

**Colchester, Essex, and Burlington
Parking and Ride Share Studies**

1993 Project 4

For The:

Chittenden County Regional Planning Commission

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Submitted By:

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Introduction

The Chittenden County Regional Planning Commission (CCRPC) in conjunction with member municipalities is interested in enhancing all aspects of transportation in the progressively more congested areas of the county and is fostering a number of projects to achieve this purpose.

Number 4 of these 1993 projects, "Colchester, Essex, and Burlington Parking and Ride-share Studies" was awarded to Donald L. Hamlin Consulting Engineers, Inc. The Request For Proposals divided the project into the following five tasks.

1. Town of Colchester - Park and Ride Lots
2. Town of Essex - Park and Ride Lots
3. Town of Essex - Use of Existing Lots for Ridesharers to Burlington
4. Van Purchase Demonstration Project - Feasibility Study
5. Regional Intermodal Park and Ride Strategy

Each of these concepts, if implemented and vigorously pursued, would reduce the number of vehicle trips. Each concept requires various amounts of initial public funding as well as ongoing management and maintenance costs. Since the underlying goal is to effect a change in commuting style of as large a percentage of the population as possible, efforts should be proportionately focused on those programs which can affect the largest numbers of commuters on a permanent basis.

Our research on this issue leads us to project that there will be sparse participation in the "Van Purchase Program" and few offers for the "Use of Existing Private Lots". The Van Purchase Program can be encouraged as it may fit well with certain groups. Similarly the use of private parking lots can be pursued with hit or miss success. It is simply our assessment that neither program will be statistically significant on a county wide basis.

Given the very rural residential character, and somewhat less widespread destination character, of the county we endorse the Colchester / Essex Park & Ride concept for a

leading edge program to establish high quality / high volume commuter lots at targeted traffic corridors throughout the county. This commuter lot program should be matched with efforts to establish and extend bus, train, and commuter bicycle routes to these lots. A large number of lots in peripheral rings about the City of Burlington can transform the sparse outlying origin areas of most commuters into convenient concentrations that encourage ridesharing and that enable viable mass transit.

Large stable lots provide a transfer destination for the development of mass transit programs. In contrast temporal use of scattered small capacity private lots creates unending problems for the car pool member, private lot owner, and transit system operator. Wherever possible lots have been placed on or near bus lines. Where possible lots should also be located along rail lines. The lots should always be open to all users regardless of source, destination, or intended mode of transit. These conditions offer the greatest flexibility and percentage of use as varying public transit programs wax and wane.

We are recommending lots or collections of lots that provide spaces for ten percent of all commuter traffic at target locations along every major traffic corridor. Ten percent of the traffic represents a lot of vehicles and a high initial cost if one thinks of building parking lots for several hundred cars at numerous sites in the county. On the other hand, ten percent is a small figure if one considers that there will be only ten percent fewer cars on the road at rush hour. For downtown planners and drivers at busy intersections, ten percent may not seem enough. Ten percent, however, is an aggressive yet reasonable goal.

Our associates on this report, Economic and Financial Consulting Associates, Inc. (EFCA) have found that ten to twelve percent is a national average for alternative transportation. We recommend that CCRPC commit to achieving this ten percent goal by the year 2004.

Ultimately the issue of transportation is most affected by land use patterns. Local and State regulations are having the effect of concentrating the locations of businesses

and employers. This commuter destination concentration is one half of the mass transit equation. Generally the growth in residential population is in the outlying communities where regulations control densities throughout the towns.

A major shift in land use patterns would be required to concentrate growth in village areas that could be better served by mass transit and other public services. More dense islands of population amidst farm and forest may make better use of the land than the low density approach to residential growth that consumes large areas of land. For the foreseeable future properly sited commuter lots could serve the purpose of enticing rural Vermont residents into reassessing their driving habits and recognizing the advantages of car-pooling and mass transit.

Introduction to Tasks 1 & 2

Colchester and Essex Park and Ride Lots or Commuter Lots

The following rationale was used to locate general areas, select specific sites, and design the commuter lots highlighted in this report. Three priority corridors were chosen in Essex and two in Colchester. There are other corridors in each town that would benefit from commuter lots. These other areas are discussed in lesser detail.

Corridor and Site Location

Colchester and Essex Town officials had previously identified routes that would benefit from commuter lots. In conjunction with their work we used regional traffic data to document all high volume corridors and natural choke points. Areas along these corridors that would best serve commuters arriving from various directions were selected as the general locations of proposed commuter lots. These general locations were examined in the field and, insofar as practical, multiple sites were identified.

Specific sites were selected by balancing their general characteristics against design requirements and through discussion with Town officials. The sites would ideally be able to eventually meet maximum sizing requirements. This, of course, limits the possibilities.

Site Sizing

A sizing criterion was developed after some study of regional traffic volumes. Our study required present and future regional traffic volumes. We found the best projected data in the Circumferential Highway Final Environmental Impact Statement (E.I.S.) which presented year 2004 two-way figures for the central portion of Chittenden County. We also used recent CCRPC traffic count data.

The E.I.S. presents data for a finite number of points along major county roads. A selected 'high volume corridor' may require nodal adjustments along the route due to varying traffic from intersecting routes. Wherever possible, we used the data at the selected sites to derive the site specific commuter volume.

Sites such as the Brown's River Commuter Lot on Route 15 were not covered in the E.I.S. and the commuter traffic was derived from recent CCRPC traffic counts. Most sites are at intersections, included on the E.I.S. report, and require adjustment to account for the two-way traffic on all intersecting roads. Therefore our design volumes for these sites include all traffic through the intersection regardless of origin or destination divided by two.

Hourly traffic counts throughout the county indicate peak traffic during the expected morning and afternoon commuter rush hours. These periods are from 6 - 9 A.M. and from 3 - 6 P.M. We combined data from the year 2004 traffic projections with current hourly traffic counts to estimate the predicted volume of "three peak hour" traffic in the year 2004. The morning and afternoon "three peak hour" counts were averaged. We then arrived at a reasonable estimation of how much of that traffic could be expected to use the commuter lots.

The site area requirements are determined by the estimated number of vehicles that would use the facility. This is expressed as a percentage of the overall volume. To determine this percentage we turned to the experience of existing agencies that provide alternative commuter transit. We saw that CATMA already had some ten percent of UVM, Trinity College, University Health Center, Medical Center Hospital of Vermont, and Champlain College personnel as registered car pool members.

Ten percent of the average daily three hour commuter traffic is a significant figure at some of the busier intersections. Acquiring the necessary property, constructing the lots, and maintaining them in perpetuity represents a large expense. The ultimate build out can be achieved in phases. This will not only reduce initial capital requirements but will also allow an assessment of the facilities viability over time.

Most of the selected sites have physical limitations that will not allow them to be built to accommodate the ten percent requirement. The selected sites range from two to four percent of the commuter volume. Ideally, lots should be built to connect with mass transit. The lots should be viewed as "stations". Public transit should be available

when the commuters are conditioned to their use. The figures of commuter volume and lot size are shown on Table 1.

Site Design

Lots should be conveniently accessible, paved, attractive, well lighted, secure, and, if possible, near commercial amenities. Wherever possible they have been placed to connect with bus service and commuter bike paths. Proximity to rail lines would also be advantageous. However, the railroad corridors in Colchester and Essex do not provide the best matches with commuter lots along these highways.

The design for each site was chosen to maximize the number of parking spaces while adopting reasonable traffic circulation and lot line buffer zones. In each case the openness of the land allowed good security visibility and the location was easily accessible to the commuter.

As previously stated, the sites described here are not large enough to meet the ten percent goal. The potential capacity of each site was only one factor in site selection. An important consideration was the availability of public land, generally State or Town property, that could be used. The use of public lands eliminates the cost and time required to obtain private property.

We are recommending that the ten percent goal be a target for the year 2004, assuming commuter acceptance of the concept. Achieving this ten percent will probably require building multiple lots on each targeted corridor. There are a few sites that would allow the ten percent goal to be built at one location but they were not determined to be practical at this time by Town officials. The five recommended sites are accompanied by sketch plans and cost estimates. Thus far the design consensus with Town officials has been to build these five sites and then obtain additional noncontiguous property where necessary to construct supplemental capacity in order to reach the 10% figure. 2004 is considered a reasonable target year for completion of those supplemental Park & Ride lots which are envisioned to be constructed after the five priority lots have been filled to capacity.

Design Components

Presently there are three commuter lots in Chittenden County as shown on Drawing 1 which accompanies this report. These are Vermont Agency of Transportation (VAOT) sites at Exits 11, 12, and 17 of Interstate 89. The estimated capacities are: Exit 11 - 46 vehicles; Exit 12 - 47 vehicles; and Exit 17 - 30 vehicles. This is a total of 123 spaces. An informal survey of the lots on numerous occasions finds that they are commonly full during work days. This indicates a demand that could be expected to make use of a larger facility. This is in spite of the fact that lack of paving and deep potholes make for haphazard parking and sloppy walking in inclement weather.

These sites are at good locations with reasonable access and area visibility. The lots are gravel surfaced. The lots are unlit or poorly lit. There are no telephones easily available although phones are available at some distance across and along busy highways. Aside from a distressed wooden structure in Williston there are no shelters.

Each proposed site will have natural constraints such as property lines, adjacent uses, and topographic features that limit the number of vehicle spaces. The confusion arising from multiple commuter lots at a given intersection can be minimized with clear signs and individual lot designations. The commuter lots are proposed as public facilities and should be more than just level areas of gravel near road intersections. We recommend and have used the following components in our cost estimates.

1. Good locations with high public visibility and good traffic access
2. Bituminous concrete pavement

The typical parking lot cross section would be 1" of wearing course bituminous concrete atop; 1.5" of base course bituminous concrete atop; 6" of plant mix gravel atop; 12" of bank run gravel. Individual site conditions may require geo-textile fabric, sand fill, or some form of underdrain.

3. Outdoor lighting

While the exact model and type of lighting is not specified, the lots should be well lit.

4. Pay telephone

Each lot should have or be near an easily and safely accessible pay telephone.

5. Emergency phones

Emergency telephones have been included on the plans. There should be sufficient numbers of these so that there is always one within a reasonable distance of any location. The phones would be wired directly to local or State police.

We further recommend that the responsible authorities encourage the operation of a coffee shop or similar small scale commercial operation on each site. Perhaps these operations could be regulated by permit or site franchise. Such amenities will benefit and further encourage commuter use. In addition the presence of activity may serve to increase the security of the sites. Should the public accept the Park and Ride concept, the franchising out of service station / restaurants ought to be considered in the long range planning of future commuter lots. These larger "Full Service" lots would be linked to public transit.

Schedule

As it is financially possible we recommend acquiring property and building toward the ten percent figure. Funding will probably require that lots are built in stages. The individual communities in Chittenden County should make commuter lots along highways and railroads a part of their planning process.

Task 1. Town of Colchester - Park and Ride Lots

Corridor selection

The selection of principal corridors to be served by commuter lots was based upon discussions with Town officials, traffic volumes, the construction sequence of the Circumferential Highway, proposed work on the commuter lot at I-89 Exit 17, and possible tie-ins with CCTA bus lines.

Commuter lots serve users who come from and depart to a wide envelope of origins and destinations. Sites at the inbound periphery of a community along main routes may serve to reduce the volume of traffic through town but may not necessarily attract the greatest number of commuters. Lots located at major route intersections outside areas of major congestion, and on bus routes appear to best serve the public interest.

Colchester has several high volume traffic corridors. We identified these routes, examined possible sites and discussed the relative merits with Town officials. Two priority corridors were chosen for inclusion in this study. The remaining corridors will benefit from commuter lots when possible.

Throughout the report site numbers are keyed to Drawing 1 of 1 which is located in the pocket inside the back cover of this report.

The primary traffic corridors are;

1. I-89 at Exit 17 & the junction of U.S. Routes 2 & 7. This junction is known locally as "Chimney Corners". The existing 30 space commuter lot at Chimney Corners (#1) is currently being examined for design improvements under a VAOT contract. We recommend that CCRPC and the Town of Colchester work with VAOT to produce a large capacity lot.
2. I-89 at Exit 16. A lot near Exit 16 in Winooski or Colchester would be valuable in serving traffic exiting the Interstate. Thus far no site has been found in this prosperous area. The significant growth in retail, commercial, industrial, and residential units in this portion of Colchester suggests that CCTA service might be successfully extended.

The Town of Colchester might include a commuter lot in this area in their Town Plan.

3. Route 2A at the Essex Town Line. The traffic on Rt. 2A at the Essex line will be served by proposed lots at the Circumferential Highway intersection (#11, #20, & #21) in Essex.

