Abstract

A vanpool demonstration project was operated at the University of Kentucky for the period May 2, 1983, through March 31, 1984. One van originated in Berea (roundtrip 90 miles) and another in Richmond (roundtrip 60 miles). Many problems associated with a vanpool operation were minimized because the riders were University employees and van ownership remained with the University.

It was found that personal contact with potential vanpool riders was much more effective than letters and questionnaires in the effort to generate initial ridership. Because vanpools had not previously been operated extensively in this area, it was difficult to convince potential riders of their cost-effectiveness. For this reason, the fare was set at a low rate initially and increased later in an attempt to recover full costs.

As an indirect result of the success of the University vanpool program, the Transit Authority of Lexington - Fayette County Urban Government began operating two additional vanpools for University employees. Because the Transit Authority has capabilities to operate a vanpool program, a decision was made to transfer the University's program to that agency at the end of the demonstration project.
Research Report
UKTRP-84-10

VANPOOL DEMONSTRATION PROJECT
(University of Kentucky)

by

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and

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and

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and

Transportation Cabinet
Commonwealth of Kentucky

and

Federal Highway Administration
US Department of Transportation

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April 1984
INTRODUCTION

A grant application requesting funding through the Comprehensive Transportation System Management Assistance Program was submitted to the U. S. Department of Transportation in February 1981. The grant was a cooperative effort between the University of Kentucky and the Lexington-Fayette Urban County Government. Included in the grant application were the following elements: 1) Transit Improvements; 2) Bicycle Improvements; 3) Ridesharing; 4) Parking Enforcement and Management; 5) Parking Provision; 6) Energy-Efficient Driving and Vehicle Inspection; 7) Minor Traffic Control Improvements; 8) Transportation Management; and 9) Evaluation. Total funding requested for all elements was $496,750 over a two-year period.

Only two elements of the grant application were funded for a total of $40,000 over a two-year period. The project began on April 1, 1982 and continued through March 31, 1984. Included was $35,000 for purchasing two vans and implementing a vanpool program. An additional $5,000 was provided for a traffic safety analysis of the University of Kentucky area. The traffic safety analysis was completed in February 1983 and the results were documented in the report titled "Traffic Safety Analysis: University of Kentucky Area," (Research Report UKTRP-83-4). Because the traffic safety element has already been reported, this report will only include a summary of the implementation procedure and
results of the vanpool demonstration project.

VANPOOL IMPLEMENTATION PROCEDURE

Purchase of Vans

The first major effort involved securing approval from all participating agencies to permit operation of a vanpool for University of Kentucky employees. Because the University is a state-supported institution, the problem of state-owned vehicles being used for transporting employees to and from work was raised. An opinion was sought from the legal staff of the Kentucky Department of Finance; they concluded that no regulation existed which would bar implementation of the program. Their basis for that opinion was an interpretation that purchase of the vans and implementation of the vanpool was with Federal funds, therefore no conflict would exist with the Kentucky Statute that bars use of state-owned vehicles for private purposes.

After approval to begin implementation of the vanpool program was granted, the process of purchasing vans was initiated. The primary task was preparation of specifications that would be submitted to potential vendors. Example specifications were obtained from several agencies that had operated vanpools and those specifications were modified to reflect requirements determined to be of importance to this vanpool program (Ref. 1-6). Emphasis was placed on heavy-duty features such as suspension system,
electrical system, heating, and air conditioning. A decision also was made to use 12-passenger rather than 15-passenger vans. It was felt that a demonstration project such as this was being subjected to an untested market and it would obviously be easier to fill the 12-passenger van. Vanpool vehicle specifications used for this project are included as Figure 1.

After finalizing specifications, necessary procedures for seeking bids for two vans were completed. The low bid was for two 1983 Chevrolet Sportvan Bonaventures and their cost was $12,422 each. The vans were delivered in April 1983.

Generation of Ridership

Considerable work was performed in an effort to determine which of the towns in the central Kentucky area surrounding Lexington would be the most logical as the origin of a vanpool to the University campus. As a first step in soliciting ridership for the vans, a computer listing was obtained for all University employees living outside Fayette County and commuting to the Lexington campus. The University of Kentucky employs approximately 8,000 faculty and staff at its main campus located in Lexington, Fayette County. The computer listing included all employees residing outside Fayette County. From that listing, Danville and the Richmond-Berea area were selected as first choices for operating the vanpools. That decision was based on the commuting distance to those towns and the
number of employees living in the towns. Total monthly operating costs were calculated for each of 15 towns and costs ranged from $340 for Nicholasville (12 miles one-way) to $534 for Berea and Danville (45 miles one-way). Methodology for determination of fares will be discussed later.

