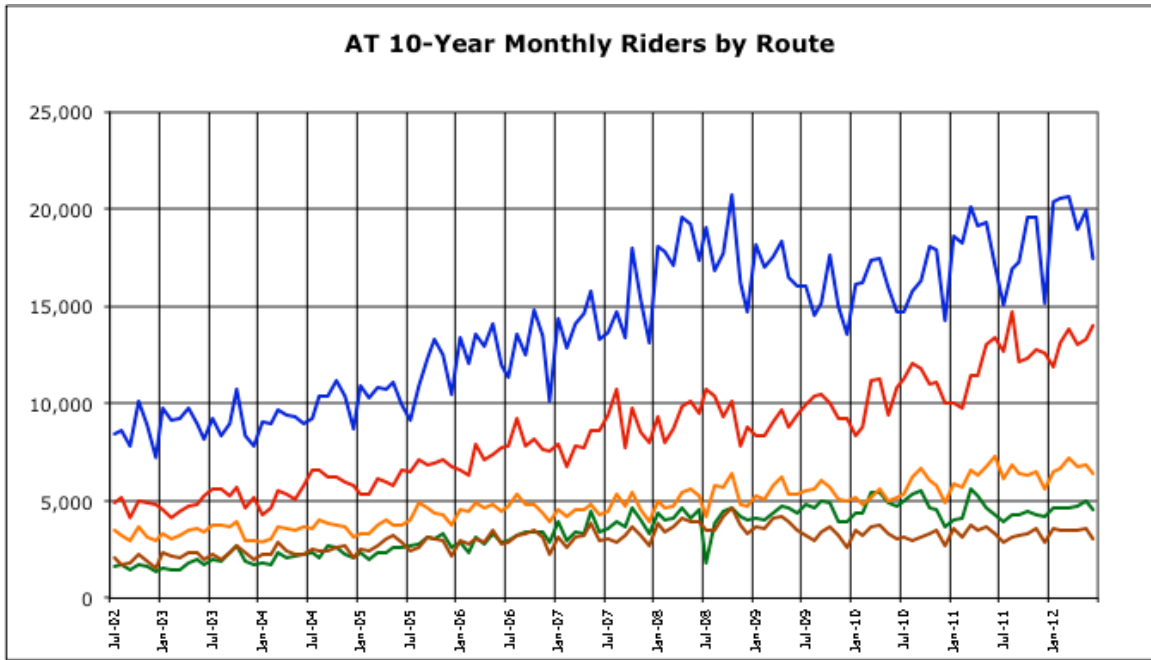


Figure 2.6 *Advance Transit 10-Year Annual Blue Route Riders*

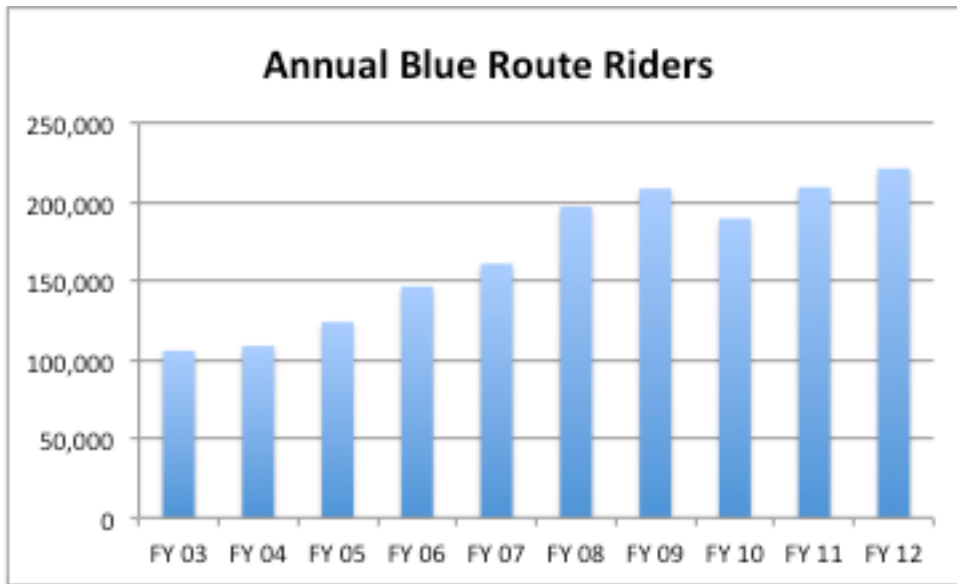
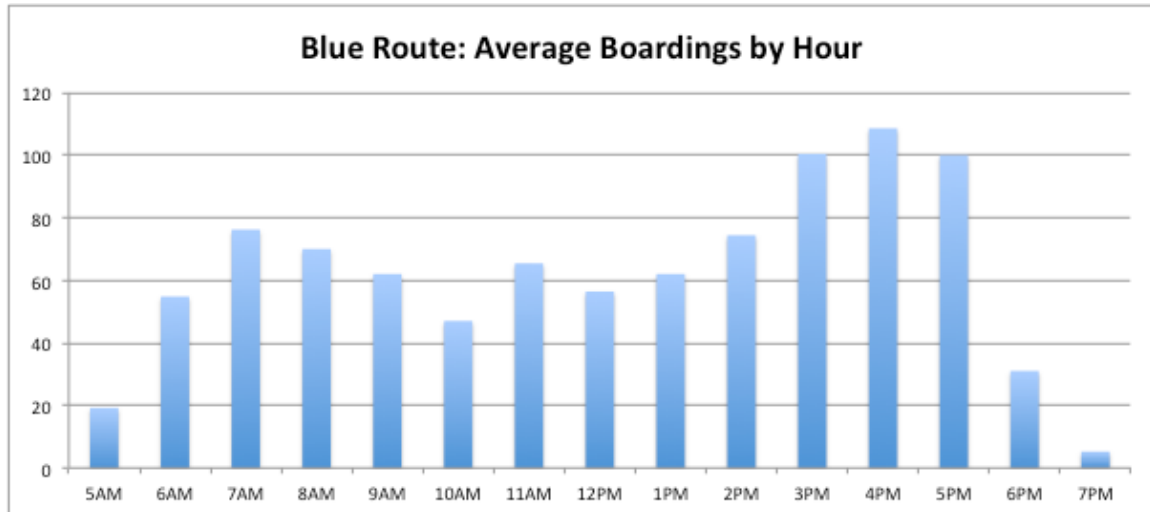


Figure 2.7 Blue Route Boardings by Time of Day



Average hourly boardings for the week of April 23, 2012

Significant improvements have been made to the Blue route in past years, resulting in a relatively fast and streamlined service between Lebanon and Hanover. The route offers convenient front-door service at the DHMC East Entrance and at the Dartmouth Medical School, plus centrally located bus stops in downtown Hanover and downtown Lebanon. It provides timed connections with Red route buses in downtown Lebanon, and with Green, Orange, and Brown route buses in Hanover.

There are a number of issues and concerns that could be addressed in future service planning for the Blue Route. This section addresses conditions as they existed in the spring of 2012.

1. When roadway reconstruction has been completed, Blue route buses should operate between DHMC and Lebanon High School via Mount Support Road. This will result in convenient bus service for residential developments along Mount Support. It will also fill existing gaps in service for people who board near Wolf Road, because individual trips will no longer bypass the high school by staying on Route 120.
2. Dartmouth-Hitchcock Medical Center is constructing a new outpatient facility between Heater Road and Old Etna Road. This building is known as the “Heater Road Facility.” The main entrance will be located on Etna Road. The medical center would like Blue route buses to provide front door stops at this new facility. It was unknown as of the spring of 2012 whether the driveway will accommodate full-size transit buses.
3. If DHMC’s Heater Road driveway cannot handle large vehicles, then wheel-chair accessible bus stops will need to be developed on Heater Road adjacent to the DHMC driveway.

4. Late afternoon traffic congestion on Route 120 results in lengthy delays, especially for buses exiting the medical center southbound at 5:10 p.m. and 5:32 p.m. The 5:10 p.m. bus does not have a timed connection with other buses in downtown Lebanon. The 5:32 p.m. bus often causes delays for the 5:45 p.m. bus to Canaan and the 5:45 p.m. Red route bus to West Lebanon. In both cases, these connecting buses are making their final trips of the day, so delays that do occur are limited to just these trips. Gridlock on Route 120 is likely to worsen as additional development comes on line. One way to help Blue route operations would be to find a way to somehow limit through traffic on Mount Support Road.

6. Blue route buses are delayed by traffic lights and by congestion on Route 120 near Interstate 89. It would be better if they could travel directly between downtown Lebanon and the high school without detouring via Route 120. This would require a new overpass across I-89 restricted for the use of transit buses, school buses, and emergency vehicles.

7. A new multi-unit residential development is planned for Route 4 in Enfield. The developer has told Enfield officials that he wants Advance Transit to serve this location. Unless a safe roadside bus stop can be constructed on Route 4, bus service to these Enfield apartments will likely require the design and operation of expanded bus service from Enfield. Buses to and from Canaan are already nearly full. Existing riders are unlikely to accept adding five to ten minutes in each direction to their daily commute to accommodate a new housing development.

8. The convenience of Blue route service could be improved by offering 15-minute service between downtown Lebanon and DHMC. This would require the addition of one more bus to the route. The DHMC-Hanover segment already has 15-minute service, thanks to the interest and financial support of Dartmouth Medical School. One group that would benefit from extending 15-minute service to Lebanon would be DHMC employees who are expected to travel to the new Heater Road facility for midday healthcare appointments.

9. Several bus riders have commented that there is no schedule coordination between Blue route buses and the Centerra shuttle operated by DHMC. DHMC recently reduced shuttle service to Centerra from every 15 minutes to every 30 minutes.

10. With the exception of delays caused by late-afternoon Route 120 traffic congestion, there do not appear to be scheduling issues for Blue route buses. Regular buses have eight minutes of layover time every hour in downtown Lebanon. DMS buses have six minutes of layover time every half hour at DHMC. While these timetables currently work well, it should be noted that Blue route buses are threatened by the potential for gridlock that may result in future years due to continuing business expansion in the Route 120 corridor.

2.4 Red Route

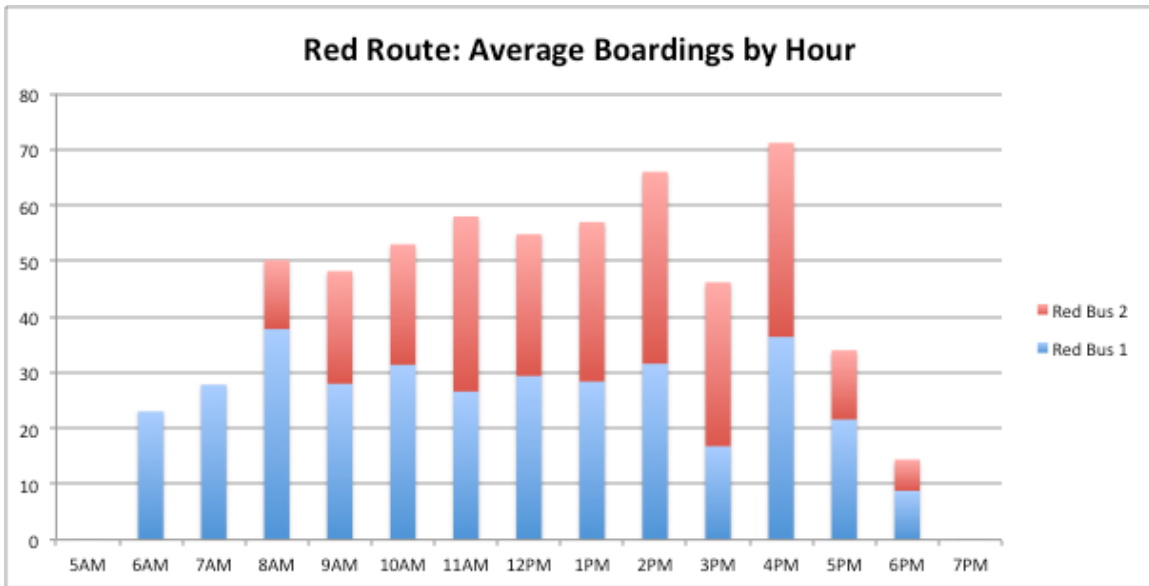
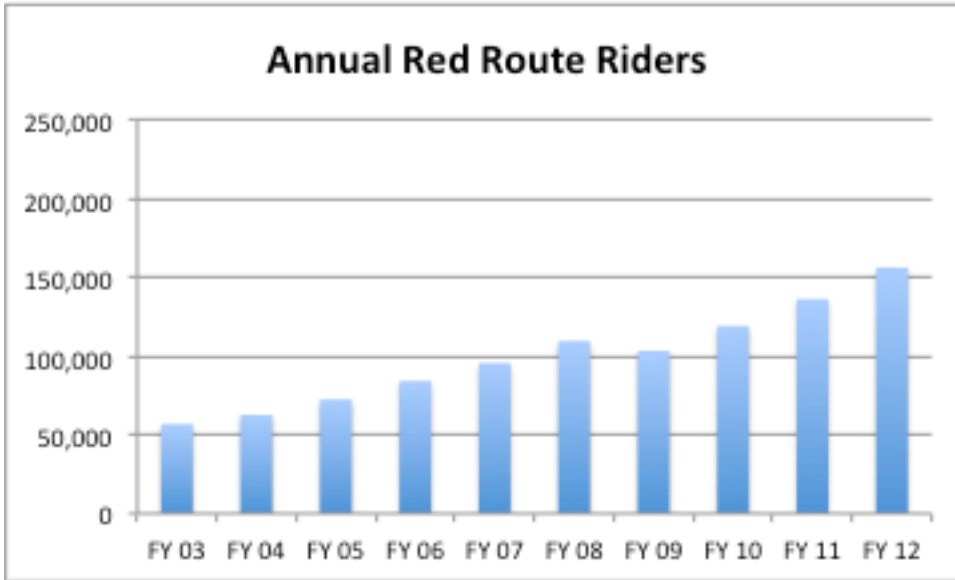
The Red route connects downtown Lebanon with West Lebanon and the Route 12A Plazas. The Red route is used by people traveling to job sites located along Route 4, in West Lebanon, and in the plaza area. Area residents use the Red route bus to reach a variety of shopping destinations, including Wal-Mart, Shaws, and others. The Red route connects with the Blue route in downtown Lebanon and with the Orange and Green routes in West Lebanon. Some commuters from Lebanon ride the Red Route and transfer to the Orange route in West Lebanon to reach the VA Hospital in White River Junction.

The Red route is Advance Transit's second busiest route, with over 600 one-way riders per day. Between 2008 and 2012, Red route usage increased by 43%, from 109,559 to 156,247. A second bus was added to the Red route in 2009, resulting in 30-minute service throughout most of the day. Demand on this route has nearly tripled since 2003, when the Red route carried 56,857 riders.

During April of 2012, three Red route bus stops accounted for two-thirds of passenger boardings on the route. The busiest stop was Lebanon City Hall, with 29% of Red route boardings. The bus stop in front of the library in West Lebanon generated 25% of Red route boardings. Walmart accounted for 13% of boardings on this route.

Other Route 12A plaza stops accounted for 12% of Red route boardings. Since most people travel round trip, these figures suggest that travel to and from the Route 12A plazas accounts for about 50% of Red route usage. This result is somewhat surprising, because it suggests that half of Red route ridership does not involve trips to or from the plazas.

Figure 2.8 *Advance Transit 10-Year Annual Red Route Riders*



Note: Buses are diverted to the airport during the following hours: 6AM, 7AM, 3PM, 5PM, and 6PM.

Service planning issues for the Red route in the spring of 2012 included the following:

1. Morning and afternoon diversions to the Airport Industrial Park have generated minimal ridership. While typically benefiting only two or three riders each day, the resulting disruption of regular Red route service has inconvenienced a large number of Advance Transit's regular customers.
2. Red route bus drivers sometimes have difficulty completing round trips in the time allowed by printed timetables. This is especially true for afternoon trips through the Route 12A plazas. But the problem is not limited to the plazas.
3. Efforts will be needed to streamline and speed up Red route service. Special care must be taken to make sure that no additional time delays are added to the route. Buses currently have 35 minutes to operate through the 12A Plazas. Any further delays will require a choice from among three costly alternatives: (1) adding a third bus to the route, (2) giving up on timed connections with Green and Orange route buses in West Lebanon and with Blue route buses in downtown Lebanon, or (3) going back to hourly service, but now with two buses instead of one.
4. The ability of Red route buses to serve the K-Mart and Upper Valley Plazas will depend on future traffic flows on access roads that were under construction at the time of this service evaluation. It is anticipated that a new tunnel under Interstate 89 will allow Advance Transit to add stops in both shopping plazas.
5. Some passengers do not like the fact that afternoon Red route buses offer stops at designated shopping plazas on alternating trips. They want all buses to serve all plazas. (Afternoon buses that stop at the Upper Valley Plaza bypass Shaws, while afternoon buses that stop at Shaws bypass the Upper Valley Plaza). It would be better to have all buses make the same stops. However, there is unlikely to be enough time to make all stops on afternoons when traffic is heavy. One way to achieve consistency would be to eliminate all diversions to one or more plaza destinations, moving these stops to curbside instead.
6. A shift in the location of the West Lebanon transit hub could have a positive impact on Red route timetables, if this eliminates the need to use Dana and Maple Streets to reverse directions. However, a move away from downtown West Lebanon should be made with caution. Recent ridership data suggest that nearly 1,500 riders a month board Red route buses in West Lebanon heading toward downtown Lebanon, while over 1,800 riders a month board Red route buses in West Lebanon heading toward the plazas. Some of these people are transferring Green and Orange route passengers. But others are undoubtedly focused on West Lebanon as their origin or destination. If the transfer site moves, Red route buses will continue to serve downtown West Lebanon, but without a layover on Main Street. Also, Red route buses would stop on opposite sides of Main Street, depending on their direction of travel.

2.5 Green Route

The Green route links West Lebanon and Hanover via Hartford Village and Wilder. It carries riders to Hanover, where it connects with the Blue and Brown routes, and to West Lebanon, where it connects with the Red and Orange routes. It transports many riders between bus stops within Vermont. This includes low-income individuals who travel between Hartford Village and the Haven.

Annual Green route ridership grew from 49,007 in FY 2008 to 53,678 in FY 2012, an increase of 10%.

The Green route serves a variety of commuters, including people who work at Dartmouth College. Other employment destinations for Green route riders include the Route 12A plazas, downtown Lebanon, West Lebanon, White River Junction, and DHMC. Many of these work destinations require passengers to transfer to other routes.

The Green route provides Wilder and Hartford Village residents with access to social service programs at The Haven. It provides access to social services programs at the Gilman Center via a connection with the Orange route in West Lebanon. The Green route also gives Wilder and Hartford Village residents access to the Route 12A Plazas via a connection with the Red route in West Lebanon.

In April of 2012, West Lebanon accounted for 24% of Green route boardings, while stops on the Dartmouth College campus and in downtown Hanover accounted for 16% of Green route boardings. Assuming that most people ride round trip, this suggests that 80% of Green route usage involves trips to New Hampshire, with West Lebanon accounting for 48% and Hanover / Dartmouth College accounting for 32%.

The busiest stop in Vermont is the Haven, with 15% of Green route boardings (northbound and southbound combined). Hartford Village and other stops west of Route 5 accounted for 13% of Green route boardings (9% northbound and 4% southbound). Three stops in Wilder Village accounted for 10% of Green route boardings.

Service planning issues for the Green route in the spring of 2012 included the following:

1. Green route drivers have difficulty completing some round trips within the available 60-minute schedule window. These problems arise when buses are scheduled to serve Hartford Village northbound and southbound during the same round trip. The Green route has many wheelchair users. With multiple wheelchair boardings and two Hartford Village diversions, it is not possible to operate a Green route round trip in 60 minutes.
2. The Green route service design needs to accommodate travel in both directions between Shady Lawn and The Haven. There is also significant demand for travel between Shady Lawn / Hartford Village and the Route 12A plazas, via a Red route connection in West Lebanon.

Figure 2.10 Advance Transit 10-Year Annual Green Route Riders

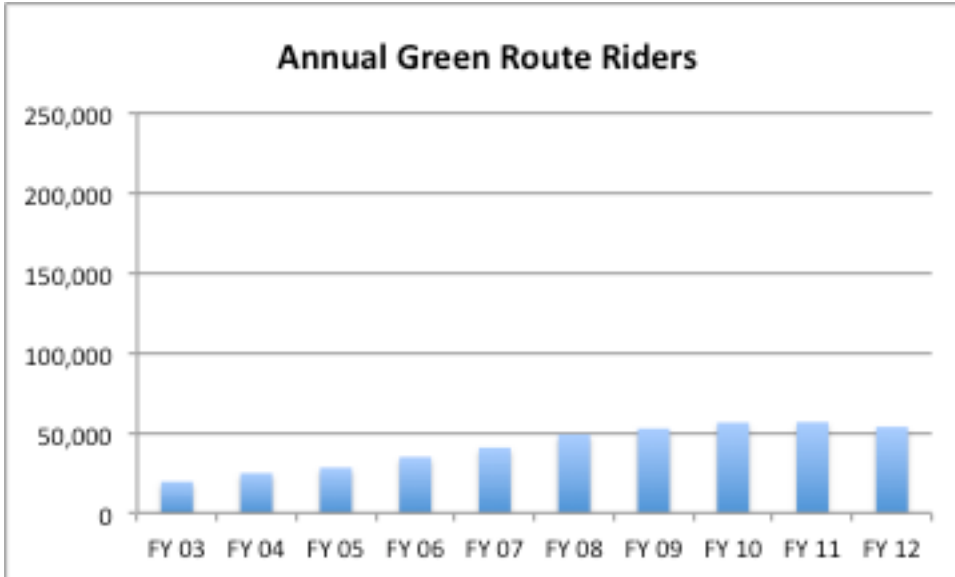
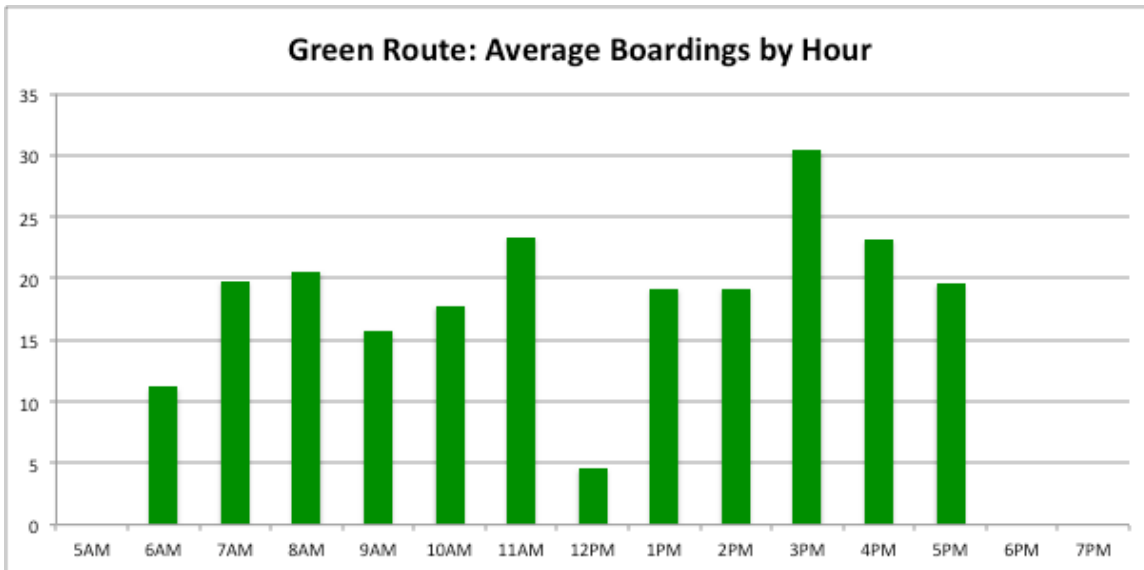


Figure 2.11 Green Route Boardings by Time of Day



Note: This chart reflects a gap in scheduled service between 12:15 p.m. and 1:00 p.m.

3. The best solution for the Green route would be to add a second bus to the route. One bus would serve Hartford Village northbound, while the other would serve Hartford Village southbound. This would result in 60-minute headways in each direction for Hartford Village, and 30-minute headways for the remainder of the route.
4. Representatives of The Haven have requested that Advance Transit serve low-income apartments on Bugbee Street. A resident of a nearby apartment complex has also asked for a Bugbee Street bus stop. This could be accomplished by routing some buses from Hartford Village to Wilder Village via Christian Street and Bugbee Street. Another approach would be to divert some buses traveling on Route 5 via Bugbee Street, Christian Street, and Chandler Street.
5. If it is not possible to add a second bus to the Green route, then West Hartford diversions should be limited to once per round trip. The alternative is to allow 90 minutes for Green route trips that serve Hartford Village in both directions.
6. Two-thirds of Green route riders participating in the 2012 passenger survey said they were traveling to or from work. One third of Green route participants said they were employed by Dartmouth College. While many commuters use the Green route, the current schedule offers workers limited convenience because of a 60-minute wait between buses.

2.6 Orange Route

The Orange route links White River Junction with West Lebanon and downtown Hanover. On the Vermont side of the Connecticut River, the Orange route serves downtown White River Junction, nearby residential neighborhoods, social service agencies at the Gilman Center, the Greyhound terminal, and the VA Hospital. In New Hampshire, the route serves West Lebanon, residences adjacent to Route 10, graduate student housing at Sachem Village, downtown Hanover, and the Dartmouth College campus.

The Orange route offers connections with the Red and Green routes in West Lebanon, and with the Brown and Blue routes in Hanover. It provides car-free access to the local Amtrak station and the Greyhound bus terminal, although Orange route buses do not operate late enough in the day to meet Amtrak's northbound arrival.

Annual Orange route ridership grew from 59,029 in FY 2008 to 78,346 in FY 2012, an increase of 33%.

In April of 2012, 32% of Orange route passengers boarded in White River Junction, 41% boarded within the town of Lebanon, and 28% boarded in Hanover. The busiest stop on the route was West Lebanon, which accounted for 27% of Orange route boardings. The next busiest stops were the Dartmouth Bookstore with 12%, the Coolidge Hotel and Sachem Village with 8% each, and Maynard Street with 6%. The VA Hospital accounted for 5% of Orange route boardings.

Downtown Hanover and the Dartmouth College campus combined to account for 27% of Orange route boardings. Assuming that everyone rides round trip, this would suggest that trips to and from Hanover / Dartmouth College account for 53% of Orange route usage.

Figure 2.12 *Advance Transit 10-Year Annual Orange Route Riders*

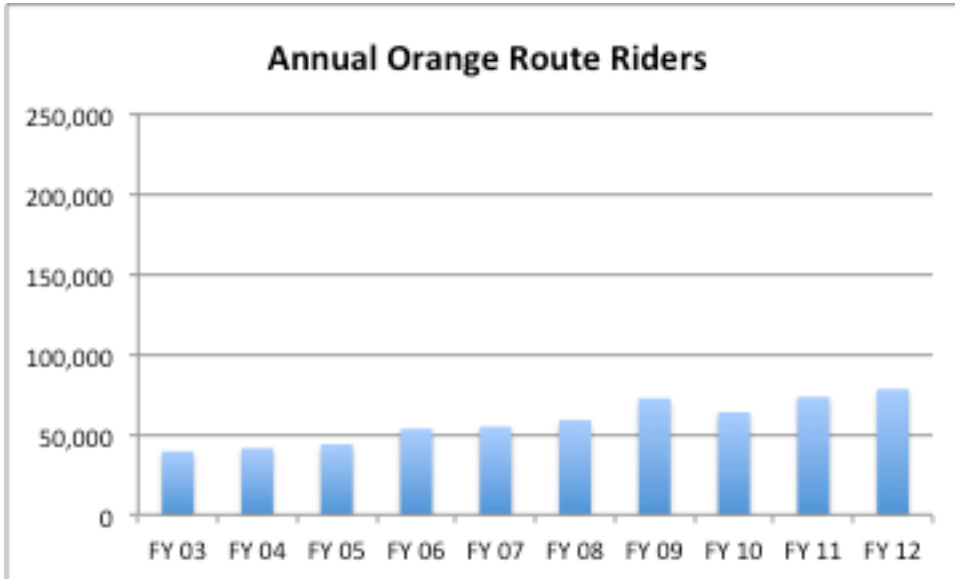
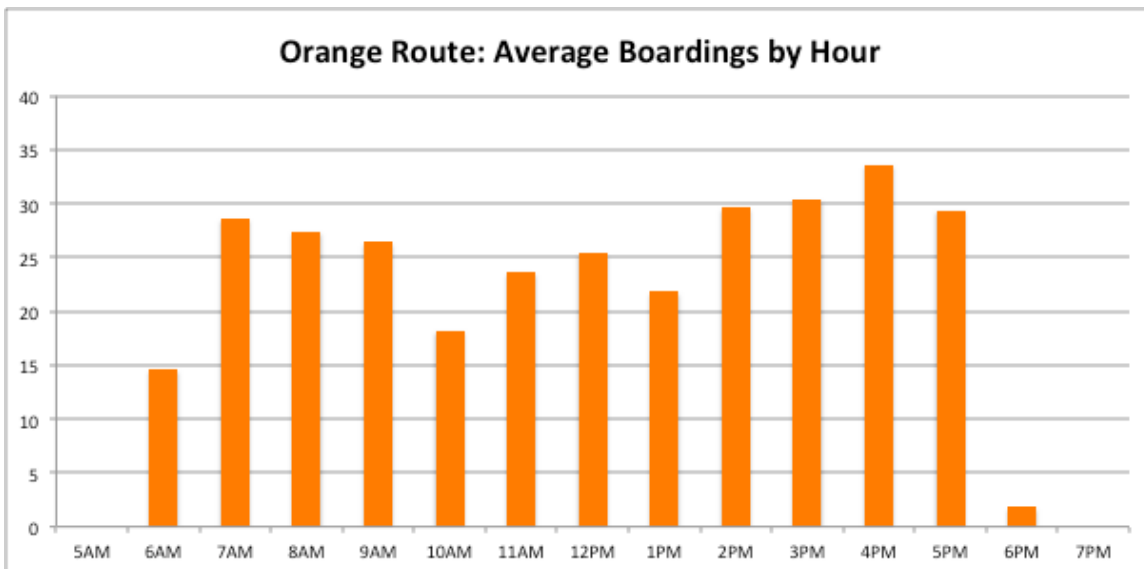


Figure 2.13 *Orange Route Boardings by Time of Day*



Service planning issues for the Orange route include the following:

1. Orange route timetables are tight, allowing very limited time to accommodate either wheelchair assists or delays caused by traffic congestion.
2. There appears to be little or no opportunity to speed up the Vermont portion of the Orange route, other than skipping diversions to the Gilman Center. While the number of boardings at the Gilman Center is limited (102 total in April 2012, 5 per day, or 2% of all Orange route boardings), this diversion provides Vermont residents with access to important social service programs. It may be possible to limit the number of trips that operate to this location.
3. Representatives of the Upper Valley Aquatic Center have expressed an interest in being served by Advance Transit. It will not be possible to extend the Orange route to the Aquatic Center without either skipping the VA Hospital or adding time to the schedule. If a second bus could be added to the route, it might be possible to divert some trips to the Aquatic Center.
4. Some have suggested that the Upper Valley Aquatic Center could serve as a park and ride lot for commuters. The Orange route may not provide fast enough service for commuters who park at this location.
5. The bus stop adjacent to Sachem Village accounted for an average of 26 boardings a day in April of 2012. Sachem Village is likely to generate a much higher level of usage if residents are not required to walk out to Route 10, and if shuttle service to the Dartmouth campus is extended into the evening.

2.7 Brown Route

The Brown route consists of two segments. It operates between Norwich and Hanover, including peak-hour service to a Norwich park and ride lot. The Brown route also links downtown Hanover and the Dartmouth College campus with CRREL, the Frances Richmond Middle School, and Kendal.

Norwich residents use the Brown route to commute to jobs in Hanover and Lebanon. Destination work sites include Dartmouth College, CRREL, and DHMC. School children in Norwich use the Brown route bus to travel to the Frances Richmond Middle School. Norwich residents use the bus for a variety of midday errands in Hanover and elsewhere. Residents of the Kendal retirement community rely on the Brown route for access to Hanover.

Brown route passengers from Norwich connect with the Blue route by walking from the Hanover Inn to the Dartmouth Book Store, or by switching buses at Vail/DMS. They transfer to the Green and Orange routes at the Hanover Inn. Passengers from the CRREL end of the route can transfer to Blue, Green, and Orange routes at Maynard Street.