4. Route 127 at the Heineberg Bridge (#13). This was chosen as a priority site and is discussed in detail elsewhere. An alternate or supplemental site (#26) is also discussed.

5. Kellogg Road at the Essex Town line. This largely residential road would best be served by commuter lots near either end. The proposed lots at Severance Road and on Route 2A will serve most of those commuters who would otherwise travel this route.

6. Route 15 near Fort Ethan Allen. This section of road lies deep within the already congested area of the county. Ideally many commuters willing to use lots or buses would have done so further east. Until Colchester segments of the Circumferential Highway are open there will be large volumes of cars here. A commuter lot at the rear of Fort Ethan Allen or perhaps on Camp Johnson property could provide a viable alternative that offers a shorter bus transit time, shorter ride share, or shorter commuter bike transit.

7. The combined intersection of the Circumferential Highway, Blakely Road, Severance Road, and U.S. Routes 2 & 7. This area was chosen as a priority site and is discussed in detail elsewhere. The later discussion includes sites # 12, 22, 23, 24, 25, & 27.

Colchester Priority Corridors

The two chosen corridors are at Circumferential Highway intersections. These same points already experience high traffic counts and will continue to do so when the Circumferential Highway is built. We have examined plans for all proposed segments of the Circumferential Highway. VAOT plans include a 21 space Park & Ride Lot at

Severance Road (#27) and a 47± space Park & Ride lot at the Heineberg Bridge (#13). These lots would not be constructed by the VAOT until construction of Colchester segments of the Circumferential Highway are underway. We recommend that lots be built in these areas as soon as possible rather than awaiting construction of the Circumferential Highway.

Heineberg Bridge Commuter Parking Lot (#13)

The VAOT site (#13) is in an excellent location and is shown in Figure 4. This property is already owned by the State. We have changed the design to provide 89 additional spaces for a total of 136 spaces. Building the lot prior to construction of the Circumferential Highway will require construction of an access road. This road is included in the cost estimate. This site is a major entrance to Burlington for Colchester residents with a CCTA bus line nearby.

Supplemental Heineberg Bridge Site (#26)

Additional lot siting along this corridor is limited by flood plains on either side of the river and dense residential housing on either side of the floodplains. The VAOT site (#13) is clearly the best. One location for a supplemental site is the old bridge approach on the west side of Route 127. This lot could have potentially high capacity but also is in the floodplain and offers poor security. The site is currently used for river side fishing access and occasionally boat access. We recommend that, if future needs dictate, the old approach site be improved following the design standards for the priority sites.

VAOT Severance Road Commuter Lot (#27)

The VAOT has plans to build a 21 space commuter lot coincident with the Circumferential Highway. The proposed location of this lot is atop fill resulting from the construction of this segment of the Circumferential Highway. The location of the lot between the Circumferential Highway and an off ramp will limit any significant increase in lot size. Therefore, while eventual construction of this lot is desired, we have looked elsewhere for a sizable lot that could be built in the near future.

Old Severance Road Commuter Lot (#12)

The Town owns an abandoned road R.O.W. between the U.S. Routes 2 & 7 intersection and the proposed Circumferential Highway interchange. See Figure 5. A empty triangular piece of private property, approximately 0.7 acres in size, would need to be acquired to make the old ROW useful. The site borders a residence but we understand that this property will likely become a commercial site in the near future. The property to the west is wet at times but this condition will apparently be reduced with construction of the Circumferential Highway. The land surface is uneven and will require some fill which has been included in the cost estimate.

This site is nearly two miles from current CCTA service. Perhaps in the future CCTA might extend service to this locality. For the near future, however, commuters would be ridesharing from this site.

Supplemental Severance Road Sites

There are no other viable sites along U.S. Route 2 & 7 near this intersection. Land to the north is unacceptable due to extreme slopes. A commuter lot, on either side of U.S. Route 7 between the Severance Road intersection and Sunderland Hollow, would required an entrance drive off of Route 7. This would be unacceptable as this busy stretch of road should not be complicated with an additional intersection.

There are several potential sites along Severance and Blakely Roads. The Brigante property (#22) on Severance Road lies just southeast of the proposed interchange. The site is large enough to park several hundred vehicles and is shielded from residences to the east by a deep ravine. Residences directly across Severance Road, however, would have full view of the lot. This land is presently used for intensive vegetable farming.

There are three potential sites along Blakely Road. The North Site (#23) could store several hundred vehicles. There are nearby residences which could be shielded with wide vegetated buffer zones. The Southeast Site (#24) is a deep meadow which might store several hundred cars and would also require shielding from residences.

The Southwest Site (#25) is the least suitable due to its relatively small size and proximity to residences.

Future expansion expectations favor the Brigante Site (#22) followed by the North Site (#23) for best commuter access with minimal neighborhood impact. The Brigante Site is an agricultural site yet the location in the long term will likely favor commercial development. The Brigante property is zoned for commercial development. This could work well if the commercial use allowed for a commuter lot toward the rear of the property.

Future Colchester Commuter Lots

The long term goal should be the siting of commuter lots for ten percent of commuter traffic on all main routes. The primary traffic corridors as earlier noted are I-89 Exit 16, I-89 Exit 17, Route 2A at the Essex Town Line, Route 127 at the Heineberg Bridge, Kellogg Road at the Essex line, Rt. 15 at the Essex line, and Severance Road at the Circumferential Highway. East Road at the Milton Town line and Mallett's Bay Avenue at the Winooski City line carry a lesser but still significant amount of traffic.

Colchester and the greater Burlington area would benefit by commuter lots in neighboring communities particularly South Hero and Milton. Within the Town of Colchester the commuter lot at Exit 17 is currently being improved by the State. We have addressed potential sites for commuter lots for traffic on Route 2A, Route 127, Severance Road, and Kellogg Road.

It will be necessary for the Town to plan for construction of commuter lots on routes without lots and additional lots to increase the parking capacity at areas where lots exist. Colchester should also investigate the viability of additional commuter lots at the following two logical commuter rail stops: St. Michael's College at a point just east of the Lime Kiln Bridge; and Colchester Depot on Depot Road just east of Colchester Village. Long range planning for such sites, perhaps even acquiring them, could be a catalyst for introducing commuter rail. Should rail commuting not develop, the sites would still be useful for carpooling and interfacing with CCTA.

Task 2. Town of Essex - Park and Ride Lots

Corridor Selection

The Town of Essex had identified Route 15, Route 117, and Route 2A as priority locations for commuter lots. We have chosen a primary site along each route in consultation with Town officials. Additional sites are also noted and will serve as a basis for selecting alternative or supplemental sites. Sketch plans for these sites are presented as Figures 1, 2, and 3. A fourth existing site on Route 15 is also discussed. Thus cost estimates for four sites are presented.

Route 15 Corridor

This route runs through the Town and the Village and serves a high volume of traffic. The Town's primary focus is to locate a lot between the Jericho Town Line and Sand Hill Road. The intent is to offer commuters an option to driving further into or through the Town. The 1993 opening of the Circumferential Highway will not reduce the volume along this segment of Route 15. Ideally a commuter lot would be located outside Essex Center and be on or very near the present CCTA bus route. Drawing 1 shows the locations of the existing, proposed, and alternate or supplemental commuter lot sites.

Allen Martin Parkway is a proposed road west of Sand Hill Road and connecting with the Circumferential Highway. Allen Martin Drive is an existing road east of Sand Hill Road which connects with Route 15. Presently Sand Hill Road is served by CCTA buses.

The construction of Allen Martin Parkway will provide a desirable alternative route to Burlington and points west. Well situated commuter lots would thin traffic by providing an alternative to traveling further into the Town of Essex whether on Route 15 or the Circumferential Highway. There are no suitable locations for commuter parking along Allen Martin Parkway due to excessive slopes on either side of the route.

The short segment of Sand Hill Road between Allen Martin Drive and Allen Martin Parkway is the boundary between residential and commercial districts. There is no

suitable land on the west side of Sand Hill Road for a parking lot. The Town has studied rerouting Allen Martin Drive so that a four way intersection with Sand Hill Road and Allen Martin Parkway would be created. This idea has been dropped in favor of upgrading the existing intersections with traffic lights and an additional lane along Sand Hill Road. An existing 200 foot wide buffer zone of forest along the east side of Sand Hill Road precludes locating a commuter lot there at least for the foreseeable future.

If the Town of Essex were able to resurrect the idea of creating a four way intersection then the possibility exists to locate a commuter lot on the commercial side of the 200 foot buffer zone. This plan may not be politically or economically possible. It would offer the advantage, however, of placing a large lot on the bus line.

Portions of the land along Allen Martin Drive are unavailable or unusable due to present development or areas with excessive slopes. There are large beautiful lots along this drive but these are prime commercial - industrial lots and would be expensive. The Town might consider the possibility of obtaining a parcel here in conjunction with the commercial operation of a franchise restaurant service area.

Sections of land along Route 15, between Sand Hill Road and the edge of the former Essex Junction Village forest, are across from and adjacent to residential areas, and are not suitable for commuter lots. Therefore our study has led us east to the section between the former Village forest and the Town line.

Brown's River Commuter Lot (#8)

Figure 1 shows a selected section of State owned property at the Brown's River Bridge for a 76 space commuter lot. The Brown's River site (#8) would require approval from the State but no land purchase. The site is a floodplain which would occasionally forestall use. The site is well away from residential properties. A bike path is planned to intersect Route 15 at this site so there would eventually be provision for commuter bike transit. The site is adjacent to a small piece of Town land which has river access and so would have additional recreational value. The size and location of the site

would probably preclude CCTA service in the near future.

Salamin Handy Convenience Store Commuter Lot (#9)

The Town has an agreement with the Salamin Handy Store for a 16 vehicle space commuter lot on store property. Design plans for the convenience store site had already been developed and a copy is enclosed as Figure 6. We have prepared a cost estimate for this site. Construction of the Handy's Store Lot and the Brown's River Commuter Lot would yield a total of 92 spaces. Table 1 shows a ten percent goal of 298 spaces for Route 15 in this area.

Supplemental Route 15 Sites

Intersection of Route 15 and Saxon Hill Road (#14)

Property at the southwest corner of this intersection would be served by access off Saxon Hill Road. Potentially there would be space for several hundred cars. The significant detriment is distance from the bus route.

John Leo Property (#15)

Mr. Leo has an existing entrance road and several lots which might be available. The corner lot on Route 15 would provide space for 45 cars. Larger lots to the rear of the property would certainly have more capacity. These lots could offer the potential of linking a commuter lot with some sort of complimentary commercial activity.

Allen Martin Drive

Provision for user security would be important in this area. A lot enclosed by evergreen trees could present risks. Potentially there would be spaces for several hundred cars and a service extension by CCTA.

Route 2A Corridor

Every intersection of the Circumferential Highway is a logical choice for a commuter lot. The Route 2A, Susie Wilson Road, Circumferential Highway intersection is a high volume area. A site at or near this intersection is highly desirable. Fortunately there

are three pieces of land owned by the VAOT and each would serve for varying numbers of spaces.

Route 2A Commuter Lot (#11)

Figure 2 shows the primary site as a large half moon shaped parcel on the east side of Route 2A. The site is bounded and defined by a future off ramp for a section of the Circumferential Highway that will come from Colchester. VAOT has identified this site as a future commuter lot. Construction of this lot is not included in the current Circumferential Highway contracts, however, construction related filling and grading has made the site usable. This site may hold some 370 cars.

There is no present CCTA service to this location but a large lot may be an inducement. Since the Central Vermont Railway parallels Route 2A in this area a walkway could conceivably be built a short distance to the south and east to bring commuters to a future commuter rail stop.

Table 1 calls for 875 parking spaces at this area. The two remaining possible sites at this intersection will now be discussed and should be held in reserve.

Route 2A Supplemental Sites

Landfill Road Lot (#20)

The property is owned by VAOT. Access would be from an existing Town Road. The site could hold some 98 vehicles. The site should be held in reserve for future use.

Town Landfill (#none)

This town property is near the Circumferential Highway intersection and may offer potential reserve parking area. The site should be held in reserve for future use.

Southwest Corner Lot (#21)

The property is owned by VAOT. Access would be from an existing driveway. The site could hold some 55 vehicles. The site is adjacent to a residence and perhaps should

be the last site of the four sites to be developed. If the adjacent property were converted to nonresidential use there would be less objection to use of the land as a commuter lot. The site should be held in reserve for future use.

Route 117 Corridor

The search area was generally between the Town line and the Circumferential Highway. Several sites were found. A site at the Circumferential Highway intersection was chosen as primary.

Alder Brook Commuter Lot (#10)

Figure 3 shows two lots, one on either side of Alder Brook. The site is in the floodplain of the Winooski River. Flooding may occasionally forestall parking. Equally important is the fact that the floodplain designation limits other use of the property and should allow it to be purchased from the private owner. The site is at the intersection of the Circumferential Highway and is on the present CCTA bus line.