Letters explaining the project and a brief questionnaire were sent to University employees in Danville and the Richmond-Berea area. Examples of the letter and questionnaire are shown in Figures 2 and 3. Responses from the questionnaire indicated very little interest from employees in Danville; however, an encouraging number of responses were received from Richmond. Follow-up contacts by telephone were made with potential riders in Richmond, and later in Berea, to generate a sufficient number of riders to start the first van, which originated in Berea and stopped in Richmond on its way to Lexington. That van had a daily round trip of 90 miles. It should be noted that many vanpool riders had previously traveled to work in carpools and were willing to switch to a vanpool only after the program was thoroughly explained by telephone and personal contacts. A problem that was encountered involved varying working hours. Several employees expressed interest but had working hours different from most others, which prevented their participation.

After plans to start the first van had been made, it was learned that another large group of employees working in
one building at the University also lived in Richmond. Most of those employees also were traveling to work in carpools but readily chose to switch to the University-sponsored vanpool. That van had a daily round trip of 60 miles.

Each vanpool participant was asked to sign an agreement that specified their rights and duties and the responsibilities of the University. Presented as Figure 4 is the Rider Agreement and Figure 5 is the Driver/Backup Driver Agreement. Again, example agreements from other vanpool projects were obtained and much of the information used in their projects was also included in these agreements (Ref. 1-6). It also was necessary to prepare driver selection criteria to insure that van drivers were experienced, capable drivers having good driving records. Criteria used for driver selection are included as Figure 6.

**Fare Structure**

Because the vanpool operation was a demonstration project, it was decided that the monthly fare would initially be flexible in order to attract a sufficient number of riders. Therefore, the initial monthly fare was set at $35.00 for riders from both Berea and Richmond. That was less than the estimated cost of $40.00 per month for Richmond and $48.00 per month for Berea. Those cost estimates were made by combining fixed costs and operating costs. Fixed costs included depreciation of the van purchase price over a five-year period, insurance, and administrative costs. Operating costs included fuel,
maintenance, tires, and other miscellaneous costs. Reference was made to several publications pertaining to various vanpool costs (Ref. 1-8). The fixed and operating costs for the vanpool program are shown in Figure 7. It should be noted that some costs were unusually low because of group rates on insurance and low-cost fuel available through the University. In addition, because the vans were purchased with grant funds from the Transportation System Management project, no interest costs were included in the fixed costs.

Vanpool Operation

The two vanpools began operating on May 2, 1983. One van originated in Berea, stopped in Richmond, and delivered passengers to the University campus. All riders in that van worked from 7:00 am to 3:30 pm. The other van originated in Richmond and the riders worked from 8:00 a.m. to 4:30 p.m. Both vans operated Monday through Friday. Participation in the vanpool was restricted to University employees, with the exception of employees at a Veterans Administration Hospital, located on the University campus, which uses University parking facilities. As noted previously, all riders were charged $35.00 per month when the program began. Drivers did not pay a fare; however, they were responsible for collecting monthly fares, scheduling of maintenance, and helping to generate new riders. A backup driver was obtained for each van. When the backup driver drove the van, the regular driver paid him a daily fee. Also, since
the vans were owned by the University, they could only be driven while commuting to and from work. The drivers were not allowed to use them for personal purposes. Effective January 1, 1984, the monthly fares were increased to $38.00 for riders from Richmond and $42.00 for riders from Berea. An increase in the monthly fare was necessary because it became obvious that the accumulation of money from the original fare would not be sufficient to provide for the purchase of new vans when these vans were no longer functional.

Both vans operated at or near capacity during the grant demonstration period from May 2, 1983, through March 31, 1984. No significant problems were encountered with either of the vans. At the end of the grant, the vans had been operated for 11 months and a total of approximately $3,500 in surplus funds had been accumulated.