Figure 2.14 Advance Transit 10-Year Annual Brown Route Riders

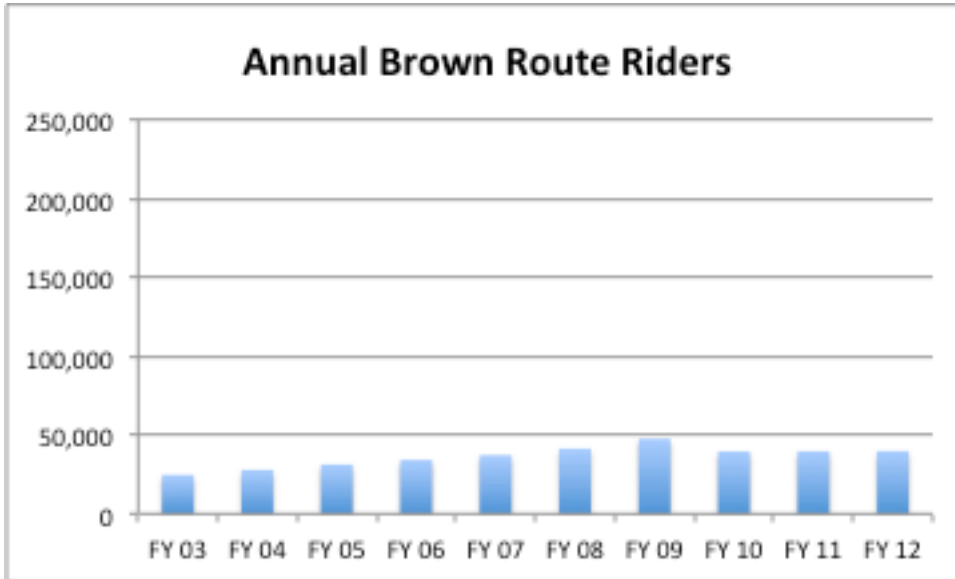
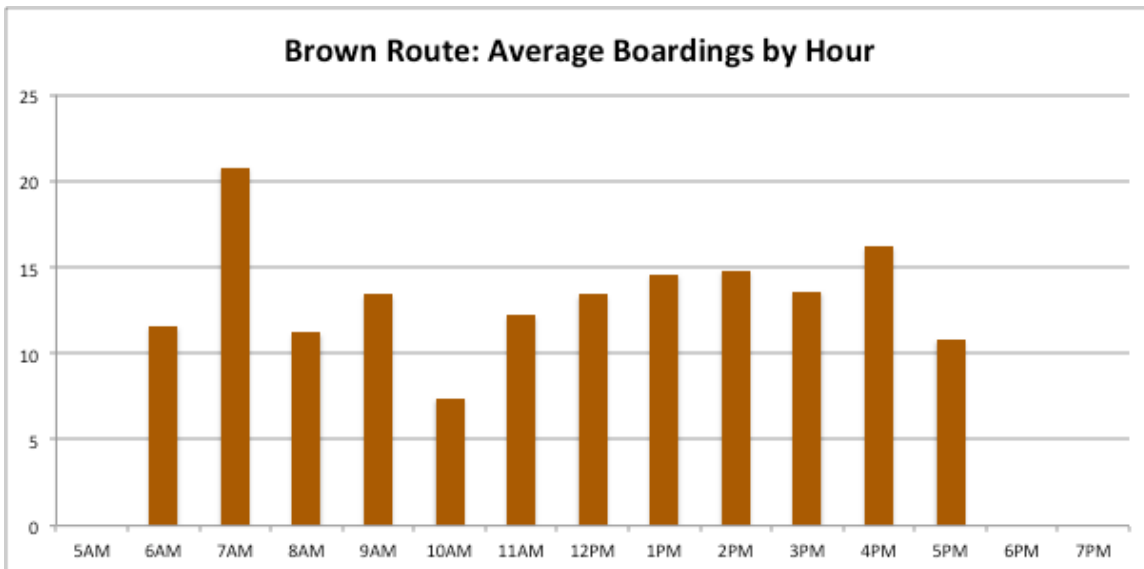


Figure 2.15 Brown Route Boardings by Time of Day



Annual Brown route ridership decreased from 41,405 in FY 2008 to 39,802 in FY 2012, for a net change of -4%.

In April of 2012, 27% of boardings on the Brown route occurred in Norwich. Since most of these passengers probably traveled round trip to Hanover, this suggests that Norwich riders account for about 54% of Brown route usage.

The busiest Brown route stop was Dan & Whit's, with 18 % of Brown route boardings, followed by the Hanover Inn with 16%, Vail/DMS with 14%, and CRREL with 12%. Combined stops on the Dartmouth College campus (including the Hanover Inn) accounted for 47% of Brown route boardings. The combined percentage for the fire station, CRREL, Rivercrest, and Kendal was 25%. The peak-hour route extension to the Norwich park and ride lot accounted for 6% of Brown route boardings.

Service planning issues for the Brown route include the following:

1. In 2009, Brown route headways were changed from every 30 minutes to every 40 minutes. Prior to this change, Brown route drivers had difficulty completing round trips in the available 30-minute window. Peak-hour times were adjusted further to accommodate important connections with other Advance Transit bus routes in Hanover. These peak-hour adjustments, in turn, allowed the route to be extended west to a newly designated Norwich park and ride lot. The revised timetable has resulted in reliable on-time service on this route.
2. Schedule adjustments introduced in 2009 have resulted in somewhat irregular departure times. The Brown route timetable could be simplified by adding a second bus to this route. This would result in 20 or 30-minute service for the route.
3. Dartmouth College continues to experience strong demand for on-campus parking from employees who drive across the bridge from Norwich. If a park and ride lot could be located closer to the river, it might be possible to use the Brown route to help the college avoid the costs associated with expanding on-campus parking.
4. While only two or three people a day board at the new park and ride lot west of downtown Norwich, the diversion to this site generates an average of about ten riders per day. Most are people who live along the route extension.
5. Brown route buses currently have a scheduled five-minute layover at CRREL. It would be possible to shift this layover time to Vail/DMS, which might help with connections to the Blue route. This would require those who board at CRREL to wait on the bus at the Vail/DMS stop.
6. The Brown route was designed in part to accommodate CRREL commuters. At the present time, there appear to be more middle school children using this stop than CRREL employees.

7. The bus stop at Tracy Hall in Norwich is also a designated handicapped parking space. When this parking space is occupied, it can be difficult for bus drivers to accommodate wheelchair users at this location. It may be possible to move or improve this bus stop.

2.8 Dartmouth / Hanover Shuttle

Advance Transit operates an in-town shuttle for Dartmouth College and the town of Hanover. The shuttle connects parking lots at Dewey and the Thompson Arena with downtown Hanover and various locations on the Dartmouth College campus.

The number of buses and shuttle headways vary according to season and time of day, as shown in the following tables:

Full Academic Session

	Number of Buses	Headways
7:00 a.m. – 10:00 a.m.	3	10 minutes
10:00 a.m. – 3:00 p.m.	1	30 minutes
3:00 p.m. – 7:00 p.m.	3	10 minutes
7:00 p.m. – 9:00 p.m.	1 (Hanover-Tuck-Dewey)	15 minutes

Summer, Vacations, and Holidays

	Number of Buses	Headways
7:00 a.m. – 10:00 a.m.	2	15 minutes
10:00 a.m. – 3:00 p.m.	1	30 minutes
3:00 p.m. – 7:00 p.m.	2	15 minutes
7:00 p.m. – 9:00 p.m.		

Evening service is offered during the regular academic season only. The evening route links the Hanover Inn with Tuck and the Dewey parking lot. There is no evening service through downtown Hanover to the Thompson parking lot.

The Dartmouth/Hanover shuttle accommodates workers and students who park in the Thompson and Dewey lots. The shuttle also facilitates various movements across the Dartmouth campus, as well as trips between college facilities and downtown Hanover.

Use of parking lot shuttles increased significantly when individual routes were combined into a unified system in 2005. In 2009, midday service was cut back from two buses providing 15-minute headways to one bus and 30-minute headways.

Annual Dartmouth Shuttle ridership decreased from 72,676 in FY 2008 to 70,974 in FY 2012, for a net change of -2%.

Figure 2.16 Advance Transit 10-Year Annual Dartmouth Shuttle Riders

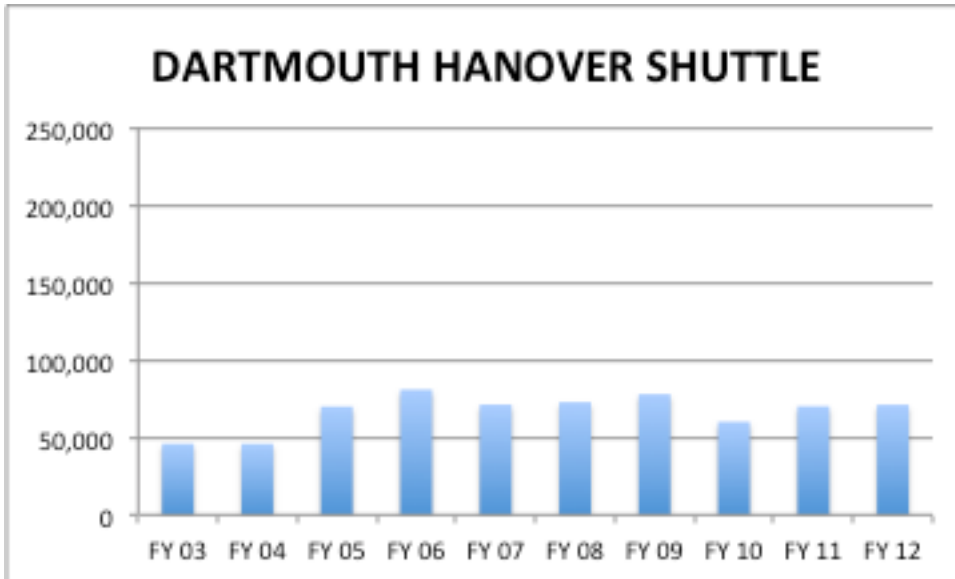
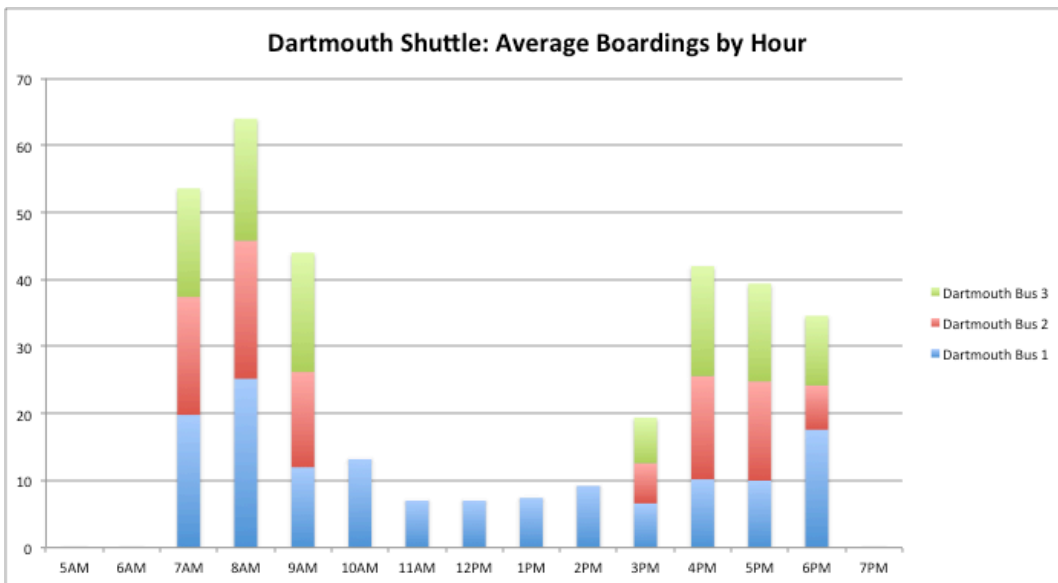


Figure 2.15 Dartmouth Shuttle Boardings by Time of Day



The Dartmouth/Downtown shuttle has a measure of complexity, which results from changing the service pattern at different times of the day and from reducing the level of service during the summer. Variations are designed to control costs, to avoid early-morning congestion in downtown Hanover, and to facilitate access from Dewey to Tuck in the morning, and from Tuck to Dewey in the afternoon

There is limited shuttle usage during the evening. One way to increase the productivity of evening service would be to make it part of a new shuttle route to Sachem Village.

2.9 DHMC Parking Lot Shuttles

Advance Transit operates parking lot shuttles at DHMC that benefit patients, visitors, and employees. Two buses serve Lot 9, while one bus serves Lot 20. Continuous service is available on both routes, with departures approximately every five minutes. The Lot 9 shuttle operates from 6:30 a.m. to 6:00 p.m. The Lot 20 shuttle operates from 6:00 a.m. to 6:00 p.m.

Use of DHMC shuttles increased from 233,413 in FY 2008 to 243,115 in FY 2012, for a net gain of 4%.

AT assigns large buses to these shuttle routes because of high demand during peak periods. There is some perceived inefficiency during the middle of the day, as large buses circle the parking areas with only a small handful of riders.

DHMC shuttles provide a high level of convenience for individuals traveling to and from the medical center. While it might be possible to lower costs by reducing the frequency of midday service, this is likely to reduce people's willingness to park in outlying parking lots.

The medical center anticipates increased utilization of Lot 9 in the future because of planned construction projects. More employees are likely to be assigned to Lot 9. And the hospital may decide to direct some visitors to Lot 9 as well. The current fleet has sufficient capacity to handle increased midday usage by visitors. If there is a significant increase in the number of employees traveling to and from Lot 9 during peak times, however, it may be necessary to add another peak-hour bus to accommodate the additional demand.

Figure 2.16 10-Year Annual DHMC Shuttle Riders

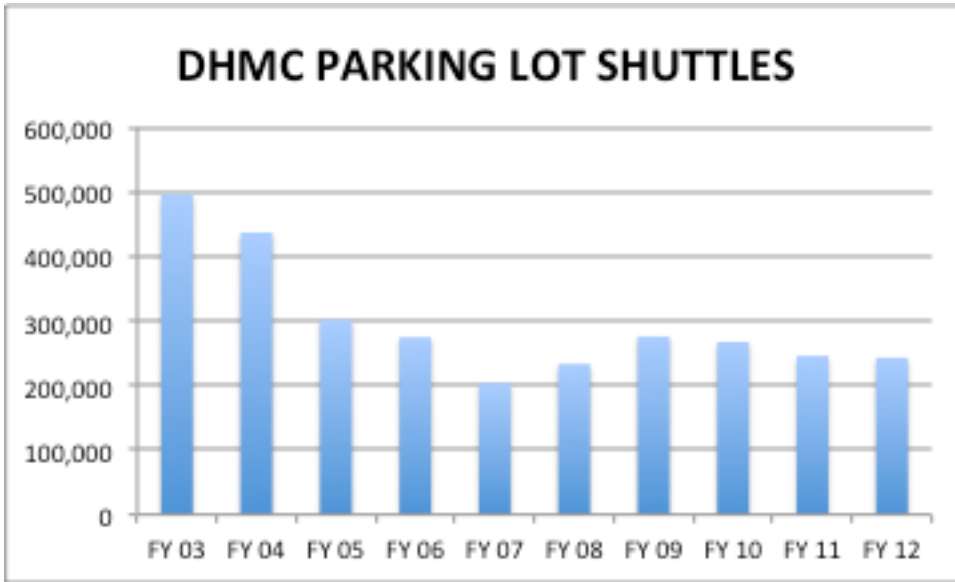
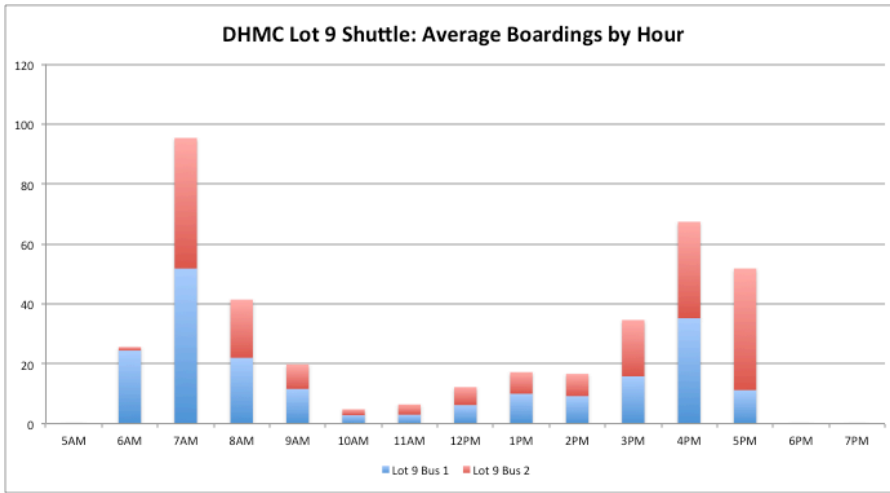
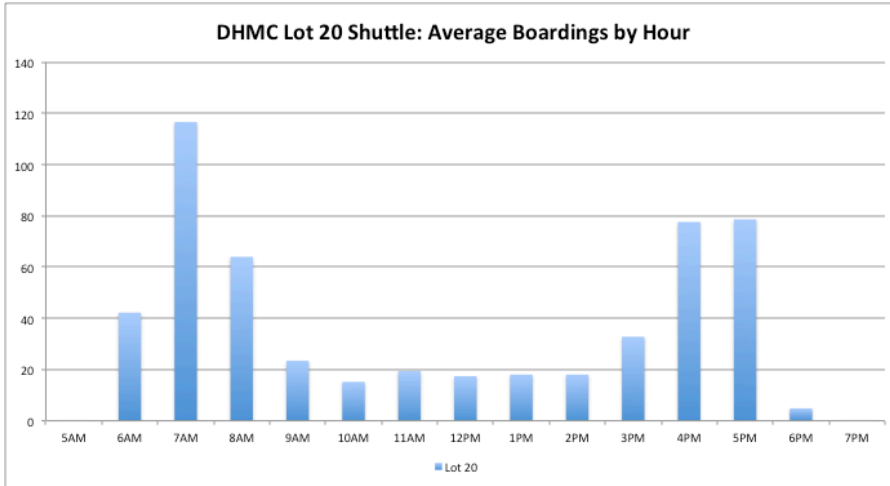


Figure 2.16 DHMC Shuttle Boardings by Time of Day





2.10 DHMC Centerra Shuttle

Dartmouth-Hitchcock Medical Center operates a free shuttle service linking the East Entrance of the medical center with offices and businesses at Colburn Hill and Centerra. AT passengers who wish to reach Centerra can transfer to the DHMC shuttle at the medical center.

DHMC uses one small bus to provide 30-minute headways on the Centerra route. Service begins at 7:20 a.m. and continues until 5:20 p.m. Departures to Centerra are not coordinated with AT's Blue route schedules. Buses from Lebanon arrive at the medical center four minutes after the DHMC bus has departed for Centerra.

DHMC added a Centerra stop at the Coop when Advance Transit discontinued midday Blue route service to Centerra in 2005. The new DHMC Centerra Shuttle flyer includes no reference to a stop at the Coop.

There is no mention of the DHMC Centerra shuttle in Advance Transit's published timetable. More of Advance Transit's regular riders might take advantage of the service if it were publicized. Such publicity might, however, place some stress on a shuttle program designed to accommodate medical center employees.

Chapter 3: Passenger Survey

This chapter presents the results of a survey distributed to Advance Transit bus riders on Thursday, May 17, 2012. The survey examines trip purposes, transfer activity, frequency of use, residence and commute patterns, technology usage, and the employment status of Advance Transit users. It asked passengers to evaluate Advance Transit bus operations and to make suggestions for improving the service. The chapter includes comparisons with similar passenger surveys carried out in 1999, 2004, and 2008.

A copy of the survey form is included in Appendix A. A full transcription of passenger comments is presented in Appendix B.

The chapter is structured as follows:

- Section 3.1 Methodology and response
- Section 3.2 Transfers between routes
- Section 3.3 Trip purpose
- Section 3.4 Residence by town
- Section 3.5 Transit use patterns
- Section 3.6 Dartmouth students
- Section 3.7 Employment status and work sites
- Section 3.8 Automobile availability
- Section 3.9 Service evaluation
- Section 3.10 Technology use
- Section 3.11 Demographics
- Section 3.12 Weekend and Saturday service
- Section 3.13 Passenger comments and suggestions

3.1 Methodology and Response

Advance Transit bus riders were surveyed on Thursday, May 17, 2012. Surveys were distributed on Advance Transit's five regular bus routes between 5:40 a.m. and 1:00 p.m. This included the Blue, Red, Orange, Green, and Brown routes. Surveys were not distributed on the Dartmouth/Downtown Shuttle or on DHMC parking lot shuttles.

Passengers were handed a survey form and a pencil when they boarded the bus. Passengers turned in completed forms as they exited the bus. Most individuals who were offered a survey form agreed to take one. In 2012, 593 surveys were distributed and 578 were returned, for a response rate of 97.5%. The response rate was similar in past years. The total of 578 completed surveys in 2012 compares with 572 in 2008, 346 in 2004, and 117 completed surveys in 1999.

Surveys were handed out on buses using a distribution that matched Advance Transit's FY 2011 ridership distribution. Figure 3.1 shows the distribution of completed 2012 surveys by bus route. Figure 1 also shows the distribution of ridership by route for FY 2011 (excluding campus and parking lot shuttles).

Figure 3.1 Survey and Ridership Distribution

	Survey Respondents	Survey Distribution	FY 2011 Ridership Distribution
Blue	257	42%	41%
Red	150	26%	26%
Green	60	10%	11%
Orange	78	13%	14%
Brown	45	8%	8%
Total	570	100%	100%

3.2 Transfers between Routes

Twenty-six percent of regular route riders said their trip involved a transfer between bus routes. The percentage of transferring passengers was unchanged from 2008, when 26% said their trip involved more than one bus. In 2004 and in 1999, 14% of regular route riders said they used two buses to complete their trip.

The route with the highest percentage of reported transfers was the Red route with 42%. Thirty-two percent of passengers surveyed on the Orange route said their trip involved two bus routes, as did 31% of passengers surveyed on the Green route. The routes with the lowest percentage of transferring riders were Brown with 24%, and Blue with 14%.

The busiest transfer pair involved the Red and Blue routes, with a total of 38 transfer movements. The next busiest pair was Red and Orange, with 32, followed by Red and Green, with 28. The busiest transfer hub was West Lebanon, with a total of 60 transfer movements. Lebanon City Hall had 38 transfer movements. The combined total of transfers at various locations in Hanover was 36.

Figure 3.2 *Route Pairs and Transfers*

<i>Route pair</i>	<i>Transfers</i>
Red/Blue	38
Red/Orange	32
Blue/Green	28
Blue/Orange	10
Blue/Brown	9
Brown/Orange	7
Blue/Green	6
Brown/Green	4

3.3 *Trip Purpose*

Passengers were asked to identify the primary purpose of their bus trip. The results are presented in Figure 3.3. Advance Transit continues to carry a much higher percentage of commuters (58%) than most other rural public transit systems. Seventeen percent of survey participants said their trip was for “school or college.” Eleven percent said they were going shopping, while 7% said their primary purpose was “medical.”

Between 2008 and 2012, the percentage of work trips decreased from 69% to 58%, while the percentage of “school or college” trips increased from 11% to 17%. The percentage of shopping trips increased from 9% to 11%, while “medical” increased from 4% to 7%. These findings suggest that in the past four years, the rate of growth of non-work trips has been higher than the growth among work-related trips.

Figure 3.3 *Trip Purpose*

	<i>1999</i>	<i>2004</i>	<i>2008</i>	<i>2012</i>
Work	72%	62%	69%	58%
Shopping	13%	14%	9%	11%
School or college	10%	11%	11%	17%
Medical	2%	6%	4%	7%
Recreation/Social	3%	4%	4%	4%
Other		4%	3%	3%
	100%	100%	100%	100%

Sixty-nine percent of Blue route trips involved travel to or from work. Work was the primary trip purpose for 66% of Green route riders, 59% of Orange route riders, and 45% of Red route riders. The route with the lowest percentage of work-related trips was Brown, with 31%.

This is a big change for the Brown route, where 71% of trips were work-related in 2004. This shift reflects, among other things, increased use of the Brown route by school children. It also suggests that commuter usage may have dropped because of reductions in peak-hour headways that were introduced in 2009.

There was also a significant change for the Blue route, where the percentage of work trips dropped from 82% in 2008 to 69% in 2012. This appears to reflect increased use of the Blue route by Dartmouth College students.

Figure 3.4 *Distribution of Advance Transit Trip Purposes by Route*

	Blue	Red	Green	Orange	Brown	Total
Work	69%	45%	66%	59%	31%	58%
Shopping	3%	26%	3%	14%	9%	11%
School or college	19%	7%	12%	18%	40%	16%
Medical	5%	10%	12%	4%	7%	7%
Recreation	1%	3%	0%	0%	4%	2%
Social	2%	5%	2%	3%	4%	3%
Other	2%	5%	5%	1%	4%	3%
	100%	100%	100%	100%	100%	100%

Twenty-six percent of people surveyed on the Red route said their primary trip purpose was “shopping.” This compares with 14% for Orange, 9% for Brown, 3% for Green, and 3% for Blue. While the Red route has by far the highest concentration of shoppers, it is interesting to note that two-thirds of Red route riders listed something other than shopping as their primary trip purpose. More people use the Red route to travel to work (45%) than use the bus for shopping (26%).

In 2012, 40% percent of Brown route riders said their primary trip purpose was “school or college.” This was true for 19% of Blue route riders, 18% of Orange route riders, 12% of Green route riders, and 7% of Red route riders. In 2004, 20% of Brown route trips were school related, and 12% of Blue route trips were school related.

Twelve percent of Green route riders checked “medical” as their primary trip purpose. This was true for 10% of Red route riders, 7% of Brown route riders, 5% of Blue route riders, and 4% of Orange route riders.

Half of Advance Transit’s work trips involved the Blue route, while 20% of all work trips involved the Red route. Sixty-one percent of Advance Transit’s shopping trips involved the Red route, while 18% of all shopping trips involved the Orange route and 11% involved the Blue route. The Blue route accounted for 48% of all “school or college” trips, followed by the Brown route, which accounted for 19%. The Red route accounted for 37% of all Advance Transit “medical” trips, while the Blue route accounted for 32%.

3.4 Residence by Town

The distribution of bus riders by town is presented in Figure 3.5. This includes a comparison with previous survey results.

Figure 3.5 Residence of Advance Transit Bus Riders

	1999	2004	2008	2012
Lebanon	51%	41%	44%	43%
Hartford	16%	16%	18%	18%
Hanover	9%	13%	11%	18%
Norwich	1%	11%	6%	6%
Canaan	12%	5%	6%	4%
Enfield	3%	5%	6%	4%
Other	7%	8%	9%	6%

Between 2008 and 2012, Advance Transit’s regular route ridership increased by 20%. Survey results suggest that the town of Hanover experienced a higher level of ridership growth than the other towns.

The 2012 distribution of bus riders by town and by route is presented in Figure 3.6. Forty-one percent of Blue route riders live in Lebanon, while 30% of Blue route riders live in Hanover. Canaan and Enfield together accounted for 15% of Blue route riders. These results suggest significant growth in use of the Blue route by residents of Hanover. Hanover residents went from 14% of Blue route riders in 2008 to 30% of Blue route riders in 2012. Residents of Canaan, Enfield, and “other” combined to account for 37% of Blue route usage in 2008. This compares with a combined total of 26% in 2012.

Figure 3.6 2012 Distribution of Riders by Town of Residence and by Route

	Blue	Red	Green	Orange	Brown	Total
Lebanon	41%	69%	5%	48%	2%	43%
Hanover	30%	5%	5%	14%	24%	18%
Hartford	1%	18%	84%	31%	4%	18%
Norwich	1%	1%	2%	3%	67%	6%
Canaan	8%	3%	0%	0%	0%	4%
Enfield	7%	4%	0%	1%	0%	4%
Other	11%	1%	3%	3%	2%	6%
	100%	100%	100%	100%	100%	100%

Lebanon residents accounted for 69% of Red route riders, while the town of Hartford accounted for 18%. (Riders could choose “Lebanon” or “West Lebanon”. Forty-one percent of Red route riders said they live in Lebanon, while 27% live in West Lebanon.)

Hartford residents accounted for 84% of Green route riders. Forty-eight percent of Orange route riders live in Lebanon, 31% live in Hartford, and 14% live in Hanover. Two-thirds of Brown route riders live in Norwich, while 24% live in Hanover.

Seventy-nine percent of the people who live in “other” towns outside Advance Transit’s service area completed surveys on the Blue route. The percentage of Green route riders who live in the town of Hartford has increased – from 61% in 2004 to 75% in 2008 to 84% in 2012.

3.5 Transit Use and Residency Patterns

Fifty-one percent of Advance Transit bus riders said they use the bus service five days a week. Another 29% said they ride 3 or 4 days a week. The combined total for people who ride 3 or more days a week was 80%. Fourteen percent said they ride 1 or 2 days a week, while 7% said they ride less than once a week. This distribution has changed relatively little since 1999.

Twenty-seven percent of survey respondents said they started using Advance Transit within the last year. Twenty-four percent said they have been riding 1-2 years. Twenty-two percent said 3-5 years. And 27% said they have been riding more than five years.

The routes with the highest percentage of new riders were the Orange and Green routes, where 35% and 32% respectively said they started using Advance Transit within the past year. The high level of growth and turnover among people using Advance Transit is reflected in the fact that 51% of survey respondents reported that they started using Advance Transit within the past two years. This was true for 61% of Orange route riders and 60% of Green route riders.

Figure 3.7 *Number of Years Riding Advance Transit*

When did you first begin using Advance Transit?

	1999	2004	2008	2012
Within 1 year	34%	31%	33%	27%
1-5 years	23%	46%	45%	45%
More than 5 years	42%	23%	22%	27%

Twenty-nine percent of survey respondents said that they have lived in the Upper Valley for two years or less. (This includes 15% who have lived in the area less than one year, and 14% who have lived in the Upper Valley for 1-2 years.) Fifty-two percent have lived in the Upper Valley more than five years. The Red route has the highest percentage of long-term residents, with 69% of Red route riders reporting that they have lived in the Upper Valley for more than five years.

Thirty-one percent of Advance Transit riders said that they have lived at their current address for less than one year. A combined total of fifty-four percent have lived at their current address for two years or less. Nearly two-thirds of Green route bus riders report that they have lived at their current address for two years or less.

Length of residency changes when Dartmouth College students are excluded. Without Dartmouth College students, the percentage of bus riders who have lived in the Upper Valley for two years or less drops from 29% to 19%. The percentage who have lived in the Upper Valley for more than five years jumps from 52% to 64%. The percentage of Advance Transit riders who have lived at their current address for more than five years increases from 30% to 37%.

Even without Dartmouth College students, the percentage of Green route riders who have lived at their current address for two years or less remains surprisingly high, at 63% (37% less than one year, plus 26% 1-2 years).

3.6 Dartmouth Students

Nineteen percent of survey respondents indicated that they are Dartmouth College students. This is a significant increase from past years, when 12% (2004) and 13% (2008) of Advance Transit survey participants said they were enrolled at the college.

The distribution of students by type has also changed over the years. In 2004, 46% of Dartmouth's student bus riders were undergraduates. The undergraduate percentage dropped to 19% in 2008, and then rebounded to 37% in 2012. The distribution of Dartmouth students by type is presented in Figure 3.8.

Figure 3.8 *Distribution of Dartmouth College Students*

	2004	2008	2012
Undergraduate	46%	19%	37%
Tuck	10%	8%	4%
Thayer	5%	11%	14%
Medical School	5%	19%	9%
Arts & Science Graduate	24%	41%	29%
Other Graduate	10%	3%	8%
	100%	100%	100%

Fifty-five percent of the 112 Dartmouth students who participated in the survey live in Hanover, 16% live in downtown Lebanon, and 16% live in West Lebanon. Five percent live in Norwich, 3% in Wilder, 3% in Enfield, and 2% in White River Junction.

Sixty-four percent of Dartmouth students filled out survey forms on the Blue route. Seventeen percent rode the Orange route, and 10% were on the Brown route. The Green route accounted for 6% and the Red route accounted for 4% of Dartmouth College students.

3.7 Employment Status and Work Sites

Fifty-three percent of Advance Transit bus riders said they are employed full-time. Another 22% said they are employed part-time. Six percent are retired, and 13% are unemployed. Another 6% chose “other” as their employment status. Entries under “other” included student, disabled, and volunteer.

The percentage of unemployed bus riders increased from 6% in 2008 to 13% in 2012. The percentage of part-time workers also increased, from 16% in 2008 to 22% in 2012. The percentage of full-time workers dropped from 66% in 2008 to 53% in 2012.

Twenty-three percent of survey participants said that they work in Hanover, 23% said they work on the DHMC campus, and 11% said they work in the vicinity of the Route 12A plazas. Five percent said they work in downtown Lebanon, 5% said White River Junction, and 3% said West Lebanon.

Advance Transit passengers were asked: “Who is your employer?” In response, riders named over 130 individual businesses. Twenty-six percent of the Advance Transit passengers who participated in the survey said they are employed by Dartmouth College. Survey results suggest that Dartmouth employees and students together account for 36% of Advance Transit ridership. The distribution of Dartmouth College employees was 65% on the Blue route, 15% on the Orange route, 10% on the Orange route, 9% on the Green route, and 1% on the Red route.

Ten percent of Advance Transit passengers said they are employed by the Dartmouth-Hitchcock Medical Center. The distribution of DHMC employees was 85% on the Blue route, 9% on the Red route, 4% on the Orange route, 2% on the Green route, and 0% on the Brown route.

Other companies that accounted for three or more Advance Transit riders include Applebee’s, BJ’s, Dartmouth Printing, Hannafords, Hanover Co-op, Kleen Inc, Price Chopper, Shaws, and Walmart.