The site is on the designated route for a bike path which adds to the possibility of commuter biking and is on the Winooski River thus providing other recreational possibilities. Table 1 calls for 526 spaces in this area. The site offers 197 spaces. Sites closer to the Jericho Town Line offer additional spaces.

Route 117 Supplemental Sites

North Williston Road (#16)

The cornfields at the southwest corner of this intersection would allow for the parking of several hundred cars. The land is prime agricultural and would have to be acquired from a private owner.

Route 117 East Corn Field (#17) and Route 117 West Corn Field (#18)

There are two isolated rectangular cornfields south of Route 117 between the intersections of North Williston Road and Chatham Road. The western field would hold some 112 cars. The eastern field could hold several hundred cars. Access and

site distances are problems at each site. The North Williston Road site (#16) would provide much safer traffic access. Conceivably both fields could be acquired and connected to make the best use of entrance locations.

Chatham Road (#19)

The area at the northeast corner of this intersection would allow for the parking of some 144 cars. This lot is private property and is part of a larger commercial development.

Future Essex Commuter Lots

The area of the intersections of the Circumferential Highway with Essex Way and Route 15 is a prime site for a commuter lot. Construction of commuter lots on the periphery of the town at locations along Routes 117, 15, and 2A will serve to capture some portion of traffic entering the more congested Essex and greater Burlington Area on these long standing traffic feeder routes. However, the Circumferential Highway will bring a significant volume of traffic into the Town destined for this intersection which will necessitate a commuter lot at each of these exits if we are to effectively reduce traffic volumes on Route 15. Each exit of the Circumferential Highway should have a sizable commuter lot. Town officials might plan a large lot for this area as it is developed.

Essex should look to the future with a plan for commuter rail stations. Some stations would not have any associated new parking. Parking could be provided at a rail stop to serve the Fort Ethan Allen area off the Woodside Facility Road. This area would also serve for recreational use parking.

**Task 3: Town of Essex -
Use of Existing Lots for Ridesharers to Burlington**

Introduction

The focus of this concept was to explore the use of empty spaces in large existing parking lots for commuters who would then rideshare to Burlington. In addition a mechanism was sought to provide ridesharing groups some form of financial or preferential parking incentive to encourage this activity.

Essex Shopping Centers

We have contacted the managers of large existing parking lots in Essex and parking garages in downtown Burlington. Generally there are few spaces available in Essex and little incentive for Burlington garages to offer on their own a discount to multi-passenger vehicles. There is, of course, opportunity for third party organizations to subsidize multi-passenger commuters.

We have found four possible shopping center commuter parking locations in Essex. We inventoried the generally empty spaces and contacted the managers of these facilities. These four shopping centers are shown on Drawing 1 of 1. A total of 468 spaces were identified and discussed with the owner or manager. Each of the lots is on the CCTA bus line and could serve rideshare users.

- | | |
|---|----------------------|
| 1. "Essex Square" (#4) on Route 15 | 60 spaces requested |
| 2. "Lang Farm" (#5) on Route 15 | 159 spaces requested |
| 3. "Town Plaza" (#7) on Susie Wilson Road | 161 spaces requested |
| 4. "Pinewood Manor" (#6) on Route 117 | 88 spaces requested |

This is a total of 468 spaces. The ten percent goal as outlined on Table 1 calls for a total of 1699 commuter spaces on the three designated routes in Essex. The traffic volumes vary with location and the Lang Farm and Susie Wilson Road site are not precisely at our traffic count sites but in any case, 468 is 27.5 % of 1699.

So if all requested spaces were made available they would constitute twenty-seven

percent of the ten percent goal and we would still need to look elsewhere for 1699 - 468 = 1231 spaces.

If the privately owned spaces were available at a cost equal to or less than new construction, we could take advantage of them. A concern is that the private parking spaces may become unavailable for continued use at some future time and it would be increasingly difficult to acquire raw land for permanent commuter lots. Correspondence and conversations with the managers of the parking lots revealed many common concerns that indicate no formal commuter use of their lots now or in the near future.

The parking lot owners or managers uniformly expressed a desire to help the community but identified overriding concerns that prevent them from doing so . Some of the issues are:

1. Conflicts concerning who is to park where.
2. Scheduling conflicts for snow plowing.
3. Long term conflicts. If they were unable to renew a commuter parking commitment commuters might continue to use the lot out of habit.
4. Who would bear the financial burden for facilities maintenance.
5. The need to periodically update parking plans to incorporate changes of use by shopping center tenants.

Essex Square (#4)

We inquired about the use of some spaces at this facility and found that all spaces are legally included with the individual tenant leases. Under the most favorable conditions this small facility could serve only a token amount of commuters.

Lang Farm (#5)

The Lang Farm shopping area has been sold as of late September 1993. Finard & Company managed the facility up until the time of the sale. They were therefore not in a position to enter into any arrangements regarding commuter parking. We have not

contacted the new owners but understand through Town officials that there are plans for major construction of new buildings, reconfiguration of the parking and aggressive plans to use all existing parking spaces.

The general area of the Lang Farm should be a high priority site for a commuter lot. Its location at two intersections of the Circumferential Highway, on Route 15, near the junction of Route 15 and "Old Stage Road", on CCTA bus routes, and on bike paths presents an ideal opportunity to get people to park and ride. The stores, services, and restaurants draw many people who could tie commuter parking to shopping, dining, and other amenities. The Town of Essex might wish to include a sizable lot here in their town plan.

Town Plaza (#7) (Grand Union & Ames on Susie Wilson Road)

Finard & Company owns and manages Town Plaza on Susie Wilson Road and the University Mall in South Burlington. Finard & Company reports plans in progress to build additional structures on the Town Plaza site and perhaps reconfigure the present main lot for parking and through traffic to the newly developed areas. They are therefore unable to offer the use of spaces or to lease spaces at this time. Their goal is to develop the volume of business that will leave few empty spaces. Once they have completed renovation plans they could be revisited on this subject. They do not wish to commit to provide spaces at this time.

Pinewood Manor (#6)

The owners were very receptive to the concept of partial use of their lot by commuters. This complex has been in operation for twenty years and management is comfortable with long term commitments to providing space. They would be willing to sign a long term lease for some 12 to 88 parking spaces at a to-be-negotiated cost per space per year. The initial construction costs would have to be borne by the lessee or added to the cost of the long term lease.

There is space available at this time for perhaps 12 vehicles. This area would require minor pavement crack repair and parking space striping. Obtaining spaces for more

than 12 cars would require construction / reconstruction of the parking lot at costs comparable to building a new lot elsewhere. A total of 88 spaces is possible onsite with reconstruction of some 59 spaces and construction of 29 new spaces.

An estimate of design and construction costs is \$114,500. as noted on Table 11. This would provide some 88 spaces for a to-be-negotiated period of perhaps 15 - 20 years, plus a fee for maintenance, snow plowing, lighting, and any other requirements. Pinewood Manor initially suggests a fee of \$17.50 per space per month, to be refined during actual negotiations. This works out to be $88 \times 12 \times \$17.50 = \$18,480$ per year.

The cost of providing and maintaining parking spaces is comparable whether on public or private land. We have not estimated the costs of public maintenance of the various commuter lots envisioned in this report.

Burlington Parking Garages & Ride Share Incentives

The Market Place Garage offers financial incentive for car pool members. This garage is owned by the City of Burlington and the program is subsidized by the City. The remaining garages are privately owed and are simply not willing to subsidize car-pools.

Downtown employers, businesses, and the City of Burlington derive benefit from car pooling and could encourage the practice with preferential parking spaces, dedicated parking spaces, and reduced parking fee programs. With the continued growth of outlying shopping centers and office parks, Burlington needs to attract commercial activity. The City must develop multifaceted programs to reduce traffic volumes, provide ready access to the downtown areas, and provide shopper parking spaces. Few consumers will park in a commuter lot, wait for a bus, and endure a long bus ride so that they can shop in Burlington when they could more easily do their shopping in an outlying shopping center.

We suggest that core area and large employers encourage their employees to park and ride or operate vans to pick up their employees at various lots. Similarly, stores

can encourage ride sharing by actively promoting an increasingly widespread coupon program. Participating stores and restaurants should advertise that they offer these coupons with some standard symbol at the entrance door and cash registers.

Three Proposals

Using spaces at existing lots will require some form of written agreement and some amount of payment for maintenance services provided. The private lot owner may gain some benefit from the presence of these commuters but it is not a viable proposition until expenses and liability concerns are addressed. This does not appear to be a large part of the solution for the aforementioned reasons but additional study might prove beneficial. We therefore offer the following three proposals for gaining the use of commuter parking spaces on private property.

Proposal 1: - To Pinewood Manor

Negotiate a long term lease for the property which includes necessary reconstruction and a service contract.

Proposal 2: - To Existing shopping centers and area businesses with available parking spaces.

Develop very structured proposals to each center that requests use of spaces by very manageable groups. The lots would be open only to these specific groups and would not be available to the general public. These groups might be daytime employees of the CATMA organizations, or the personnel of some other specific employers.

Such groups would have uniform daytime hours, stickers on vehicles from the participating institution, direct one-call complaint service to the institution office, and uniform hours of arrival and departure. In short, it would represent a minimal managerial responsibility and few headaches.

Proposal 3:

Use advertisements in the "Burlington Free Press" to solicit bids, or negotiable long term leases, of commuter parking lots of desired capacities at or near various targeted sites. The advertisements would request property with ready-made or to-be-constructed parking lots meeting specifications which would be sent out to respondents upon request.

Lots with locations adjacent to a business or office that offers services and increased security are preferred. Privately owned lots could easily be on or adjacent to land that included a service station, restaurant, small store, or car wash. Public authorities could consider buying a private commercial operation with a commuter lot and then running the facility as a franchised operation.

For example: "CCRPC is requesting bid proposals for use of commuter parking lots at or near the following ten locations. All lots must meet access, pavement, lighting, and other requirements as noted in the specifications, which are available from CCRPC. Lots adjacent to service stations, restaurants, or convenience stores will be given preference."

1. Location along Allen Martin Drive East in Essex; Capacity Range: 50 - 300 cars; One - Ten Year lease negotiable;
2. Location along Route 117 in Essex between the North Williston Road and the Circumferential Highway; Capacity Range: 50 - 300 cars; One - Ten Year lease negotiable;
3. Location within 0.5 miles of Rt.15 - Circumferential Highway - Essex Way; Capacity Range: 50 - 300 cars; One - Ten Year lease negotiable;

We feel that proposal 3 would be the most economical way of finding and leasing spaces as the competition would be the greatest and existing lots could still enter a bid for spaces to be leased.

Task 4. Van Purchase Demonstration Project - Feasibility Study

Task 4 Introduction

The section beyond this introduction was prepared by our associates on this project, Economic and Financial Consulting Associates, Inc. of Burlington, Vermont.

A few private van pools in Vermont have used the State program to acquire vehicles. Thus far the program has not had wide participation and perhaps not wide exposure. The advent of widespread attractive commuter lots may provide interest and renewed interest in van-pooling. There should be an increased market among those commuters who have driven to the lot and are looking for options of mass transit, or mini-mass transit such as a van to transport a group into work. Similarly, an employer may see the benefit of using a van to gather employees at these lots.

The principal tool to increase the number of van-pools would appear to be directed advertisement. This may be in the form of brochures distributed to and through large employers in the area, as well as signs at the commuter lot bus stop shelters, and common media marketing.

Van Purchase Demonstration Project

The complete E.F.C.A. study is found as Appendix 1.

Task 5 Regional Intermodal Park and Ride Strategy.

Task 5 Introduction

In this section we discuss the merits of Tasks 1 - 4 and their application on a county wide basis. We then present "Four Regional Goals" for the enhancement of commuter and mass transportation within the county. Drawing 1 of 1 accompanies this report and is useful in following the topics under discussion. Table 10 details the commuter lots proposed for the region within and about the county.

Commuter Park & Ride Lots

Chittenden County commuter traffic originates from within and outside the county. A plan to reduce overall traffic volume must offer equally widespread transportation alternatives. There is a tendency to attempt to solve the problems of congested areas on site. Yet, even where there is area available for new roads, additional lanes, or additional parking, the volume of traffic quickly fills it. We should, therefore, offer as many options of ridesharing and mass transit as possible.

In practice, ridesharing where riders are picked up at home, suffers from the time lost as the 'group' travels about picking up people and perhaps stopping at stores, gas stations, day care centers or schools. Commuter lots offer the opportunity for the individual to do these errands on the way to or from these lots. The commute, that is, the shared transportation, starts at the commuter lot where either a rideshare or some form of mass transportation is met.