Because the grant was ending and the vanpool demonstration had proven successful, a decision was made to transfer operation and administration of the vans to the Transit Authority of Lexington-Fayette Urban County Government (LEXTRAN). The Ridesharing Coordinator for Lexington-Fayette County had been closely associated with the vanpool project, and it was felt that transfer of two University vans to a transit agency with ridesharing as one of its primary goals was a logical move. Since the University vanpool program began, LEXTRAN started its own vanpool program and anticipates having 18 vans in operation.
In addition to the two University vans started as part of the demonstration project, LEXTRAN has started two vanpools primarily serving University employees. Those vans started as a result of interest generated through the demonstration project. Both LEXTRAN vans are 15-passenger capacity and they originate in Richmond and Nicholasville.

SUMMARY

The vanpool demonstration project has been a successful operation. The vans began operation on May 2, 1983, and have operated at or near capacity through the end of the grant period on March 31, 1984. There frequently are many problems associated with a vanpool operation; however, many of those problems did not occur or were minimized because of the control exercised through University ownership. The legality of permitting state-owned University vehicles to be used for transporting employees to and from work was overcome by purchasing the vans with Federal funding.

It was determined that personal contact with potential vanpool riders was much more effective than letters and questionnaires in the effort to generate intital ridership. Because vanpools had not previously been operated extensively in this area, it was more difficult to convince potential riders of the savings that could be realized by vanpooling. For this reason, the fare was set at a low rate initially and increased later in an attempt to recover the
full costs associated with the vanpool.

As an indirect result of the success of the University of Kentucky vanpool program, the Transit Authority of Lexington-Fayette Urban County Government initiated a vanpool program and began operating two additional vanpools for University employees. Because the Transit Authority of Lexington-Fayette Urban County Government has the administrative capabilities to operate a vanpool program and the University demonstration project ended after 11 months of operation, a decision was made to transfer the program to LEXTRAN.

REFERENCES

5. Guide to Employer Sponsored Vanpooling, Seattle-King County Commuter Pool.
7. ACTION-NOW VANPOOL, Informational literature, Louisville, Kentucky.

FIGURE 1.

VANPOOL VEHICLE SPECIFICATIONS

Detailed Specifications:

1. Seating Capacity - Twelve (12).
3. Engine - minimum 300 CID V-8.
4. Brakes - heavy duty power brakes.
5. Heavy duty shock absorbers and springs, front and rear.
6. Mechanical jack and wheel wrench.
7. Bumpers - front and rear chromed.
8. Alternator - heavy duty.
10. Mirrors - interior, day/night type rear vision/ exterior, chrome right and left sides (low mount).
11. Wheels and Tires - five (5) steel belted radials, minimum 8.00 x 16.5.
12. Transmission - automatic, three (3) forward speeds.
13. Undercoating to be applied on exposed underside of vehicle including fenders and cab and/or body sheet metal. Dealer application acceptable.
15. Gauges - gauges and not lights are required for ampmeter, temperature, oil pressure, fuel gauge.
17. Wipers - two speed wipers with washers.
18. Fresh air intake, high output type heater and defroster.
19. Air conditioning - factory installed, high capacity cooling with both front and rear air conditioning units.
20. Cooling system - heavy duty radiator, with coolant recovery system, engine oil and transmission oil cooler.
23. Spare tire carrier.
24. Insulation - insulation package to include door and side trim panels and full length headliner. Insulation to be above headliners, under floor covering, including wheel housing, engine cover, behind door and side wall trim panels.
FIGURE 1. (continued)

VANPOOL VEHICLE SPECIFICATIONS

25. Glass - in all doors and panels, all glass shall be tinted, with push-out windows.

26. Doors - hinged rear door with fixed glass and inside door handle and lock button, hinged driver and passenger door, passenger door on right side may be sliding or hinged.

27. Seats - two bucket seats in front for driver and assistant driver with vinyl seating for ten (10) additional passengers, all positions equipped with seat belts.

28. Exterior lights - all exterior lighting normally provided by manufacturer.

29. Interior lights - two dome lights, one each in driver's compartment and passenger compartment.

30. Sunvisors right and left hand side, and arm rests right and left front doors.


32. Color - Either two tone, primary color - blue, secondary color - white, or one color (blue). Blue color should be a medium to dark blue approximating the University of Kentucky's school color.

33. Heavy duty vinyl or rubber floor covering material.
Dear University Employee:

The Transportation Research Program at the University of Kentucky has received a grant to increase ridesharing at the University. As one element of the project, we plan to set up and operate two vanpools. In order for a vanpool to be successful, it must be attractive to the potential riders. One of the most important factors is economic savings realized by the riders, which generally increases with increasing commuting distance.