3.8 Automobile Availability

Sixty-one percent of Advance Transit survey respondents said they had no car available. This compares with 47% who said they had no car available in 2008, 57% who said they had no car available in 2004, and 75% who had no car available in 1999.

Stated differently, the percentage of Advance Transit riders who chose to ride instead of drive was 25% in 1999, 43% in 2004, 53% in 2008, and 39% in 2012. The percentage of Advance Transit riders that left cars at home increased from 23% in 2004 to 29% in 2008, and then dropped back to 23% in 2012. The percentage that parked near an Advance Transit bus stop went from 8% in 2004 and 10% in 2008 to 3% in 2012.

Nineteen bus riders said they parked their cars near Advance Transit bus stops. Over half of these people parked at the church parking lot in Canaan. Two people said they parked at the Norwich park and ride lot. Three people parked at a Stagecoach park and ride lot. The number of people who said they parked near a bus stop dropped from 51 in 2008 to 19 in 2012.

Sixty-one percent of Advance Transit riders indicated that they have a valid drivers license, which compares with 60% in 2008.

Figure 3.9 Automobile Usage

If you have a car available for your use, where is this car now?

	2004	2008	2012
No car available	57%	47%	61%
Home	23%	29%	23%
DHMC Lot	0%	1%	3%
Dartmouth or Hanover lot	2%	3%	2%
Someone else is using it	8%	7%	5%
Garage for repairs	1%	1%	3%
Near AT bus stop	8%	10%	3%
Other	2%	2%	1%
TOTAL	100%	100%	100%

3.9 Service Evaluation

Passengers were asked to evaluate the quality of service provided by Advance Transit. They were asked to rate the cleanliness of buses and the politeness of bus drivers. They were asked if buses are comfortable, whether seats are readily available, whether buses ran on time, if bus schedules are easy to find, and if schedules are easy to understand. Riders were also asked about transfers between routes.

Figure 3.10 Evaluation of Service Quality for 2012

	Nearly Always	Usually	Sometimes	Almost Never
Buses are clean	81%	17%	3%	0%
Buses are comfortable	76%	21%	3%	0%
It is easy to find a seat	70%	28%	3%	0%
Drivers are polite and helpful	78%	19%	4%	0%
Drivers are safe	80%	18%	2%	0%
Buses are on-time in the morning	57%	34%	8%	0%
Buses are on time in the afternoon	53%	26%	11%	1%
Bus schedules are easy to find	81%	15%	3%	0%
Bus schedules are easy to understand	66%	26%	6%	2%
Transfers between routes are easy	65%	30%	5%	0%

Ninety-eight percent of Advance Transit passengers said buses were usually or nearly always clean. Ninety-seven percent said that buses were usually or nearly always comfortable. Ninety-seven percent said that bus drivers are usually or nearly always polite and helpful. Ninety-eight percent said that drivers were usually or nearly always safe. These findings are consistent with rider responses to the same questions in 1999, 2004, and 2008.

There has been some shift in passenger perception about the availability of seats. In the 1999 survey, 66% of riders said it was “nearly always” easy to find a seat. In 2004, 71% said that it was “nearly always” easy to find a seat. In 2008, this number dropped to 55%. In the 2012 survey, 70% said it is “nearly always” easy to find a seat.

In 2008, a combined total of 89% said it was “nearly always” or “usually” easy to find a seat. In 2012, the combined total was 98%. In 2008, 13% of Blue route riders and 13% of Red route riders said it was only “sometimes” easy to find a seat. In 2012, only 3% of Blue and Red route riders said it was only “sometimes” easy to find a seat.

Concerns about morning on-time performance were greatest on the Green route, with 15% of Green route riders saying buses were “sometimes” on time in the morning and 2% of Green route riders saying they were “almost never” on time in the morning. Brown route riders had the least concern about morning on-time performance, with 84% reporting they were “nearly always” on time, and the remaining 16% reporting that buses were “usually” on time.

In 2012, 11% of all riders said buses were “sometimes” or “almost never” on time in the afternoon, an improvement from 16% in 2008. Concerns about afternoon on-time performance were expressed by 22% of Green route riders, 19% of Orange route riders, and 10% of Blue route riders. Afternoon on-time performance was an issue for 6% of Red route riders and 5% of Brown route riders.

Ninety-six percent of riders felt that schedules are “nearly always” or “usually” easy to find. Ninety-two said schedules are “nearly always” or “usually” easy to understand. Schedule availability was an issue for 14% of riders in 1999, 6% in 2004, 6% in 2008, and 3% in 2012. Understanding schedules was a concern for 18% of riders in 1999, 13% in 2004, 9% in 2008, and 8% in 2012.

The percentage of riders who said that transfers between routes are “nearly always” easy was 46% in 1999, 58% in 2004, 60% in 2008, and 65% in 2012. The percentage who said transfers are “sometimes” or “almost never” easy was 9% in 1999, 6% in 2004, 8% in 2008, and 5% in 2012.

3.10 Technology Use

Riders were asked if they used:

- Internet access at home
- Internet access at work
- Smart phone
- Regular cell phone

Two-thirds of Advance Transit riders said they have Internet access at home. Fifty-two percent said they have Internet access at work. Twenty-eight percent said they use a smart phone. Fifty-two percent said they use a regular cell phone. A combined total of 77% said they used either a smart phone or a regular cell phone.

Eighty percent of Brown route riders and 76% of Blue route riders said they had Internet access at home. Only 51% of Red route riders said they had Internet access at home. Two-thirds of Green route riders and 63% of Orange route riders had Internet access at home.

Smart phone use was greatest on the Blue route, with 35% of Blue route riders saying they used a smart phone. Twenty-one percent of Red route riders and 22% of Green route riders use a smart phone. The Red route had the highest percentage of regular cell phone users, with 59% of Red route riders saying they used a regular cell phone.

3.11 Demographics

Results from the 2012 survey show that 50% of survey participants were male and 50% were female. In 2008, 47% of survey participants were male and 53% were female. In 2004, 43% were male and 57% were female. In 1999, the number of males and females was evenly divided.

Slightly more females than males completed surveys on the Blue and Green routes (Blue 53% and Green 55%). The percentage of males was somewhat greater on the Red, Orange, and Brown routes (Red 54%, Orange 56%, and Brown 53%).

Considered town by town, the percentage of female riders was greatest for Enfield at 68%, followed by Canaan with 59%, Wilder with 58%, and Hanover with 57%. The percentage of male riders was greatest for West Lebanon at 70%, followed by Norwich with 62%, and Hartford Village with 55%. Two-thirds of the 33 riders who live outside of Advance Transit's six participating towns were female.

Figure 3.11 Distribution of Advance Transit Riders by Age Group

	1999	2004	2008	2012
Under 18	1%	8%	3%	4%
18-25	17%	21%	22%	26%
26-40	39%	24%	29%	32%
41-65	37%	40%	41%	30%
Over 65	5%	8%	5%	7%

Distribution by age group is shown in Figure 3.11. The average age of Advance Transit riders appears to have decreased since the last survey was completed. In the 2012 survey, 37% of survey participants were over the age of 40. This compares with 42% in 1999, 48% in 2004, and 46% in 2008. Growth in the 18-25 and 26-40 year old brackets offset a drop in the 41-65 year old bracket.

The percentage of riders under the age of 18 was greatest on the Brown route, with 18% saying they were 17 or younger. The next highest was Blue at 4%. The percentage of riders over the age of 65 was greatest on the Brown route at 24%, followed by the Red route at 10% and the Orange route at 8%. Four percent of Green route riders and 3% of Blue route riders were over 65.

3.12 Weekend and Saturday Service

The survey did not ask any questions about weekend or evening service. Without prompting, eighty-nine Advance Transit riders used the comment section to ask for weekend service. Weekend requests were made by 16% of the Advance Transit riders who participated in the survey. Forty-nine individuals requested evening service. Evening requests were made by 9% of survey participants.

Thirty-six percent of the requests for weekend service came from Blue route riders. Thirty-five percent came from Red route riders. Nineteen percent came from Orange route riders, while the Brown and Green routes accounted for 7% and 3% of weekend requests. Twenty-five percent of the requests for weekend service came from Dartmouth College students.

Sixty-four percent of requests for weekend service came from Lebanon residents. Hanover accounted for 15% of weekend requests, Hartford accounted for 11%, and Norwich accounted for 3%. Three percent of weekend requests came from Enfield residents, and 2% came from Canaan residents. Seventy-three percent of the requests for weekend service came from people who said they had no car available.

Forty-nine percent of the requests for evening service came from Blue route riders. The Orange route accounted for 20%, Red for 16%, Green for 8%, and Brown for 6%. Residents of Lebanon accounted for 59% of evening service requests. Dartmouth students accounted for 37% of evening service requests.

3.13 Passenger Comments and Suggestions

Passengers were asked “What do you like about Advance Transit bus service?” and “What can we do to improve the service?”

3.13.1 “What do you like about Advance Transit bus service?”

Many survey participants offered words of praise and appreciation for Advance Transit. They like that it is free. They like the friendly and helpful drivers. And they appreciate the convenience and the environmental benefits of the service. A Hanover resident said: “The drivers are always friendly and helpful and the buses are always on time and reliable. I also like how frequently the buses come.”

A Lebanon resident said: “AT service is a wonderful and important resource in the Upper Valley. It seems very well run and I think over time it will become more important.”

A Blue route commuter who lives in Canaan said: “AT is a wonderful service and I so appreciate not having the driving and parking frustrations. Thank you!” A Lebanon resident said: “I bought my house in Lebanon because it was within walking distance of a bus stop.”

A Hanover resident on the Orange route said:

I like the exercise I get to and from the bus every day. I like the quirky-crazy mix of people - great! I like to get work done on the way while riding. Saves gas - good for me, good for the environment. I like that it really matters to those who can't drive. Wonderful service.

A Lebanon resident on the Orange route said:

I love the community service aspect of AT. Newcomers are astounded at the extreme helpfulness of drivers in accommodating passengers - and old-timers appreciate it too.

Many riders said they would have difficulty getting to work without the service. A White River Junction resident on the Orange route said: “Without the AT, I wouldn't have a way to work. I think it's one of the Upper Valley's best assets.” A Lebanon resident on the Red route said: “Without them, I'd lose my job. Very thankful we have you guys.” An Enfield resident on the Red route said: “Thank God for the bus. I would not have a job!”

A Lebanon resident on the Red route said:

I'm just glad to have the bus as an option. It saves me money and I don't have to inconvenience my family by taking our one car.

A Lebanon resident on the Blue route said:

It is convenient, the drivers are always polite and helpful. It helps me because we only have one vehicle and with me being able to take the bus to work, my husband who is disabled doesn't have to get up with our grandchildren (who we are raising) and disrupt their schedule. It is a good service all the way around. Thank you!

A Hanover resident on the Green route said: "I like the 'Where's my bus?' service. It helps when the buses are late and I'm worried I missed it." A Lebanon resident on the Blue route said: "I love the online program 'Where's my bus?' It is very useful!"

A Lebanon resident on the Red route said: "Transfers between routes are very easy." A senior citizen on the Brown route said: "I love the bus service. It enables me to maintain my independence while living at Kendal."

3.13.2 *"What can we do to improve the service?"*

Weekend and evening service

While passengers praised Advance Transit, they also offered suggestions for improving the service. The most common requests were for weekend buses and for later evening service, as discussed above in Section 3.12. A Lebanon resident on the Red route said:

Please, please, please start running the service during the weekend. I work five days a week. Two of them are Saturday and Sunday. I HATE taking taxis.

A Blue route passenger from Lebanon said: "Not running on weekends makes it hard to get groceries." Another Blue route passenger said: "There should be at least two trips to the plazas on weekends. Many graduate students live in Lebanon and have no car. So grocery shopping is a problem for them."

A Green route passenger who lives in West Lebanon said: "It would be nice to see buses run longer in the evening. It would make it a lot easier to get home when working overtime." A Blue route passenger said: "I often have classes and meetings until 9:00 p.m. in Hanover, but it's hard to get back home to Lebanon sometimes." A Hanover resident on the Orange route said: "It would be nice if the buses ran a little later in the evening."

More frequent Green and Orange route service

Several Green route and Orange route riders asked for more frequent service. A Green route rider who lives in White River Junction said: "It would be nice to have an option to arrive in Hanover at 8:00 or 8:15 a.m." An Orange route rider who lives in West Lebanon said: "It could improve if buses ran more often around commute times (7:30 – 9:30 a.m., 4:40 – 6:30 p.m.)." A Red route rider said if you missed your Orange route connection in West Lebanon, you would be "stuck there for one hour."

Maps and Timetables

Several people asked for improvements in printed schedules. An Enfield resident on the Red route said: “I would make the paper schedules a lot easier to follow!” A Hanover resident on the Orange route said: “Better maps are needed to know where stops are.”

More service to Canaan and Enfield

Several people asked for midday service to Enfield and Canaan. A Canaan resident said: “I work 6:30 a.m. to 2:00 p.m. everyday and the bus doesn’t head back to where I live until 4:20 p.m.” An Enfield resident said: “I wish there was a noon bus to Enfield. I do not drive and have to have to leave my home at 8:50 a.m. when I have a 2:00 p.m. appointment.”

Schedule coordination with the DHMC Centerra Shuttle

Several people asked that times for the DHMC Centerra Shuttle be better coordinated with Blue route schedule times. A Lebanon resident said: “I volunteer at an off-side DHMC office and just miss the hospital shuttle on the way there. It would be helpful if the two schedules were closer together.”

Service expansion

Bus riders asked Advance Transit to add bus service to additional locations. Suggestions included service to:

- Lyme
- Thetford
- Claremont
- Quechee
- Hartland
- Alice Peck Day Hospital
- Dartmouth Coach terminal in Lebanon.

Other suggested improvements

A Lebanon resident on the Red route said: “Drivers need to ask young folks to move farther back when handicapped folks enter the bus.” A Lebanon resident on the Blue route said: “Please discourage cell phone use on the bus.” Another Lebanon resident on the Blue route said: “Drivers should not play radios/music in the bus.”

Other suggested improvements included:

- 15-minute headways from DMS to DHMC earlier in the morning
- 30-minute service on the Red route earlier in the morning
- More Blue route buses via Old Etna Road and the Wolf Road bus stop
- Bus service for Sachem Village
- A Red route bus stop at K-Mart
- A consistent stop pattern for all Red route buses
- Shelters, benches, and trash bins at more bus stops
- Low-floor buses on the Green and Orange routes to better accommodate strollers
- Seat belts for passengers

Someone suggested that a list of bus stops be added to the Advance Transit web site, with links to the appropriate route and schedule pages. Someone else suggested a mobile app for 'Where's my bus?'

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Chapter 4: Community Involvement

This chapter describes efforts to involve members of the public in the transportation study and to obtain ideas and suggestions for the future of Advance Transit's public transportation program. The first section describes Advisory Committee meetings held during the study. The second section describes discussions with stakeholders. The third presents findings from public workshops.

The chapter is structured as follows:

- Section 4.1 Advisory Committee Meetings
- Section 4.2 Stakeholders Meetings
- Section 4.3 Public Workshops – May 15, 2012

4.1 Advisory Committee Meetings

The Advance Transit's Planning Committee served as the Advisory Committee for this planning effort. The Advisory Committee met at various times during the study to discuss the goals of the project, to review draft materials, and to provide guidance to the consultant on future steps in the planning process.

May 14, 2012

The consultant asked committee members to share their expectations for the Advance Transit planning effort. A committee member from the Two Rivers-Ottawaquechee Regional Commission highlighted issues identified in the Vermont Agency of Transportation planning grant. The grant focuses primarily on improving Advance Transit's Orange and Green routes. It also mentions the possible extension of transit service to the Upper Valley Aquatic Center in White River Junction. While there may be some interest in future a transit link to Woodstock, the AOT grant does not address this type of service expansion.

A committee member from the Upper Valley Lake Sunapee Regional Planning Commission said the transit study should help Advance Transit prepare responses to possible reductions in future federal, state, and local funding. He suggested that performance measures should be used to identify routes and services that may be candidates for service cuts.

He suggested that the project needs to revisit service options for Alice Peck Day Hospital. He also called attention to a planned 154-unit residential development in

Enfield. The developer of this project has told town officials that he would like his project to be served by Advance Transit.

A committee member from Dartmouth College listed planning issues at the college that will be relevant for the Advance Transit study. These include ongoing efforts to provide graduate student and faculty housing, employee parking requirements, employees who travel between Hanover and Centerra, and efforts to handle parking for conferences at the Hanover Inn. He suggested that the Advance Transit study will be relevant for a new Dartmouth College Master Plan, which is in the initial stages of development.

A committee member from the town of Hanover described an employee parking study that has recently been commissioned by the town of Hanover. He suggested that the Advance Transit plan will need to be coordinated with the Hanover parking study, because shuttles are likely to continue to be an important part of the town's parking management strategy. The town's consultants have started to inventory available parking spaces and parking requirements in the downtown.

The Planning Committee briefly discussed Advance Transit goals that were established in 2002. Possible additions include goals that focus on environmental sustainability, maintaining a quality workforce, providing a high level of customer service, and regional partnerships.

July 18, 2012

The consultant provided an overview of draft chapters for three planning tasks: review of existing services, passenger survey, and public participation. A committee member asked if the performance measure analysis revealed underperforming routes that might be candidates for cost-saving reductions. The consultant reported that all routes have high productivity. He said that the Lebanon-Canaan segment of the Blue route, while productive, has a relatively high cost and limited municipal funding support.

The committee discussed the results of the passenger survey. Topics of interest included changes in auto availability and turnover among Advance Transit users. The consultant reported that even without Dartmouth College students, a significant percentage of Advance Transit users are relatively new users.

The consultant provided an update of ongoing interviews with municipal planners. He has been told that a proposed River Park transit hub appears in the third phase of a seven-phase plan. Advance Transit will contact the developer to find out whether a River Park transit hub will fall within the five-year planning horizon of this study.

The consultant presented a list of service ideas that he expects to address in a service design chapter. The committee was in general agreement with his approach. They suggested, however, that reconsideration of Saturday service should be added to the list, even if funding is not available at the present time.

The committee asked the consultant to identify longer term planning issues while working on the five-year plan. One issue to keep in mind is anticipated congestion on Route 120 and the role that Advance Transit might play in addressing this situation.

The committee discussed proposed design standards for Route 4 in Enfield, and route options for a possible Alice Peck Day/City Hall/Centerra service. Committee members suggested that such a route might include stops at Hypertherm on Heater Road, Dartmouth Coach on Etna Road, and the new DHMC facility between Old Etna Road and Heater Road.

October 15, 2012

The consultant provided an overview of tasks completed to date, including drafts of chapters 2 through 7. Committee members discussed short-term changes outlined in Chapter 6. They approved proposed timetable adjustments for the Blue, Green, and Brown routes. The committee directed Advance Transit management to consult with Lebanon officials regarding the proposed elimination of Red route diversions to the Airport Industrial Park.

Dartmouth College's representative reported that the proposed Sachem Shuttle would serve medical students as well as students enrolled at Tuck and Thayer. The shuttle would need to operate until 10:00 or 11:00 p.m. While 15-minute peak-hour headways would be better, budgetary constraints may require limiting phase one service to every 30 minutes. It may be necessary to operate the shuttle during the summer. Saturday service may also need to be considered. Funding for a Sachem Shuttle would likely be the responsibility of Dartmouth College.

Some concern was expressed about longer travel times for Green Route Express commuters traveling from West Lebanon to Hanover. This could be addressed by offering one or two peak-hour trips via Route 10. A committee member asked about the impact of eliminating service to Orange route bus stops along Route 10.

Committee members agreed with Advance Transit management that the afternoon Orange route bus should not be diverted to the Aquatic Center, because this would create a 2-hour gap in service to the VA Hospital.

The consultant suggested that the most appropriate response to a possible reduction in FTA funding in New Hampshire would be to restructure or eliminate Blue route service to Enfield and Canaan. He will add a section to Chapter 7 describing a less expensive strategy for serving these outlying communities.

Dartmouth College may once again consider a peripheral parking lot on Route 120. The consultant will revisit the Route 120 parking lot shuttle plan developed for the 2008 Transit Development Plan. He will include an updated discussion in Chapter 7.

4.2 Stakeholder Meetings

The consultant and Advance Transit management discussed the future of Advance Transit services with Upper Valley stakeholder groups. This included:

- Dartmouth College officials
- Dartmouth Hitchcock Medical Center officials
- Town and city managers and planners
- Alice Peck Day Hospital representatives and supporters
- Representatives and employees of Etna Road businesses

Dartmouth College – May 16, 2012

The discussion with Dartmouth College officials covered a variety of important planning and development issues.

1. Increasing numbers of college employees work in downtown Hanover south of Wheelock Street. There are now more than 800 downtown Dartmouth employees. This number is expected to grow to 900. The college owns 350 parking spaces at the Thompson Arena, plus numerous smaller lots in the downtown. Downtown parking spaces and requirements are currently being inventoried through a town-sponsored parking study.
2. Changes in Dartmouth College parking policies may be needed. Employees who park in small lots associated with downtown buildings may be required to begin paying for parking permits.
3. The college anticipates moving as many as 125 employees from Centerra to the main Hanover campus.
4. The Hanover Inn will add ten new parking spaces for overnight guests, increasing the on-site total to 28 spaces. The Inn anticipates directing conference participants to park in the Dewey lot. They would then travel to and from the Hanover Inn via shuttles. This may require increasing the capacity of the Dartmouth Downtown Shuttle on days when conferences are scheduled.
5. Graduate student housing at Sagem Village has been expanded to include 250 residential units. A shuttle between Sagem Village and the College could remove a significant number of cars from the campus. A Sagem Village shuttle would likely need to include evening service.
6. The college is reconsidering the possible development of a parking structure on the Hanover campus and a parking lot on Route 120. Both projects might require shuttle links to various campus destinations.

7. The college remains interested in the design and construction of an improved Advance Transit and intercity bus stop in front of the Hopkins Center.

8. Rivercrest may be a site for future faculty housing, but this is unlikely to be developed within the five-year horizon of this transit study.

9. The college is just beginning work on a new Campus Wide Master Plan. Advance Transit can and should contribute to this planning effort by sharing insights and ideas for future strategies and improvements.

Dartmouth-Hitchcock Medical Center – May 16, 2012

A meeting with DHMC officials addressed a number of future planning issues:

1. DHMC expects to open its new Heater Road facility in October of 2012. This building will provide workspace for about 200 employees, with an anticipated 500 patient visits per day. It will accommodate a variety of outpatient services, while also providing space for primary care physicians.

2. DHMC employees who schedule primary care doctor visits during the day will benefit if Advance Transit can provide direct shuttle links between the main hospital and the Heater Road facility.

3. Advance Transit's ability to provide front door service to the Heater Road building will depend on the configuration of the access road and adjacent parking. While a front door bus stop would be preferred, this may not be possible. If buses cannot maneuver safely to the building entrance, accessible bus stops will need to be designed and constructed adjacent to the Heater Road driveway entrance, on both sides of the road.

4. DHMC will construct a new Williamson Building at the main hospital campus. This facility will accommodate between 300 and 400 new employees, with an associated need for expanded parking. Existing surface parking spaces will be disrupted during construction. The Medical Center anticipates expanding Lot 9 to accommodate some of the resulting parking demand. If patients and visitors are directed to Lot 9, they can use seats that are currently available on the midday Lot 9 shuttle. If large numbers of employees are added to Lot 9, there will likely be a need to expand the capacity of the shuttle program during peak hours.

5. DHMC has reduced the frequency of its Centerra Shuttle from every 15 minutes to every 30 minutes. The hospital replaced the two 10-passenger Sprinters previously used for this service with a single lift-equipped light-duty bus.

6. While there is no particular need to change the ownership and operation of the Centerra Shuttle, DHMC is willing to consider the pluses and minuses of paying Advance Transit to operate this service. One argument in favor of such a move is the potential for improved coordination between the Centerra bus and Advance Transit Blue route service.

Town and city managers and planners – May 16, 2012

A meeting with municipal employees was held at Lebanon City Hall. Participants included the Hanover town manager, the Lebanon city manager, the Lebanon city planner, the Hartford town planner, and a representative from the Norwich planning department.

The Hartford town planner asked about extending Advance Transit bus service to West Hartford and Quechee. This led to an extended discussion about possible reductions in future taxpayer support for Advance Transit, and the need to preserve Advance Transit's existing services. Municipal officials agreed that a strategy is needed for ensuring that the Upper Valley's transit program is financially sustainable.

The group discussed the prospects for worsening traffic congestion and possible gridlock on Route 120, as development continues and commuter traffic increases. The consultant identified four components of a public transportation response to regional congestion:

- Frequent all-day bus service on existing, heavily traveled transit routes within Advance Transit's core service area (Lebanon, Hanover, Hartford, and Norwich)
- Bus or van links to industrial parks and office parks that are located within the core area but are not on regular transit routes (for example, Centerra, Etna Road, Heater Road, Airport Industrial Park, etc.)
- Local bus service to existing and future park and ride lots located within the core service area
- Regional commuter bus services from outlying towns and park and ride lots

Participants agreed that Advance Transit should focus on improving and sustaining its core in-town service. Someone suggested that Advance Transit could help industrial and office park employers design employer-operated shuttles. Employer-sponsored services that prove effective could become candidates for regular Advance Transit bus service in the future.

Someone pointed out that Advance Transit could use existing buses to serve park and ride lots within the core service area – if such parking lots existed. The group recognized a longstanding need for commuter parking lots in Norwich and at the south end of the Route 120 corridor.

The group spent considerable time discussing the need to find an alternative funding source to pay for congestion solutions, including ongoing local transit operations. Most agreed that this should probably involve some sort of parking-related fee, since traffic levels and parking supply are closely connected. Fees could be assigned to employers and businesses who provide the parking, or they could be charged directly to the individuals who drive into congested areas to park in the available spaces.

Participants recognized that it would take some time to come up with an appropriate funding mechanism. They suggested that an interim strategy is needed to keep Advance Transit fully funded while longer-term solutions are being developed. The group highlighted the importance of keeping the second Red route bus operating after three-year CMAQ funding has expired.

The Lebanon city manager reported that the city is developing a five-year plan that has important parallels with the Advance Transit discussion. The city's plan will focus on economic vitality, public safety, sustainability, and stewardship. It anticipates a two-year transition period, leading to three years of restructured policies and practices. A new Master Plan will be developed to address a longer-term planning horizon.

Participants suggested that interim funding for Advance Transit could include a mix of municipal appropriations, private donations, and available federal program dollars.

Enfield Municipal Officials – July 17, 2012

The consultant met with Enfield municipal officials together with Advance Transit managers and representatives of regional planning agencies. The discussion focused on the Laramie Farm subdivision proposed for Route 4 in Enfield. The developer has requested that Advance Transit buses turn into the project driveway, and he has offered to develop a turn-around and bus stop to accommodate buses and transit users.

The Laramie Farm project envisions seven buildings and 154 rental units, accommodating an anticipated 300 people. Most of the units will be either studio or one-bedroom apartments. Target renters include people who commute to jobs in Lebanon and Hanover.

The consultant suggested that Advance Transit should not try to divert existing Blue route buses into this facility. Blue route buses that originate in Canaan are already nearly full. Existing commuters are unlikely to tolerate diversions that might add up to ten minutes to their daily commute. The group discussed a variety of possible alternative strategies:

1. Special commuter service could be added for the town of Enfield, with stops to accommodate a variety of Enfield neighborhoods, including Laramie Farm. This could include midday service. It is unknown how expanded Advance Transit bus service would be paid for.
2. New regional subscription buses and vanpools could be developed to accommodate employees of DHMC, Dartmouth College, Hypertherm, and others.
3. The Laramie Farm developer could purchase a 10-passenger Sprinter and organize a special commuter vanpool service for tenants. Dartmouth College and other employers might be willing to assist with this approach.

4. Improvements could be made to existing Advance Transit bus stops that are relatively near to Laramie Farm. To be effective, this would need to include an improved pedestrian pathway linking the residential units and the Route 4 bus stops.

Etna Road Employers – July 17, 2012

The consultant, Advance Transit managers, and regional planners met with officials and employees of Hypertherm and Creare at a Hypertherm facility on Etna Road. Four Hypertherm and two Creare associates participated in the discussion.

Hypertherm has approximately 1,000 employees, with roughly 600 who work the first shift. The average commute distance for Hypertherm employees is 48 miles. The company would like to make it easier and more affordable for staff members to travel to and from work. The company is also interested in making a positive contribution to environmental sustainability. Hypertherm would like public buses to serve its new Heater Road facility that is due to open in the fall of 2012. In addition to benefiting workers, this would help the building qualify for special environmental certification.

Some employees who currently work on Etna Road will be shifted to Heater Road. Hypertherm has encouraged the operators of commuter buses from Vermont to add Heater Road as a stop. So far, only one of two available Vermont buses has agreed to do so. This may change when a Labombard Road connector is constructed in 2013 or 2014.

In the interim, the company is looking for a way to provide arriving and departing employees with access to the new Heater Road site. One way to accomplish this would be to operate special vans to meet commuter buses that serve transit hubs in Hanover and in downtown Lebanon. In addition, some Hypertherm employees may need to travel between work sites during the middle of the workday. They level of future demand is unknown.

Creare has between 100 and 125 employees. The company is interested in helping provide improved commuter access for employees who live in outlying communities. Employees from Hypertherm and Creare suggested that there is a particular need for commuter bus service from New London and Grantham.

A Hypertherm employee who lives in Enfield often uses her bicycle to travel between a Blue route bus stop and Etna Road. She says that the bicycle racks on Advance Transit buses are sometimes filled. She suggested that larger bike racks be used to increase capacity.

Focus group participants suggested that candidates for new commuter bus routes include Wilder/Norwich, Woodstock/Quechee, and New London/Grantham. Hypertherm officials report that the most important daytime production shift is 7:35 a.m. to 3:10 p.m. Most administrative staff work from 8:00 a.m. until 4:30 or 5:00 p.m. Creare representatives said that buses that serve these times would also benefit their employees.

Alice Peck Day Hospital – July 17, 2012

Participants in the APD focus group included a representative of Alice Peck Day Hospital, a representative from the Woodlands retirement community, a representative of the United Valley Interfaith Council, Advance Transit managers, and regional planners from Vermont and New Hampshire.

The initial discussion focused on what has changed since the 2010 Transportation Service Plan for Alice Peck Day Hospital. The 2010 plan anticipated a future application for FTA New Freedom funding. This program has since been eliminated, with funds shifted instead to the Section 5310 elderly and handicapped program.

The 2010 plan envisioned a “flex” service, in part to qualify for “New Freedom” funds. Since this program no longer exists, it may be possible to move instead toward a more traditional “fixed-route” service design.

Since the 2010 study was completed, the Woodlands residential community has opened. There are currently 47 residential units, with about 75 residents. Two more units are anticipated for the near future. A related change since 2010 is increased demand for the van service owned and operated by Harvest Hill, the adjacent APD retirement facility. Residents of Harvest Hill and Woodlands use this van.

Another change since 2010 that may be relevant for the APD transit plan is the opening of the DHMC Aging Resource Center in Centerra. This facility features information and assistance for seniors and their families, workshops, support groups, and a reading room and lending library.

Advance Transit reports that it has capital funding in place to purchase a small lift-equipped bus to serve Alice Peck Day Hospital.

Someone suggested that an APD bus route that linked the hospital with downtown Lebanon and Centerra could also serve the new Hypertherm facility on Heater Road. Other participants suggested the new DHMC facility on Heater Road and the Dartmouth Coach terminal on Etna Road as possible stops. The Dartmouth Coach idea assumes a Labombard Road connection between Heater Road and Etna Road. This is anticipated for 2013 or 2014.

The group felt that it might be possible to assemble partnership funding from Alice Peck Day, Hypertherm, Dartmouth Coach, and DHMC to cover operating costs associated with a future Alice Peck Day bus route. If Hypertherm is interested, midday service could be expanded to include commuter links between Lebanon City Hall and Hypertherm work sites on Heater Road and Etna Road.

4.3 Public Workshops – May 15, 2012

Public workshops to discuss the future of Advance Transit’s fixed-route transit program were held on Tuesday, May 15, 2012. Workshops were held at the Kilton Library in West Lebanon, at Lebanon City Hall, and at the Dartmouth-Hitchcock Medical Center.

Kilton Library

A workshop was held at the Kilton Library from 9:30 a.m. until 11:00 a.m. This location was selected because it is adjacent to the Advance Transit West Lebanon transfer hub, which is served by Red, Green, and Orange route buses. In addition to Advance Transit staff, five members of the public participated in the discussion. Comments included the following:

1. A West Lebanon resident suggested that benches should be included at Advance Transit bus stops wherever possible. She described seeing a woman sitting on the curb at an Advance Transit bus stop on Seminary Hill. She said this location at one time had a bench for waiting bus riders.
2. The same person said that she is a member of the United Valley Interfaith Project and asked about future Advance Transit service to Alice Peck Day Hospital.
3. A Wilder resident who lives in a housing development on Bugbee Street asked if bus service could be added on her road. She currently walks 20 minutes to reach a bus stop, crossing two ramps for Interstate 91. She asked if a few Green route trips a day could be routed via Bugbee Street.
4. A resident of White River Junction suggested that a smart phone app is needed to display Advance Transit “next bus” information.
5. The same White River Junction resident said that Advance Transit was a topic of discussion in recent postings on the Norwich List Serve. Requests included extending Advance Transit service in the evening until 8:00 p.m., and adding a route from Norwich to downtown White River Junction via Wilder.
6. A staff member from The Haven asked if Advance Transit buses could serve apartment complexes located on Bugbee Street. She explained that families staying at the homeless shelter often transition to subsidized housing units located on Bugbee Street. She said that Advance Transit provides an important service for these families.
7. The same person stressed the need for continued Advance Transit service to the Gilman Center in White River Junction. She said that many important social service agencies are located at the Gilman Center.
6. A workshop participant said that bike racks on buses are very helpful.