Commuter lots located close to home mean longer shared commutes and therefore fewer vehicle trips throughout the county. On the other hand, lots located closer to work, generally on the periphery of the greater Burlington area, mean longer solo trips to the lots, shorter commutes and more vehicles on the roads.

We have contacted officials in most Chittenden County communities to ask whether they had independent plans for commuters lots. None of the communities have a lot or plans to build one. There was general interest for lots but simply no movement at this time by these communities. Some officials felt little need for a commuter lot in their

town but wanted lots elsewhere to keep traffic out of their town. This is a circular argument for a regional issue. Were each town to build a community center lot, there would be peer pressure on reluctant communities, and eventually the volume of traffic would decrease or at least the increase would be lessened with population growth. Communities should not overlook that in addition to traffic reduction the lots are a great convenience to many citizens.

We did not contact Burlington, Winooski, or Essex Junction on this topic. There may be areas in these communities where lots could be placed and would be used. However, there is such congestion in these areas at the present time that the focus should be placed on commuter lots outside these areas.

The section entitled "Four Regional Goals" advocates a four fold system of commuter lots throughout Chittenden County and in neighboring origin communities. The section discusses the extension of various forms of mass transit between the commuter lots and destinations.

Proposal to Use Existing Lots

The use of existing parking spaces for commuters is thought provoking as we all see so many "unused spaces" at all but the most congested areas. Use of these spaces does not appear to be viable, however, due to a great many real problems and concerns shared by the private lot owners.

Leasing parking spaces can quickly become very expensive, yet no one expects lot owners to accept commuter cars without restrictions, protection, and compensation for the upkeep of these spaces. This may appear low in summer but is considerable in the winter with the expense and scheduling of snow removal. The shadow of insurance and legal headaches is omnipresent.

From our investigations, no business is likely to enter into a relationship without a formal agreement and some financial reimbursement. The issue would need to be formalized as a business proposition between some public authority or large employer

as described in the three proposals outlined in Task 3. These concepts could be applied throughout the region to the potential benefit of traffic reduction.

Public & Private Use Garages

The downtown parking garages and parking lots have conflicting purposes. There are two major issues - who should use the spaces and who should pay for them. The economic health of the City requires readily available low cost spaces for patrons of the businesses. The desire to reduce commuter traffic should result in the benefit of providing consumers with an easier direct approach to Burlington as well as the option of using outlying lots.

Some of the downtown spaces will be required for area employees. Most of the Burlington bound multi-passenger vehicles leaving the commuter lots will need a spot downtown or on the University hill. We must plan to ensure that those parking spaces that are freed up by use of the outlying commuter lots will not be used by other commuters but by shoppers, clients, and visitors.

Communities should work with employers to find designated employee parking and with businesses to keep spaces clear for shoppers and clients. One apparent method is to recognize that commuters are employees as they enter the congested areas. Commuters may also incidentally be shoppers and clients yet there need to be abundant spaces so that all shoppers can confidently arrive at any time of the day and readily find a parking space at a price that will not turn them away.

"Downtown Bound", the City office that works to coordinate parking, commuting, and transit has worked for years to establish programs with the parking garages. The garages are high cost facilities to be paid for and maintained. Generally they cannot subsidize other businesses by giving breaks to certain users. The garages would like most spaces filled with paying vehicles. They gain no benefit by reducing charges to multi-passenger cars until such time as they no longer have empty spaces.

Employers and stores without sufficient numbers of their own dedicated parking

spaces gain from the presence of the garages and public parking lots. These are the entities that should work with garages and downtown authorities to subsidize operations so that the parking areas can in turn give financial preference to multi-passenger vehicles. Similarly it appears to be in the downtown district's best interest to support programs that give shoppers coupons for parking. Coupons are a good method to distinguish a shopper from a commuter. Multi-passenger shopper vehicles should end up with many coupons and are thus rewarded.

Overall the most effective manner of encouraging use of multi-passenger vehicles is for employers to make long term arrangements with parking garages and lots for those employees that share rides.

Van Purchase Demonstration Project

The program outlined in Task 4 should be written up in a brochure format which could then be distributed to all major employers, advertised at commuter lots, and in local media. CCRPC and local communities could consider encouraging and allowing businesses to operate serious, well documented long term van pools in lieu of parking space expansion.

Mini- Mass Transit - Commuter Van Pools

Task 4 discusses the merits and risks of van pool participation. Aside from creating commuter lots, advertising the program, and facilitating commuter matching services there appears to be little else that can be done to promote the concept.

Mini- Mass Transit - Employer Van Services

We feel that the employers are the most logical and likely groups to promote transportation of commuters in vans or small buses. Employers have a very strong stake in finding solutions to onsite and downtown employee parking. Employers are in the logical position to operate or contract out for one or more vans to transport their employees to the office. The vans need not even park at the office during the day.

As noted in the Task 4 section there are many real difficulties for individuals to

overcome in private van pools. Long term route commitment, long term financial commitment, and the liability insurance are very major concerns.

There may be some resistance to the idea that some specific business in downtown Burlington will use 40 or 100 public spaces in Essex or Williston on a regular basis for their off-site employee parking. But all these public commuter spaces will be used by some business or individual for off-site parking. Off site parking and vehicle trip reduction is the goal.

One must remember that the goal is to reduce vehicle trips on our roads and highways, particularly in the worst congested, downtown areas. The overall desire is to reduce the vehicles and increase the number of commuters per vehicle. When we have the cars using the lots we should try to encourage as many people as possible to use fewer vehicles for the remainder of the trip to work. Any person, employer, or entrepreneur willing to transport multiple people in one vehicle should be encouraged to do so.

The Four Regional Goals

Regional Goal Number 1: Create an “Inner Commuter Buffer” of commuter lots.

The “Inner Commuter Buffer” is defined here as a ring about the City of Burlington and adjacent communities. We envision a number of commuter lots along this ring and extension of mass transit to all points along this ring. This buffer defines an area within which we attempt to significantly reduce the number of commuter vehicles by offering an alternative and fostering multiple forms of mass transport. The Inner Commuter Buffer of lots is the maximum extent of envisioned CCTA mass transit for the near future. Table 10 lists a number of sites along the “Inner Commuter Buffer”.

Mass Transit & Alternative Transit

Transportation between the commuter lots and the daytime destination is the opportunity for mass transit. Once again the widespread nature of the destinations and their individual distances from bus or train routes work against mass transit

viability for a large percentage of the population. In time if the density of destinations increases then an increasingly large percentage can be handled by buses and trains.

The creation of widespread well located commuter lots serves to concentrate the commuter population. Placing these lots at sites that can eventually be served by bus and train routes creates a population to make mass transport viable. Connecting these commuter lots and destination areas with an eventual county wide network of commuter bike paths provides for another viable form of alternate transportation during several months of the year.

Mass Transit - Bus Service

A very small part of the origin and destination areas are within walking distance of the bus routes. See Drawing 1 of 1. Were the average commuter able and willing to walk a half mile to a bus route, travel on the bus, and then walk a half mile to work this still serves but a fraction of the county. We may increase the bus ridership by giving commuters a place to park and resume their trip aboard a bus. These lots would not be dedicated solely for bus riders but open to all users regardless of destination or means of transit.

A well defined goal should be to construct large capacity lots along every CCTA bus route. Generally these lots would be at the geographic fringe of existing routes. Where it is not possible to locate a lot on or within easy walking distance of a route then CCTA should be requested to extend the route as necessary. Presently CCTA has nine routes. Two of the routes are well inside an area that is already so congested that commuter lots are not practical. A list of the routes with comments regarding commuter lot applicability follows:

1. North Avenue Route: Extend route to the Heineberg Bridge Commuter Lots.
2. UVM Waterfront Shuttle: Commuter Lots are not applicable.
3. Lakeside Route: Commuter lots in the area south of Queen City Park Road are a

possibility.

4. Old North End Route: Commuter Lots are not applicable.
5. Airport Bus Route: We recommend extending service to commuter lots on Route 116.
6. Southend - Shelburne Route: Commuter Lots in the Shelburne Village area and along Shelburne Road are recommended.
7. Essex Route: We recommend extending service to the proposed commuter lots on Route 2A. We suggest that commuter parking at Fort Ethan Allen be considered.
8. Essex Center Route: We recommend commuter lots on the present bus route at Alder Brook on Route 117. We recommend commuter lots in the area of Lang Farm.
9. Riverside - Winooski Route: We recommend extending service to a commuter lot near I-89 Exit 16, once one is established.

Mass Transit - Commuter Trains

This subject is discussed as Regional Goal Number 3.

Alternative Transit - Commuter Bicycle Paths

A long range goal should be a county wide network of interwoven bike paths, not bike lanes, that connect village areas, commuter lots, and high density destination areas.

Regional Goal Number 2: Create an "Outer Commuter Buffer" of commuter lots. These would be proportionately sized lots based in each community. These lots would be relatively close to home for many commuters. They would drive in from home, do their errands along the way, and then meet ridesharers or some form of mass transit. Having these lots close to home promotes a longer commute for greater savings to the commuter in direct expenses and less traffic on the roads along the way to or through

the Inner Commuter Buffer. These lots serve as subregional collectors that compliment the Inner Commuter Buffer of lots by gathering riders outside of the area that can be effectively served by mass transit in the near future. The communities are listed in Table 10 and are shown on Drawing 1 of 1.

We suggest that each community decide the location and size of their own lot(s). We feel the lots should be open to all users regardless of source, destination, or means of transit. Everyone benefits from the presence of lots in their town and elsewhere.

The location and sizing rationales along with the design standards offered in this report could be passed along to these communities. These items have been discussed in the report text and are outlined in the appendix for possible distribution.

Regional Goal Number 3: Foster commuter train service by building stations and commuter lots.

There are plans under consideration to operate a commuter train between Burlington and Shelburne. There will be a need for designated parking in Shelburne. While there appear to be no near term plans to extend service east of Burlington nor south of Charlotte we feel it wise to create lots at potential track side locations. They could be used by commuters who then rideshare or take buses where available. Building these lots would be a significant step towards realizing train service. Table 10 lists general sites for these commuter lots. The individual towns can best decide where stations and lots should be placed.

Regional Goal Number 4: Foster Commuter Lots outside Chittenden County.

There is a significant amount of commuter traffic between Chittenden County and neighboring areas. These people have the longest commute and the most to gain by ridesharing where possible. We advocate sizable lots at all Interstate intersections, potential railroad sites, and in general, lots built within and by each town to serve their citizens and through traffic.

Table 10 lists a number of towns where lots might be located. There are scores of possibilities. CCRPC could contact these towns and open a discussion on the benefits of these lots.

The intersection of U.S. Route 7 and Route 22A in Ferrisburg is a prime site and a good example of the possibilities that are open. The State is currently working on a plan to replace the substandard railroad underpass of Route 22A near this intersection with an on grade crossing. Remnant land from the present Route 22A, Old U.S. Route 7, and area alongside the new crossing approach could combine to provide a good number of parking spaces.

The location and sizing rationales along with the design standards offered in this report could be passed along to these communities. These items have been discussed in the report text and are outlined in the appendix for possible distribution.

Summary

Task 1 & 2: We believe Colchester and Essex are correct in planning to use commuter lots to lower traffic congestion and associated expenses. The well used lots at Exits 11, 12, and 17 of Interstate 89 attest to the popularity of commuter lots.

We have developed a rationale for siting lots, lot design, and lot sizing that can be readily applied throughout the county. There is a need for numerous permanent large safe lots in choice locations if commuter parking is to become statistically important in the area transportation scheme. We advocate spaces for ten percent of the "Average of A.M. and P.M. three hour peak two way traffic count" along all major routes in Chittenden County. Furthermore we recommend that CCRPC work with neighboring communities, planning organizations, and the Vermont Agency of Transportation to provide for proportionately sized commuter lots.

The cost of acquiring land, construction, and maintenance of these commuter lots will be substantial. We have estimated some 4.3 million dollars to provide spaces for the ten percent goal at five main routes in Essex and Colchester. Extending the line of Inner Commuter Buffer lots through Williston, South Burlington, and Shelburne will be similarly expensive. These estimates will be refined as actual design and construction bids are produced.

The commuter lots proposed in Tasks 1, 2, and 5 of this report are designed as sturdy permanent public facilities. They will be expensive to build yet they are meant to be as much a part of the community as are the public libraries, recreational facilities, and public buildings.

Task 3: Use of existing unused spaces in area parking lots can be very valuable particularly on an interim basis but is not reliable over long time periods. The ever temporary nature of these 'existing unused' spaces will be a recurring problem. Commuter lots must be in convenient locations. As development continues the number of unused spaces in a given lot will decline. As development continues the amount of land available for permanent lots will decline. Our initial impressions are

that use of private lots will come at a cost that will, in the long run, favor the expense of permanent public lots. Advertising for bids to provide lot space will be the most economical manner to find and select private lots. This approach opens up the issue of 'new private lots built for the commuter' rather than the few lots which may have some spaces for commuters.