The distance from Lexington to Danville is within the range of what is considered to be economical for the operation of a vanpool. Using a distance of 35 miles between the two cities, the monthly cost per passenger would be $48.00 based on ten paying passengers and a driver. This can be translated into an average cost of $2.26 per day or about $.03 per mile. You may want to compare this cost with the cost of owning and operating an automobile. Those costs for 1982 vary from about $.19 per mile for a subcompact vehicle to over $.26 per mile for a large automobile.

The objective of this letter is only to solicit interest and your response on the attached form will not obligate you in any way. If a sufficient number of potential riders respond, a meeting will be scheduled to explain the program and answer any questions.

Sincerely,

Jerry G. Pigman, P. E.
Research Engineer
Transportation Research Program

JGP: jfh
Attachment
FIGURE 3. QUESTIONNAIRE SENT TO POTENTIAL VANPOOL PARTICIPANTS

UNIVERSITY OF KENTUCKY
VANPOOL PROJECT

1. Name: ____________________________________________

2. Home Address:

   Street or Route___________________________________________

   City________________________ State_________________ Zip Code____

   Telephone__________________

3. Work Address:

   Department___________________________________________

   Room and Building________________________________________

   Telephone________________________ Speed Sort________

4. Normal Work Schedule:

   Starting Time_____________ Ending Time___________

5. If you participate in a vanpool, which of the following categories interest you?

   Vanpool Driver_________ Back-up Driver_________ Rider_________

NOTE:

Please return the completed form to the address below using the University campus mail.

Jerry Pigman
Transportation Research Program
Transportation Research Building
Speed Sort 0043
This agreement establishes the rights and duties of riders in the Vanpool Program organized by the University of Kentucky Transportation Research Program. This Agreement also establishes the services to be provided to the rider by the Vanpool Program.

The Rider agrees during the term of the Agreement to:

1. pay the monthly vanpool rider fee of $________ for work trips to and from ________________ (payment shall be made to the University of Kentucky for each month of vanpool participation);
2. be ready to leave at the designated pick-up time and place (the van will wait up to three minutes if the rider is not ready);
3. abide by all day-to-day operational rules of the vanpool as established by majority vote of the vanpool members;
4. abide by all rules which may be promulgated by the Vanpool Program;
5. notify the driver in advance of all anticipated non-use of the van due to such factors as vacation, business travel, overtime, etc.;
6. notify driver or nearest rider of non-use of the van due to sickness;
7. arrange alternate transportation when work or personal schedules do not allow participation in the vanpool;
8. find alternate transportation on days when the van or a back-up vehicle may not be available (the Vanpool Program will assist, and Riders will be allowed to deduct, from their monthly fee, an amount for each day the van or back-up vehicle is not available);
9. notify the Vanpool Program of any complaints or suggestions the Rider might have;
10. release the Driver and Vanpool Program from any liability claims for loss, theft, or damage of personal property; loss of income or consequential damages resulting from delays, tardiness, or absence of the van on particular days; or termination of the program.

The Vanpool Program agrees during the term of this Agreement to:

1. provide a van for use by the vanpool for work trips to and from ________________;
2. provide insurance coverage (comprehensive, collision, and liability) for all authorized users of the van;
3. provide a driver and back-up driver for the van;
4. monitor the program to ensure that the Rider is picked up on time and that the van waits three minutes if the Rider is not ready at the designated pick-up time;
5. promptly notify the Rider in case of van failure and assist in arranging a method of alternate transportation and credit the Rider the daily vanpool fee if a back-up vehicle cannot be provided;
6. develop and maintain operation policies and procedures for the Vanpool Program;
7. arbitrate disputes arising out of day-to-day operational rules of
the vanpool;
8. supply names from a waiting list, if such exists, to any rider who,
at their own initiative, may wish to sublet their seat for a limited
period of time; and
9. attempt to maintain ridership at the level necessary to warrant
continuation of the vanpool.

This Agreement shall be effective as of the date of its signing and shall continue
in force until:

1. the Rider terminates the Agreement by giving the Vanpool Program 30 days
written notice or secures a substitute rider acceptable to the Vanpool
Program (in which case termination will be effective when a new Rider
Agreement is signed by the substitute Rider). The contract will also be
terminated upon termination of employment at the University of Kentucky
by the Rider;
2. the Vanpool Program terminates the Agreement by giving 30 days written
notice to the Rider, or immediately if the Vanpool Program has "cause"
for termination of the Agreement (the Vanpool Program will refund any
excess of fares collected from the Rider).