7. Another staff member from The Haven said that people use Advance Transit to access retail jobs at the Route 12A Plazas. She said that most of these people need to be able to get to work on weekends.

8. A disabled person who came to the Kilton Library workshop did not participate because he found it too difficult to walk to the rear entrance of the library. Library personnel said that they could not open the front door until regular library hours later in the day. When asked to provide his comments, the disabled person complained that bus drivers do not instruct able-bodied riders to move out of handicapped seats in the front of the bus, requiring him to struggle with his crutches to the back of the bus for a seat.

Lebanon City Hall

A workshop was held at Lebanon City Hall from 12:00 p.m. until 1:30 p.m. In addition to Advance Transit staff, nine people participated in this discussion, including five residents of the Rogers House, a nearby senior citizen apartment building. Comments included the following:

9. A Rogers House resident said she started using Advance Transit after falling and breaking her arm. She said the drivers are all very courteous. She said, “They helped me a lot.” She found the service to be very convenient, and she started “spreading the word” to other Rogers House residents.

10. A Rogers House resident said that some residents would like evening service to functions in Hanover. He also expressed an interest in Saturday service to college sporting events in Hanover.

11. Another Rogers House resident suggested that many people would be interested in a bus route between Lebanon and Claremont.

12. Workshop participants said that popular destinations for Rogers House residents include supermarkets along Route 12A and the VA Hospital, where some go for medical services.

13. One of the Rogers House residents said she hoped that buses would continue stopping in front of Lebanon City Hall.

14. A representative of the Upper Valley TMA reported that members of the public have requested better connections between Advance Transit and Stagecoach buses at the VA Hospital – for Stagecoach passengers commuting to destinations in White River Junction.

15. The TMA representative said that people have asked for bus service on the Etna Road, and for larger bike racks. He offered to help with the Advance Transit study, indicating that employment surveys and related data are available for review at the TMA.

Dartmouth-Hitchcock Medical Center

Five members of the public participated in a public workshop at DHMC. This session lasted from 4:00 p.m. until 5:30 p.m. Public comments included the following:

16. The president of the Upper Valley Aquatic Center expressed an interest in having Advance Transit buses serve her facility. She said there is a particular need for transportation to the Aquatic Center for afterschool swim practice. She said the need is greatest between 3:00 p.m. and 4:00 p.m. She suggested that swimmers could rely on their families for rides home after practice. She said some senior citizens might ride a bus to the facility during the daytime.

17. A DHMC employee who expects to move to Lyme asked about prospects for Advance Transit commuter bus service between Lyme and the medical center.

18. A regular Blue route rider asked if Blue route buses would move to Mt. Support Road when the road has been rebuilt.

19. A senior citizen who lives at Lebanon Towers said: "I have a car, but why use it? No matter what the weather, those buses are dependable. I want to give kudos to Advance Transit."

20. A representative of the United Valley Interfaith Council said his group remains interested in having Advance Transit buses serve Alice Peck Day Hospital. They hope to work with the hospital and with Advance Transit to find a way to pay for bus service to Alice Peck Day.

21. The United Valley Interfaith Council representative delivered a letter from a former Advance Transit rider who has moved to Rochester. This person suggested an educational outreach effort to overcome the reluctance that some people may have to trying the bus.

Chapter 5: Service Area Changes

This chapter describes recent and anticipated changes in the Upper Valley that may be relevant for public transportation planning. It identifies development projects that have been completed since the 2008 Advance Transit plan, projects that are currently under construction, permitted projects, and projects where permit applications are incomplete and pending. Separate sections are included for individual municipalities.

The chapter is structured as follows:

Section 5.1	Lebanon
Section 5.2	Hanover
Section 5.3	Hartford
Section 5.4	Norwich
Section 5.5	Enfield and Canaan

5.1 Lebanon

Recent and anticipated residential development projects in Lebanon include:

- Sachem Village – Since the 2008 study, the Sachem Village graduate student housing complex was expanded to 250 residential units. This complex is owned by Dartmouth College and appears to be a good candidate for dedicated shuttle service to the Dartmouth College campus.
- Woodlands at Harvest Hill – This retirement housing development is affiliated with Alice Peck Day Hospital. It currently includes 47 residential units. Two additional units are anticipated.
- Mount Support Road – Two residential developments on Mount Support Road are nearing completion. Timberwood Commons includes 252 residential units, while Quarry Hill has 40 units. Nearby Wolf Road has an estimated 400 previously existing residential units. This residential development is likely to impact Blue route ridership once buses are shifted to Mount Support Road from Route 120.
- River Park – The proposed River Park project envisions mixed-use development, including 80 rental units and 11 single family homes. Residential components are included in phase 7 of a 7-phase project. They are unlikely to be built within the five-year horizon of this transit study.

- Quail Hollow Senior Living Center – Quail Hollow includes 170 one and two-bedroom residential units. This residential development continues to have a serious impact on Advance Transit’s annual operating budget, because of high demand for “free” door-to-door transportation through Advance Transit’s Access AT program. The Americans with Disabilities Act requires Advance Transit to provide door-to-door service for people who cannot get to an Advance Transit bus stop due to a disability. Because of its location, almost none of Quail Hollow’s senior citizen residents can walk to the Advance Transit bus stop on Route 10. Advance Transit should consider asking Quail Hollow’s owners for a financial contribution to pay for the services that Quail Hollow residents are obtaining from Access AT. A significant portion of the cost of transporting Quail Hollow residents is currently being covered by Lebanon taxpayers through the city’s annual appropriation for Advance Transit.

Recent and anticipated commercial development in Lebanon includes the following:

- Hannaford – Since the 2008 transit study, a Hannaford supermarket has been added on Route 12A just north of Glen Road. This facility is served by existing Advance Transit bus stops. The stop opposite Hannaford is in an awkward location and is not clearly marked. This stop needs to be relocated closer to the supermarket. It may a candidate for a future bus turn-out.
- Hypertherm Heater Road – Hypertherm is nearing completion of a 156,000 square foot manufacturing facility on Heater Road near the Interstate 89 underpass. Hypertherm would like transit service added to this facility, to assist commuting workers and to ensure environmental certification for the new building.
- DHMC Heater Road – Dartmouth-Hitchcock Medical Center is nearing completion of a 102,000 square foot outpatient facility between Heater Road and Etna Road west of Route 120. DHMC would like Blue route buses to serve this location, but access driveways appear to be inadequate for large transit buses. Accessible bus stops will likely need to be added on Heater Road.
- Williamson Building – Dartmouth-Hitchcock Medical Center plans to construct a new building on the main DHMC campus. The Williamson Building is expected to accommodate 200 new employees. This development is likely to result in increased utilization of Lot 9 for employee parking. During construction, some visitors may be directed to Lot 9. Additional Lot 9 shuttle capacity may be needed during peak commute hours.
- Federal Express – A new FedEx distribution center has been constructed in the Airport Industrial Park.
- Altaria – The Altaria project is located on the east side of Route 120, south of Centerra. Phase 1 of this project has been approved; phase 2 is still under review by the Lebanon Planning Department. Phase 1 includes a hotel, 30-40,000 square

- feet of retail space, 80,000 square feet of office space, and 34 dwelling units. Access to phase 1 will be from Route 120 via a new driveway and traffic signal. Phase 2 calls for a 240,000 square foot office park and 120 additional housing units.
- River Park – The River Park project has been approved, but construction has not yet begun. This is a seven-phase project that envisions 550,000 square feet of industrial research and development space, 40,000 square feet of retail, 60,000 square feet of office space, 80 apartments, and eleven single family homes. Plans call for 200-300 surface parking spaces and, eventually, 900 parking structure spaces. Plans include a “village green” and an adjacent Advance Transit transfer hub as part of the third phase. It appears unlikely that phase 3 will be completed within the five-year horizon for this transit plan.
 - Chaloux – The Chaloux project calls for a 100-room hotel and conference center on the east side of Route 120, between Heater Road and Etna Road. Plans include a Labombard Road connection between Heater Road and Etna Road, which could make it easier to provide bus service for Hypertherm and nearby locations. The Chaloux project has been approved, but it has been placed on hold pending resolution of sewer issues. This project is not expected to move forward until 2013 or 2014.
 - Allyon - The city of Lebanon has approved this 131,000 square foot industrial research development at the Airport Industrial Park. It is unknown when the developer will proceed with construction.
 - Twin State – The developer is seeking approval for 667,000 square feet of commercial development on a parcel of land located in the triangle formed by Route 4, Route 12A, and Glen Road. Plans call for a possible big box store, other smaller retail businesses, two office buildings, restaurants, and some industrial development.
 - ICV #2 – ICV is seeking approval for a second office building on Etna Road east of Route 120.

Roadway and infrastructure projects in Lebanon that are relevant for Advance Transit include:

- Interstate 89 / Route 12A Interchange – Construction of this interchange is nearing completion. This should greatly improve Advance Transit’s ability to serve shopping plazas on the west side of Route 12A.
- Mechanic Street – Designs for a rebuild of Mechanic Street should be completed in 2012-13. Construction is due to be complete by 2016. It is anticipated that improved Advance Transit bus stops will be included as part of this Mechanic Street project.

5.2 Hanover

Development projects in the town of Hanover include the following:

- Hanover Inn – Renovations at the Hanover Inn are nearing completion. This project includes development of a conference facility that will increase parking demand and that may have implications for Advance Transit's Dartmouth Downtown Shuttle. The town and the college have commissioned a study of downtown parking utilization. This study will include an assessment of the Hanover Inn's plan to utilize valet parking to accommodate anticipated demand. The town is concerned about multiple groups seeking to occupy the same limited set of parking spaces. User groups include downtown workers, high school students, shoppers, and Hanover Inn conference attendees. The situation is likely to be even more challenging if conferences overlap with entertainment events at the Hopkins Center.
- Gile Tract – Since the 2008 transit study, a 120-unit housing complex has been developed on property adjacent to Route 120 and the north entrance to the DHMC campus. The town estimates that 60% of the available apartments are subsidized, and that the percentage of subsidized units may increase in the future. Because of the geography of the site, residents do not have easy or obvious access to nearby Advance Transit bus stops.
- Velvet Rocks – The developer has approval for 64 residential units for this project on Greensboro Road, about a third of a mile from Route 120 and the Blue route. Roughly half of the approved units have been built so far.
- Rivercrest and Grasse Road – Dartmouth College continues to consider the possible development of faculty and staff housing at locations north and east of the main campus. Future shuttles to these locations could help limit the need for on-campus parking.
- Centerra North – The Hanover Master Plan envisions future mixed-use development on land adjacent to Centerra. This property is currently owned by DHMC. The medical center has not expressed an interest in developing the property at this time.
- Dartmouth College Parking – Dartmouth College is considering the idea of constructing a parking structure on the Hanover campus. The college is also reconsidering possible development of an off-site parking lot north of Jesse's on Route 120. The Route 120 lot would likely require reconfiguration and extension of the Dartmouth Downtown Shuttle.

5.3 Hartford

Recent and anticipated development projects in Hartford include the following:

- The Center for Cartoon Studies is a new addition to downtown White River Junction since the 2008 transit plan. The Center offers a two-year program, with a current enrollment of about 50 students. Additional programs are offered in the summer. The Center recently purchased the former Post Office building across from the Hotel Coolidge. According to municipal officials, individuals associated with the Center for Cartoon Studies would like more frequent Advance Transit service and later evening service.
- Listen Center – The Listen Center envisions expanded facilities and programs at its Maple Street site in White River Junction. The organization envisions an improved retail store, a teen center, a job skills training center, and a dining room that will offer 80-100 evening meals a day. The Listen Center has approval from the town, but has not yet applied for building permits. The organization is reported to be halfway in its effort to raise funding for the project. Two possible transit-related improvements may be important for an expanded Listen Center: (1) Well-designed bus stops will be needed, with linking sidewalks and cross walks, so that a single pair of bus stops benefits and accommodates locations on both sides of the railroad tracks. (2) Evening transportation will likely be needed linking the Listen Center with locations such as the Shady Lawn Motel, the Haven, and subsidized apartments on Bugbee Street.
- Vermont Social Service Offices – The state of Vermont has expressed possible interest in relocating social service offices to downtown White River Junction. These offices are currently located at the Gilman Center near Sykes Avenue. This might enable the Orange route bus to bypass the Gilman Center, reducing time pressures for the Vermont portion of this route.
- Planned Parenthood – Planned Parenthood has announced plans to relocate its West Lebanon office to White River Junction, adjacent to a planned American Legion bus stop.
- Wrap Building – The developer of Railroad Row properties plans to construct a 20,000 square foot office building on North Main Street next to the Polka Dot Diner.
- Amtrak and Courthouse Landscaping and Parking– The town of Hartford hopes to redesign and upgrade landscaping and parking adjacent to the courthouse and Amtrak station. Some have suggested that this site could serve as a future multimodal transportation hub.

- South Main Street Residential Development – Town officials report that there has been some discussion of future residential development along South Main Street. The Orange route bus currently serves this neighborhood after departing downtown White River Junction, on its way to Sykes Mountain Avenue.
- Sykes Mountain Avenue – Planned roundabouts should improve traffic flows, helping the Orange route bus to operate within its available 30-minute Vermont schedule window. Nearby land is zoned commercial, and shopping malls are a future possibility. Future commercial development should be designed to allow safe, quick, and convenient access for transit buses.
- North Hartland Road – A number of hotels have been developed in the vicinity of Ballardvale Drive, between North Hartland Road and the two interstates. Municipal officials report that the town plans to construct sidewalks between this area and the Upper Valley Aquatic Center.
- Dismas House – Dismas of Vermont hopes to establish a transition housing center in Hartford Village to assist people who have recently been released from prison.

5.4 Norwich

A number of small residential apartment complexes have been developed along Route 5 in Norwich. Most have adjacent bus stops and are served by Advance Transit’s Green route. This is the portion of Norwich that the town feels is best suited for possible higher density, mixed-use development. Wastewater treatment capacity is a limiting factor that may take several years to address.

King Arthur Flour has recently opened a new “flagship campus” on Route 5 in Norwich. A new visitor facility includes a bakery, café, baker’s store, and education center. The Green route serves this portion of Route 5. It is a short walk along the two-lane highway from the existing Kildeer Farmstand bus stops to the King Arthur facility. Advance Transit is in the process of moving the northbound Kildeer Farmstand stop to the King Arthur site. The level of potential demand from visitors and residents for improved car-free access to King Arthur Flour is unknown.

5.5 Enfield and Canaan

Proposed development projects for the town of Enfield include a seven-building, 154-unit residential complex known as Laramie Farm. The complex is expected to provide rental housing for up to 300 people. Access will be via an entrance road that intersects Route 4 about a quarter of a mile west of Advance Transit’s Oak Grove and Brownies bus stops. There is no opportunity to develop safe bus stops on Route 4 closer to the development access road. There has been some discussion about a possible sidewalk between the proposed residential development and the Oak Grove bus stop.

The developer has expressed a willingness to construct a bus stop and turnaround within the residential complex. However, existing Blue route buses are unlikely to turn into this facility, in part because of the time involved and in part because these buses are already nearly filled with commuters. New bus or van service that originates at this facility or elsewhere in Enfield could take advantage of a Laramie Farm on-site bus stop.

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Chapter 6: Short-Term Service Adjustments

This chapter recommends short-term changes to Advance Transit bus schedules. The chapter was written during the summer of 2012. It suggests Blue, Green, and Brown route adjustments that were implemented on November 12, 2012. It recommends Red route changes that were scheduled for implementation on January 2, 2013. These schedule adjustments were designed to improve the efficiency, reliability and on-time performance of existing Advance Transit bus routes. Longer-term service design strategies are discussed in Chapter 7.

The chapter includes six sections:

- Section 6.1 Blue Route
- Section 6.2 Red Route
- Section 6.3 Orange Route
- Section 6.4 Green Route
- Section 6.5 Brown Route
- Section 6.6 Service Hours and Costs

6.1 Blue Route

Two sets of service adjustments are recommended for the Blue route. The first set involves minor adjustments to schedule times for selected trips. The second set of adjustments involves moving Blue route buses from Route 120 to a reconstructed Mount Support Road. While the first set could be implemented immediately, the second set of changes should wait until the Mount Support Road reconstruction project has been completed and the new roadway is fully functional.

SHORT-TERM BLUE ROUTE ADJUSTMENTS

Canaan	Enfield	Lebanon	Old Etna	DHMC	Vail DMS	Book-store	DHMC	Old Etna	Lebanon	Enfield	Canaan
6:45	6:56	-	-	7:15	7:25	7:29	7:39	-	7:52		
		7:10	7:16	7:27	7:37	7:41	7:51	-	8:04		
									8:10	8:20	8:35
		7:40	7:46	7:55	8:05	8:09	8:24	8:30	8:37		
					4:45	4:50	5:05	-	-	5:30	5:45
		4:50	-	5:05	5:15	5:19	5:32	5:38	5:45		
									5:50	6:00	6:15
5:45	5:56	6:10									

NOTE: Adjusted times are shaded.

Advance Transit managers identified the first set of Blue route timetable adjustments. These changes are designed to bring printed schedules into alignment with drivers' actual experience. They involve only a handful of trips and schedule times.

When Mount Support Road reconstruction is complete, Blue route buses will use this roadway instead of Route 120 for travel between DHMC and Lebanon High School. A new timetable replaces time points for Old Etna Road with time points for Heater Road.

BLUE ROUTE VIA MOUNT SUPPORT ROAD

Canaan	Enfield	Lebanon	Heater Rd	DHMC	Vail DMS	Book-store	DHMC	Heater Rd	Lebanon	Enfield	Canaan	
									5:15	5:25	5:40	
									6:20	6:30	6:45	
5:40	5:51	5:45	5:50	6:00	6:10	6:14	6:24	6:29	6:37			
		6:10	6:15	6:25	6:35	6:39	6:49	6:54	7:02			
		6:45	6:50	7:00	7:10	7:14	7:24	7:29	7:37			
6:45	6:56	-	D	7:15	7:25	7:29	7:39	7:44	7:52			
		7:10	7:15	7:27	7:37	7:41	7:51	7:56	8:04			
		7:40	7:45	7:55	8:05	8:09	8:24	8:29	8:37	8:20	8:35	
		8:15	8:20	8:30	8:40	8:44	8:54	8:59	9:07			
8:35	8:46	8:45	8:50	9:00	9:10	9:14	9:24	9:29	9:37			
		9:00		9:15	9:25	9:29	9:39					
		9:15	9:20	9:30	9:40	9:44	9:54	9:59	10:07			
				9:45	9:55	9:59	10:09					
		9:45	9:50	10:00	10:10	10:14	10:24	10:29	10:37			
				10:15	10:25	10:29	10:39					
		10:15	10:20	10:30	10:40	10:44	10:54	10:59	11:07			
				10:45	10:55	10:59	11:09					
		10:45	10:50	11:00	11:10	11:14	11:24	11:29	11:37			
		11:15	11:20	11:30	11:40	11:44	11:54	11:59	12:07			
				11:45	11:55	11:59	12:09					
		11:45	11:50	12:00	12:10	12:14	12:24	12:29	12:37			
				12:15	12:25	12:29	12:39					
		12:15	12:20	12:30	12:40	12:44	12:54	12:59	1:07			
				12:45	12:55	12:59	1:09					
		12:45	12:50	1:00	1:10	1:14	1:24	1:29	1:37			
				1:15	1:25	1:29	1:39					
		1:15	1:20	1:30	1:40	1:44	1:54	1:59	2:07			
		1:45	1:50	2:00	2:10	2:14	2:24	2:29	2:37			
				2:15	2:25	2:29	2:39					
		2:15	2:20	2:30	2:40	2:44	2:54	2:59	3:07	3:00	3:05*	
				2:45	2:55	2:59	3:09					
		2:45	2:50	3:00	3:10	3:14	3:24	3:29	3:37			
				3:15	3:25	3:29	3:39					
		3:15	3:20	3:30	3:40	3:44	3:54	3:59	4:07			
3:10*	3:15	3:35	School year only									
							4:05	4:10	4:20	4:30	4:45	

			3:45	3:55	3:59	4:09			
	3:45	3:50	4:00	4:10	4:15	4:27	4:32	4:40	
			4:15	4:25	towards Kendal on request				
				4:45	4:50	5:05	5:10	-	5:30 5:45
	4:20	4:25	4:35	4:45					
				4:50	4:55	5:10	5:15	5:23	
	4:50	4:55	5:05	5:15	5:19	5:32	5:37	5:45	
								5:50	6:00 6:15
4:45	4:56	5:15							
		5:20	5:25	5:35	5:45	5:49	5:59	6:04	6:12
				6:05	6:15	to NORWICH & WILDER on request			
		5:50	5:55	6:05	6:15	6:19	6:29	6:34	6:42
5:45	5:56	6:10							
			6:15	6:20	6:30	6:40	to NORWICH & WILDER on request		
			6:45	6:50	7:00	7:10			

NOTE: Adjusted times are shaded.

Wheelchair accessible bus stops will be needed on Heater Road to accommodate wheelchair passengers traveling to and from the new DHMC outpatient facility. Advance Transit management should meet with officials from the city of Lebanon and DHMC to make sure they understand the issues involved.

6.2 Red Route

The current Red route service includes five daily diversions to the Airport Industrial Park. These diversions should be eliminated. This will allow all Red route trips to serve BJ's and Walmart. This change should be made because airport diversions inconvenience a large number of regular Advance Transit bus riders, while serving only a small handful of individuals. Advance Transit should notify Lebanon city officials and provide them with an opportunity to comment before deciding to institute this change.

An immediate change is needed within the Upper Valley Plaza parking lot. The right-turn lane exiting the Upper Valley Plaza lot needs to be extended, so that buses and other right-turning vehicles are not delayed behind vehicles waiting to turn left.

Red route buses sometimes have difficulty traveling through the Route 12A plazas within the allotted schedule time. The new tunnel under Interstate 89 should fix all or most of this problem. Buses should be able to provide a stop at K-Mart and then continue through the underpass to JC Penny. The new underpass should improve access to K-Mart, while eliminating confusing and unsafe curbside bus stops on Route 12A. It will also allow southbound buses to avoid congestion and delays associated with the Interstate 89 interchange.

Hopefully, these changes will allow Red route buses to reliably complete plaza round trips in 25 minutes. They may also make it possible to route all Red route buses through the K-Mart and Upper Valley plazas. The proposed timetable continues to show afternoon buses skipping these plazas on some trips. A decision to reinstate these

afternoon plaza stops should wait until Advance Transit has experience with the new roadway configuration.

When Red route schedule is updated, Advance Transit may want to take advantage of deadheading buses by adding an early morning eastbound trip from West Lebanon to Lebanon. The 6:05 a.m. arrival in Lebanon will connect with a 6:10 a.m. northbound Blue route bus.

ADJUSTED RED ROUTE

Lebanon	Miracle Mile Plaza	West Leb	UV Plaza	BJ's	Wal Mart	Shaws	arrive West Leb	depart West Leb	Auto Zone	Lebanon
								5:55	6:00	6:05
6:15	6:20	6:25	6:30	6:32	6:40	6:45	6:50	6:55	7:00	7:05
7:15	7:20	7:25	7:30	curb	7:40	-	7:50	8:00	8:05	8:10
8:15	8:20	8:25	8:30	8:32	8:35	8:40	8:50	9:00	9:05	9:10
8:45	8:50	8:55	9:00	9:02	9:05	9:10	9:20	9:30	9:35	9:40
9:15	9:20	9:25	9:30	9:32	9:35	9:40	9:50	10:00	10:05	10:10
9:45	9:50	9:55	10:00	10:02	10:05	10:10	10:20	10:30	10:35	10:40
10:15	10:20	10:25	10:30	10:32	10:35	10:40	10:50	11:00	11:05	11:10
10:45	10:50	10:55	11:00	11:02	11:05	11:10	11:20	11:30	11:35	11:40
11:15	11:20	11:25	11:30	11:32	11:35	11:40	11:50	12:00	12:05	12:10
11:45	11:50	11:55	12:00	12:02	12:05	-	12:20	12:30	12:35	12:40
12:15	12:20	12:25	-	-	12:35	12:40	12:50	1:00	1:05	1:10
12:45	12:50	12:55	1:00	1:02	1:05	-	1:20	1:30	1:35	1:40
1:15	1:20	1:25	-	-	1:35	1:40	1:50	2:00	2:05	2:10
1:45	1:50	1:55	2:00	2:02	2:05	-	2:20	2:30	2:35	2:40
2:15	2:20	2:25	-	-	2:35	2:40	2:50	3:00	3:05	3:10
2:45	2:50	2:55	3:00	3:02	3:05	-	3:20	3:30	3:35	3:40
3:15	3:20	3:25	-	-	3:35	3:40	3:50	4:00	4:05	4:10
3:45	3:50	3:55	4:00	4:02	4:05	-	4:20	4:30	4:35	4:40
4:15	4:20	4:25	-	4:32	4:35	4:40	4:50	5:00	5:05	5:10
4:45	4:50	4:55	5:00	-	5:05	-	5:20	5:30	5:35	5:40
5:15	5:20	5:25	5:30	5:32	5:35	5:40	5:50	6:00	6:05	6:10
5:45	5:50	5:55	6:00	-	6:05	-	6:20	6:25	6:30	6:35
6:15	6:20	6:25								

NOTE: Adjusted times are shaded.

6.3 Orange Route

There are no short-term adjustments recommended for the Orange route.

6.4 Green Route

Immediate changes are needed for the Green route because this bus is having difficulty adhering to its published timetable. The Green route bus typically operates behind schedule on some trips because of the time required to accommodate multiple wheelchair users. Schedule adherence issues are especially likely to arise when a single round trip includes two scheduled diversions to Hartford Village.

Wherever possible, Hartford Village service should be limited to one diversion per scheduled round trip. This means that an individual round trip should include Hartford Village either northbound or southbound, but not both. When two diversions are needed, it may be possible to allow the Green route bus to depart West Lebanon five minutes earlier than the current time. It should be noted that this will not always be possible, because the Green route bus may need to wait for connecting Red or Orange route passengers.

SHORT-TERM GREEN ROUTE ADJUSTMENTS

West Leb	Hartford Village	Data- mann	Hanover Inn	Maynard Street	Data- mann	Hartford Village	West Leb
					5:50 a	-	6:00 a
6:00 a	6:05 a	6:13 a	6:23 a	6:25 a	6:35 a	6:45 a	6:50 a
6:55 a	7:00 a	7:08 a	7:18 a	7:25 a	7:35 a	7:45 a	7:50 a
7:55 a	-	D					
8:25 a	8:30 a	8:38 a	8:48 a	8:55 a	9:05 a	-	9:15 a
9:25 a	9:30 a	9:38 a	9:48 a	9:55 a	10:05 a	10:15 a	10:20 a
10:30 a	-	10:38 a	10:48 a	10:50 a	11:00 a	11:10 a	11:15 a
11:30 a	11:35 a	11:43 a	11:53 a	11:55 a	12:05 p	-	12:15 p
12:55 p	1:00 p	1:08 p	1:18 p	1:30 p	1:40 p	1:50 p	1:55 p
2:00 p	-	2:08 p	2:18 p	2:25 p	2:35 p	2:45 p	2:50 p
3:00 p	3:05 p	3:13 p	3:23 p	3:30 p	3:40 p	-	3:50 p
4:00 p	4:05 p	4:13 p	4:23 p	4:25 p	4:35 p	R	4:45 p
5:00 p	-	5:08 p	5:18 p	5:20 p	5:30 p	5:40 p	5:45 p
5:55 p	D	6:03 p	-	-	-	-	-
-	-	-	DHMC	6:15 p	6:30 p		
			DHMC	6:40 p	6:55 p		

Note: Adjusted times are shaded.

While the proposed timetable will improve the current situation, wheelchair movements are likely to continue to result in some late buses. Longer-term improvement strategies for the Green route are presented in Chapter 7.

6.5 Brown Route

Most Brown route trips include five minutes of scheduled dwell time at CRREL. Advance Transit drivers and managers have suggested that this dwell time should be moved instead to the stop at Vail. This should result in improved connections for people transferring to Blue route buses.

The proposed Brown route timetable also moves the 9:48 a.m. departure from Dan & Whit's five minutes earlier. This will facilitate a change in drivers that occurs at Vail at 9:50 a.m.

BROWN ROUTE with dwell time moved to Vail

Park & Ride	Dan & Whit's	Hanover Inn	Vail	Ken-dal	CRREL	arrive Vail	depart Vail	Tracy Hall	Hazen Street	Park & Ride
6:25 a	6:30 a	6:40 a	6:42 a	6:47	6:49	6:52 a	7:00 a	7:05 a	7:07 a	7:10 a
7:15 a	7:20 a	7:35 a	7:37 a	7:42	7:44	7:47 a	7:50 a	7:55 a	7:57 a	8:00 a
8:05 a	8:10 a	8:20 a	8:22 a	8:42 a	8:47	8:49	8:52 a	8:52 a	8:57 a	8:59 a
										9:02 a
9:02 a	9:08 a	9:13 a	9:15 a	9:20	9:22	9:25 a	9:30 a	9:35 a	9:37 a	-
	9:43 a	9:48 a	9:55 a	10:00	10:02	10:05 a	10:10 a	10:15 a	10:17 a	-
	10:28 a	10:33 a	10:35 a	10:40	10:42	10:45 a	10:50 a	10:55 a	10:57 a	-
	11:08 a	11:13 a	11:15 a	11:20	11:22	11:25 a	11:30 a	11:35 a	11:37 a	-
	11:48 a	11:53 a	11:55 a	12:00	12:02	12:05 p	12:10 p	12:15 p	12:17 p	-
	12:28 p	12:33 p	12:35 p	12:40	12:42	12:45 p	12:50 p	12:55 p	12:57 p	-
	1:08 p	1:13 p	1:15 p	1:20	1:22	1:25 p	1:30 p	1:35 p	1:37 p	-
	1:48 p	1:53 p	1:55 p	2:00	2:02	2:05 p	2:10 p	2:15 p	2:17 p	-
	2:33 p	2:38 p	2:40 p	2:45	2:47	2:50 p	2:50 p	2:55 p	2:57 p	-
	3:08 p	3:13 p	3:15 p	3:20	3:22	3:25 p	3:30 p	3:35 p	D	3:38 p
3:38 p	3:50 p	3:55 p	4:00 p	4:05	4:07	4:10 p	4:25 p	4:30 p	D	4:33 p
4:33 p	4:38 p	4:43 p	4:45 p	4:50						
				5:05	5:07	5:10 p	5:18 p	5:25 p	D	5:28 p
5:28 p	5:38 p	5:43 p	5:45 p	5:50	5:52	5:55 p	5:55 p	6:00 p	D	D
							6:15 p	D	D	D
							6:40 p	D	D	D

6.6 Service Hours and Costs

The schedule adjustments recommended in this chapter should have little or no impact on Advance Transit’s operating costs. One morning Blue route bus driver will start five minutes earlier. The two afternoon Blue route drivers are already being paid for the five minutes that has been added to their schedules at the end of their work day. While the Red route timetable shows buses adding morning service from West Lebanon to Lebanon, drivers are already being paid for deadhead movements between these locations. Other short-term changes have no impact on the length of current driver workdays.

Chapter 7: Longer-Term Service Design Strategies

This chapter presents service design ideas that could be implemented by Advance Transit in the next two to five years. It focuses on service improvements for the four municipalities within Advance Transit’s core service area (Lebanon, Hanover, Hartford, and Norwich). The chapter presents a full range of possible strategies. Some require increased funding that may or may not be available in future years. Service design concepts are presented here to give Advance Transit and its partners a full range of choices for the next five years.

The chapter includes thirteen sections:

- Section 7.1 Blue Route
- Section 7.2 Red Route
- Section 7.3 Orange Route
- Section 7.4 Green Route
- Section 7.5 Brown Route
- Section 7.6 Sachem Shuttle
- Section 7.7 Saturday Service
- Section 7.8 Alice Peck Day Hospital
- Section 7.9 Hypertherm and Etna Road Employers
- Section 7.10 Centerra Shuttle
- Section 7.11 Dartmouth College Route 120 Shuttle
- Section 7.12 Upper Valley Aquatic Center
- Section 7.13 Service Hours and Costs

7.1 Blue Route

7.1.1 15-Minute Headways

Additional buses could be added to the Blue route to obtain 15-minute service throughout the day between downtown Lebanon and downtown Hanover. Fifteen-minute service is now available on the Hanover-DHMC segment between 9:00 a.m. and 4:15 p.m. Currently, bus service between Hanover and downtown Lebanon operates every 30 minutes.

Fifteen-minute service would require two extra buses at the start and end of the day, and just one extra bus between 9:00 a.m. and 4:15 p.m. A timetable showing 15-minute Blue route service is included in Appendix C. The net impact on service hours, vehicle miles, and operating costs will depend on whether offsetting changes are made to Canaan and Enfield service.