Task 4: The Van Purchase Demonstration Project has been in existence for some time. This project may become more viable by methods outlined in the EFCA report. We feel that the creation of commuter lots will provide central gathering points that will make van-pools more user friendly. An advertising campaign directed towards commuter lot users and major employers would be a method to expand this form of mini-mass transit to the fullest.

Task 5: We have outlined "Four Regional Goals" for instituting commuter park and ride lots into a coordinated program that would provide for a significant amount of commuter vehicle trip reduction. The overall goal is to foster the construction of commuter lots throughout the county and in neighboring communities so that the dispersed rural population can be concentrated and thereby served by informal rideshare arrangements, by mini-mass transit, and, as possible, by busses and trains. The large numbers of commuter lots proposed here can be readily cut down to manageable size if each community commits to the construction of a well sited lot, sized in proportion to town population and the traffic passing through town.

Regional Goal Number 1: Create an "Inner Commuter Buffer" by placing lots along or near the line formed by the completed route of the Circumferential Highway, Interstate 89 from the Williston end of the Circumferential Highway to I-89 Exit 13, and then to Shelburne Village. See Drawing 1 of 1. Lots should be on all major roads intersecting this buffer. In general, with a few exceptions, (I-89 Exit 16, Rt. 15 at the Woodside Correctional Facility and / or Fort Ethan Allen) there would be no new commuter lots built inside this buffer. CCTA bus service would be extended to lots along this buffer, as possible. Large priority commuter lots which serve as an "Inner Commuter Buffer" to the congested area about Burlington serve a wide audience and

should probably be approached as such.

Regional Goal Number 2: CCRPC would work with all county municipalities and the State Agency of Transportation to foster the creation and / or growth of at least one proportionately sized commuter lot in each town, plus one at each intersection of Interstate 89.

Regional Goal Number 3: Commuter train service is some distance in the future yet the process would simply be closer to inception if all towns had land set aside for stations and commuter lots. Municipalities such as Burlington and Winooski are presently trying to set up station sites. Commuter lots should be placed alongside potential train stops whenever possible. Ideally towns such as Shelburne and Charlotte could set up commuter lots at locations that would serve either train or other rideshare vehicles.

Regional Goal Number 4: CCRPC would work closely with key communities outside the county to foster the creation and / or growth of commuter park and ride lots that would serve volumes of people who travel a long distance into the county.

Tables

TABLE 1

Chittenden County Regional Planning Commission

DESIGN GOALS FOR COLCHESTER & ESSEX COMMUTER LOTS

General Area	Circ. Highway Year 2004 3 Peak Hours 2 Way Volume	Number of Spaces Required at 10% of Volume	Present Design Number of Spaces	Present Design Percent of Volume	Additional Number of Spaces Required
Rt. 15 near Jericho Town Line	2981	298	92	3.1%	206
Rt. 117 at Circ. Highway	5260	526	197	3.7%	329
Rt. 2A at Circ. Highway	8753	875	370	4.2%	505
Rt. 127 at Heineberg Bridge	4941	494	136	2.8%	358
Severance Rd at Circ. Highway	<u>6554</u>	<u>655</u>	<u>158</u>	<u>2.4%</u>	<u>497</u>
Totals	28489	2848	953	3.3%	1895

TABLE 2

Chittenden County Regional Planning Commission

PROPOSED COLCHESTER & ESSEX COMMUTER LOT SITES

General Area	Number of Spaces Required at 10% of Volume	Present Design Number Of Spaces	Additional Number of Spaces Required	Estimated Number of Available Spaces
<u>Route 15, Essex</u>	<u>298</u>		206	
Brown's River (# 8)!		76		
Handy's Store (#9)*P*		16		
Saxon Hill Road (#14)*				298 +/-
John Leo Property (#15)*				45 +/-
Allen Martin Drive Area (# none)*				298 +/-
<u>Route 117, Essex</u>	<u>526</u>		329	
Alder Brook at Circ. (#10)*		197		
North Williston Road (#16)*				526 +/-
East Cornfield (#17)*				70 +/-
West Cornfield (#18)*				40 +/-
Chatham Road (#19)*				144 +/-
<u>Route 2A, Essex- Colc.</u>	<u>875</u>		505	
Rt. 2A Commuter Lot (#11)!		370		
Landfill Road (#20)!				98 +/-
VAOT SW Corner (#21)!				55 +/-
Essex Landfill (#none)!				500+/-
<u>Route 127, Colchester</u>	<u>494</u>		358	
Heineberg Bridge (#13)!		136		
Old Bridge Access Area (#26)*!				400 +/-
<u>US Rts. 2 & 7, Colchester</u>	<u>655</u>		497	
Old Severance Rd. (#12) *!		137		
Brigante Cropland (#22)*				655 +/-
Blakely Road No. Parcel (#23)*				655 +/-
Blakely Road SE Parcel (#24)*				344 +/-
BLakely Road SW Parcel (#25)*				304 +/-
VAOT Commuter Lot (#27)!		21		
TOTALS	<u>2848</u>	953	1895	

+/- Estimated number of spaces.

* Private land must be acquired.

! Land title presently held by a government body.

P Private land with commuter lot rights given to the Town of Essex.

*/! Private land must be acquired along side some public land.

TABLE 3

Chittenden County Regional Planning Commission

COST SUMMARY OF PARKING SPACES AT THE SELECTED LOTS

Site	No. Of Spaces	Subtotal	Cost per Space
Rt. 15 at Brown's River	76	\$108657.90	\$1429.71
Rt. 15 at Handy's Store	16	\$26370.76	\$1648.17
Rt. 117 at Circ. - East & West Lots*	197	\$287553.50	\$1459.66
Rt. 2A at Circ. Highway	370	\$513671.60	\$1388.30
Rt. 127 at Heineberg Bridge	136	\$200084.30	\$1471.21
Severance Road at Circ. Highway*	137	\$226296.60	\$1651.80
Total Number of Spaces	932		
Total Cost of all Lots		\$1362634.66	
Number of Sites	6		
Average Number of Spaces	155		
Average Cost Per Parking Space*			\$1462.05

* Plus cost of land where applicable

Cost Projections

The goal of providing parking spaces at these six sites for a full 10% of the commuter traffic by the year 2004 would require 2848 parking spaces. The 932 spaces proposed here would provide 3.3% of the commuter traffic volume at a cost of approximately \$ 1, 362,634.66 or \$1, 462.05 per parking space.

Using an approximate \$1,500.00 figure per parking space, the 2848 parking spaces would cost a total of some \$4,272,000.00 plus private land acquisition, as required, and inflation.

TABLE 4

Chittenden County Regional Planning Commission

BROWN'S RIVER COMMUTER LOT ON ROUTE 15 - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	25600	1.60	S.F.	\$40960.00
2	Guardrail	420	17.00	L.F.	\$7140.00
3	4" Striping	1440	0.15	L.F.	\$216.00
4	Bus Shelter	1	4200.00	Each	\$4200.00
5	Lighting	3	2600.00	Each	\$7800.00
6	911 Phone	2	500.00	Each	\$1000.00
8	Sand Fill	474	7.00	C.Y.	\$3318.00
9	Gravel Surface Coarse 6"	474	12.00	C.Y.	\$5688.00
10	Gravel Base Coarse 12"	948	12.00	C.Y.	\$11376.00
11	Clear & Grub	0.59	1500.00	Each	\$885.00
12	Signage	1	1000.00	Each	\$1000.00
				Subtotal	\$83583.00
				15% Contingency	\$12537.45
				15% Engineering	\$12537.45
				Total	\$108657.90

Estimated Number of Parking Spaces	76
Estimated Cost Per Parking Space	\$1429.71

* Commuter Lot within V.A.O.T. R.O.W.

TABLE 5

Chittenden Country Regional Planning Commission

HANDY'S STORE COMMUTER LOT ON ROUTE 15 - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	5192	1.60	S.F.	\$8307.20
2	Guardrail	0	17.00	L.F.	\$0.00
3	4" Striping	280	0.15	L.F.	\$42.00
4	Bus Shelter	1	4200.00	Each	\$4200.00
5	Lighting	1	2600.00	Each	\$2600.00
6	911 Phone	1	500.00	Each	\$500.00
7	Sand Fill	0	7.00	C.Y.	\$0.00
8	Gravel Surface Coarse 6"	96	12.00	C.Y.	\$1152.00
9	Gravel Base Coarse 12"	192	12.00	C.Y.	\$2304.00
10	Clear & Grub	0.12	1500.00	Acres	\$180.00
11	Signage	1	1000.00	Each	\$1000.00
				Subtotal	\$20285.20
				15% Contingency	\$3042.78
				15% Engineering	\$3042.78
				Total	\$26370.76
Estimated Number of Parking Spaces		16			
Estimated Cost Per Parking Space		\$1648.17			

TABLE 6

Chittenden Country Regional Plannning Commission

ALDER BROOK COMMUTER LOTS ON ROUTE 117 - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	68700	1.60	S.F.	109920.00
2	Guardrail	770	17.00	L.F.	13090.00
3	4" Striping	4100	0.15	L.F.	615.00
4	Bus Shelter	3	4200.00	Each	12600.00
5	Lights	8	2600.00	Each	20800.00
6	911 Phone	5	500.00	Each	2500.00
7	Sand Fill	1644	7.00	C.Y.	11508.00
8	Gravel Surface Coarse 6"	1272	12.00	C.Y.	15264.00
9	Gravel Base Coarse 12"	2544	12.00	C.Y.	30528.00
10	Clear & Grub	1.58	1500.00	Acres	2370.00
11	Signage	2	1000.00	Each	2000.00
				Subtotal	\$221195.00
				15% Contingency	\$33179.25
				15% Engineering	\$33179.25
				Total	\$287553.50

Estimated Number of Parking Spaces:
 Estimated Cost Per Parking Space

197
 \$1459.66

The property is privately owned.

TABLE 7

Chittenden County Regional Planning Commission

ROUTE 2A COMMUTER LOT AT THE CIRCUMFERENTIAL HIGHWAY - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	146630	1.60	S.F.	\$234608.00
2	Guardrail	640	17.00	L.F.	\$10880.00
3	4" Striping	9360	0.15	L.F.	\$1404.00
4	Bus Shelter	4	4200.00	Each	\$16800.00
5	Lighting	10	2600.00	Each	\$26000.00
6	911 Phone	5	500.00	Each	\$2500.00
7	Sand Fill	0	7.00	C.Y.	\$0.00
8	Gravel Surface Coarse 6"	2715	12.00	C.Y.	\$32580.00
9	Gravel Base Coarse 12"	5430	12.00	C.Y.	\$65160.00
10	Clear & Grub	0	1500.00	Acres	\$0.00
11	Signage	1	1000.00	Each	\$1000.00
12	36" culvert	120	35.00	L.F.	\$4200.00
				Subtotal	\$395132.00
				15% Contingency	\$59269.80
				15% Engineering	\$59269.80
				Total	\$513671.60

Estimated Number of Parking Spaces	370
Estimated Cost Per Parking Space	\$1388.30

- * Land already owed by Vermont AOT
- * Includes temporary exit onto off ramp at Light.

TABLE 8

Chittenden County Regional Planning Commission

HEINEBERG BRIDGE COMMUTER LOT ON ROUTE 127 - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	53500	1.60	S.F.	\$85600.00
2	Guardrail	0	17.00	L.F.	\$0.00
3	4" Striping	3100	0.15	L.F.	\$465.00
4	Bus Shelter	2	4200.00	Each	\$8400.00
5	Lights	5	2600.00	Each	\$13000.00
6	911 Phone	2	500.00	Each	\$1000.00
7	Sand Fill	991	7.00	C.Y.	\$6937.00
8	Gravel Surface Coarse 6"	991	12.00	C.Y.	\$11892.00
9	Gravel Base Coarse 12"	1981	12.00	C.Y.	\$23772.00
10	Clear & Grub	1.23	1500.00	Acres	\$1845.00
11	Signage	1	1000.00	Each	\$1000.00
				Subtotal	\$153911.00
				15% Contingency	\$23086.65
				15% Engineering	\$23086.65
				Total	\$200084.30

Estimated Number of Parking Spaces 136
Estimated Cost Per Parking Space \$1471.21

* Land already owed by Vermont A.O.T.

* Includes temporary entrance drive from Route 127

TABLE 9

Chittenden Country Regional Planning Commission

OLD SEVERANCE ROAD COMMUTER LOT AT THE CIRCUMFERENTIAL HIGHWAY - COST ESTIMATE

These cost estimates are preliminary.