This Agreement may be modified by subsequent written agreement signed by each of
the parties of this original Agreement.

The parties shall cooperate to ensure that no person shall be denied the opportunity
to participate in nor be subjected to discrimination in the conduct of the Vanpool
Program because of race, creed, color, sex, age, national origin, nor the presence of
any sensory, mental or physical handicap, nor in any manner contrary to applicable
local ordinance, state or federal laws and regulations.

RIDER
NAME
HOME ADDRESS
HOME PHONE
UK PHONE
DEPARTMENT
ROOM & BUILDING
SPEED SORT
SIGNATURE
DATE

UNIVERSITY OF KENTUCKY
VANPOOL PROGRAM REPRESENTATIVE
NAME
TITLE
UK PHONE
SIGNATURE
DATE
FIGURE 5.

DRIVER/BACKUP DRIVER AGREEMENT
UNIVERSITY OF KENTUCKY VANPOOL PROGRAM

This Agreement establishes the rights and duties of Drivers and Backup Drivers in the Vanpool Program organized by the University of Kentucky Transportation Research Program. Driver, as referred to below, means the person who operates the vanpool vehicle and includes the Backup Driver when he or she is functioning as Driver.

The Driver agrees during the term of this Agreement to:

1. maintain a valid driver's license as required by the State of Kentucky and obtain a chauffeur's license;
2. drive a van daily to and from work picking up and discharging riders in accordance with the mutually established route and schedule;
3. assist the Vanpool Program to maintain the vanpool at its maximum ridership;
4. coordinate maintenance, cleaning, and servicing of the van with the Vanpool Program;
5. keep daily and monthly records as is required by the Vanpool Program and submit them as required by the Vanpool Program;
6. notify the Vanpool Program of any complaints or suggestions the Driver might have;
7. coordinate with Backup Driver to ensure a driver is available in his or her absence;
8. assist in the organization of alternate transportation when the vanpool vehicle is not available;
9. keep the van clean;
10. coordinate the development of rules for the day-to-day operation of the vanpool and abide by these rules;
11. abide by all rules which may be promulgated by the Vanpool Program; and
12. release the Vanpool Program from any liability claims for loss, theft, or damage of personal property, loss of income; consequential damages resulting from delays, tardiness, absence of the van on particular days; or, termination of the program.

The Backup Driver agrees during the term of this Agreement to:

1. maintain a valid driver's license as required by the State of Kentucky and obtain a chauffeur's license;
2. be available to drive the vanpool van whenever the Driver is unable to do so (for services on such days, the daily rider fee will be credited toward payment of the next month's rider fee);
3. assume all responsibility of the Driver when acting in that capacity, and
4. abide by all conditions of the Rider Agreement, in addition to those given in this Agreement.

The Vanpool Program agrees during the term of this Agreement to:

1. provide a passenger van for use by the vanpool for work trips to and from_____________________.
2. provide insurance coverage for all authorized users of the van, including comprehensive, liability and collision;

3. execute contracts with all riders in which they agree to release the Driver and the Vanpool Program from liability claims for loss, theft, or damage to personal property; loss of income; consequential damages resulting from delays, tardiness, absence of the van on particular days; and; for termination of the program;

4. attempt to maintain the vanpool ridership at its maximum level;

5. coordinate establishment of the vanpool's daily route and schedule;

6. establish a fee schedule for participating in the vanpool as a rider and collect fees on a monthly basis;

7. provide the Driver with all necessary report forms, including instructions for their completion and a submission schedule;

8. provide routine servicing and maintenance of the van on a schedule which will be coordinated with the Driver;

9. coordinate with the Driver in providing alternate transportation when the van is unavailable;

10. assist in developing rules and regulations for the daily operation of the vanpool; and

11. provide the Driver with a description of all policy and operational aspects of the Vanpool Program.