7.1.2 Commuter Service for 12-Hour Nursing Shifts

DHMC nurses cannot commute via Advance Transit because bus schedules do not match the hospital's 12-hour nursing shifts. The solution would be to extend Blue route service until 8:00 p.m. A timetable showing extended Blue route service hours is included in Appendix C. If connections to West Lebanon need to be included, this would require a corresponding extension of Red route service hours.

Extending Blue route service until 8:00 p.m. would add roughly 11,552 annual miles and 765 annual vehicle hours. The net increase in annual cost would be about \$59,000.

7.1.3 Hanover Street Overpass

Past studies have identified the Hanover Street pedestrian overpass as a candidate for a limited access bus-way. Vehicular access to this overpass could be limited to transit buses, school buses, and emergency vehicles only. This would allow buses and emergency vehicles to travel from downtown Lebanon to Lebanon High School and Dartmouth-Hitchcock Medical Center without getting caught in traffic delays at the Route 120 / I-89 interchange.

7.1.4 Canaan and Enfield

While it has traditionally been treated as part of the Blue route, bus service to Canaan and Enfield is quite different from Advance Transit's other routes and services. Advance Transit provides these two outlying communities with what is essentially a regional commuter service consisting of three morning trips and three evening trips, plus a late afternoon trip during the school year.

While Canaan-Enfield service is productive, it is also expensive – because it involves a long travel distance with extensive deadhead hours and deadhead miles. At the same time, Canaan and Enfield provide relatively small amounts of municipal funding to offset operating costs associated with the route. This route segment thus relies heavily on Advance Transit's FTA 5311 funding.

If Advance Transit's funding from the Federal Transit Administration is reduced, it may be necessary to restructure or eliminate bus service to Enfield and Canaan. Eliminating the service would inconvenience many commuters, and it would increase parking demand at DHMC and Dartmouth College. At the same time, the loss of Canaan and Enfield riders would have limited impact on the rest of the Advance Transit system. (The situation is different with the second Red route bus, which provides timed connections with Blue, Green, and Orange route buses.)

If FTA funding is not cut, Advance Transit may decide to continue the current service arrangement, recognizing that this will limit its ability to expand elsewhere in the transit system's core service area.

Advance Transit may want to consider restructuring Canaan and Enfield service to reduce costs and to save money that could be used elsewhere. The most obvious strategy would be to focus on reducing deadhead costs. This could be accomplished by using part-time

drivers who live near the end of the route and who work during the day in Hanover. The following table identifies key components and considerations for a possible revised service plan for Enfield and Canaan. The service model described in this table has been utilized for more than 20 years by Downeast Transportation for its commuter bus service to the Jackson Laboratory in Bar Harbor, Maine.

Service Component	Comments
<u>Part-time bus drivers</u> Each pair of scheduled round trips will require a regular driver and a back-up driver.	Bus drivers should be recruited from among Dartmouth College employees who live in or near Canaan. Drivers would be paid for 3 hours each day, with this income supplementing their regular Dartmouth College salary.
<u>Dedicated buses</u> Each pair of scheduled round trips will require a separate bus. Because they will be separate from regular Blue route service, Canaan and Enfield buses could bypass downtown Lebanon.	Buses would be parked in Canaan overnight. They would be parked at Dartmouth College during the day. Vehicles could be moved to the Advance Transit garage during the day for regular scheduled maintenance.
<u>Passenger fares</u> Advance Transit could charge a monthly subscription fare for this regional commuter service. This service would need an identify that is separate from Advance Transit's free in-town service.	Downeast Transportation charges a regional commuter fare of about \$20 per week. Fare box receipts cover approximately one-third of the cost of regional commuter bus operations. FTA funds cover one-third, and employer subsidies cover one-third. Jackson Lab employees pay through a payroll deduction administered by the laboratory.

The marginal cost for current service to Enfield and Canaan can be estimated by subtracting the estimated cost for Lebanon-Hanover-only service from current Blue route costs. This yields an estimated marginal cost of \$278,368 per year.

The estimated cost for revised service is \$61,463 per round trip pair. If each bus generates \$20,000 per year in fare box revenue (20 passengers x \$20 x 50 weeks), the net cost for a daily Canaan / Enfield round trip would be \$41,463.

The amount of potential savings will depend on the number of future trips offered and the number of paid riders per bus. If each bus carries 20 riders who pay \$20 per week, the net cost for three round trips would be approximately \$125,000, resulting in an estimated annual cost reduction of \$150,000. If two Canaan / Enfield round trips are offered, the net cost should be about \$83,000, and the net reduction in Advance Transit annual operating expenses would be roughly \$195,000.

7.2 Red Route

The new tunnel under I-89 may allow Red route buses to reliably complete plaza round trips within 30 minutes. This would allow Advance Transit to route all Red route buses through the Upper Valley Plaza. As recommended in Chapter 6, the transit system should wait to decide which trips to route through the tunnel until the new roadway has been fully completed and tested.

If the Red route continues to suffer from traffic-related delays, Advance Transit may need to consider eliminating all diversions through Shaws Plaza. Bus riders would continue to have access to multiple supermarkets, including the Shaws store adjacent to JC Penny.

Such a change would inconvenience riders who are accustomed to getting on and off at Shaws Plaza. However, Advance Transit cannot afford to expand the schedule window for the Route 12A route segment beyond the current 35 minutes. Doing so would either disrupt Red route connections with other Advance transit buses, or require the addition of a third bus to the route.

7.3 Orange Route

This section discusses three possible approaches to the Orange route:

- Incremental adjustments to improve on-time performance
- Addition of a second bus to the route
- Route restructuring to accompany a new Green Route Express

7.3.1 Incremental adjustments to improve on-time performance

The Orange route bus sometimes has difficulty operating within its existing schedule window. This is true for both the Vermont and New Hampshire portions of the route. Opportunities for streamlining the existing service are limited.

In Vermont, one way to save time would be to limit the number of diversions to the Gilman Center. It may be possible to bypass this location on some trips. This would require careful review of Gilman Center boardings by time of day to see if changes can be made without inconveniencing regular riders.

If the state offices located at the Gilman Center complex are moved to downtown White River Junction, it may be possible in the future to eliminate service to the Gilman Center entirely. This change would relieve much of the time pressure on the Vermont portion of the Orange route.

In New Hampshire, it might be possible to shave one or two minutes from the current schedule by turning buses in front of Baker Library instead of using Maynard Street. This option has been considered and rejected in the past because the change would mean bypassing multiple bus stops on the Dartmouth College campus.

A new transit hub at the proposed River Park development will likely reduce Orange route travel time in New Hampshire, because buses would no longer need to travel around the block to reverse directions in West Lebanon. However, it appears unlikely that a new River Park transit hub will be constructed within the current five-year planning horizon.

7.3.2 Addition of a second Orange route bus

The current Orange route operates with one bus, resulting in hourly headways. The addition of a second bus would mean more convenient 30-minute service on the route.

Two buses would likely follow the identical route in New Hampshire. In Vermont, the addition of a second bus would allow for some variation. For example, one bus could serve the VA Hospital, while the second bus could serve the Upper Valley Aquatic Center. Or one bus could serve Sykes Mountain Avenue without the VA Hospital, while the other could link downtown White River Junction, the VA Hospital, and the Aquatic Center using Route 5 in both directions.

There are two major obstacles for two-bus service on the Orange route. First, there is no obvious source of funding for a second Orange route bus, particularly on the New Hampshire side of the river. Second, this approach does nothing to reduce time pressures in New Hampshire. Advance Transit needs a better longer-term solution for the Orange route that will allow it to accommodate future increases in ridership, traffic delays, and wheelchair usage.

7.3.3 Restructured Orange route to accompany a new Green Route Express

A more radical approach for the Orange route would be to eliminate the West Lebanon-Hanover segment, relying instead on a Green Route Express to connect these two locations. This change assumes implementation of 30-minute headways on a new Green Route Express and a new Sachem Shuttle at the northern end of the current Orange route. The Green Route Express is discussed in Section 7.4. The Sachem Shuttle is discussed in Section 7.6.

Advance Transit currently operates two parallel routes linking West Lebanon and downtown Hanover. Each route is served hourly. Consolidating the two routes will significantly reduce the cost of increasing service frequency between these locations.

The Green route is the obvious choice for a consolidated service. The Green route has more intermediate boardings. And with two buses and no Hartford Village diversions, time pressures should be eliminated for the foreseeable future. Green route buses would have 20 minutes of travel time plus 10 minutes of layover in each direction. The New

Hampshire segment of the Orange route barely fits within the available 35-minute window.

West Lebanon residents commuting to Hanover will have a longer ride, but they will end up with consistent service every half hour throughout the day. (A West Lebanon resident who commutes to Dartmouth College on the Orange route currently has a scheduled 10-minute ride from West Lebanon to the Hanover Inn. A Green Route Express would offer a scheduled 18-minute ride.)

The proposed route restructuring would eliminate Orange route bus stops at Hayden Court/Highland Avenue, Maple Street, Sunset Motel, and Quail Hollow. A new West Lebanon bus stop near the corner of Maine and Bridge Streets should accommodate Hayden Court/Highland Avenue riders. Maple Street riders may also be willing to walk to a Bridge Street stop. Riders at the north end of the Orange route could use the Sachem Shuttle. Review of ridership data for April 2012 suggests that the remaining intermediate Orange route stops generate about 50 boardings per month. This translates to a loss of between 2 and 3 riders per day.

Elimination of the West Lebanon-Hanover segment would allow the Orange route bus to serve a new Vermont loop linking West Lebanon, Hartford Village, Bugbee Street apartments, and The Haven. There are two apartment complexes on Bugbee Street, one of which includes a significant number of subsidized low-income units. The new Orange route loop would also serve a bus stop on Maple Street shared by the Listen Center and the Hartford Town Office. (Pedestrian improvements are needed on Maple Street, including a crosswalk.)

This new route would benefit a large number of low-income Vermont residents, many of whom travel to and from programs at The Haven. These riders would also have transfer-free access to Vermont human services offices at the Gilman Center or in White River Junction.

There are a number of enhancements that could be added to a restructured Orange route in the future:

- Service hours could be extended to include a 7:30 p.m. trip from West Lebanon and the Listen Center to Hartford Village, Bugbee Street, and The Haven. This trip would be designed to accommodate people participating in an evening dinner program planned for the Listen Center.
- Between 6:15 p.m. and 7:30 p.m., the Orange route bus could meet the scheduled 6:40 p.m. Amtrak train from Washington, DC and New York City in White River Junction and offer on-request drop-off's on the Dartmouth College campus.
- An additional Orange route bus in the early morning could improve commuter access to the VA Hospital, while also providing better connections with regional commuter buses from Vermont.

- When it goes out of service at 8:00 a.m., the extra morning bus could provide express service to Hanover and Dartmouth College via Route 10.
- A single midafternoon trip could be diverted to the Upper Valley Aquatic Center, bypassing the Gilman Center and the VA Hospital on this trip. This bus would pick up high school students at The Haven bus stop at 2:44 p.m. Adding an afterschool trip to the Aquatic Center would result in a two-hour afternoon gap in bus service for the VA Hospital. Advance Transit officials have suggested that the resulting service gap would be unacceptable.
- All service to the Gilman Center could be eliminated when state offices move to downtown White River Junction. This should improve on-time performance for the Orange route's White River Junction segment.

RESTRUCTURED ORANGE ROUTE

West Lebanon	WRJ Coolidge	VA Hospital	WRJ VA Park	West Lebanon	Hartford Village	Bugbee Street	The Haven	West Lebanon
			6:20 a		6:10 a	6:14 a	6:19 a	6:25 a
				6:30 a	6:35 a	6:39 a	6:44 a	6:50 a
6:30 a	6:33 a	6:43 a	6:50 a	7:00 a	7:05 a	7:09 a	7:14 a	7:20 a
7:00 a	7:03 a	7:13 a	7:20 a	7:30 a	7:35 a	7:39 a	7:44 a	7:50 a
7:30 a	7:33 a	7:43 a	7:50 a	8:00 a				
8:00 a	8:03 a	8:13 a	8:20 a	8:30 a	8:35 a	8:39 a	8:44 a	8:50 a
9:00 a	9:03 a	9:13 a	9:20 a	9:30 a	9:35 a	9:39 a	9:44 a	9:50 a
10:00 a	10:03 a	10:13 a	10:20 a	10:30 a	10:35 a	10:39 a	10:44 a	10:50 a
11:00 a	11:03 a	11:13 a	11:20 a	11:30 a	11:35 a	11:39 a	11:44 a	11:50 a
12:00 p	12:03 p	12:13 p	12:20 p	12:30 p	12:35 p	12:39 p	12:44 p	12:50 p
1:00 p	1:03 p	1:13 p	1:20 p	1:30 p	1:35 p	1:39 p	1:44 p	1:50 p
2:00 p	2:03 p	2:13 p	2:20 p	2:30 p	2:35 p	2:39 p	2:44 p	2:50 p
3:00 p	3:03 p	3:13 p	3:20 p	3:30 p	3:35 p	3:39 p	3:44 p	3:50 p
4:00 p	4:03 p	4:13 p	4:20 p	4:30 p	4:35 p	4:39 p	4:44 p	4:50 p
5:00 p	5:03 p	5:13 p	5:20 p	5:30 p	5:35 p	5:39 p	5:44 p	5:50 p
6:00 p	6:03 p	6:13 p						

Note: The bus shown in pink shading is optional. This bus could provide express service to Hanover and Dartmouth College via Route 10 at 8:00 a.m.

7.4 Green Route

7.4.1 Two-Bus Alternative

Chapter 6 identified short-term adjustments to improve the Green route's on-time performance. A better longer-term solution for the Green route would be to add a second bus to the route. This will result in departures from West Lebanon and from Hanover every 30 minutes. One bus could serve Hartford Village northbound, and the other bus could serve Hartford Village southbound. While most of the route would be served every half hour, the Hartford Village segment would have hourly service in both directions.

30-MINUTE GREEN ROUTE SERVICE WITH TWO BUSES

West Leb	Hartford Village	Data- mann	Hanover Inn	arrive Vail	dep Vail	Data- mann	Hartford Village	West Leb
						5:45 a	-	5:55 a
						6:10 a	6:20 a	6:25 a
6:00 a	6:05 a	6:13 a	6:23 a	6:25 a	6:30 a	6:40 a	-	6:50 a
6:30 a	-	6:38 a	6:48 a	6:50 a	6:55 a	7:05 a	7:15 a	7:20 a
7:00 a	7:05 a	7:13 a	7:23 a	7:25 a	7:30 a	7:40 a	-	7:50 a
7:30 a	-	7:38 a	7:48 a	7:50 a	7:55 a	8:05 a	8:15 a	8:20 a
8:00 a	8:05 a	8:13 a	8:23 a	8:25 a	8:30 a	8:40 a	-	8:50 a
8:30 a	-	8:38 a	8:48 a	8:50 a	8:55 a	9:05 a	9:15 a	9:20 a
9:00 a	9:05 a	9:13 a	9:23 a	9:25 a	9:30 a	9:40 a	-	9:50 a
9:30 a	-	9:38 a	9:48 a	9:50 a	9:55 a	10:05 a	10:15 a	10:20 a
10:00 a	10:05 a	10:13 a	10:23 a	10:25 a	10:30 a	10:40 a	-	10:50 a
10:30 a	-	10:38 a	10:48 a	10:50 a	10:55 a	11:05 a	11:15 a	11:20 a
11:00 a	11:05 a	11:13 a	11:23 a	11:25 a	11:30 a	11:40 a	-	11:50 a
11:30 a	-	11:38 a	11:48 a	11:50 a	11:55 a	12:05 p	12:15 p	12:20 p
12:00 p	12:05 p	12:13 p	12:23 p	12:25 p	12:30 p	12:40 p	-	12:50 p
12:30 p	-	12:38 p	12:48 p	12:50 p	12:55 p	1:05 p	1:15 p	1:20 p
1:00 p	1:05 p	1:13 p	1:23 p	1:25 p	1:30 p	1:40 p	-	1:50 p
1:30 p	-	1:38 p	1:48 p	1:50 p	1:55 p	2:05 p	2:15 p	2:20 p
2:00 p	2:05 p	2:13 p	2:23 p	2:25 p	2:30 p	2:40 p	-	2:50 p
2:30 p	-	2:38 p	2:48 p	2:50 p	2:55 p	3:05 p	3:15 p	3:20 p
3:00 p	3:05 p	3:13 p	3:23 p	3:25 p	3:30 p	3:40 p	-	3:50 p
3:30 p	-	3:38 p	3:48 p	3:50 p	3:55 p	4:05 p	4:15 p	4:20 p
4:00 p	4:05 p	4:13 p	4:23 p	4:25 p	4:30 p	4:40 p	-	4:50 p
4:30 p	-	4:38 p	4:48 p	4:50 p	4:55 p	5:05 p	5:15 p	5:20 p
5:00 p	5:05 p	5:13 p	5:23 p	5:25 p	5:30 p	5:40 p	R	5:50 p
5:30 p	R	5:38 p	5:48 p	5:50 p	5:55 p	6:05 p	6:15 p	6:20 p
6:00 p	R	6:08 p	6:18 p	6:20 p	6:25 p	6:35 p		

7.4.2 Green Route Express

Another alternative for the Green route would be to serve Hartford Village with a restructured Orange route bus. This would allow two Green route buses to provide express service for West Lebanon, Wilder, Norwich, and Hanover. The resulting Green route service would be fast and direct. It would include ten minutes of dwell time at both ends of the route to accommodate wheelchair users and traffic delays. This service concept assumes implementation of a Sachem Shuttle, plus alterations to the Orange route to serve Hartford Village.

GREEN ROUTE EXPRESS WITH TWO BUSES

West Leb	Data- mann	Hanover Inn	arrive Vail	depart Vail	Data- mann	West Leb
					5:45 a	5:55 a
					6:15 a	6:25 a
6:00 a	6:08 a	6:18 a	6:20 a	6:30 a	6:40 a	6:50 a
6:30 a	6:38 a	6:48 a	6:50 a	7:00 a	7:10 a	7:20 a
7:00 a	7:08 a	7:18 a	7:20 a	7:30 a	7:40 a	7:50 a
7:30 a	7:38 a	7:48 a	7:50 a	8:00 a	8:10 a	8:20 a
8:00 a	8:08 a	8:18 a	8:20 a	8:30 a	8:40 a	8:50 a
8:30 a	8:38 a	8:48 a	8:50 a	9:00 a	9:10 a	9:20 a
9:00 a	9:08 a	9:18 a	9:20 a	9:30 a	9:40 a	9:50 a
9:30 a	9:38 a	9:48 a	9:50 a	10:00 a	10:10 a	10:20 a
10:00 a	10:08 a	10:18 a	10:20 a	10:30 a	10:40 a	10:50 a
10:30 a	10:38 a	10:48 a	10:50 a	11:00 a	11:10 a	11:20 a
11:00 a	11:08 a	11:18 a	11:20 a	11:30 a	11:40 a	11:50 a
11:30 a	11:38 a	11:48 a	11:50 a	12:00 p	12:10 p	12:20 p
12:00 p	12:08 p	12:18 p	12:20 p	12:30 p	12:40 p	12:50 p
12:30 p	12:38 p	12:48 p	12:50 p	1:00 p	1:10 p	1:20 p
1:00 p	1:08 p	1:18 p	1:20 p	1:30 p	1:40 p	1:50 p
1:30 p	1:38 p	1:48 p	1:50 p	2:00 p	2:10 p	2:20 p
2:00 p	2:08 p	2:18 p	2:20 p	2:30 p	2:40 p	2:50 p
2:30 p	2:38 p	2:48 p	2:50 p	3:00 p	3:10 p	3:20 p
3:00 p	3:08 p	3:18 p	3:20 p	3:30 p	3:40 p	3:50 p
3:30 p	3:38 p	3:48 p	3:50 p	4:00 p	4:10 p	4:20 p
4:00 p	4:08 p	4:18 p	4:20 p	4:30 p	4:40 p	4:50 p
4:30 p	4:38 p	4:48 p	4:50 p	5:00 p	5:10 p	5:20 p
5:00 p	5:08 p	5:18 p	5:20 p	5:30 p	5:40 p	5:50 p
5:30 p	5:38 p	5:48 p	5:50 p	6:00 p	6:10 p	6:20 p
6:00 p	6:08 p	6:18 p	6:20 p	6:30 p	6:40 p	

7.5 Brown Route

It may be appropriate at some time in the future to split the Brown route into two routes. This would allow Advance Transit to provide the Vermont and New Hampshire segments with consistent 30-minute service, instead of semi-regular 40-minute service. The future need for separate routes will depend largely on whether Dartmouth College develops residential properties north of the college campus, and whether a park and ride lot is developed on River Road or elsewhere in Norwich. Neither change appears likely to occur within this study's five-year planning horizon.

7.6 Sachem Shuttle

A Sachem Shuttle could provide fast and frequent service between Dartmouth's graduate student apartment complex and the Dartmouth College campus. This route should allow the college to reduce the demand for on-campus parking by 100-200 cars per day.

A Sachem Shuttle could begin with a short loop through the north end of the Sachem Village complex. It would head north on Route 10, offering a stop on South Main Street before proceeding to the Hanover Inn transit hub. It would continue around the Dartmouth College campus via College Street, Maynard Street, and North Main Street, offering a diversion to Tuck Circle before returning to downtown Hanover and Sachem Village. The Sachem Shuttle would serve all of the regular Advance Transit bus stops along its route.

It should be possible to provide reliable 30-minute service on this route with one bus. The college has suggested that the number of housing units at Sachem Village could be doubled in future years. If this happens, a second bus could be added to the route, resulting in 15-minute headways. The second bus could be limited to the regular school year and to peak hours, from 7:00 a.m. to 10:00 a.m. and from 3:00 p.m. to 7:00 p.m.

An evening Sachem Shuttle would replace the current evening shuttle service between Tuck and Dewey. As it departs Tuck, the evening bus could offer an on-request diversion to the parking lot at Dewey. The schedule should be able to accommodate a limited number of Dewey diversions per night. If there is consistent demand for trips to Dewey, it may be necessary to extend the time between evening buses to more than 30 minutes.

Annual costs for a Sachem Shuttle are estimated to be \$300,000 per year. Since evening Sachem service would replace the college's existing evening service, the net cost would be about \$270,000.

A second Sachem bus could be added for 15-minute service during peak hours. If it operates a total of seven hours a day during the school year, this would add roughly \$114,000 to the annual cost of Sachem Shuttle service.

SACHEM SHUTTLE

Sachem Village	Hanover Inn	Tuck	Book-store	Sachem Village
7:00 a	7:10 a	7:15 a	7:18 a	7:25 a
7:30 a	7:40 a	7:45 a	7:48 a	7:55 a
8:00 a	8:10 a	8:15 a	8:18 a	8:25 a
8:30 a	8:40 a	8:45 a	8:48 a	8:55 a
9:00 a	9:10 a	9:15 a	9:18 a	9:25 a
9:30 a	9:40 a	9:45 a	9:48 a	9:55 a
10:00 a	10:10 a	10:15 a	10:18 a	10:25 a
10:30 a	10:40 a	10:45 a	10:48 a	10:55 a
11:00 a	11:10 a	11:15 a	11:18 a	11:25 a
11:30 a	11:40 a	11:45 a	11:48 a	11:55 a
12:00 p	12:10 p	12:15 p	12:18 p	12:25 p
12:30 p	12:40 p	12:45 p	12:48 p	12:55 p
1:00 p	1:10 p	1:15 p	1:18 p	1:25 p
1:30 p	1:40 p	1:45 p	1:48 p	1:55 p
2:00 p	2:10 p	2:15 p	2:18 p	2:25 p
2:30 p	2:40 p	2:45 p	2:48 p	2:55 p
3:00 p	3:10 p	3:15 p	3:18 p	3:25 p
3:30 p	3:40 p	3:45 p	3:48 p	3:55 p
4:00 p	4:10 p	4:15 p	4:18 p	4:25 p
4:30 p	4:40 p	4:45 p	4:48 p	4:55 p
5:00 p	5:10 p	5:15 p	5:18 p	5:25 p
5:30 p	5:40 p	5:45 p	5:48 p	5:55 p
6:00 p	6:10 p	6:15 p	6:18 p	6:25 p
6:30 p	6:40 p	6:45 p	6:48 p	6:55 p
7:00 p	7:10 p	7:15 p	7:18 p	7:25 p
7:30 p	7:40 p	7:45 p	7:48 p	7:55 p
8:00 p	8:10 p	8:15 p	8:18 p	8:25 p
8:30 p	8:40 p	8:45 p	8:48 p	8:55 p
9:00 p	9:10 p	9:15 p	9:18 p	9:25 p
9:30 p	9:40 p	9:45 p	9:48 p	9:55 p
10:00 p	10:10 p	10:15 p	10:18 p	10:25 p
10:30 p	10:40 p	10:45 p	10:48 p	10:55 p

7.7 Saturday Service

One of the most common and recurring requests from Advance Transit riders has been for Saturday service. Routes and schedules for limited Saturday service were developed as part of Advance Transit's 2008 Transit Development Plan. The 2008 study called for two buses to provide hourly service in New Hampshire, and one bus to operate every two hours in Vermont. For this 2012 study, the earlier plan was modified to include two buses in Vermont, resulting in hourly service on both sides of the Connecticut River.

A New Hampshire Saturday route would link Hanover, DHMC, Lebanon City Hall, West Lebanon, and the Route 12A plazas. A Vermont Saturday route would link Hanover, Norwich, Wilder, West Lebanon, and White River Junction. All four buses would operate eight hours a day, with service beginning at 9:00 a.m. and continuing until 5:30 p.m.

Because it does not begin until 9:00 a.m., this limited Saturday service will not meet the needs of passengers trying to commute to early morning jobs. Saturday hours could be extended in the future if midday service is successful, and if adequate funding becomes available.

SATURDAY BLUE ROUTE

Lebanon	DHMC	Hanover Inn	Hanover Inn	DHMC	Lebanon
			9:00 a	9:10 a	9:25 a
9:30 a	9:45 a	9:55 a	10:00 a	10:10 a	10:25 a
10:30 a	10:45 a	10:55 a	11:00 a	11:10 a	11:25 a
11:30 a	11:45 a	11:55 a	12:00 p	12:10 p	12:25 p
12:30 p	12:45 p	12:55 p	1:00 p	1:10 p	1:25 p
1:30 p	1:45 p	1:55 p	2:00 p	2:10 p	2:25 p
2:30 p	2:45 p	2:55 p	3:00 p	3:10 p	3:25 p
3:30 p	3:45 p	3:55 p	4:00 p	4:10 p	4:25 p
4:30 p	4:45 p	4:55 p			

SATURDAY RED ROUTE

Lebanon	West Leb	Wal- Mart	West Leb	P&C	Lebanon
9:30 a	9:40 a	10:00 a	10:15 a	10:20 a	10:25 a
10:30 a	10:40 a	11:00 a	11:15 a	11:20 a	11:25 a
11:30 a	11:40 a	12:00 p	12:15 p	12:20 p	12:25 p
12:30 p	12:40 p	1:00 p	1:15 p	1:20 p	1:25 p
1:30 p	1:40 p	2:00 p	2:15 p	2:20 p	2:25 p
2:30 p	2:40 p	3:00 p	3:15 p	3:20 p	3:25 p
3:30 p	3:40 p	4:00 p	4:15 p	4:20 p	4:25 p
4:30 p	4:40 p	5:00 p	5:15 p	5:20 p	5:25 p

SATURDAY ORANGE ROUTE

West Leb	WRJ Coolidge	Aquatic Center	WRJ VA Park	West Leb
9:45 a	9:48 a	10:00 a	10:05 a	10:10 a
10:45 a	10:48 a	11:00 a	11:05 a	11:10 a
11:45 a	11:48 a	12:00 p	12:05 p	12:10 p
12:45 p	12:48 p	1:00 p	1:05 p	1:10 p
1:45 p	1:48 p	2:00 p	2:05 p	2:10 p
2:45 p	2:48 p	3:00 p	3:05 p	3:10 p
3:45 p	3:48 p	4:00 p	4:05 p	4:10 p
4:45 p	4:48 p	5:00 p	5:05 p	5:10 p

SATURDAY GREEN AND BROWN ROUTES

West Leb	Hartford Village	Data- mann	Dan & Whit's	Hanover Inn	Hanover Inn	Dan & Whit's	Data- mann	Hartford Village	West Leb
					9:00 a	9:12 a	9:20 a	9:30 a	9:35 a
9:15 a	9:22 a	9:30 a	9:40 a	9:45 a	10:00 a	10:12 a	10:20 a	10:30 a	10:35 a
10:15 a	10:22 a	10:30 a	10:40 a	10:45 a	11:00 a	11:12 a	11:20 a	11:30 a	11:35 a
11:15 a	11:22 a	11:30 a	11:40 a	11:45 a	12:00 p	12:12 p	12:20 p	12:30 p	12:35 p
12:15 p	12:22 p	12:30 p	12:40 p	12:45 p	1:00 p	1:12 p	1:20 p	1:30 p	1:35 p
1:15 p	1:22 p	1:30 p	1:40 p	1:45 p	2:00 p	2:12 p	2:20 p	2:30 p	2:35 p
2:15 p	2:22 p	2:30 p	2:40 p	2:45 p	3:00 p	3:12 p	3:20 p	3:30 p	3:35 p
3:15 p	3:22 p	3:30 p	3:40 p	3:45 p	4:00 p	4:12 p	4:20 p	4:30 p	4:35 p
4:15 p	4:22 p	4:30 p	4:40 p	4:45 p					

7.8 Alice Peck Day Hospital

A new Advance Transit bus route could link Alice Peck Day Hospital with Advance Transit’s transit hub at Lebanon City Hall. This route could be extended to serve the new Hypertherm facility on Heater Road and the Co-op at Centerra. Service could be limited to midday hours only. Or the service day could be extended to serve commuters traveling to Alice Peck Day, Hypertherm, and Centerra.

At Alice Peck Day, the bus could offer pick-ups at three locations: Harvest Hill, the Community Care Center, and the main hospital entrance. A draft timetable shows buses from AP Day arriving at the City Hall transfer hub five minutes before Red and Blue route buses are scheduled to depart. The return bus to AP Day would depart City Hall five minutes after Red and Blue buses are scheduled to arrive. This route could be served hourly with one bus.

While an Alice Peck Day route could serve commuters, there is no obvious source of funding to pay for early morning and late afternoon service on this route. Limited commuter service for Hypertherm’s Heater Road facility is addressed in Section 7.9.

ALICE PECK DAY / CITY HALL / HEATER ROAD / CENTERRA

AP Day	City Hall	Heater Rd	Co-op	Heater Rd	City Hall	AP Day
9:30 a	9:40 a	9:45 a	10:00 a	10:10 a	10:15 a	10:25 a
10:30 a	10:40 a	10:45 a	11:00 a	11:10 a	11:15 a	11:25 a
11:30 a	11:40 a	11:45 a	12:00 p	12:10 p	12:15 p	12:25 p
12:30 p	12:40 p	12:45 p	1:00 p	1:10 p	1:15 p	1:25 p
1:30 p	1:40 p	1:45 p	2:00 p	2:10 p	2:15 p	2:25 p
2:30 p	2:40 p	2:45 p	3:00 p	3:10 p	3:15 p	3:25 p

Advance Transit should proceed with caution as it considers implementation of service to Alice Peck Day and Centerra. While there are individuals and families who will use and benefit from this service, demand is likely to be limited. The 2010 Transportation Service Plan for Alice Peck Day Hospital estimated that demand for midday fixed route service would average 60 one-way riders per day.

7.9 Hypertherm and Etna Road Employers

There are multiple industrial and research facilities located along Etna Road, including Hypertherm and Creare. Hypertherm has developed a new manufacturing facility on Heater Road near the Interstate-89 underpass. Hypertherm and Creare are both interested in providing their employees with improved car-free commuting options.

There are two alternative routes for a commuter service that begins at the Wilder park and ride lot. A bus could operate clockwise in the morning through Norwich and Hanover. Or it could operate counterclockwise in the morning through White River Junction, West Lebanon, and Lebanon.

A clockwise route would serve Advance Transit bus stops along Route 5 in Norwich, pick up Hanover residents and transferring Vermont commuters at the Hanover Inn, and then proceed to Greensboro Road and Etna Road. After dropping off workers on Etna Road, it would continue to the Hypertherm plant on Heater Road.

Clockwise: Hartford, Norwich, and Hanover to Etna Road and Heater Road

Wilder Park & Ride	Hanover Inn	Etna Road	Heater Road
6:20 AM	6:25 AM	6:35 AM	6:45 AM
7:15 AM	7:30 AM	7:40 AM	7:50 AM
Heater Road	Etna Road	Hanover Inn	Wilder Park & Ride
3:15 PM	3:20 PM	3:30 PM	3:40 PM
5:10 PM	5:15 PM	5:25 PM	5:35 PM

Note: Schedule times are rough estimates only.

Counterclockwise: Hartford, West Leb, and Lebanon to Heater Road and Etna Road

Wilder Park & Ride	West Lebanon	Lebanon	Heater Road	Etna Road
6:20 AM	6:25 AM	6:37 AM	6:42 AM	6:55 AM
7:15 AM	7:20 AM	7:32 AM	7:40 AM	7:48 AM
Etna Road	Heater Road	Lebanon	West Lebanon	Wilder Park & Ride
3:20 PM	3:30 PM	3:40 PM	3:50 PM	3:55 PM
5:10 PM	5:20 PM	5:30 PM	5:40 PM	5:45 PM

Note: Schedule times are rough estimates only.