They are based upon 1" = 100' plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	49858	1.60	S.F.	79772.80
2	Guardrail	390	17.00	L.F.	6630.00
3	4" Striping	2550	0.15	L.F.	382.50
4	Bus Shelter	2	4200.00	Each	8400.00
5	Lights	6	2600.00	Each	15600.00
6	911 Phone	3	500.00	Each	1500.00
7	Sand Fill	3693	7.00	C.Y.	25851.00
8	Gravel Surface Coarse 6"	923	12.00	C.Y.	11076.00
9	Gravel Base Coarse 12"	1846	12.00	C.Y.	22152.00
10	Clear & Grub	1.14	1500.00	Acres	1710.00
11	Signage	1	1000.00	Each	1000.00
				Subtotal	\$174074.30
				15% Contingency	\$26111.15
				15% Engineering	\$26111.15
				Total	\$226296.60

Estimated Number of Parking Spaces 137
Estimated Cost Per Parking Space \$1651.80

* A parcel north of the old town road will need to be acquired.

TABLE 10

Chittenden County Regional Planning Commission

CHITTENDEN COUNTY PROPOSED COMMUTER LOT PROGRAM

FOUR REGIONAL GOALS GOAL NO. / LOCALITY	SITE	PRESENT STATUS 1993	PROPOSED STATUS 2004	PRESENT VEHICLE CAPACITY	PROPOSED VEHICLE CAPACITY
1. Inner Commuter Buffer					
Heineberg Bridge - Colchester	Rt. 127 at Circ.	none	Open	0	494
Old Severance Road - Colchester	Rts. 2 & 7 at Circ.	none	Open	0	655
I-89 Exit 16 - Colchester / Winooski	I-89 Exit 16	none	Open	0	To Be Det.
Route 2A - Essex / Colchester *T*	Rt. 2A at Circ.	none	Open	0	875
Lang Farm - Essex	Rt. 15 at Circ.	none	Open	0	To Be Det.
Rt. 15 / Allen Martin Dr. Area - Essex	A.M.P. at Circ.	none	Open	0	298 +/-
Alder Brook - Essex	Rt. 117 at Circ.	none	Open	0	526
Redmond Road - Williston	R. Rd at Circ.	none	Open	0	To Be Det.
I-89 Exit 12 - Taft's Corners, Williston	I-89 Exit 12	Existing	Imp. & Enlarge	47	To Be Det.
Route 116 at I-89 - South Burlington	Rt.116 at I-89	none	Open	0	To Be Det.
Shelburne Village *T*	U.S. Rt. 7	none	Open	0	To Be Det.
2. Outer Commuter Buffer					
Chimney Corners, Colchester	I-89 Exit 17	Existing	Imp. & Enlarge	30	To Be Det.
Milton *T*	Village	none	Open	0	To Be Det.
Westford	Village	none	Open	0	To Be Det.
Jericho	Village	none	Open	0	To Be Det.
Underhill	Village	none	Open	0	To Be Det.
Richmond Village *T*	Village	none	Open	0	To Be Det.
I-89 Exit 11 - Richmond *T*	I-89 Exit 11	Existing	Imp. & Enlarge	46	To Be Det.
St. George	Rt. 2A	none	Open	0	To Be Det.
Hinesburg Village	Rt. 116	none	Open	0	To Be Det.
Charlotte *T*	U.S. Rt. 7	none	Open	0	To Be Det.
3. Commuter Rail & Stations with Commuter Lots					
Shelburne Village *T*	Shelburne	none	Open	0	To Be Det.
Charlotte Village *T*	Charlotte	none	Open	0	To Be Det.
Colchester Depot *T*	Colchester	none	Open	0	To Be Det.
Milton Village *T*	Milton	none	Open	0	To Be Det.
North Williston Road *T*	Williston	none	Open	0	To Be Det.
Richmond Village *T*	Richmond	none	Open	0	To Be Det.
4. Contributing Neighboring Communities					
South Hero	U.S. Rt. 2	none	Open	0	To Be Det.
Georgia	I-89 Exit 18	Existing	Imp. & Enlarge	Unknown	To Be Det.
St. Albans - South	I-89 Exit 19	Existing	Imp. & Enlarge	Unknown	To Be Det.
St. Albans - North	I-89 Exit 20	none	Open	Unknown	To Be Det.
Swanton	I-89 Exit 21	none	Open	0	To Be Det.
Fairfax	Rts. 104 & 104A	none	Open	0	To Be Det.
Cambridge	Rt. 15	Informal	Imp. & Enlarge	Unknown	To Be Det.
Waterbury *T*	I-89 Exit 10	none	Open	0	To Be Det.
Bristol	Rt. 116	none	Open	0	To Be Det.
Vergennes *T*	Rts. 7 & 22A	none	Open	0	To Be Det.

T Comuter Lot & Commuter train Station Site

Imp. & Enlarge: Improve & Enlarge

To Be Det.: To Be Determined

TABLE 11

Chittenden County Regional Planning Commission

PINEWOOD MANOR - REBUILT PARKING LOT *

These cost estimates are preliminary.

They are based upon plans which have no contours.

Item No.	Item	Quantity	Unit Cost	Units	Subtotal
1	Bituminous Conc. 2.5"	26764	1.60	S.F.	42822.40
2	Guardrail	0	17.00	L.F.	0.00
3	4" Striping	3850	0.15	L.F.	577.50
4	Bus Shelter	1	4200.00	Each	4200.00
5	Lights	3	2600.00	Each	7800.00
6	911 Phone	1	500.00	Each	500.00
7	Sand Fill	0	7.00	C.Y.	0.00
8	Gravel Surface Coarse 6"	496	12.00	C.Y.	5952.00
9	Gravel Base Coarse 12"	991	12.00	C.Y.	11892.00
10	Clear & Grub	0.61	1500.00	Acres	915.00
11	Signage	1	1000.00	Each	1000.00
12	6" PVC Curtain Drain	350	10.00	L.F.	3500.00
13	Bit. Conc. Removal	125	12.00	C.Y.	1500.00
14	Subbase Removal	1487	5.00	C.Y.	7435.00
				Subtotal	\$88093.90
				15% Contingency	\$13214.09
				15% Engineering	\$13214.09
				Total	\$114522.08

Estimated Number of Parking Spaces 88
 Estimated Cost Per Parking Space \$1301.39

* This estimate follows the same design format as was used for the Colchester - Essex Commuter Lots.