The Vanpool Program, the Driver, and the Backup Driver mutually agree during the term of this Agreement that the following regulations apply to operation of the van:

1. the van shall be operated in a manner complimentary to the public nature of this program; the vehicle shall be kept clean; it shall be driven in a courteous manner; and, the unique character of its use shall be explained if such is questioned;

2. except in emergency situations, operation of the van is restricted to the Driver, Backup Driver and authorized representatives of the Vanpool Program;

3. no personal use of the van is permitted (the van shall only be used for official purposes as given by the Vanpool Program);

4. safe driving habits and complete observance of all traffic regulations are required of all Drivers (any citation resulting from the operation of the van is the responsibility of the person driving the van at the time of issuance of the citation, and any such citation must be reported to the Vanpool Program within 48 hours);

5. the Driver will be responsible for reporting any vehicular accident involving personal injury or property damage within 48 hours to the Vanpool Program as well as completing and filing Kentucky State Motor Vehicle Accident reports;

6. the Driver must continue to meet the guidelines specified in the "University of Kentucky Business Procedures" for persons authorized to use vehicles. Failure to meet these guidelines could be "cause" for termination;

7. the van is to be parked off-street at the residence of either the Driver or Backup Driver;
8. the route used by the vanpool must be approved by the Vanpool Program; and
9. accessories to the van will not be added or removed without prior approval of the Vanpool Program.

Termination of Agreement:

1. the Driver or Backup Driver can terminate this Agreement by giving the Vanpool Program 30 days written notice or by securing a substitute Driver or Backup Driver that is acceptable to the Vanpool Program (in which case termination will be effective when a new Driver or Backup Driver Agreement is signed with the substitute). The contract will also be terminated upon termination of employment at the University of Kentucky by the Driver or Backup Driver;

2. the Vanpool Program can terminate this Agreement upon 30 days written notice to the Driver or Backup Driver, or immediately if there is "cause" for termination of the Agreement. The Vanpool Program will refund any excess of fares collected from the Backup Driver.

This Agreement may be modified by subsequent Agreement signed by each of the parties to this original Agreement.

The parties shall cooperate to ensure that no person shall be denied the opportunity to participate in nor be subjected to discrimination in the conduct of the Vanpool Program because of race, creed, color, sex, age, national origin, nor the presence of any sensory, mental or physical handicap, nor in any manner contrary to applicable local ordinance, state or federal laws and regulations.

DRIVER/BACKUP DRIVER

UNIVERSITY OF KENTUCKY
VANPOOL PROGRAM REPRESENTATIVE

NAME: ____________________________

TITLE: ____________________________

HOME ADDRESS: ______________________

UK PHONE: _________________________

DEPARTMENT: _______________________

SIGNATURE: _________________________

ROOM & BUILDING __________________

DATE: _____________________________

SPEED SORT: _______________________

SIGNATURE: _________________________

DATE: _____________________________

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FIGURE 6.

DRIVER SELECTION CRITERIA

1. **Age** - At least 21 years of age is required.

2. **Employment** - Employed by UK for two years, or other indication of stable employment.

3. **License and Experience** - Must have a current Kentucky State Drivers License and have driven for at least five years.

4. **Accidents** - No at fault accidents within the last three years.

5. **Violations** - No more than one minor moving violation within the last three years.

6. **Insurance History** - Cancellation or non-renewal of a past policy will be analyzed.

7. **Suspension or Revocation of License** - Anyone who has had their license suspended or revoked within the past five years will be rejected.

8. **Alcohol and Drugs** - Anyone with any alcohol or drug related charge within the last ten years will be rejected.

9. **Medical Condition** - Must be in good physical condition.

10. **Work Record** - Past absenteeism and adherence to work time schedule will be considered.
FIGURE 7.

UNIVERSITY OF KENTUCKY VANPOOL PROGRAM

Estimate of Costs

**FIXED COSTS**
- Purchase price of $12,500 depreciated over 5 years = $208/month
- Insurance at $132/year = $11/month
- Administration = $50/month
- Total Fixed Cost = $269/month

**OPERATING COSTS**
- Fuel at $1.20/gallon and 12 miles/gallon = $0.10/mile
- Maintenance, tires, and miscellaneous costs = $0.04/mile
- Total Operating Cost = $0.14/mile

**Vanpool Costs to Richmond**
- Operating Costs:
  - 60 miles round trip x 21 working days/month = 1260 miles/month
  - 1260 miles/month x $0.14/mile = $176/month
  - Fixed Cost = $269/month
  - Total Cost = 176 + 269 = $445/month
  - Cost Per Passenger (11 paying) = $40/month

**Vanpool Costs to Berea**
- Operating Cost = 90 roundtrip miles x 21 days = 1890 miles/month
  - 1890 miles/month x $0.14/mile = $265/month
  - Fixed Cost = $269/month
  - Total Cost = 265 + 269 = $534/month
  - Cost Per Passenger (11 paying) = $48/month