A counterclockwise route would serve Advance Transit bus stops along Route 4 in White River Junction and Lebanon, including transfer hubs in West Lebanon and Lebanon. The bus would proceed via Bank Street to the Hypertherm Heater Road facility, and then continue to Etna Road.

On both routes, Etna Road stops would include Dartmouth Coach, Hypertherm, and Creare. Service on either route could begin with a single pair of round trips, with morning arrivals before 8:00 a.m. and evening departures after 5:00 p.m. A second pair of round trips could be added for an earlier industrial shift, if a sufficient number of Hypertherm employees express an interest in this service.

7.10 Centerra Shuttle

The medical center uses a small bus to provide shuttle service every 30 minutes between DHMC and Centerra. There are two questions worth considering for the Centerra Shuttle: Can the timing be changed to improve connections with Advance Transit Blue route buses? Does DHMC want to maintain direct ownership of this service, or would they prefer to have Advance Transit operate it for them?

7.10.1 Blue Route / Centerra Connections

Since the Centerra Shuttle and Blue route buses serve the hospital’s east entrance, it should be relatively easy for someone to transfer between the two services. There are two sets of possible transfers: (1) Lebanon to Centerra and return and (2) Hanover to Centerra and return.

People from Lebanon currently have a 20-minute wait traveling to Centerra and an 11-minute wait returning from Centerra to Lebanon. People from Hanover have a 26-minute wait traveling to Centerra and a 17-minute wait on their return trip. (Hanover connections are better during the middle of the day when the extra 15-minute Hanover-DHMC bus is running.)

If the Centerra bus departed the East Entrance on the hour and half hour, Lebanon riders would have a zero minute wait heading to Centerra and a one-minute wait for their return. Hanover riders would have a six-minute wait heading to Centerra and a seven-minute wait for their return. The resulting Lebanon connections may be too tight. This is especially true for southbound Blue route buses. If the Centerra bus is delayed by more than one minute, this could put the Blue route bus behind schedule, or it could result in a missed connection.

BLUE ROUTE / CENTERRA CONNECTIONS – OPTION 1

LEBANON to CENTERRA				0 minutes	CENTERRA to LEBANON			1 minute
Lebanon	DHMC	DHMC	Centerra		Centerra	DHMC	DHMC	Lebanon
8:15 a	8:30 a	8:30 a	8:40 a		9:10 a	9:23 a	9:24 a	9:37 a
8:45 a	9:00 a	9:00 a	9:10 a		8:40 a	8:53 a	9:54 a	10:07 a

HANOVER to CENTERRA				6 minutes	CENTERRA to HANOVER			7 minutes
Hanover	DHMC	DHMC	Centerra		Centerra	DHMC	DHMC	Hanover
8:14 a	8:24 a	8:30 a	8:40 a		9:10 a	9:23 a	9:30 a	9:44 a
8:44 a	8:54 a	9:00 a	9:10 a		8:40 a	8:53 a	10:00 a	10:14 a

BLUE ROUTE / CENTERRA CONNECTIONS – OPTION 2

LEBANON to CENTERRA				15 minutes	CENTERRA to LEBANON			16 minutes
Lebanon	DHMC	DHMC	Centerra		Centerra	DHMC	DHMC	Lebanon
8:15 a	8:30 a	8:45 a	8:55 a		8:55 a	9:08 a	9:24 a	9:37 a
8:45 a	9:00 a	9:15 a	9:25 a		9:25 a	9:38 a	9:54 a	10:07 a

HANOVER to CENTERRA				21 minutes	CENTERRA to HANOVER			22 minutes
Hanover	DHMC	DHMC	Centerra		Centerra	DHMC	DHMC	Hanover
8:14 a	8:24 a	8:45 a	8:55 a		8:55 a	9:08 a	9:30 a	9:44 a
8:44 a	8:54 a	9:15 a	9:25 a		9:25 a	9:38 a	10:00 a	10:14 a

Note: Off-peak Hanover connections would be 6 and 7 minutes because of the midday DMS bus.

An alternative would be to schedule the Centerra bus to depart the East Entrance at 15 and 45 minutes past the hour. This would result in 15 and 16-minute connections for people from Lebanon, and 21 and 22-minute connections for people from Hanover.

7.10.2 Possible Advance Transit Operation of the Centerra Shuttle

Advance Transit could operate the Centerra Shuttle for Dartmouth-Hitchcock Medical Center. This would relieve the hospital from having to worry about day-to-day operations, including vehicle maintenance. It could reduce the medical center’s future capital costs for the service, because a replacement bus would be eligible for 80% capital funding from the Federal Transit Administration. Operation by Advance Transit would also result in increased visibility and improved coordination with regular Advance Transit routes and service.

7.11 Dartmouth College Route 120 Shuttle

Dartmouth College is considering possible development of a peripheral parking lot on Route 120. The lot would be located at the Trumbull Nelson site near DHMC Lot 9 and Jesse's Restaurant. The lot could begin with 200 parking spaces, with a later expansion to 400 parking spaces.

Three buses could provide peak-hour service every 10 or 15 minutes between the Route 120 lot and the Dartmouth College campus. Ten-minute headways should be possible if buses will reverse directions on Wheelock Street. If buses continue north to Maynard Street, the time between buses is likely to be 15 minutes.

Dartmouth employees who park in this lot will need to a way to get back to their cars during the middle of the day. It may be possible to avoid paying for separate midday buses by having DHMC Lot 9 buses serve the Trumbull Nelson lot during the middle of the day. This would require Dartmouth staff to ride two buses – the Blue route from Hanover to the DHMC east entrance, and the Lot 9 Shuttle from the east entrance to the Route 120 parking lot.

Peak-hour service with three buses should involve an estimated 52,785 vehicle miles per year and 6,350 bus driver hours. The estimated annual cost for peak-hour service is \$421,000.

7.12 Upper Valley Aquatic Center

The Upper Valley Aquatic Center was identified in the RFP for this study as a possible park and ride site. The Aquatic Center has also expressed an interest in having regular Advance Transit buses serve this location. The Aquatic Center is particularly interested in afternoon transportation to the center from local schools.

Because of its distance from the region's largest employers, the Aquatic Center has limited appeal as a park and ride facility. To avoid excessive travel time, separate express buses would likely be needed for individual work sites. Multiple trips would be expensive to provide, because of the long travel distance involved.

This situation might change if a bus-only connector road is constructed between Sagem Village and DHMC. Such a connector could reduce commute times for DHMC and Centerra employees who live in or near Hartford and West Lebanon. It appears unlikely that a Sagem Village-DHMC connector will be constructed during the five-year time frame for this transit study.

An afterschool trip to the Aquatic Center could be offered by the Orange route bus, but this would require bypassing the VA Hospital at 3:13 p.m. This would leave a two-hour gap between buses at the VA Hospital. Such a gap in service would inconvenience passengers who currently rely on Advance Transit for access to the hospital.

7.13 Service Hours and Costs

This section presents preliminary cost estimates for the service ideas discussed in this chapter. Cost estimates take into consideration anticipated vehicle miles and vehicle hours for each candidate service.

PRELIMINARY INCREMENTAL COST ESTIMATES

	VT	NH	Total Cost	Comments
BLUE ROUTE: 15-MINUTE SERVICE WITH 4 BUSES	0	268,409	268,409	This is the estimated additional cost for all day 15-minute service. If FTA covers half, and if four major partners divide the local cost evenly, the cost per partner would be \$33,551.
BLUE ROUTE: NURSING SHIFTS	0	58,698	58,698	This is the estimated marginal cost of extending Blue route service until 8:00 p.m. If FTA subsidies cover half, the local share cost would be \$29,349.
BLUE ROUTE: CANAAN/ENFIELD	0	278,368	278,368	This is the estimated marginal cost of current Canaan/Enfield service. It may be possible to reduce this cost by replacing the existing Blue route extension with a regional commuter service.
CANAAN/ENFIELD SUBSCRIPTION ROUND TRIP PAIR	0	61,463	61,463	If 20 subscribers pay \$20 per week, this would generate \$20,000 per year. This would leave a net cost of \$41,463 per bus.
RESTRUCTURED ORANGE ROUTE: HARTFORD VILLAGE	108,902	-132,158	-23,256	A revised Orange route would involve 12,000 fewer miles. The net increased cost for Vermont would be \$108,902. If VT will provide 80% funding, this leaves an estimated local match requirement of \$21,780.
ORANGE ROUTE EXTRA MORNING BUS	47,545	0	47,545	This is the estimated cost to add two morning round trips per day. An evening Amtrak connection and an evening Listen Center loop together would add another \$40,000 in estimated annual costs.
GREEN ROUTE: 2 BUSES	218,714	0	218,714	This is the estimated marginal cost for a second Green route bus. If VT will provide 80% funding, this would leave a local match requirement of \$43,743.
GREEN EXPRESS	218,714	0	218,714	Costs are the same as the Green 2-bus option. Hanover and Lebanon should be willing to support an express link between West Lebanon and Hanover, because this will replace and enhance the current Orange route link. If Hanover and Lebanon each continue to provide \$10,935, this would leave an increased VT local match requirement of \$21,872.

SACHEM SHUTTLE	0	298,850	298,850	The Sachem Shuttle would operate every 30 minutes from 7 a.m. to 11:00 p.m. It would replace the existing evening Dartmouth Shuttle, resulting in an estimated net cost of \$270,000.
SECOND SACHEM BUS: SCHOOL YEAR ONLY	0	114,000	114,000	A second bus could be added during the school year, resulting in 15-minute peak-hour service.
SATURDAY SERVICE	67,740	67,740	135,481	Saturday service would require increased funding from federal, state, and municipal partners. If Vermont covers 80%, the combined net local share for Vermont towns would be \$13,548. If NHDOT covers 50% with 5311 funding, the combined net local share for Lebanon and Hanover would be \$33,870.
ALICE PECK DAY: MIDDAY SERVICE	0	125,812	125,812	AP Day Hospital may cover 25% of this cost. Can NH FTA 5311 cover half of the cost with former New Freedom dollars? Who will pay the remaining \$31,453?
ETNA ROAD: 1 ROUND TRIP	55,937	0	55,937	Hypertherm, Creare, and other Etna Road employers might be willing to pay for this service. The estimated fully allocated cost is \$56K per bus.
ETNA ROAD: 2ND ROUNDTRIP	55,937	0	55,937	A second pair of round trips would benefit Hypertherm industrial shift workers.
CENTERRA SHUTTLE	0	172,743	172,743	Advance Transit could operate this service for DHMC if the medical center is willing to pay for it. Other Centerra partners might be willing to contribute.
DARTHMOUTH ROUTE 120 SHUTTLE	0	421,317	421,317	Three buses would offer 10-15 minute headways from 7 to 10 a.m. and from 3 to 7 p.m. The DHMC Lot 9 Shuttle would provide access to this lot midday.
ADA SATURDAY SERVICE	19,713	46,538	66,250	ADA paratransit service will need to be added on Saturdays if regular-route service is offered on Saturdays.

Chapter 8: Capital and Financial Plan

This chapter presents a five-year capital and financial plan for Advance Transit. It includes capital and operating cost projections for the period FY 2013 through 2018. It estimates the level of funding that will be required from Advance Transit's federal, state, municipal, and private partners to support Advance Transit's existing and proposed services.

The five-year financial projections presented in this chapter are based on strategies and assumptions identified in the written discussion and in a supporting spreadsheet cost model. Different choices and assumptions could have been made. The cost model includes an interactive control panel and is designed to allow Advance Transit to test the financial impact of alternative future scenarios.

The chapter includes seven sections:

- Section 8.1 Strategic Choices for Advance Transit
- Section 8.2 Recommended Five-Year Implementation Plan
- Section 8.3 Operating Cost Projections
- Section 8.4 Revenue Projections
- Section 8.5 Ridership Projections
- Section 8.6 Five-Year Budget Projections
- Section 8.7 Capital Plan

8.1 Strategic Choices for Advance Transit

Because of limited funding and changing financial conditions, Advance Transit must carefully consider where to focus its available resources. During the course of this study, a number of strategic choices have emerged that can help determine Advance Transit's future. Answers to these strategic questions have helped guide the service design recommendations included in this five-year financial plan.

Recommended strategic choices include the following:

1. Advance Transit should focus on its core service area (Hanover, Lebanon, Norwich, and Hartford), and save regional commuter services for another time.
2. Advance Transit should focus on improving its existing trunk line routes (increasing frequency, extending hours, improving stops and shelters and pedestrian access), and save new off-route destinations (Centerra, Alice Peck Day, Airport, etc.) for another time.

3. Advance Transit should work to increase market penetration along its existing core routes, targeting Dartmouth College and DHMC commuters and others who live within walking distance of current bus stops.
4. Subject to available funding, Advance Transit should consider adding Saturday service to support a growing car-free constituency that includes graduate students without cars.
5. Advance Transit should consider replacing regularly scheduled free bus service from Canaan and Enfield with a redesigned commuter service that uses part-time drivers based in Canaan and that includes a weekly subscription fare.

The relevance of these strategic choices can be illustrated by considering one target market – Dartmouth College graduate students. Graduate students have expressed their needs and expectations in onboard surveys. They want more convenient bus stop locations, especially at Sachem Village. They want more frequent service, and they want evening service. They want buses to operate on Saturdays.

Riders praise the existing service for its high quality, but the service is still not good enough for many potential riders. This is particularly true for Hanover commuters from Sachem Village, West Lebanon, and Hartford. These people need buses that operate more frequently than once an hour. Residents of Sachem Village need buses that run later than 6:00 p.m.

8.2 Recommended Five-Year Implementation Plan

A recommended five-year implementation plan focuses on improvements to Advance Transit's core services. Highlights include:

- Fifteen-minute service and limited evening service on the Blue route beginning in FY 2015
- Subscription commuter service to replace free Canaan and Enfield buses beginning in FY 2015
- Continued operation of two Red route buses, with no diversions to the Lebanon Airport
- Introduction of a Sachem Shuttle in FY 2014, with half-hour service to the Dartmouth College campus from 7:00 a.m. until 11:00 p.m.
- Introduction of a Green Route Express in FY 2015, with two buses and 30-minute headways
- Introduction of revised Orange route service for Hartford Village, Bugbee Street, and The Haven in FY 2015
- New limited Saturday bus service beginning in FY 2017 (or earlier if funding becomes available)
- New commuter service from Hartford to Hypertherm facilities on Heater Road and Etna Road

8.3 Operating Cost Projections

Operating cost projections are based on Advance Transit’s average unit costs for FY 2013. Unit cost measures include average cost per hour (for labor and administrative expenses), average cost per mile (for fuel and repairs), and average cost per scheduled bus (for vehicle insurance).

These cost factors are adjusted for anticipated inflation in future years. Inflation rates utilized by the cost model can be set separately for each year. The model is currently set to reflect inflation rates of 2.5% per year throughout the five-year planning period.

Mileage and service hour calculations for individual service components include miles and hours associated with moving buses to and from Advance Transit’s bus garage in Wilder.

The cost model uses fully allocated costs. This means that the average cost per hour includes all administrative costs associated with Advance Transit’s regular bus operations. It does not include administrative costs assigned to ADA paratransit, Upper Valley Rideshare, or Advance Transit’s philanthropic fund raising efforts.

Using fully allocated costs results in conservative or “somewhat overstated” budget estimates. Administrative expenses are unlikely to increase proportionally with the growth of service hours and service miles. But an expanded program does require an expanded support effort. Budgeting for marginal or direct costs can result in understated and unrealistic cost projections. Moreover, marginal cost projections fail to accurately state the fair-share cost of proposed service additions.

PROJECTED COSTS BY SERVICE CATEGORY

Service Category	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,284
ADA	362,233	371,289	380,571	390,085	472,965	484,789
Commuter	0	86,000	217,298	222,730	228,299	234,006
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Regular	2,269,893	2,526,985	2,631,934	2,697,732	2,765,175	2,834,305
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Shuttles	1,215,077	1,551,776	1,590,570	1,630,334	1,671,093	1,712,870
Grand Total	3,991,938	4,684,402	4,972,435	5,096,746	5,446,837	5,583,008

PROJECTED COSTS BY SERVICE COMPONENT

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,284
Saturday hourly	0	0	0	0	149,545	153,284
ADA	362,233	371,289	380,571	390,085	472,965	484,789
ADA	362,233	371,289	380,571	390,085	399,837	409,833
ADA Saturdays	0	0	0	0	73,128	74,956
Commuter	0	86,000	217,298	222,730	228,299	234,006
Canaan 1st RT	0	0	64,574	66,188	67,843	69,539
Canaan 2nd RT	0	0	64,574	66,188	67,843	69,539
Hypertherm 1 RT	0	0	0	0	0	0
Hypertherm 2 RT's	0	86,000	88,150	90,353	92,612	94,927
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Regular	2,269,893	2,526,985	2,631,934	2,697,732	2,765,175	2,834,305
APD hourly	0	0	0	0	0	0
Blue - 15	0	0	291,073	298,350	305,809	313,454
Blue - 8 pm	0	0	61,670	63,212	64,792	66,412
Blue - Canaan	295,985	303,384	0	0	0	0
Blue - DMS	139,561	143,050	146,626	150,292	154,049	157,900
Blue - regular	564,726	578,844	593,315	608,148	623,351	638,935
Brown - 1 bus	243,074	249,150	255,379	261,764	268,308	275,015
Green - 1 bus	271,579	0	0	0	0	0
Green - 2 buses	0	0	0	0	0	0
Green - Express	0	502,551	515,115	527,992	541,192	554,722
Orange - 1 bus	264,315	0	0	0	0	0
Orange - a.m. bus	0	0	0	0	0	0
Orange - Hartford	0	247,086	253,263	259,594	266,084	272,736
Red - 1 bus	0	0	0	0	0	0
Red - 2 buses	490,654	502,920	515,493	528,380	541,590	555,129
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Shuttles	1,215,077	1,551,776	1,590,570	1,630,334	1,671,093	1,712,870
Centerra 30	0	0	0	0	0	0
Downtown summer	78,852	80,824	82,844	84,915	87,038	89,214
Downtown winter	399,069	409,045	419,272	429,753	440,497	451,510
Lot 20	250,665	256,932	263,355	269,939	276,688	283,605
Lot 9	486,491	498,653	511,119	523,897	536,995	550,420
Sachem - daytime 30	0	224,792	230,412	236,172	242,076	248,128
Sachem - evenings 30	0	81,530	83,568	85,657	87,799	89,993
Grand Total	3,991,938	4,684,402	4,972,435	5,096,746	5,446,837	5,583,008

8.4 Revenue Projections

The cost model developed for this planning effort assigns revenue dollars by funding source to individual service components. With the exception of parking lot shuttles, Advance Transit's funding partners do not typically pay for individual routes and services. The cost model uses a set of allocation assumptions to distribute current dollars among various components. Different allocation formulas could have been used, resulting in a somewhat different distribution of dollars. In developing revenue allocations, the goal was to come up with a reasonable assessment of the current situation, and to use this as a starting point for identifying the revenues that will be needed to pay for new and expanded services.

REVENUE ASSUMPTIONS

Route	Service	Revenue Assumptions
Blue	Blue - regular	No change other than adjustments for inflation.
Blue	Blue - DMS	Dartmouth Medical School will continue providing matching dollars for the extra midday bus linking DMS and DHMC.
Blue	Blue - Canaan	Commuter service to Canaan is heavily subsidized by NH FTA funding. The cost model assumes that the existing service will be replaced with subscription buses in FY 2015.
Blue	Blue - 15	Changes to Canaan service could free up FTA funding to cover 50% of the cost of increasing Blue route frequency. The remaining local share would be shared by Lebanon, Hanover, DHMC, and Dartmouth College.
Blue	Blue - 8 pm	Evening Blue route service might require a modest increase in NH FTA funding. The local cost would be shared by Lebanon, Hanover, DHMC, and Dartmouth College.
Red	Red - 2 buses	Ongoing support from NHDOT and the city of Lebanon should cover continuation of two-bus service on this route.
Red	Red - 1 bus	The model assumes that Red route service will not be cut back to one bus.
Green	Green - 1 bus	The model assumes that the Green Route Express will replace existing Green route service in FY 2014.
Green	Green - 2 buses	The model opts for the Green Route Express.
Green	Green - Express	The plan assumes that Vermont will provide 80% of the cost of adding a Green route bus. It assumes that Hartford and Norwich will each provide between \$5K and \$10K of additional annual support, and that Hanover and Lebanon will continue past levels of support for a West Lebanon-Hanover link.
Orange	Orange - 1 bus	The model calls for the existing Orange route service to be replaced by a restructured Orange route in FY 2014.
Orange	Orange - Hartford	The plan assumes that Vermont will provide 80% of the cost of new Orange route service in Vermont. If Hartford provides an additional \$9K per year, and current donations are used to cover \$14K, this will leave \$10K to be raised from The Haven, the Listen Center, and other Hartford partners.
Orange	Orange - a.m. bus	The cost model does not include an extra morning Orange route bus.
Brown	Brown - 1 bus	No change.

Downtown	Downtown -regular	No change.
Downtown	Downtown - summer	No change.
DHMC	Lot 9	No change.
DHMC	Lot 20	No change.
Sachem Shuttle	Sachem - daytime 30	The model assumes that Dartmouth College will pay the full cost for a Sachem Shuttle.
Sachem Shuttle	Sachem - evenings 30	The model assumes that Dartmouth College will pay the full cost for a Sachem Shuttle.
Saturday	4 buses, hourly	The model assumes that NH FTA funds would cover 50% of the cost of Saturday service in New Hampshire, and that funds from VT would cover 80% of Saturday service in Vermont. Lebanon and Hanover would split the NH local share, and Hartford and Norwich would split the VT local share.
AP Day	Midday hourly	The cost model does not include service to Alice Peck Day Hospital.
Hypertherm	One round trip	The model opts for two sets of Hypertherm work trips.
Hypertherm	Two round trips	The model assumes that Hypertherm will cover the full cost of two sets of commuter round trips. Vermont may be willing to help support this service in the future.
Centerra Shuttle	One bus 30	The cost model does not include Advance Transit operation of the DHMC Centerra Shuttle.
Canaan	First round trip	The model assumes that fare box revenues will cover one-third of the cost, and NH FTA funds will cover one-third. The remaining third will be divided among Dartmouth College, DHMC, and the towns of Enfield and Canaan.
Canaan	Second round trip	Fare box revenues will cover one-third of the cost, and NH FTA funds will cover one-third. The remaining third will be divided among Dartmouth College, DHMC, and the towns of Enfield and Canaan.
ADA	ADA Paratransit	NH funds \$200K of ADA costs, while VT covers \$40K and \$56K. Donations are used to cover about \$15K per year of ADA costs. The model allocates the remaining \$100K of ADA expenses among towns according to the number of ADA boardings. Lebanon generates 69% of ADA boardings.
Rideshare	Rideshare	The plan assumes that NHDOT will continue to cover roughly 80% of the cost of this program. The cost model assigns 10% of the cost to municipalities and covers the remaining 10% with donations.
Philanthropy	Philanthropy Admin	Donations cover the full cost of administering this fund raising effort.
ADA Saturdays	ADA Saturday service	The plan assumes that VT and NH will each provide about \$10K per year for Saturday ADA service, and that the remainder will be divided among the four towns according to the distribution of weekday ADA boardings.

REVENUES BY FUNDING SOURCE

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Federal	2,083,043	2,297,802	2,404,057	2,464,159	2,635,323	2,701,206
NH 5311	1,753,044	1,687,177	1,778,166	1,822,620	1,916,610	1,964,526
VT 5311	329,999	610,625	625,891	641,538	718,713	736,680
Municipal	487,272	513,625	619,383	634,868	754,132	772,985
Canaan	8,360	8,569	9,307	9,540	9,778	10,023
Enfield	4,854	4,975	9,307	9,540	9,778	10,023
Hanover	198,288	203,245	252,419	258,730	288,996	296,221
Hartford	44,650	50,249	51,505	52,793	71,290	73,072
Lebanon	220,960	226,484	276,239	283,145	344,142	352,746
Norwich	10,160	20,103	20,605	21,120	30,147	30,900
Partners	1,106,812	1,537,053	1,622,058	1,662,609	1,704,175	1,746,779
AP Day	0	0	0	0	0	0
Dartmouth	345,255	660,208	686,887	704,060	721,661	739,703
DHMC	669,735	686,478	740,044	758,545	777,509	796,947
DMS	91,822	94,118	96,470	98,882	101,354	103,888
Hypertherm	0	86,000	88,150	90,353	92,612	94,927
Other	0	10,250	10,506	10,769	11,038	11,314
State	154,116	194,921	199,794	204,789	219,629	225,120
NH	74,116	75,969	77,868	79,815	81,810	83,855
VT	80,000	118,952	121,926	124,974	137,819	141,264
Fares	0	0	42,025	43,076	44,153	45,256
Fares	0	0	42,025	43,076	44,153	45,256
Philanthropy	111,000	113,775	116,619	119,535	122,523	125,586
Donations	111,000	113,775	116,619	119,535	122,523	125,586
Grand Total	3,942,243	4,657,177	5,003,937	5,129,035	5,479,934	5,616,933

The next table shows the distribution of funding sources for each type of service. The cost model can also be used to produce separate tables for each funding source, showing how much of each partner's money is allocated to various Advance Transit service components during the five years covered by the plan.

REVENUES BY SERVICE TYPE AND FUNDING SOURCE

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,283
Dartmouth	0	0	0	0	0	0
DHMC	0	0	0	0	0	0
Donations	0	0	0	0	0	0
Hanover	0	0	0	0	18,693	19,160
Hartford	0	0	0	0	7,477	7,664
Lebanon	0	0	0	0	18,693	19,160
NH	0	0	0	0	0	0
NH 5311	0	0	0	0	37,386	38,321
Norwich	0	0	0	0	7,477	7,664
VT	0	0	0	0	9,720	9,963
VT 5311	0	0	0	0	50,098	51,350
Commuter	0	86,000	217,299	222,731	228,299	234,007
Canaan	0	0	8,712	8,930	9,153	9,382
Dartmouth	0	0	13,069	13,395	13,730	14,073
DHMC	0	0	13,069	13,395	13,730	14,073
Enfield	0	0	8,712	8,930	9,153	9,382
Fares	0	0	42,025	43,076	44,153	45,256
Hypertherm	0	86,000	88,150	90,353	92,612	94,927
NH	0	0	0	0	0	0
NH 5311	0	0	43,562	44,651	45,767	46,912
VT	0	0	0	0	0	0
VT 5311	0	0	0	0	0	0
Regular	2,220,843	2,500,421	2,664,113	2,730,716	2,798,984	2,868,958
AP Day	0	0	0	0	0	0
Canaan	7,794	7,989	0	0	0	0
Dartmouth	99,981	102,481	102,148	104,702	107,320	110,003
DHMC	56,937	58,360	83,155	85,233	87,364	89,548
DMS	91,822	94,118	96,470	98,882	101,354	103,888
Donations	35,759	36,653	37,569	38,508	39,471	40,458
Enfield	4,288	4,395	0	0	0	0
Hanover	96,983	99,408	145,986	149,636	153,377	157,211
Hartford	23,372	28,439	29,150	29,879	30,626	31,391
Lebanon	147,494	151,182	199,054	204,030	209,131	214,359
NH	0	0	0	0	0	0
NH 5311	1,277,874	1,200,127	1,235,378	1,266,263	1,297,919	1,330,367
Norwich	8,191	18,084	18,537	19,000	19,475	19,962
Other	0	10,250	10,506	10,769	11,038	11,314
VT	80,000	118,952	121,926	124,974	128,099	131,301
VT 5311	290,349	569,984	584,234	598,839	613,810	629,156

Shuttle	1,214,239	1,550,917	1,589,690	1,629,432	1,670,168	1,711,922
Dartmouth	245,274	557,727	571,671	585,962	600,611	615,627
DHMC	612,798	628,118	643,821	659,916	676,414	693,325
Hanover	88,873	91,095	93,372	95,707	98,099	100,552
Lebanon	0	0	0	0	0	0
NH	0	0	0	0	0	0
NH 5311	267,294	273,977	280,826	287,847	295,043	302,419
Other	0	0	0	0	0	0
ADA	362,426	371,486	380,773	390,293	473,178	485,007
Donations	14,900	15,272	15,654	16,045	16,446	16,857
Hanover	10,057	10,308	10,566	10,830	16,206	16,611
Hartford	19,309	19,792	20,287	20,794	31,014	31,789
Lebanon	69,299	71,032	72,808	74,628	111,719	114,512
NH	0	0	0	0	0	0
NH 5311	207,876	213,073	218,400	223,860	240,494	246,507
Norwich	1,334	1,368	1,402	1,437	2,494	2,556
VT	0	0	0	0	0	0
VT 5311	39,650	40,641	41,657	42,699	54,804	56,174
Rideshare	93,333	95,666	98,058	100,509	103,022	105,597
Canaan	566	580	595	610	625	641
Donations	8,940	9,163	9,392	9,627	9,868	10,114
Enfield	566	580	595	610	625	641
Hanover	2,375	2,434	2,495	2,557	2,621	2,687
Hartford	1,969	2,018	2,068	2,120	2,173	2,228
Lebanon	4,166	4,271	4,377	4,487	4,599	4,714
NH	74,116	75,969	77,868	79,815	81,810	83,855
NH 5311	0	0	0	0	0	0
Norwich	635	651	667	684	701	718
VT	0	0	0	0	0	0
VT 5311	0	0	0	0	0	0
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Donations	51,402	52,687	54,004	55,354	56,738	58,157
Grand Total	3,942,243	4,657,177	5,003,937	5,129,035	5,479,934	5,616,933

8.5 Ridership Projections

During the five-year planning horizon, combined Advance Transit ridership is projected to increase by 17%, from 863,000 in FY 2012 to just over one million in FY 2018. The most significant changes include:

- A 5% increase in Blue route ridership resulting from improved service to residences along and near Mount Support Road.
- A 20% increase in Blue route ridership when 15-minute service is instituted in FY2015.
- 200 boardings a day on a Sachus Shuttle beginning in FY 2014, with 5% annual increases in the subsequent two years.
- A 14% decline for a restructured Orange route beginning in FY 2014, followed by 2% annual increases for each of the next three years.
- A 25% increase in Green route ridership when a two-bus express is instituted in FY 2015, followed by 5% annual increases for the next two years.

New commuter buses are each projected to carry between 10 and 20 workers per day, generating between 5,100 and 10,200 one-way rides per bus, with subsequent increases of 2% per year.

ADVANCE TRANSIT RIDERSHIP PROJECTIONS

	<i>FY 2012</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
Blue	220,613	230,062	234,031	252,878	254,898	256,998	256,998
Green	53,638	53,638	67,048	70,400	73,920	73,920	73,920
Red	153,780	155,318	156,871	158,440	160,024	161,624	163,241
Brown	40,062	40,463	40,867	41,276	41,689	42,106	42,527
Orange	78,642	78,642	67,632	68,985	70,364	71,772	71,772
Total Regular	546,735	558,122	566,448	591,979	600,895	606,419	608,456
Dartmouth	70,166	70,166	70,166	70,166	70,166	70,166	70,166
Sachus	0	0	51,000	53,550	56,228	59,039	59,039
DHMC	246,119	246,119	246,119	246,119	246,119	246,119	246,119
Total Shuttles	316,285	316,285	367,285	369,835	372,513	375,324	375,324
Hypertherm	0	10,000	10,200	10,404	10,612	10,824	11,041
Canaan	0	0	0	15,000	15,300	15,606	15,918
Total Commuters	0	10,000	10,200	25,404	25,912	26,430	26,959
Combined Total	863,020	884,407	943,933	987,218	999,319	1,008,173	1,010,739

8.6 Five-Year Budget Projections

Five-year revenue and expense projections are summarized in the following two tables. Dollar amounts presented in the five-year plan are supported by a spreadsheet cost model developed for Advance Transit as part of this planning process.

FIVE-YEAR REVENUE PROJECTIONS

Revenues	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Federal	2,083,043	2,297,802	2,404,057	2,464,159	2,635,323	2,701,206
Municipal	487,272	513,625	619,383	634,868	754,132	772,985
Partners	1,106,812	1,537,053	1,622,058	1,662,609	1,704,175	1,746,779
State	154,116	194,921	199,794	204,789	219,629	225,120
Fares	0	0	42,025	43,076	44,153	45,256
Philanthropy	111,000	113,775	116,619	119,535	122,523	125,586
Grand Total	3,942,243	4,657,177	5,003,937	5,129,035	5,479,934	5,616,933

FIVE-YEAR EXPENSE PROJECTIONS

Expenses	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Saturday	0	0	0	0	149,545	153,284
ADA	362,233	371,289	380,571	390,085	472,965	484,789
Commuter	0	86,000	217,298	222,730	228,299	234,006
Philanthropy	51,402	52,687	54,004	55,354	56,738	58,157
Regular	2,269,893	2,526,985	2,631,934	2,697,732	2,765,175	2,834,305
Rideshare	93,333	95,666	98,058	100,509	103,022	105,598
Shuttles	1,215,077	1,551,776	1,590,570	1,630,334	1,671,093	1,712,870
Grand Total	3,991,938	4,684,402	4,972,435	5,096,746	5,446,837	5,583,008

8.7 Capital Plan

Advance Transit has component capital plans for acquisitions funded in New Hampshire and Vermont. Anticipated capital expenditures are presented in the following three tables.