Figures

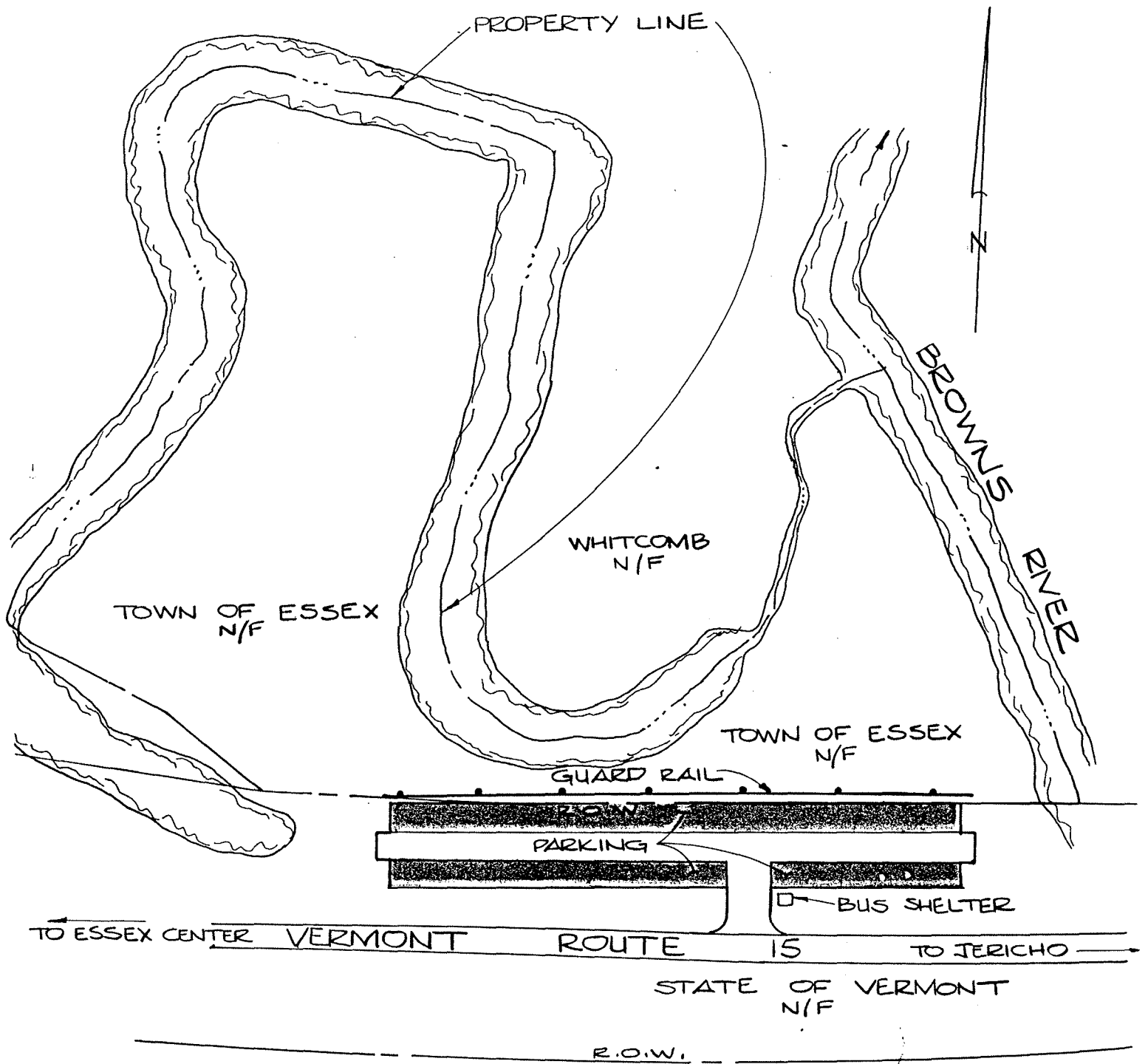


Figure Number 1

Proposed Commuter Park & Ride Lot

Site: Route 15 at Browns River, Essex, Vt

Scale: 1 inch = 100 feet

Approximately 76 vehicle spaces

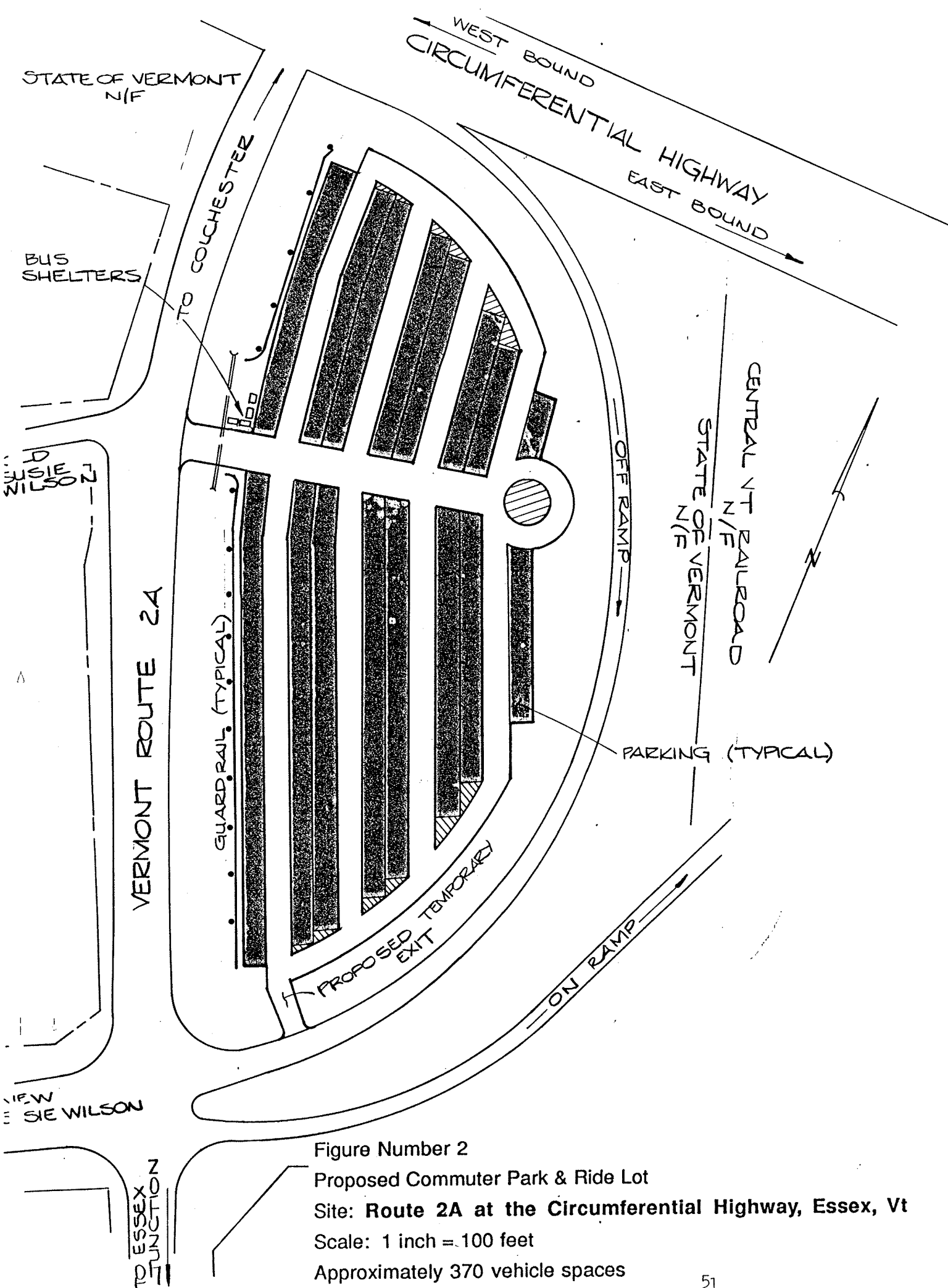


Figure Number 2

Proposed Commuter Park & Ride Lot

Site: Route 2A at the Circumferential Highway, Essex, Vt

Scale: 1 inch = 100 feet

Approximately 370 vehicle spaces

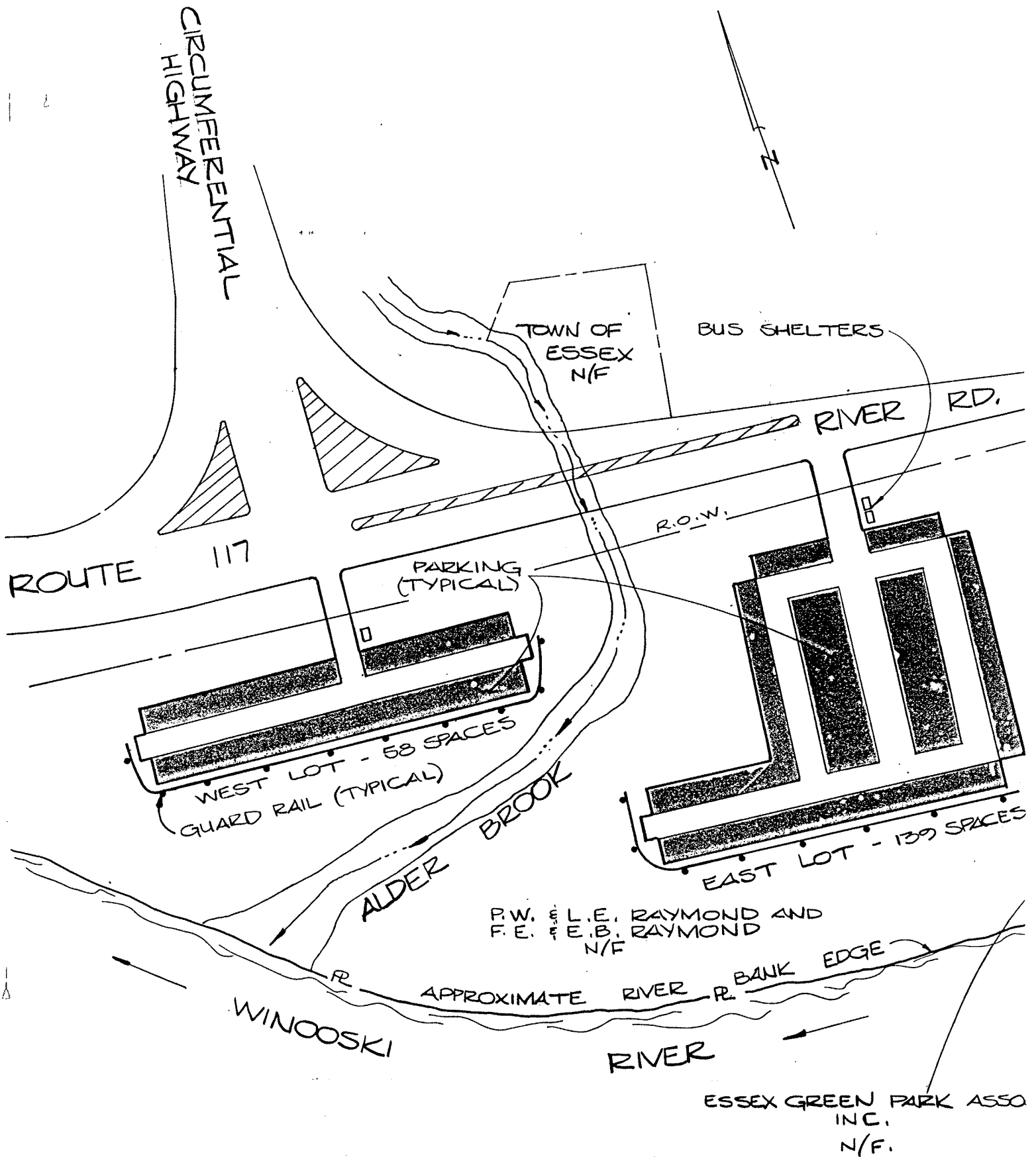


Figure Number 3

Proposed Commuter Park & Ride Lots

Site: Route 117 at the Circumferential Highway, Essex, Vt

Scale: 1 inch = 100 feet

Approximately 197 vehicle spaces

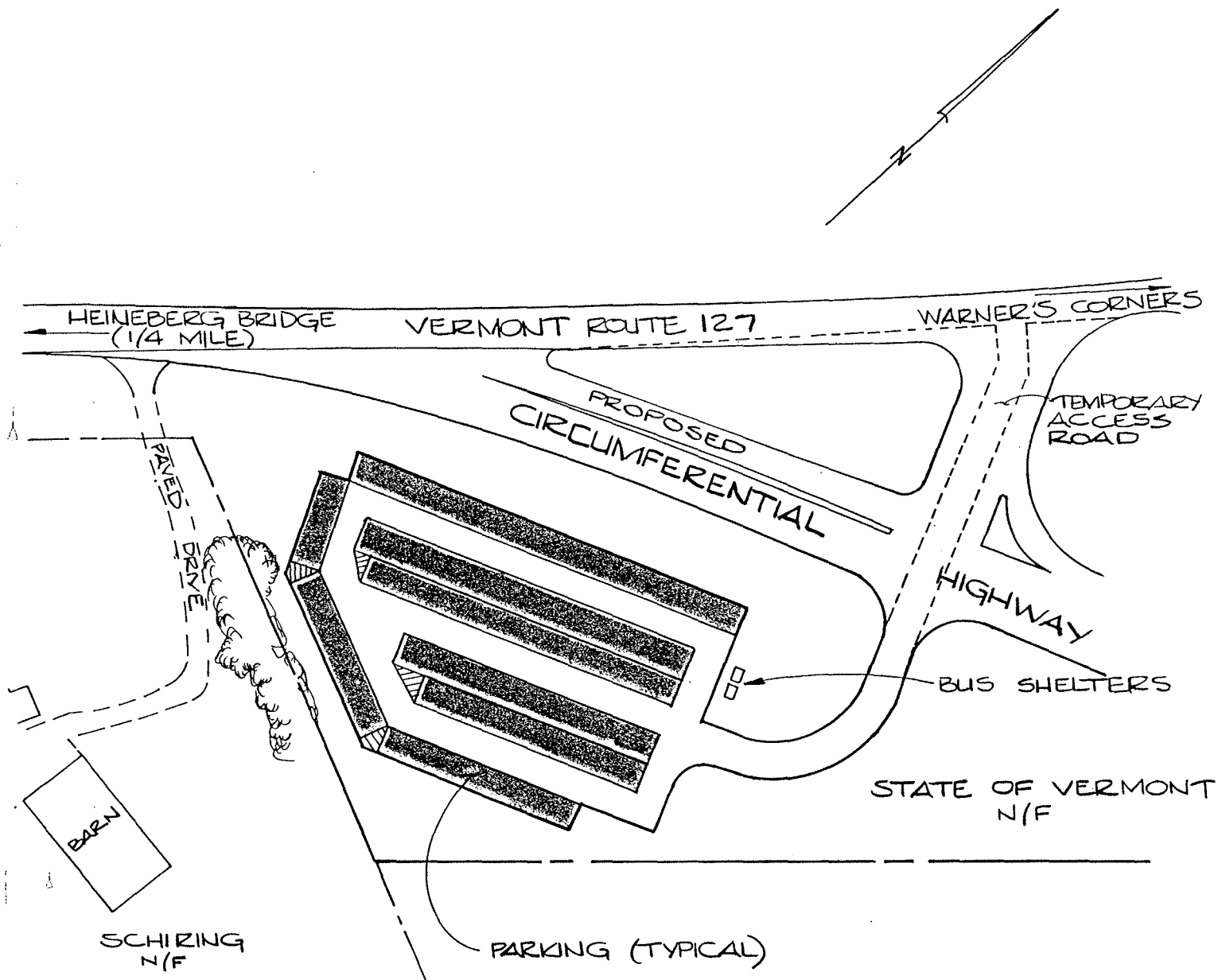


Figure Number 4

Proposed Commuter Park & Ride Lot

Site: Route 127 at the Circumferential Highway, Colchester, Vt

Scale: 1 inch = 100 feet

Approximately 136 vehicle spaces

U.S. ROUTES 2 AND 7

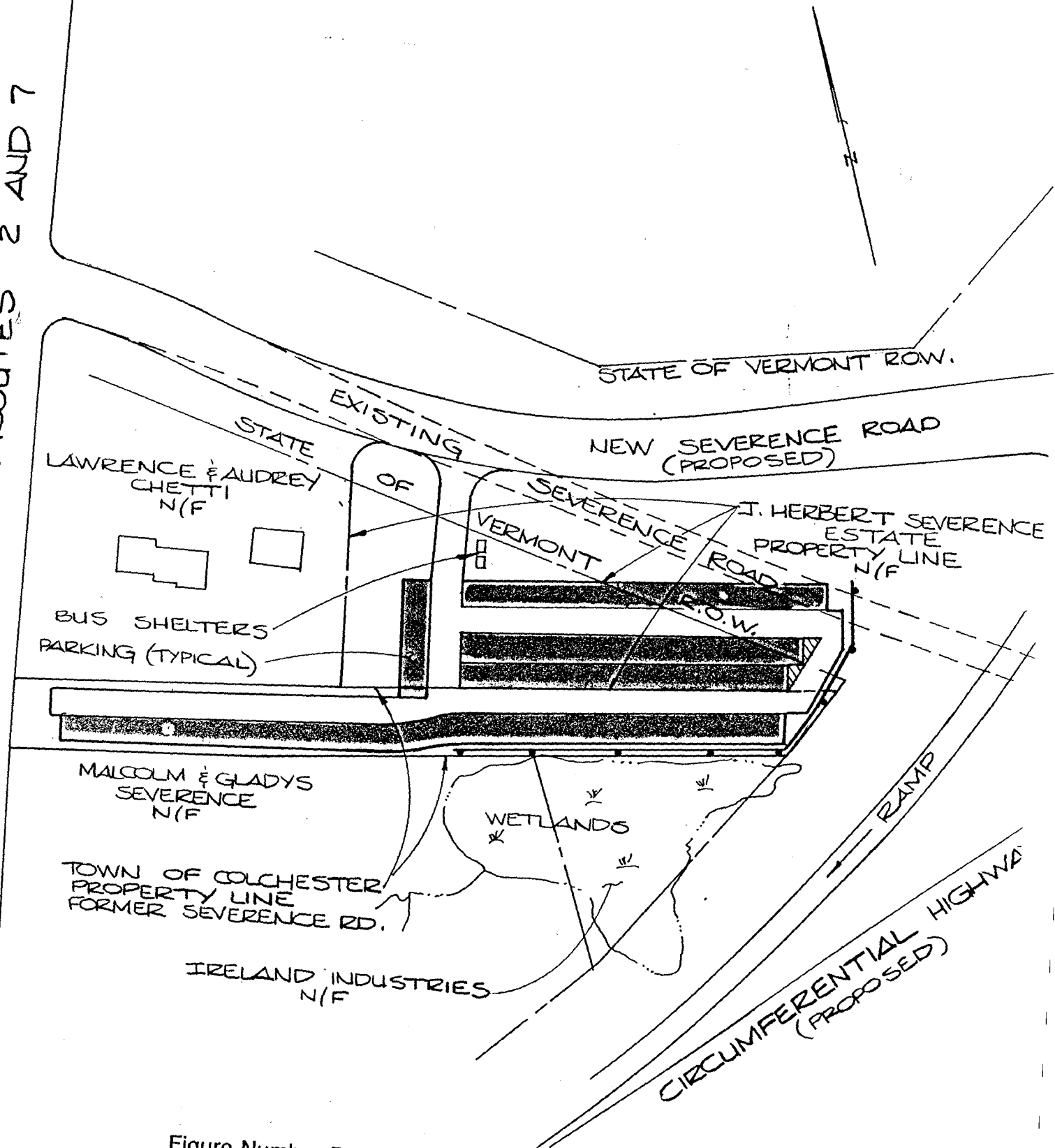


Figure Number 5
Proposed Commuter Park & Ride Lot
Site: **Severance Road** at the **Circumferential Highway**, Colchester, Vt
Scale: 1 inch = 100 feet
Approximately 137 vehicle spaces