CAPITAL PLAN: NEW HAMPSHIRE

<i>Unit Purchases</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
1. Heavy-duty buses				8		
2. Medium-duty buses				7	1	
3. Light-duty buses		1				2
4. Service vehicles		1		1		
5. Maintenance equipment						
6. Computer equipment		4				
7. Telecom equipment						
8. Radio & ITS equipment						
9. Bus stop improvements						
10. Bus shelters			6			
11. Building improvements						
<i>Unit Costs</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
1. Heavy-duty buses				350,000		
2. Medium-duty buses				173,750	173,750	
3. Light-duty buses		78,000				82,680
4. Service vehicles		45,000		15,000		
5. Maintenance equipment						
6. Computer equipment		1,500				
7. Telecom equipment						
8. Radio & ITS equipment						
9. Bus stop improvements						
10. Bus shelters			4,200			
11. Building improvements						
<i>Expenditures</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
1. Heavy-duty buses	0	0	0	2,800,000	0	0
2. Medium-duty buses	0	0	0	1,216,250	173,750	0
3. Light-duty buses	0	78,000	0	0	0	165,360
4. Service vehicles	0	45,000	0	15,000	0	0
5. Maintenance equipment	0	0	0	0	0	0
6. Computer equipment	0	6,000	0	0	0	0
7. Telecom equipment	0	0	0	0	0	0
8. Radio & ITS equipment	0	0	0	0	0	0
9. Bus stop improvements	0	0	0	0	0	0
10. Bus shelters	0	0	25,200	0	0	0
11. Building improvements	0	0	0	0	0	0
Total Capital Costs	0	129,000	25,200	4,031,250	173,750	165,360

CAPITAL PLAN: VERMONT

Unit Purchases	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1. Heavy-duty buses						
2. Medium-duty buses				4	2	
3. Light-duty buses						1
4. Service vehicles		1				
5. Maintenance equipment						
6. Computer equipment	1	1		1		
7. Telecom equipment	1					
8. Radio & ITS equipment	1	1				
9. Bus stop improvements						
10. Bus shelters	8		6			
11. Building improvements					1	
Unit Costs	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1. Heavy-duty buses						
2. Medium-duty buses				173,750	173,750	
3. Light-duty buses						72,000
4. Service vehicles		24,000				
5. Maintenance equipment						
6. Computer equipment	10,000	1,500		10,000		
7. Telecom equipment	12,000					
8. Radio & ITS equipment	10,000	28,000				
9. Bus stop improvements						
10. Bus shelters	5,000		4,200			
11. Building improvements					16,800	
Expenditures	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1. Heavy-duty buses	0	0	0	0	0	0
2. Medium-duty buses	0	0	0	695,000	347,500	0
3. Light-duty buses	0	0	0	0	0	72,000
4. Service vehicles	0	24,000	0	0	0	0
5. Maintenance equipment	0	0	0	0	0	0
6. Computer equipment	10,000	1,500	0	10,000	0	0
7. Telecom equipment	12,000	0	0	0	0	0
8. Radio & ITS equipment	10,000	28,000	0	0	0	0
9. Bus stop improvements	0	0	0	0	0	0
10. Bus shelters	40,000	0	25,200	0	0	0
11. Building improvements	0	0	0	0	16,800	0
Total Capital Costs	72,000	53,500	25,200	705,000	364,300	72,000

CAPITAL PLAN: COMBINED NEW HAMPSHIRE AND VERMONT

<i>Expenditures</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
1. Heavy-duty buses	0	0	0	2,800,000	0	0
2. Medium-duty buses	0	0	0	2,606,250	868,750	0
3. Light-duty buses	0	78,000	0	0	0	309,360
4. Service vehicles	0	93,000	0	15,000	0	0
5. Maintenance equipment	0	0	0	0	0	0
6. Computer equipment	20,000	9,000	0	20,000	0	0
7. Telecom equipment	24,000	0	0	0	0	0
8. Radio & ITS equipment	20,000	56,000	0	0	0	0
9. Bus stop improvements	0	0	0	0	0	0
10. Bus shelters	80,000	0	75,600	0	0	0
11. Building improvements	0	0	0	0	33,600	0
Total Capital Costs	144,000	236,000	75,600	5,441,250	902,350	309,360
<i>Funding Sources</i>	<i>FY 2013</i>	<i>FY 2014</i>	<i>FY 2015</i>	<i>FY 2016</i>	<i>FY 2017</i>	<i>FY 2018</i>
FTA NH (100/0/0)	0	0	0	0	0	0
FTA NH 80/10/10)	0	98,400	0	3,225,000	139,000	132,288
FTA NH (80/0/20)	0	4,800	20,160	0	0	0
FTA VT (80/10/10)	57,600	42,800	20,160	564,000	291,440	57,600
NHDOT 10%	0	12,300	0	403,125	17,375	16,536
VTrans 10%	7,200	5,350	2,520	70,500	36,430	7,200
Local	7,200	18,850	7,560	473,625	53,805	23,736
Total Capital Funds	72,000	182,500	50,400	4,736,250	538,050	237,360
Total Federal	57,600	146,000	40,320	3,789,000	430,440	189,888
Total State	7,200	17,650	2,520	473,625	53,805	23,736
Total Local	7,200	18,850	7,560	473,625	53,805	23,736
Combined Total	72,000	182,500	50,400	4,736,250	538,050	237,360

Please take a few minutes to fill out this survey. Complete the survey only once. Thank you!

1. DATE _____ 2. TIME _____ A.M. P.M.
3. What bus route are you on now?
 Blue Red Green Orange Brown
 Dartmouth / Downtown Shuttle DHMC parking lot shuttle DHMC Centerra shuttle
4. Will this trip involve a transfer between routes. Yes No
5. If yes, what routes?
 Blue Red Green Orange Brown
 Dartmouth / Downtown Shuttle DHMC parking lot shuttle DHMC Centerra shuttle
 Stagecoach Connecticut River Transit
6. What is the main purpose of this bus trip? (Please check only one) To or from ...
 Work Shopping School or College
 Medical Recreation Social Visit Other _____ (7)
8. What town or village do you live in?
 Lebanon West Lebanon Hanover Canaan Enfield Norwich
 WRJ Hartford Village Wilder Other _____ (9)
10. How often do you usually ride Advance Transit?
 5 days per week 3-4 days per week 1-2 days per week Less than once per week
11. When did you first begin using Advance Transit?
 Within the last year 1-2 years ago 3-5 years ago More than 5 years ago
12. Are you a Dartmouth College student? Yes No
13. If yes... Undergraduate Tuck Thayer Medical School
 Arts & Science Graduate Student Other Graduate Student
14. What is your employment status?
 Full-time Part-time Retired Unemployed Other _____ (15)
16. If you are employed, what is your primary work location? DHMC Centerra
 Hanover Downtown Lebanon West Lebanon Route 12A Plazas WRJ
 Norwich Wilder Other _____ (17)
18. Who is your employer? DHMC Dartmouth College VA Hospital
 Other _____ (19)
20. If you have a car available for your use, where is this car now?
 No car available Home DHMC Lot Dartmouth or Hanover lot
 Someone else is using it Garage for repairs
 Near Advance Transit bus stop (Where?) _____ (21)
 Other _____ (22)

Please complete both sides.

How often are these statements about Advance Transit true?

	Nearly Always	Usually	Some-times	Almost Never
23. Buses are clean.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Buses are comfortable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. It is easy to find a seat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Drivers are polite and helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Drivers are safe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Buses are on time in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Buses are on time in the afternoon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Bus schedules are easy to find.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Schedules are easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Transfers between routes are easy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. How long have you lived in the Upper Valley?

- Less than one year
 1-2 years
 3-5 years
 More than 5 years
 I don't live in the Upper Valley

34. How long have you lived at your current address?

- Less than one year
 1-2 years
 3-5 years
 More than 5 years

35. What technologies do you use?

- Internet at home
 Internet at work
 Smart phone
 Regular cell phone

36. Are you male or female? Male Female

35. What is your age?

- 17 or younger
 18-25
 26-40
 41-65
 Over 65

36. Do you have a valid drivers license? Yes No

37. What do you like about Advance Transit bus service? What can we do to improve the service?
Comments and suggestions will be posted at www.advancetransit.com.

Advance Transit 2012 Passenger Comments

What do you like about Advance Transit bus service? What can we do to improve the service?

<i>Route</i>	<i>Town</i>	<i>What do you like?</i>	<i>How can we improve service?</i>
Blue	Canaan	I like that the bus does not cost money to ride, and that the drivers are friendly.	
Blue	Canaan	I like that I can take it to almost anywhere around here.	I wish there were more buses going out to Canaan in the early afternoon. I work 6:30 a.m. to 2:00 p.m. everyday and the bus doesn't head back to where I live until 4:20 p.m.
Blue	Grafton, NH		The bus driver in the a.m. needs to close the door when he gets off to smoke in the morning and needs to move away from the bus so smoke does not come in the bus. The afternoon driver is typically off schedule - drives past stops and does not pay attention We need our old driver back!
Blue	Canaan	Relaxing way to get to and from work, especially in bad weather. New friends on the bus.	Midday bus to Canaan. Saturday service. And a friend who usually rides from Canaan to DHMC on the 6:50 a.m. and 5:05 p.m. 3-4 days a week is concerned about how she'll get to work when she is moved to the new Heater Road clinic building.
Blue	Enfield	Fantastic, convenient service!	Wi-fi would be great.
Blue	Enfield		We need a middle of the day bus from Lebanon to Canaan.
Blue	Lebanon	I like taking the bus because the drivers are always polite and greet you with a hello or good morning. And it's very convenient transportation, without the use of a vehicle	I think that it would be helpful if the bus stayed the way it is.
Blue	Lebanon	I like that it's free and the stops are conveniently placed.	I don't feel that it runs late enough, and not running on weekends makes it hard to get groceries.
Blue	Lebanon	I love AT.	Just wish they ran to West Leb on Saturdays! Also, can the 4:50 p.m. bus to Hanover go by Wolf Road? It's the only trip they do not! Keep up the great work!
Blue	Lebanon		Buses that run slightly earlier (before 6:00 a.m.) or slightly later (from DHMC to Lebanon after 5:30 p.m.) servicing the Wolf Road stop would be wonderful. Not paying is nice, but I would happily pay fare for extended (including weekend) service.
Blue	Hanover	Frequency, timeliness, dependability.	

Advance Transit 2012 Passenger Comments

Blue	Lebanon		Use both doors, easier for loading/unloading (rear to get on, front to get off). Later service in the evenings.
Blue	Lebanon	I enjoy the convenience and reliability of the AT. The bus schedule works well with my work schedule.	
Blue	Lebanon	I like it just the way it is.	Just sometimes people are very loud and it is distracting.
Blue	Lebanon		It would be extremely helpful to have some weekend service.
Blue	Lebanon	Friendly bus drivers are very amiable.	
Blue	Lebanon		Drivers should not play the radio/music in the bus!
Blue	Hanover	Free and friendly!	
Blue	Hanover	This is a wonderful resource.	The only reason I don't use it daily to commute to and from work is that during commuting hours, it only goes once every half hour from DHMC to the Med School, rather than every 15 minutes (which has proven a struggle with the timing of childcare duties). I wish it ran every 15 minutes even in early morning (7-9 am) and evening (5-6 pm) hours.
Blue	Lebanon	I like that it is free.	
Blue	Hanover	I have been satisfied with the bus service since using it this past year.	
Blue	Hanover		Sometimes buses leave early, especially in the mornings.
Blue	West Lebanon	Keep up the good work!	Sometimes drivers are really aggressive when driving, causes me a stomach ache. But overall, excellent job. OH. WE NEED WEEKEND BUSES!!!! At least Saturday PLEASE.
Blue	Hanover		Timeliness can improve, but I love the service.
Blue	Lebanon	People are friendly and the buses are free. Buses are clean and nice.	
Blue	Lebanon		I would LOVE even a very reduced service on weekends and at night on weekdays. I often have classes and meetings until 9 in Hanover, but it's hard to get back home to Lebanon sometimes.
Blue	Lebanon		Please go until 10 pm. I would pay.
Blue	Lebanon	That it is very convenient.	Perhaps have parking lots for local commuters to park and ride.

Advance Transit 2012 Passenger Comments

Blue	Lebanon	Excellent service.	Very rarely a bus arrives and departs from a stop ahead of schedule. However, this is less of a problem now than it was 5-10 years ago. Now the drivers usually wait when early. Some drivers waste fuel by accelerating hard just before braking. That also makes for a jerky ride!
Blue	Lebanon		Increased connectivity between the Blue and Brown routes at Vail (can be spotty in the am and pm rush hours).
Blue	Manchester, NH	I really appreciate that it's free. I use the bus to get between DHMC (where my carpool partners work) and Hanover (where I work). It would be really irritating if I had to pay for every 5-minute ride. Great, very useful service. Thank you!	
Blue	Hanover	Nice and friendly drivers. On time schedule.	I would like to be able to take the bus on weekends, because a lot of people without cars need public transportation.
Blue	Hanover	I like that it is free, the drivers are friendly and helpful, and it runs every 15 minutes to DHMC.	It would be helpful if there were longer hours, even one extra hour to Lebanon and Hanover from DHMC and from Hanover to Lebanon. The last bus should be at 8:05 p.m. from DHMC instead of 7:00 p.m.
Blue	Enfield	Outstanding service. We are very fortunate. Fabulous that it's free - hope we can keep it that way.	
Blue	Hanover	I like that it is very convenient and allows me to go places without a car or knowing someone with a car.	Weekend buses would be a great addition!
Blue	Hanover	The drivers are always friendly and helpful and the buses are always on time and reliable. I also like how frequently the buses come. I never have to wait very long at any one stop before I board one.	
Blue	Hanover	It's free! And on time.	
Blue	Lebanon	Punctuality, frequency, driver courtesy are all outstanding.	However, it'd be great to have weekend service.
Blue	Enfield		
Blue	Enfield	Free of charge. Dartmouth incentive to ride the bus by allowing free parking occasionally to bus riders (1-3X per month)	I would LOVE to have more direct Enfield to Dartmouth (VAIL) runs. Now I usually transfer at Lebanon or the hospital in the morning and afternoon.
Blue	Lebanon	Convenience. Invaluable asset to the community.	

Advance Transit 2012 Passenger Comments

Blue	Enfield		I just wish you had one or two more trips out to Enfield in the evening. I would start giving money if you did.
Blue	Lebanon	It is great.	
Blue	Enfield	I enjoy all aspects, including the friendly people.	I wish there was a noon bus to Enfield. I do not drive and have to have to leave my home at 8:50 a.m. when I have a 2:00 p.m. appointment. Thanks.
Blue	Lebanon	I love the online program "Where's my bus?" It is very useful! You have awesome bus drivers. I also like the cost - saves me money and gets me to work on time. Hours between Lebanon and Hanover are good.	
Blue	Lebanon	Keep it free!	Also, run on weekends!
Blue	Lebanon	It's awesome! No complaints!	
Blue	Hanover	The buses are always clean and convenient.	If there were buses on weekends, I believe this would be helpful.
Blue	Hanover		Include all bus stops (Webster Avenue, Maynard, etc.) on schedules.
Blue	Plainfield, NH	I like the bus because we only have one car between my partner and me. I like to take the bus from Lebanon to work when my partner is out of town.	Web schedule for Centerra is not the same as the current schedule. Please make sure all online schedules are up to date! I hope there is service from Cornish, as we are moving there soon.
Blue	Hanover	The Blue line is great!!	Would more rush-hour buses be possible?
Blue	Lebanon	Ease of use and saving gas.	
Blue	Lebanon	I like that the driver always has a smile on his face in the morning and is always cheerful.	
Blue	Lebanon	I like the frequency, price, and ease of use. (The Blue line is perfect for me.)	I dislike: No service on the weekends (just one AM and one PM trip would be great), no drop-off close to the Lebanon Dartmouth Coach terminal, and finally, one driver brakes to often/too hard and I get so sick and nauseated that I stop taking the bus and drive for a few days instead. Can we have driver comments?
Blue	Lebanon	Everything!!	
Blue	Lebanon	I like that the drivers are polite and that I get to where I want to go on time.	
Blue	Lebanon	That it brings me to work when needed. I also like the fact that it is free.	
Blue	Lebanon	The convenience of having multiple pick-ups/drop-offs during the day.	
Blue	Lebanon	It's free.	
Blue	Lebanon	I really like that AT is free.	

Advance Transit 2012 Passenger Comments

Blue	Lebanon	Convenient to home and work. Great service!	
Blue	Lebanon	You are doing a great job. I have been riding the AT my whole life, always enjoyed it.	More music?
Blue	Lebanon	It is convenient, the drivers are always polite and helpful. It helps me because we only have one vehicle and with me being able to take the bus to work, my husband who is disabled doesn't have to get up with our grandchildren (who we are raising) and disrupt their schedule. It is a good service all the way around. Thank you!	
Blue	Lebanon	It is very convenient and I don't need to worry about finding a parking space.	
Blue	Lebanon	I like that it's free and clean. Great drivers! The buses come often! I'll look forward to when you stop at Timberwood Apartments on Mount Support Road.	I wish you ran longer hours in the evening (especially in the summer) and on weekends. Thanks for providing a great service. I really appreciate it. I plan to donate to Buy a Bus.
Blue	Wells River, VT	This is a great service. I am not sure how to improve it.	When I don't understand the schedule, I call the office and they talk me through.
Blue	Bradford, VT	I like everything at this time.	
Blue	Hanover	Rarely I miss a Friday evening bus because I see it go by early as I walk to the bus stop. Late buses I can tolerate, but EARLY!? I hate that! Driver _____ is a crusty, thoughtful treasure.	
Blue	West Lebanon	Service is very good.	
Blue	Bethel, VT	It's a great service, drivers are great.	
Blue	Lebanon		Drivers are of uneven skill and courtesy. Please discourage cellphone use on the bus. Please discourage conversations at loud volume between drivers and passengers.
Blue	Enfield	The frequency of times the bus runs to Hanover / Lebanon is great.	I wish the bus ran on the weekend. I'd accept having to pay for the bus to run on the weekend if that would make a difference. I hope the bus runs forever!
Blue	Lebanon	AT service is a wonderful and important resource in the Upper Valley. It seems very well run and I think over time it will become more important.	

Advance Transit 2012 Passenger Comments

Blue	Lebanon	It's a great service.	I wish it ran on weekends, or at least Saturdays. I love that it's free.
Blue	Lebanon	It's very convenient and saves me a lot of gas money since I don't have to drive back and forth every day.	Sometimes, as a grad student, I am working late and I work weekends, so if the buses ran a little later (even just to 7:15 p.m. instead of 6:15 p.m. at Vail), it would help. And some weekend service would be awesome. I understand the limitations though!
Blue	Lebanon		Ridership is not what it SHOULD be! Hopefully when Mt. Support Road is open we will get more from the complexes there! AT is the best!!
Blue	Lebanon		Service to Lyme again would be wonderful.
Blue	Hanover		Run during weekends!!
Blue	Hanover	I love the service and the drivers are great.	Service at least on Saturday could be great and helpful.
Blue	Norwich	Love that it's free - mainly because it eliminates fumbling for change and speeds loading.	Survey does not ask how many rides per day.
Blue	West Lebanon	Not being late and not charging for rides!!!	
Blue	Lebanon	It's free!	
Blue	Lebanon	Overall I love AT. I bought my house in Lebanon because it was within walking distance of a bus stop.	The Blue route has been running about 10 minutes behind the last few mornings. The bus I usually catch (8:45 a.m. from Lebanon) hasn't been arriving until almost 9. It hasn't caused a problem yet, but it's become a concern. A mobile app would be awesome! Something like the web "Where is my bus?"
Blue	Lebanon		It would be great if an off-hour (maybe 10-11 pm) route could be added on week days and a morning and an evening route could be run on weekends. We could pay fees for the additional routes!
Blue	Lebanon		Need a "shuttle" between Leb and Hanover downtowns, skipping DHMC - the route takes a long time, so I don't use it when I'm really busy. Free and good schedule, except I work late sometimes and get "stranded" at the college. Maybe run through 7 pm at least, ideally 9 pm. App for schedule and maps.
Blue	Lebanon	I'm amazed that it is free. We are privileged to have this service in the Upper Valley.	One thing I'd like to see is route maps posted on the inside of the buses (think Boston's rail system, the "T"). Another improvement would be adding AM/PM to the bus schedules, as well as specifying if the times are arrival or departure. I understand the bold represents PM but it can be confusing.

Advance Transit 2012 Passenger Comments

Blue	Lebanon	Love the service.	I would be willing to pay for night & weekend service!
Blue	Lebanon		There should be at least two trips to the plazas on weekends. Many graduate students live in Lebanon and have no car. So grocery shopping is a problem for them.
Blue	Lebanon		Additional buses after 6 pm from Hanover to Lebanon.
Blue	Lebanon	It runs lots of places in the Upper Valley.	A late night bus or weekends - even if these charged passengers to ride.
Blue	Hanover	It's perfect!! Thank you.	
Blue	Hanover	I like that it is free and regular.	Weekend service is the only improvement I can suggest.
Blue	Hanover		Seems to make no sense to exit/enter at front of bus. Enter at front. Exit at back.
Blue	Hanover		Weekends. Perhaps nights until 10 pm. Weekend service could be just one big circle hitting maybe 10 stops: 1 stop at the plazas, 1 stop at DHMC, 1 stop at the college, 1 stop at WRJ, 1 stop at Lebanon City Hall.
Blue	Lebanon		I think you need to provide seat belts for the passengers. Otherwise, buses are fine.
Blue	Lebanon		It will be perfect if you add an infrequent bus running for late hours, even with a charge.
Blue	Lebanon		A bus schedule can't be found for the Dartmouth/Downtown Shuttle. I hope that the bus can run once a day late in the evening (e.g. 9:00 p.m.), and twice a day (one in the morning, e.g. 9:00 a.m., one in the afternoon, e.g. 6:00 p.m.) in the weekend.
Blue	West Lebanon	I really appreciate that the bus is free, so I can hardly complain!	That being said, it would be nice to have an easy way to get home from the hospital to Sachem Village in the late afternoon. Also, it would be more convenient, though not necessary, to have the Orange bus go into Sachem and down Tuck drive. Thank you!
Blue	Hanover		Experiment with Saturday service. Smaller, more efficient buses on Blue line.
Blue	Hanover	The drivers are polite and helpful.	
Blue	Grafton, NH		I don't ride enough to answer this question comfortably. So far it's been real convenient.
Blue	Hanover	I love the service.	I suggest running on weekends. Otherwise, it is tops.
Blue	Lebanon	Free!!!	
Blue	Lebanon	Everything (clean, comfortable, safe and free)	

Advance Transit 2012 Passenger Comments

Blue	Lebanon	The bus service is always enjoyable and I can always depend on it.	The only thing I'd like to see added is a stop at K-Mart, West Leb. I can't walk from Video to K-Mart and then to Shaws to get the bus. Otherwise, I have only positive feedback to give you. I use Red and Blue lines.
Blue	Lebanon		A weekend service would be great, even if that meant paying for it. Later service would also be very useful - in the evening.
Blue	Hanover	Everything about AT is perfect: convenient location, prompt bus arrivals, and great service!	
Blue	Hanover	Drivers are friendly and helpful.	Sometimes the bus smells funny. You might want to open the windows.
Blue	Lebanon	It is nice to have the Advance Transit.	
Blue	Lebanon	I really like the drivers.	Hybrids have no place to store strollers if they have two wheelchairs. I wish some ran later - specifically Green and Orange.
Blue	Alexandria, NH	Excellent service. I couldn't afford the commute without it.	
Blue	Canaan	I like everything. Convenient.	
Blue	Orange, NH		Our current bus driver is UNSAFE. He stops at unplanned "stops." Traffic would have no warning. He speeds. He has crossed the lane of traffic to avoid stopping in current lane for parking/turning vehicles and tow trucks.
Blue	Canaan	Everything! Keep up the great work!	
Blue	Orange, NH	I'm happy.	
Blue	Canaan	Convenient.	
Blue	Canaan	The drivers are, with just a couple of exceptions, courteous and helpful. AT is a wonderful service and I so appreciate not having the driving and parking frustrations. Thank you!	I am uncomfortable with the driving skill of the _____ driver and am not looking forward to snowy/icy weather. (Our previous driver was the best!) A midday run to Canaan would be handy, as would an evening run.
Blue	Enfield		I wish that they ran on the weekends. That would be nice.
Blue	Enfield		Improvement or more time on the Enfield and Canaan route.
Blue	Etna, NH	Free service, good routes, reliable friendly drivers.	
Blue	Concord, NH	Free service, perfect for use during work. I don't need to use my car, which is nice because parking is tough at DHMC. (You don't want to get stuck parking in Lot 9!)	
Blue	Hanover	Very accessible, friendly, ease of transfer.	

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Blue	Plainfield, NH	Frequent times between DHMC and Hanover, since parking is so difficult. Riding the bus makes going back and forth so much easier!	
Blue	Hanover	Very valuable service to the Upper Valley!	
Blue	Hanover	It's pretty convenient to have it for easy access to work.	It would be nice to have some bus service on the weekends (need not be as regular as weekdays), and also if the Blue route had some service later in the night as well - maybe one at 8:00 p.m. and one at 9:00 p.m.? Thanks for everything!!!
Blue	Canaan	Free! Dependable.	I could use a few more evening buses and weekend buses.
Blue	Hanover		Weekends.
Blue	VT	Convenience.	
Blue	Hanover	So convenient! Thank you!	
Blue	Hanover	Great service!	
Blue	Hanover	I love how easy it is. Being able to be picked up and dropped off at so many spots on Dartmouth's campus is a huge plus.	
Blue	Hanover	Very convenient.	
Blue	Hanover	I like everything, especially "green" issues.	When waiting and weather permits, turn off engine.
Blue	Lebanon	Invaluable in getting and to from DHMC/Med School campus (Blue route). It is always on time, allowing me to minimize travel time between campuses. Great service, especially being that it's FREE!!	
Blue	Sutton, NH	Reliability. Effect on less driving, fuel costs, and pollution.	
Blue	Etna, NH	The frequency of travel between DHMC and Hanover is great.	
Blue	Hanover	It's amazing that it's free, it's easy to use, and the staff are always friendly.	
Blue	Hanover	Convenience.	
Blue	Hanover	Very easy to use.	In the evenings it comes only once every 30 minutes. I think it should come more frequently.
Blue	Hanover	Very easy to use. Free!	
Blue	Lyme, NH	I like the fact that the service is free.	It would be great if it went to Lyme and Thetford.
Blue	Norwich	Very convenient.	

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Blue	Enfield	Saving the environment, free, easy and accessible.	Before my son was born, I would have taken the bus to work if there had been a stop on 4A in Enfield. Now, I couldn't because I have to drop my son at daycare.
Blue	Thetford, VT	I love using Advance Transit to get around the Lebanon/Hanover area.	
Red	Lebanon		Have a route to Claremont.
Red	Lebanon		Saturday service would be great, just Lebanon, West Leb, Hanover, White River Junction. No Enfield or Canaan. It would save a lot.
Red	Lebanon		Add a stop to the Blue bus early at Wolf Rd before meeting the Red route and departing from City Hall at 6:10 a.m. The service is great, I just sometimes miss it.
Red	West Lebanon		Service on weekends (even if only limited runs) would benefit me greatly.
Red	Lebanon	It's great. Keep up the good work!	
Red	West Lebanon	What I like most is it's convenient, because I don't have a car right now. Bus stop locations are all over and easy to find.	
Red	Lebanon	Transfers between routes are very easy.	
Red	West Lebanon	I love it.	Promote it more - especially to local companies and their employees. Make the case re: cost savings, lowering stress, productivity (read while riding, personal or work). Better hand off to Centerra.
Red	WRJ	It is free and all the drivers are very nice and helpful.	They could have more routes going in the morning (e.g. red/green).
Red	Lebanon	I love "AT." I don't know what I would do without it.	Please add a.m. service on Saturdays.
Red	West Lebanon	It is all good.	
Red	West Lebanon	It takes me to work and shopping when I need it.	
Red	West Lebanon		I wish the buses ran on weekends. I would be willing to pay a per trip fee if the service was available.
Red	West Lebanon	Free and gets to most places I need.	
Orange	Lebanon	Convenience.	
Red	Lebanon	I have a car. AT makes it easier to get to and from work.	Coverage at stops during winter months, trash bins (so people stop leaving it on the roadside).

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Red	West Lebanon		I would like it if all the buses stop at all the bus stops every 30 minutes. Because if you take the Red line at 5:00 p.m. you can't go to BJ's or some plazas. Or if you take the bus at 1:00 p.m. you can't stop at Shaws. We could have bus service available weekends or just Saturday.
Red	Lebanon		I used to live in Canaan and the times for the buses from and to Lebanon were very inconvenient. They still are. I have a sister who still rides the bus from Canaan and her work schedule is usually in the early p.m. The bus gets her to Lebanon four or five hours too early. I'm not sure if it's possible to help with it, but more times out to Canaan would help.
Red	West Lebanon		Run on weekends.
Red	West Lebanon	AT is an excellent service and is a huge benefit to the community.	
Red	West Lebanon	I like that it's convenient, usually not too loud, helps get me from point A to point B.	
Red	Lebanon	Very nice, people are very nice.	
Red	Quechee, VT	The weekday schedule is very accommodating. Weekend service, and service to Quechee would be a plus. I would be happy to pay a fee for weekend service.	
Red	Lebanon	The bus service will never be 100%, but the standard is very high, which makes me comfortable. Thanks to the management and staff.	
Red	Lebanon	The bus service is excellent. Drivers are very pleasant when you enter and exit the bus.	If you are heading to a bus stop and they realize that you want the bus, they could wait for you at the bus stop. But one particular driver, I find him very selfish and I think he should be given training to deal with the public more politely, but for now I don't have a problem.
Red	Lebanon	Excellent. Easy to understand.	
Red	Lebanon	Service is great, with no improvement possible.	Expansion would be nice.
Red	Lebanon	I like how drivers announce stops now. I feel that buses are on or close to on time despite weather or traffic. For me it is a win/win - getting me to destinations while saving money.	Route to Alice Peck Day. Drivers need to ask young folks to move farther back when handicapped folks enter the bus.

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Red	West Lebanon	Upper Valley coverage area. Free! Reliable!	Saturday!
Red	West Lebanon	It is the best!	I would like Saturday service a few times a day.
Red	Lebanon	Very handy.	
Red	Canaan	I like that I can get back and forth to work or the hospital without depending on other members of my family.	Not much, but keep it running to all the places they run now, for those that really need it, who can't drive due to various reasons.
Red	Enfield		One driver doesn't wait for passengers to sit. I get out of work at 5:00 p.m. at the plazas and I need a later bus to Enfield.
Red	Canaan		Sometimes when I ask for help understanding the bus schedules, drivers are rude. Make the 3:00 p.m. Canaan bus actually go to Canaan.
Red	Lebanon		Have buses run on the weekends.
Red	Enfield	Free.	More rides.
Red	West Lebanon	I like that it is free and I can take it to work.	The only thing is I wish you ran later and on the weekend or just Saturday.
Red	Lebanon		It would be nice if we had transportation on Saturday and Sunday. It costs too much for taxi services. I work in White River at the Hotel Coolidge.
Red	Lebanon	It's convenient and the price is right!	
Red	Wilder	Free. Friendly drivers. Sense of community.	I would like to be able to take a bus late at night. Thank you!
Red	Lebanon	It's good enough right now.	
Red	Lebanon	It's free. It helps me save money. And it's nice.	
Red	Lebanon	I like that I can depend on Advance Transit to always get me where I need to go and on time. Also that most stops are easy and convenient to get to. Also that it is free.	
Red	Lebanon		Run the service until 2:00 a.m. (I work late, plus the drunk drivers.) Second, please, please, please start running the service during the weekend. I work five days a week. Two of them are Saturday and Sunday. I HATE taking taxis.
Red	Hanover	I like everything.	
Red	Hartford Village	I love the bus!!! I would have no transportation without it.	
Red	Hartford Village		Please use air conditioning when it is warm out. It makes me really sick.
Red	Wilder	It's free.	

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Red	Lebanon	Without them I'd lose my job. Very thankful we have you guys.	
Red	WRJ		I think the bus should provide easier access to Centerra Park. But other than that, I love the bus. And how easy the transportation is.
Red	WRJ		Run on Saturdays.
Red	Lebanon		You should never be early at stops between transfer stations (i.e. street stops). I have missed the bus before due to it being a least five minutes early (according to my cell phone).
Red	West Lebanon	Convenient. I don't have to waste valuable gas and money for transportation.	
Red	Lebanon	Convenience. Keep it going.	
Red	Enfield	I like how many different areas of the Upper Valley the buses travel to. They make it easy for me to get to work and other areas when I'm not carpooling.	
Red	So Royalton, VT	Easy access.	
Red	Enfield	Thank God for the bus. I would not have a job!	I would make the paper schedules a lot easier to follow! Other than that, I would have the bus run on weekends!
Red	Hartford Village		I wouldn't mind paying a fare for later nights and weekends.
Red	West Lebanon	Convenient and timely.	
Red	Lebanon		Buses to get people directly to work would be very helpful.
Red	Lebanon	I'm just glad to have the bus as an option. It saves me money and I don't have to inconvenience my family by taking our one car.	
Red	Lebanon	It's convenient throughout the day for work.	
Red	Lebanon	Because it comes on time.	
Red	Lebanon	Excellent, reliable, friendly - and good for the environment.	
Red	West Lebanon	I like that the drivers are always friendly.	They should not have intoxicated people on the bus. There was one guy that was bothering me, he was so drunk, he could barely stand. This was last Wednesday.
Red	West Lebanon		You could improve the bus service by adding night-time hours and weekend hours. Other than that I am very satisfied with the service.
Red	West Lebanon		We need Saturday service from West Leb to Lebanon and to the Plazas.
Red	West Lebanon		I would gladly pay for a service on Saturday. I think a lot of other people would too.

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Red	Lebanon	The buses are on time. Drivers are very courteous.	I would like a bus on Saturday between 9:00 a.m. and 1:00 p.m. so people who have no one to drive them to church on weekends can get there.
Red	Lebanon	Very convenient. Thank you for your services.	
Red	West Lebanon	Nothing to improve. Everything is good.	
Red	Lebanon	It is convenient.	It would be nice to have it on the weekends even if I would have to pay for it.
Red	Lebanon	Gets me where I need to go.	Start weekend service even if you have to pay for it.
Red	Lebanon	I live at Rogers House in Lebanon and I can get to so many stores on the bus. I go to the VA hospital for medical treatment and I can get there by the Advance Transit bus - which I do appreciate. Shopping in West Lebanon is no problem and the drivers are friendly and helpful. We have a computer at Rogers House. I would not mind paying for riding the bus.	
Red	Lebanon	The bus makes our trips to West Lebanon easier to access.	Would like a weekend bus service, even if we have to pay for this service on weekends.
Red	Lebanon		I personally would like it if the buses were more exact on their time schedules. Also, I do have to say I love and appreciate the service...
Red	Lebanon		Start half-hour Red line service to the Plazas earlier.
Red	Lebanon	Free, simple, on time.	
Red	Lebanon	Simple.	Please run later at night...
Red	Lebanon		Better communication when stops are coming up!
Red	West Lebanon		Better connections between Orange and Red in Lebanon. If you miss it, you are stuck there for one hour.
Red	Lebanon	I love that the service is free. It's very convenient to get to work and shop.	
Red	Lebanon		If there was a way to have weekend service, or just Saturdays. More spacing between seats, i.e. leg room. Room for car seat.
Red	West Lebanon	The drivers are friendly. They don't get anxious.	Do a Saturday and Sunday route. More often at Bank Street Leb to Canaan. Bus to Hartland and Quechee.
Red	Lebanon		You could run on weekends.

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Red	Lebanon	The convenience of getting most places I need to go.	I volunteer at an off-site DHMC office and just miss the hospital shuttle on the way there. It would be helpful if the two schedules were closer together. Definitely a Saturday bus would add joy to my life!
Red	WRJ	Suits me.	
Red	Lebanon	The drivers are kind.	We hope they can add Saturdays to it so that they can close 1/2 day.
Red	Wilder		Make bus schedules clearer so they are easier to understand.
Red	Enfield	I like it because I can get to places on my own. It's fun to use.	
Red	West Lebanon		Tell people not to smoke before getting on the bus. The smell is awful.
Red	Wilder	It's good to have when you need them. Thank you for these buses.	
Red	WRJ		The Green and Orange buses have stairs. I'm a mother with a newborn and getting the stroller onto the bus is extremely difficult. Having to hold my baby and grab the stroller is so difficult. And to grocery shop it's nearly impossible. Having the type of bus like the Red route would be so much nicer for those of us that are not handicapped but need that further assistance.
Red	Wilder	The drivers are always helpful, and it gets me to places I otherwise couldn't get to.	
Red	Hanover	Very pleased with all.	
Red	West Lebanon	Easy to get home.	
Red	West Lebanon	The drivers are very nice people.	
Red	Hartford Village		Weekend service would be nice.
Green	West Lebanon		It would be nice to see buses run longer in the evening. It would make it a lot easier to get home when working overtime.
Green	WRJ		The connection between the Brown and the Green and Orange is funky sometimes. Saturday service.
Green	WRJ	I appreciate that it's free. I like how personable the drivers can be.	I wish the buses ran later, to at least 8 p.m. I'd be willing to pay bus fare if it ran later! Also, if it could run more than once an hour, or if the Green and Orange lines ran at more separate times - but I'd much rather have the buses run later!
Green	WRJ	Where I live the bus is convenient for my commute back and forth to work.	

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Green	Wilder	I can't think of anything to improve. I like the level of radio coordination among drivers.	
Green	WRJ	Without the AT, I and many of the VA volunteers, patients and some employees would be unable to get to their destinations.	
Green	West Lebanon	I like that it doesn't cost money because a lot of people don't have it to spend on a bus or cab fee.	
Green	WRJ	The bus service is very helpful and useful and I think it is improved enough.	
Green	Wilder		Service on weekends would be amazing!
Green	Wilder	Free. Usually convenient.	
Green	Wilder		Maybe adding more frequent times in the morning on the Green line.
Green	Wilder	Schedule / free service.	
Green	Strafford, VT	It means I can carpool with my husband two days a week. I like it when the electronic signs are working - telling me when the bus is coming.	
Green	Hanover		More frequent buses on the Green route. Have a bus that goes to Lyme/Thetford. Other than that, AT IS AWESOME!!!
Green	WRJ	It's all good!	
Green	WRJ	Convenient, free, handy.	Want service up north - North Haverill.
Green	WRJ	Allows me to get to work, easy to get back and forth.	Perhaps Saturday runs.
Green	WRJ		Run Saturdays for a fee.
Green	Windsor, VT	It saves the atmosphere, saves on traffic. And I can relax and enjoy the ride! It also is very convenient, and saves a lot of gas money!	
Green	WRJ	It's easy and convenient.	
Green	Hartford Village		More stops to Hartford Village so I can get to work on time.
Green	Hartford Village	I like the convenience. And drivers are always ready to help you find your way.	

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Green	WRJ		The Green route is consistently ten minutes behind in the afternoon, better to revise the timetable? The gap in the Green morning schedule is considerable (90 minute gap between 7:00 a.m. and 8:30 a.m.). It would be nice to have an option to arrive in Hanover at 8:00 or 8:15 a.m. The Dartmouth Downtown Shuttle is very unreliable and almost unusable. While traffic is unpredictable, surely improvement is possible.
Green	Wilder	Free service	Service on weekends and later in the evenings would be nice.
Green	WRJ	I love my driver. He's always friendly.	One bus driver on the Red plaza bus was yelling out the window at someone she knew on a main road, but that is the only uncomfortable experience I've had.
Green	Wilder	The drivers on the Green line are always helpful and cheerful. Congratulations on your employees.	
Green	Wilder	It's free.	Weekends would be good.
Green	Hartford Village		Keep air conditioning on in summer warm/hot weather.
Green	Wilder	It's free and convenient.	
Green	Wilder	I love that the route stops are online now.	But can they be listed in addition to being on the map? Can links be put on the route and schedule pages?
Green	Wilder	All good!	
Green	Hanover	I like that it's available. Thank you so much. You make my life much easier!	
Green	Hanover	I like the "Where's my bus?" service. It helps when the buses are late and I'm worried I missed it.	
Green	WRJ	Everything about the bus service is good.	
Green	WRJ		For them to run more often.
Green	Hartford Village	It's free!!	
Green	Hartford Village	Keep up the good work!!!	
Green	Hartford Village	Our driver is the best. Advance Transit 10/10.	
Green	Wilder	Our driver is the best bus driver there is! He is so nice and friendly, it makes riding the bus a real pleasure.	
Orange	WRJ	It helps me to get around.	

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Orange	WRJ	I find it to be a very relaxing way to start my day and to end my work day. The drivers are very helpful and polite. We are very fortunate to have this service in the Upper Valley. Thank you!!	
Orange	West Lebanon	I cannot live without it.	
Orange	Hanover	Convenient from Hanover to WRJ - no transfers! Thank you.	
Orange	Hanover	I like the exercise I get to and from the bus every day. I like the quirky-crazy mix of people - great! I like to get work done on the way while riding. Saves gas - good for me, good for the environment. I like that it really matters to those who can't drive. Wonderful service.	I get that it is costly when not fully utilized and understand the concern this poses.
Orange	WRJ	Everything is great!!!	
Orange	WRJ	I only use the bus and I appreciate the great service that the bus provides. My drivers are exceptional in customer services.	
Red	WRJ		Some drivers are apt to take chances even when on time. Most of the drivers don't allow us to sit before taking off, even when there is no hurry. For some it's potentially dangerous, even if we seem or look strong. One or two are down right unfriendly.
Orange	West Lebanon	Free, many routes.	Run on weekends, even if that means a cash fare. Same for later at night.
Orange	West Lebanon	It is free, clean, and on-time.	
Orange	West Lebanon		Provide service to Sachem Village! This much CAN be done. Bus service on weekends!
Orange	Hanover		Buses on weekends! More Orange buses (every 30 minutes) would pay. Better maps are needed to know where stops are.
Orange	Walpole, NH	It is a great service, It is available for everyone and since it's free, it is affordable for everyone. Without this service, I would not be able to make it to work.	
Orange	Hanover	Drivers are helpful in guiding routes/transfers	It would be nice if the buses ran a little later in the evening.
Orange	West Lebanon	Beats walking.	
Orange	WRJ		Saturday service to Upper Valley Plaza.
Orange	WRJ	I like the bus.	
Orange	Norwich	When I was in high school, I took the AT everyday to school and saved tons of gas money!	

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Orange	Lebanon	I love the community service aspect of AT. Newcomers are astounded at the extreme helpfulness of drivers in accommodating passengers - and old-timers appreciate it too.	It would be great if we were able to have Saturday service. It would really help those without cars to do their weekend errands.
Orange	WRJ		The road in Lebanon which the drivers use to turn around in West Lebanon (before stopping at the station) is of awfully bad quality, and thus the ride is very uncomfortable on that part. It would be great if another route could be taken before stopping at the station (coming from Hanover), or if, alternatively, that road could be fixed. Otherwise, the service is great, and the drivers are nice (although some passengers do talk too loudly!!!).
Orange	West Lebanon	I like that it is free and convenient.	It could improve if buses ran more often around commute times (7:30 - 9:30 a.m., 4:40 - 6:30 p.m.). And it would be nice if buses ran later into the evening.
Orange	West Lebanon		Increasing runs from West Leb to Hanover. Going later in the evening. Thanks!
Orange	West Lebanon		Add limited service on Saturdays?
Orange	West Lebanon	I really appreciate that the bus service is free!	Maybe an additional bus at busy times would be helpful. A very limited, but available bus service on Saturday would be nice (enable people to go out, do errands, and come home).
Orange	West Lebanon	The drivers are always friendly and helpful.	Possibly a little more buses on each route?
Orange	West Lebanon		Provide service on weekends. We can pay for the service.
Orange	West Lebanon	I like that it is free and easy to use. The drivers are always helpful and very polite. I don't have a vehicle or much money so it's nice to have something I can use to help get me to work and home every day. Very convenient.	
Orange	Enfield		I have some problems with drivers skipping scheduled stops, even when the request stop cord was pulled for a scheduled stop. Other than that, most drivers are nice and helpful.
Orange	WRJ	Without the AT, I wouldn't have a way to work. I think it's one of the Upper Valley's best assets.	

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Orange	WRJ	Wonderful availability and service. Monday-Friday, I have no other means of transportation. And it's free and I'm waiting on SSDI, so it's perfect. Thank you.	
Orange	Lebanon		Weekend service.
Orange	WRJ	I am happy with it.	Routes are infrequent but this seems to match the numbers using it.
Orange	West Lebanon		I want the bus to work on weekends.
Orange	West Lebanon		Have route later or on weekends.
Orange	West Lebanon		I wish the Orange line ran later. The current schedule forces me to leave work at 5:30 p.m. Other than that, I love it.
Orange	West Lebanon		Have a bus which enters Sachem Village. Have service for one more hour in the evening (6:30 p.m.).
Orange	Hanover	It's very appreciated.	
Orange	West Lebanon		Extend schedules.
Blue	Lebanon	Drivers are friendly. If you don't know where you're going, they gladly help you.	Buses one day on weekends.
Orange	WRJ	First of all it's free. I think the service is good like it is, in my opinion!!	
Orange	Quechee, VT	I like the service just the way it is. It works great for me.	
Orange	West Lebanon		Put in a pick-up by Merchants Bank. (There is a drop-off.)
Orange	Hanover		Increase frequency for Orange route.
Orange	West Lebanon		Perhaps some Saturday service, even if a charge.
Orange	West Lebanon	You can get to places and not have to pay for it.	
Orange	West Lebanon		How about weekend service?
Orange	West Lebanon		Longer hours would be nice, and weekend service.
Orange	Norwich	It's a public service.	Extended hours in the evening until 8 pm and on weekends. Would pay for service. Taxis are outrageously priced, town-to-town at \$15. Helpful for folks who work until 6 pm and on the weekends. Thank you for providing this great service!!
Orange	Hanover	I like the fact that buses run until 7 pm.	Add seating at bus stops without it.
Orange	West Lebanon		Need more understanding about how to talk with deaf people. That help with paper/pen read lips slow make sure understand what said face to face watch lips for deaf.
Orange	Lebanon	Convenience.	

Advance Transit 2012 Passenger Comments

Brown	Norwich	The drivers are great! It's very easy and convenient. Being free is important - it makes it easy to just hop aboard.	
Brown	Norwich	Free; and accepting donations. Friendly.	
Brown	Norwich	It's fine.	
Brown	Norwich	The bus drivers are good people and the buses are clean. As I do not use the bus for purposes outside Hanover and Norwich, I do not have much to complain about.	
Brown	Norwich		Go slower in between stop lights (Wednesday morning...)
Brown	Norwich	Convenient, fast!	Put the route name somewhere on the exterior of the bus in addition to the front - so I know in the afternoon if I should run to catch it. (I can't see if its Brown, Blue, etc.) Continue coming around the big loop to the park & ride in Norwich. This is VERY helpful.
Brown	Norwich	I like how you make it free.	It would be nice to run the Advance Transit on Saturdays, but not Sundays.
Brown	Norwich		You should play music, 92.3 FM!
Brown	Norwich	Convenient, GREEN!, free, community. Save money on gas - I live off of loans for school.	
Brown	Norwich	I like using it to ride to work and to go home. To Norwich, to Upper Valley, and to West Lebanon.	
Brown	Hanover	Overall it's great.	More frequency early a.m., lunchtime 11:30-1:30, and evening would be better than mid morning or mid afternoon.
Brown	Newbury, VT	Free, convenient transport. Friendly, happy drivers.	
Brown	Norwich		Improvement suggestions: Often the morning Brown bus is stiflingly hot during winter months. Some drivers play loud, unpleasant music. Most drivers are friendly & polite. Most drivers honor speed limits. Most drivers avoid bumps and potholes.
Brown	Hanover	I love the bus service. It enables me to maintain my independence while living at Kendal.	
Brown	Norwich	Drivers are terrific - courteous, helpful, reliable.	A late bus - around 8 pm - would be very helpful.
Brown	Norwich	It's free! Plus good service. I support AT absolutely!	

Advance Transit 2012 Passenger Comments

Brown	Hanover	I like that it's free, on-time, friendly.	I would like for the stops to be more clearly labeled on a map, like Google Maps. (It took me a while to figure out what Tracy Hall was.)
Brown	Norwich		I will write you separately on specific issues. Thanks for inviting feedback.
Brown	Norwich	Drivers are always very polite and helpful.	
Brown	Hanover		I would like service to APD Hospital. I would like service to Claremont.
Brown	Hanover	It is my only transportation. It is great!	
Brown	Norwich	The drivers are always helpful and friendly.	Service on Saturday or Sunday would be great.
Brown	Norwich	I like everything. Convenient, free. The frequency is excellent.	
Brown	Norwich	The bus service is excellent.	It would be even better if it covered more areas and routes.
Brown	Hanover	A super service! You should be proud!	
Brown	Norwich	I like the convenience, reliability. The service is great!!	
Brown	Norwich	Excellent service. Makes "mass transit" commuting easy. Thanks!	
Brown	Hanover	Helpful drivers.	Evening / weekend service would be wonderful.
Brown	WRJ	Easy and convenient.	

Appendix C

BLUE ROUTE: 15-MINUTE HEADWAYS

Lebanon	DHMC	Vail DMS	Park- hurst	Book Store	DHMC	Lebanon
5:45 a	6:00 a	6:10 a	6:12 a	6:14 a	6:24 a	6:37 a
6:15 a	6:30 a	6:40 a	6:42 a	6:44 a	6:54 a	7:07 a
6:45 a	7:00 a	7:10 a	7:12 a	7:14 a	7:24 a	7:37 a
7:15 a	7:30 a	7:40 a	7:42 a	7:44 a	7:54 a	8:07 a
7:45 a	8:00 a	8:10 a	8:12 a	8:14 a	8:24 a	8:37 a
8:00 a	8:15 a	8:25 a	8:27 a	8:29 a	8:39 a	8:52 a
8:15 a	8:30 a	8:40 a	8:42 a	8:44 a	8:54 a	9:07 a
8:30 a	8:45 a	8:55 a	8:57 a	8:59 a	9:09 a	9:22 a
8:45 a	9:00 a	9:10 a	9:12 a	9:14 a	9:24 a	9:37 a
9:00 a	9:15 a	9:25 a	9:27 a	9:29 a	9:39 a	9:52 a
9:15 a	9:30 a	9:40 a	9:42 a	9:44 a	9:54 a	10:07 a
9:30 a	9:45 a	9:55 a	9:57 a	9:59 a	10:09 a	10:22 a
9:45 a	10:00 a	10:10 a	10:12 a	10:14 a	10:24 a	10:37 a
10:00 a	10:15 a	10:25 a	10:27 a	10:29 a	10:39 a	10:52 a
10:15 a	10:30 a	10:40 a	10:42 a	10:44 a	10:54 a	11:07 a
10:30 a	10:45 a	10:55 a	10:57 a	10:59 a	11:09 a	11:22 a
10:45 a	11:00 a	11:10 a	11:12 a	11:14 a	11:24 a	11:37 a
11:00 a	11:15 a	11:25 a	11:27 a	11:29 a	11:39 a	11:52 a
11:15 a	11:30 a	11:40 a	11:42 a	11:44 a	11:54 a	12:07 p
11:30 a	11:45 a	11:55 a	11:57 a	11:59 a	12:09 p	12:22 p
11:45 a	12:00 p	12:10 p	12:12 p	12:14 p	12:24 p	12:37 p
12:00 p	12:15 p	12:25 p	12:27 p	12:29 p	12:39 p	12:52 p
12:15 p	12:30 p	12:40 p	12:42 p	12:44 p	12:54 p	1:07 p
12:30 p	12:45 p	12:55 p	12:57 p	12:59 p	1:09 p	1:22 p
12:45 p	1:00 p	1:10 p	1:12 p	1:14 p	1:24 p	1:37 p
1:00 p	1:15 p	1:25 p	1:27 p	1:29 p	1:39 p	1:52 p
1:15 p	1:30 p	1:40 p	1:42 p	1:44 p	1:54 p	2:07 p
1:30 p	1:45 p	1:55 p	1:57 p	1:59 p	2:09 p	2:22 p
1:45 p	2:00 p	2:10 p	2:12 p	2:14 p	2:24 p	2:37 p
2:00 p	2:15 p	2:25 p	2:27 p	2:29 p	2:39 p	2:52 p
2:15 p	2:30 p	2:40 p	2:42 p	2:44 p	2:54 p	3:07 p
2:30 p	2:45 p	2:55 p	2:57 p	2:59 p	3:09 p	3:22 p
2:45 p	3:00 p	3:10 p	3:12 p	3:14 p	3:24 p	3:37 p
3:00 p	3:15 p	3:25 p	3:27 p	3:29 p	3:39 p	3:52 p
3:15 p	3:30 p	3:40 p	3:42 p	3:44 p	3:54 p	4:07 p
3:30 p	3:45 p	3:55 p	3:57 p	3:59 p	4:09 p	4:22 p
3:45 p	4:00 p	4:10 p	4:12 p	4:14 p	4:24 p	4:37 p
4:00 p	4:15 p	4:25 p	4:27 p	4:29 p	4:39 p	4:52 p
4:15 p	4:30 p	4:40 p	4:42 p	4:44 p	4:54 p	5:07 p
4:30 p	4:45 p	4:55 p	4:57 p	4:59 p	5:09 p	5:22 p
4:45 p	5:00 p	5:10 p	5:12 p	5:14 p	5:24 p	5:37 p
5:00 p	5:15 p	5:25 p	5:27 p	5:29 p	5:39 p	5:52 p
5:15 p	5:30 p	5:40 p	5:42 p	5:44 p	5:54 p	6:07 p
5:30 p	5:45 p	5:55 p	5:57 p	5:59 p	6:09 p	6:22 p
5:45 p	6:00 p	6:10 p	6:12 p	6:14 p	6:24 p	6:37 p
6:15 p	6:30 p	6:40 p	6:42 p			
6:45 p	7:00 p	7:10 p	7:12 p			

	Start	End	Hours
Bus 1	6:15 a	6:42 p	12.5
Bus 2	5:45 a	7:12 p	13.4
Bus 3	8:30 a	6:22 p	9.9
Bus 4	8:00 a	5:52 p	9.9
Total hours			45.6

Appendix C

BLUE ROUTE: 15-MINUTE SERVICE UNTIL 8:00 P.M.

	Vail					
Lebanon	DHMC	DMS	Parkhurst	Book Store	DHMC	Lebanon
5:45 a	6:00 a	6:10 a	6:12 a	6:14 a	6:24 a	6:37 a
6:15 a	6:30 a	6:40 a	6:42 a	6:44 a	6:54 a	7:07 a
6:45 a	7:00 a	7:10 a	7:12 a	7:14 a	7:24 a	7:37 a
7:15 a	7:30 a	7:40 a	7:42 a	7:44 a	7:54 a	8:07 a
7:45 a	8:00 a	8:10 a	8:12 a	8:14 a	8:24 a	8:37 a
8:00 a	8:15 a	8:25 a	8:27 a	8:29 a	8:39 a	8:52 a
8:15 a	8:30 a	8:40 a	8:42 a	8:44 a	8:54 a	9:07 a
8:30 a	8:45 a	8:55 a	8:57 a	8:59 a	9:09 a	9:22 a
8:45 a	9:00 a	9:10 a	9:12 a	9:14 a	9:24 a	9:37 a
9:00 a	9:15 a	9:25 a	9:27 a	9:29 a	9:39 a	9:52 a
9:15 a	9:30 a	9:40 a	9:42 a	9:44 a	9:54 a	10:07 a
9:30 a	9:45 a	9:55 a	9:57 a	9:59 a	10:09 a	10:22 a
9:45 a	10:00 a	10:10 a	10:12 a	10:14 a	10:24 a	10:37 a
10:00 a	10:15 a	10:25 a	10:27 a	10:29 a	10:39 a	10:52 a
10:15 a	10:30 a	10:40 a	10:42 a	10:44 a	10:54 a	11:07 a
10:30 a	10:45 a	10:55 a	10:57 a	10:59 a	11:09 a	11:22 a
10:45 a	11:00 a	11:10 a	11:12 a	11:14 a	11:24 a	11:37 a
11:00 a	11:15 a	11:25 a	11:27 a	11:29 a	11:39 a	11:52 a
11:15 a	11:30 a	11:40 a	11:42 a	11:44 a	11:54 a	12:07 p
11:30 a	11:45 a	11:55 a	11:57 a	11:59 a	12:09 p	12:22 p
11:45 a	12:00 p	12:10 p	12:12 p	12:14 p	12:24 p	12:37 p
12:00 p	12:15 p	12:25 p	12:27 p	12:29 p	12:39 p	12:52 p
12:15 p	12:30 p	12:40 p	12:42 p	12:44 p	12:54 p	1:07 p
12:30 p	12:45 p	12:55 p	12:57 p	12:59 p	1:09 p	1:22 p
12:45 p	1:00 p	1:10 p	1:12 p	1:14 p	1:24 p	1:37 p
1:00 p	1:15 p	1:25 p	1:27 p	1:29 p	1:39 p	1:52 p
1:15 p	1:30 p	1:40 p	1:42 p	1:44 p	1:54 p	2:07 p
1:30 p	1:45 p	1:55 p	1:57 p	1:59 p	2:09 p	2:22 p
1:45 p	2:00 p	2:10 p	2:12 p	2:14 p	2:24 p	2:37 p
2:00 p	2:15 p	2:25 p	2:27 p	2:29 p	2:39 p	2:52 p
2:15 p	2:30 p	2:40 p	2:42 p	2:44 p	2:54 p	3:07 p
2:30 p	2:45 p	2:55 p	2:57 p	2:59 p	3:09 p	3:22 p
2:45 p	3:00 p	3:10 p	3:12 p	3:14 p	3:24 p	3:37 p
3:00 p	3:15 p	3:25 p	3:27 p	3:29 p	3:39 p	3:52 p
3:15 p	3:30 p	3:40 p	3:42 p	3:44 p	3:54 p	4:07 p
3:30 p	3:45 p	3:55 p	3:57 p	3:59 p	4:09 p	4:22 p
3:45 p	4:00 p	4:10 p	4:12 p	4:14 p	4:24 p	4:37 p
4:00 p	4:15 p	4:25 p	4:27 p	4:29 p	4:39 p	4:52 p
4:15 p	4:30 p	4:40 p	4:42 p	4:44 p	4:54 p	5:07 p
4:30 p	4:45 p	4:55 p	4:57 p	4:59 p	5:09 p	5:22 p
4:45 p	5:00 p	5:10 p	5:12 p	5:14 p	5:24 p	5:37 p
5:00 p	5:15 p	5:25 p	5:27 p	5:29 p	5:39 p	5:52 p
5:15 p	5:30 p	5:40 p	5:42 p	5:44 p	5:54 p	6:07 p
5:30 p	5:45 p	5:55 p	5:57 p	5:59 p	6:09 p	6:22 p
5:45 p	6:00 p	6:10 p	6:12 p	6:14 p	6:24 p	6:37 p
6:00 p	6:15 p	6:25 p	6:27 p	6:29 p	6:39 p	6:52 p
6:15 p	6:30 p	6:40 p	6:42 p	6:44 p	6:54 p	7:07 p
6:30 p	6:45 p	6:55 p	6:57 p	6:59 p	7:09 p	7:22 p
6:45 p	7:00 p	7:10 p	7:12 p			
7:15 p	7:30 p	7:40 p	7:42 p	7:44 p	7:54 p	8:07 p
7:30 p	7:45 p	7:55 p	7:57 p			

	Start	End	Hours
Bus 1	6:15 a	8:07 p	13.9
Bus 2	5:45 a	7:12 p	13.4
Bus 3	8:30 a	7:57 p	11.5
Bus 4	8:00 a	6:52 p	10.9
Total hours			49.6

Appendix C

BLUE ROUTE: 15-MINUTE SERVICE UNTIL 10:30 P.M.

Lebanon	Heater Road	DHMC	Vail DMS	Parkhurst	Book Store	DHMC	Heater Road	Lebanon
5:45 a	-	6:00 a	6:10 a	6:12 a	6:14 a	6:24 a	-	6:37 a
6:15 a	-	6:30 a	6:40 a	6:42 a	6:44 a	6:54 a	-	7:07 a
6:45 a	-	7:00 a	7:10 a	7:12 a	7:14 a	7:24 a	-	7:37 a
7:15 a	-	7:30 a	7:40 a	7:42 a	7:44 a	7:54 a	-	8:07 a
7:45 a	-	8:00 a	8:10 a	8:12 a	8:14 a	8:24 a	-	8:37 a
8:00 a	-	8:15 a	8:25 a	8:27 a	8:29 a	8:39 a	-	8:52 a
8:15 a	-	8:30 a	8:40 a	8:42 a	8:44 a	8:54 a	-	9:07 a
8:30 a	-	8:45 a	8:55 a	8:57 a	8:59 a	9:09 a	-	9:22 a
8:45 a	-	9:00 a	9:10 a	9:12 a	9:14 a	9:24 a	-	9:37 a
9:00 a	-	9:15 a	9:25 a	9:27 a	9:29 a	9:39 a	-	9:52 a
9:15 a	-	9:30 a	9:40 a	9:42 a	9:44 a	9:54 a	-	10:07 a
9:30 a	-	9:45 a	9:55 a	9:57 a	9:59 a	10:09 a	-	10:22 a
9:45 a	-	10:00 a	10:10 a	10:12 a	10:14 a	10:24 a	-	10:37 a
10:00 a	-	10:15 a	10:25 a	10:27 a	10:29 a	10:39 a	-	10:52 a
10:15 a	-	10:30 a	10:40 a	10:42 a	10:44 a	10:54 a	-	11:07 a
10:30 a	-	10:45 a	10:55 a	10:57 a	10:59 a	11:09 a	-	11:22 a
10:45 a	-	11:00 a	11:10 a	11:12 a	11:14 a	11:24 a	-	11:37 a
11:00 a	-	11:15 a	11:25 a	11:27 a	11:29 a	11:39 a	-	11:52 a
11:15 a	-	11:30 a	11:40 a	11:42 a	11:44 a	11:54 a	-	12:07 p
11:30 a	-	11:45 a	11:55 a	11:57 a	11:59 a	12:09 p	-	12:22 p
11:45 a	-	12:00 p	12:10 p	12:12 p	12:14 p	12:24 p	-	12:37 p
12:00 p	-	12:15 p	12:25 p	12:27 p	12:29 p	12:39 p	-	12:52 p
12:15 p	-	12:30 p	12:40 p	12:42 p	12:44 p	12:54 p	-	1:07 p
12:30 p	-	12:45 p	12:55 p	12:57 p	12:59 p	1:09 p	-	1:22 p
12:45 p	-	1:00 p	1:10 p	1:12 p	1:14 p	1:24 p	-	1:37 p
1:00 p	-	1:15 p	1:25 p	1:27 p	1:29 p	1:39 p	-	1:52 p
1:15 p	-	1:30 p	1:40 p	1:42 p	1:44 p	1:54 p	-	2:07 p
1:30 p	-	1:45 p	1:55 p	1:57 p	1:59 p	2:09 p	-	2:22 p
1:45 p	-	2:00 p	2:10 p	2:12 p	2:14 p	2:24 p	-	2:37 p
2:00 p	-	2:15 p	2:25 p	2:27 p	2:29 p	2:39 p	-	2:52 p
2:15 p	-	2:30 p	2:40 p	2:42 p	2:44 p	2:54 p	-	3:07 p
2:30 p	-	2:45 p	2:55 p	2:57 p	2:59 p	3:09 p	-	3:22 p
2:45 p	-	3:00 p	3:10 p	3:12 p	3:14 p	3:24 p	-	3:37 p
3:00 p	-	3:15 p	3:25 p	3:27 p	3:29 p	3:39 p	-	3:52 p
3:15 p	-	3:30 p	3:40 p	3:42 p	3:44 p	3:54 p	-	4:07 p
3:30 p	-	3:45 p	3:55 p	3:57 p	3:59 p	4:09 p	-	4:22 p
3:45 p	-	4:00 p	4:10 p	4:12 p	4:14 p	4:24 p	-	4:37 p
4:00 p	-	4:15 p	4:25 p	4:27 p	4:29 p	4:39 p	-	4:52 p
4:15 p	-	4:30 p	4:40 p	4:42 p	4:44 p	4:54 p	-	5:07 p
4:30 p	-	4:45 p	4:55 p	4:57 p	4:59 p	5:09 p	-	5:22 p
4:45 p	-	5:00 p	5:10 p	5:12 p	5:14 p	5:24 p	-	5:37 p
5:00 p	-	5:15 p	5:25 p	5:27 p	5:29 p	5:39 p	-	5:52 p
5:15 p	-	5:30 p	5:40 p	5:42 p	5:44 p	5:54 p	-	6:07 p
5:30 p	-	5:45 p	5:55 p	5:57 p	5:59 p	6:09 p	-	6:22 p
5:45 p	-	6:00 p	6:10 p	6:12 p	6:14 p	6:24 p	-	6:37 p
6:00 p	-	6:15 p	6:25 p	6:27 p	6:29 p	6:39 p	-	6:52 p
6:15 p	-	6:30 p	6:40 p	6:42 p	6:44 p	6:54 p	-	7:07 p
6:30 p	-	6:45 p	6:55 p	6:57 p	6:59 p	7:09 p	-	7:22 p
6:45 p	-	7:00 p	7:10 p	7:12 p				

Appendix C

7:15 p	-	7:30 p	7:40 p	7:42 p	7:44 p	7:54 p	-	8:07 p
7:30 p	-	7:45 p	7:55 p	7:57 p	7:59 p	8:09 p	-	8:22 p
8:30 p	-	8:45 p	8:55 p	8:57 p	8:59 p	9:09 p	-	9:22 p
9:30 p	-	9:45 p	9:55 p	9:57 p	9:59 p	10:09 p	-	10:22 p

	Start	End	Hours
Bus 1	6:15 a	8:07 p	13.9
Bus 2	5:45 a	7:12 p	13.4
Bus 3	8:30 a	10:22 p	13.9
Bus 4	8:00 a	6:52 p	10.9
Total hours			52.0