Appendix

FINAL REPORT

to the

Chittenden County Regional Planning Commission

and

Chittenden County Metropolitan Planning Organization

*** * ***

VAN PURCHASE DEMONSTRATION PROJECT
FEASIBILITY STUDY

September 10, 1993



Prepared by:

EFCA

**Economic and Financial Consulting Associates, Inc.
The Chace Mill, 1 Mill Street
Burlington, Vermont 05401
(802) 864-4924**

For:

DLHCE

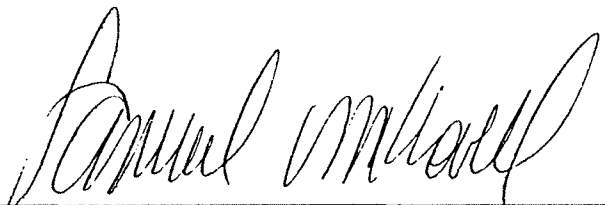
**Donald L. Hamlin Consulting Engineers
136 Pearl Street
Essex Junction, Vermont 05452
(802) 878-3956**

FINAL REPORT
to the
Chittenden County Regional Planning Commission
and
Chittenden County Metropolitan Planning Organization

*** * ***


VAN PURCHASE DEMONSTRATION PROJECT
FEASIBILITY STUDY

Prepared by:



Samuel W. McDowell, Ph.D.
President

Reviewed by:



Phyllis W. Isley, Ph.D.
Director of Economics and Research

FINAL REPORT
to the
Chittenden County Regional Planning Commission
and
Chittenden County Metropolitan Planning Organization

*** * ***

VAN PURCHASE DEMONSTRATION PROJECT

FEASIBILITY STUDY

Prepared by:

Samuel W. McDowell, Ph.D.
President

Reviewed by:

Phyllis W. Isley, Ph.D.
Director of Economics and Research

Van Purchase Demonstration Project Feasibility Study

ACKNOWLEDGEMENTS

Economic and Financial Consulting Associates, Inc. would like to thank the many individuals who contributed their knowledge to this report. The organizations they represent are mentioned in the body of the report.

A few individuals were extremely cooperative and supportive of the research: Dan Bradley, Downtown Bound; Jeanette Berry, CCTA; Carol Bliss, VPTA; and the Vermont Automobile Association of America. Without their help this project could not have been successfully completed.

Van Purchase Demonstration Project Feasibility Study

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EXECUTIVE SUMMARY

The original objective of this project was to determine the feasibility of the City of Burlington operating an employee van pool that would offer commuters an opportunity to 'try before they buy' program. That objective was expanded and generalized. Rephrased, the objective became: How can the City of Burlington make ridesharing more desirable / successful, and specifically, how can vans be made more available, both on a trial basis and for long term acquisition?

A review of the current rideshare matching program at Downtown Bound was completed, along with a review of related programs. An informal survey was conducted to obtain perspectives of ridesharing from those who are actually involved, or were interested and chose not to become involved. In addition, the project was discussed with private sector organizations which may have an interest in rideshare programs for Burlington.

The results of the study are four alternatives for achieving the objectives. The benefits and costs of each are also presented, so that the Chittenden County Regional Planning Commission (CCRPC), Chittenden County Metropolitan Planning Organization (MPO) and Downtown Bound can select the most desirable alternative.

INTRODUCTION

Request for Proposal

The Chittenden County Regional Planning Commission issued a Request for Proposals for professional transportation planning services, acting as a consultant for the Chittenden County Metropolitan Planning Organization. The problem under consideration involved the long lead time between requesting a van and receiving a van for ridesharing from the Vermont Agency of Transportation. Other factors included reducing financial and operational risk. The study as posed would determine the feasibility of the City of Burlington operating an employee van pool that would offer commuters an opportunity to "try before they buy". This would be accomplished by making leased vehicles available over a short term, bridging the year long gap between order and delivery of a van, and reducing the exposure of individual commuters by offering an opportunity to recruit and establish ridership.

The scope of the project was changed early in the process. Rather than limit the project to van ownership by the City of Burlington only, it was expanded to include any process or organization which could reduce the parking demand in downtown Burlington through the use of ridesharing in a van. A process whereby a group of commuters could try ridesharing for two weeks, obtain a vehicle for use soon after deciding in the affirmative, at low cost and low risk, would be a valid alternative.

Objective

The objective of this study is to determine the feasibility of a program that could offer commuters an opportunity to 'try before they buy' by making vehicles available over a short term for evaluation. If the riders decide to proceed with the rideshare program, then a vehicle must be made available between the decision and delivery of the long term vehicle. The program should also include components to minimize risk to the commuters, and minimize cost. These objectives are restated below:

1. Demonstration vehicle for trial purpose;
2. Immediate availability of a vehicle;
3. Low cost; and
4. Low risk to participants.

In general, the goal of the project is to develop mechanisms to stimulate ridesharing to Burlington, with applicability to the county and state as well. There are no constraints as to vehicle ownership, and private or public sector involvement.

DISCUSSION

Background

The Vermont Agency of Transportation (VAOT) has access to federal funds which would allow commuters to purchase vans for ridesharing. The funds enabled a commuter to purchase a van at no interest, payable over several years. However, as the program had been administered by the VAOT, it was identified in the Request for Proposal that it may have taken up to one year to obtain a vehicle after a decision had been made by a commuter to proceed with the program.

The program is currently administered by the Vermont Public Transportation Association (VPTA). The lead time between a decision to proceed and vehicle acquisition has been established to be a maximum of 120 days, as specified in contracts with suppliers. The suppliers are generally car dealerships which have responded to a Request for Quote from the VPTA, a process which is conducted annually.

Resources

Background on ridesharing programs was obtained from as many sources as possible. Since the purpose of this project was primarily to identify financially feasible alternatives, there was no requirement to duplicate efforts of those who are involved with van pools and ridesharing. The sources who have provided reference material and suggestions for this project are listed below in Table 1.

Table 1.
Sources of Reference Data on Rideshare and Related Programs

Downtown Bound	Vermont Agency of Transportation
Chittenden County Transportation Authority (CCTA)	Chittenden County Regional Planning Commission (CCRPC)
Burlington Public Works	Burlington Treasurer's Office
Auto Dealers / Leasing Companies	Delivery Services
Vermont Public Transportation Association	Lake Champlain Regional Chamber of Commerce
Association for Commuter Transportation	Burlington Free Press
Howard Bank	Commuters
Automobile Rental Agencies	Automobile accessory stores
Commuter Conversions, Inc.	Van Pool Service, Inc.

Program Statistics

The potential for ridesharing was obtained primarily through data available from Downtown Bound and CCTA. Significant statistics are given below related to the potential.

- There are approximately 80,000 workers in Chittenden County. Approximately 30,000 of those workers are employed in Burlington.
- Nationally, approximately 10% - 12% of commuters use alternative modes of transportation.

- In the 1980 Vermont census, approximately 25% of commuters used alternative modes of transportation, and in 1990 12% of Vermont commuters used alternative modes of transportation.
- There are approximately 200 commuters interested in ridesharing to Chittenden County, with a rate of 10 - 25 additional interested commuters per month.
- There are approximately 105 commuters interested in ridesharing to downtown Burlington.
- In Chittenden County there are 38 individuals in car pools as identified through CCTA.
- Downtown Bound has identified approximately 32 active car pools.
- The Burlington central business district has approximately 9000 employees.
- The Burlington Square Mall has approximately 60 retailers.

Although this data can be used to obtain a 'feel' for the magnitude of ridesharing potential, it cannot be used to develop a statistically meaningful target population size. The actual rideshare potential for Burlington has not been surveyed or tabulated in this study¹.

¹ The Vermont Statewide Transit Needs Study prepared by Carter Goble Associates, Inc. estimates that 20.3% of the General Public's demand for ridership opportunities in Chittenden County was met in 1990. See Volume I, June 30, 1991, page 9-11.

Review of Programs

The VPTA administers the van purchase program for the Vermont Agency of Transportation, called the Interest Free Vanpool Loan Program. On an annual schedule, VPTA solicits proposals from qualified vendors for providing vans to qualified purchasers. The vendors respond with prices, and commitments to provide vans within 120 days of the request. The vehicles are sold to either an individual, or in some cases, a commuter group incorporated specifically for vehicle ownership. The group or individual receive title for the vehicle. The VAOT remains as first lienholder on the vehicle. The terms of the loan are 10% down payment, 0% interest, in 48 equal monthly installments. The payments are made to VPTA, and deposited in the Northfield Savings Bank. Funds are electronically transferred to the VAOT, who in turn make payments to the Federal Highway Administration (FHWA). The group or individual is responsible for auto insurance satisfying stringent minimum requirements established by VPTA. At the end of the term, ownership remains with the individual or group and the title to the vehicle is cleared of liens.

The VPTA has established a toll free telephone number which a commuter may call for information. The caller is directed to call a local group, depending on where the caller is located. In Chittenden County the caller is referred to CCTA, or to SSTA if they require transportation in a handicapped accessible vehicle. CCTA maintains a file of callers who are interested in ridesharing, and attempts to link them with other interested parties in the same area or along the same commuter route. CCTA does not provide vehicles or financing. Commuters interested in obtaining a van are referred to VPTA.

Downtown Bound is a program of the City of Burlington. It provides education, information and encouragement to downtown employees interested in alternatives to driving alone. Downtown Bound maintains an active matching program of commuters interested in ridesharing, and attempts to match the commuters into groups to share rides. Commuters who are interested in van pools are referred to VPTA. Downtown Bound does not offer financing or vehicles. The focus to date has been for employers located in Burlington to provide financial support for commuting alternatives.

The VAOT also supports the Statewide Rideshare Program. They act as a pass through Agency for funding from the Federal Highway Administration. Ridesharing is also a component of many of their planning projects.

Private Sector

Participants in the private sector can be classified into two categories: employers and vendors. The vendors are those companies which provide vehicles through rental, lease or purchase. The employers are the businesses located in Burlington which may have an interest in promoting ridesharing by their employees.

Several types of vendors have been contacted with regard to the program: automobile dealers, automobile leasing companies, automobile rental agencies and automobile accessory stores. In general there was interest on the part of these companies in participation. They perceived participation in the program as community support, a marketing opportunity for image recognition and an opportunity

to generate sales. Their participation is described more thoroughly in the Proposal section.

Burlington area employers appear to be interested for reasons of community responsibility, but significantly, also out of business necessity. This may be due to company growth requiring additional parking, or a desire for making more parking available to customers. There is variability among the programs, depending on the needs and resources of the business. The federal government has 300 employees, and offers them free parking spots on a hierarchical distribution. The Bank of Vermont has its own ridesharing program, offering free parking spaces in its parking garage. The Howard Bank offers some employees \$30 per month to forego parking. The Merchants Bank offers incentives to its employees to bike or walk to work, and offers a bus subsidy (half a monthly ticket). In contrast, the City of Burlington offers no incentives to its employees to rideshare or use alternative transportation.

Both categories of private sector organizations figure prominently in the proposed feasible alternatives (Proposal).

PROPOSALS

Description

The original concept of having the City of Burlington acquire a van for demonstration purposes has been eliminated as a feasible alternative. The rationale is given below.

1. The City of Burlington does not have a single fleet management organization or system, i.e., it is decentralized by department. This arrangement is not optimal from a process or logistical perspective.
2. The potential usage is small. According to the current database, there are approximately 100 registrants in Downtown Bound. Some of these are logistically unable to participate, while others are already ridesharing.
3. Questions regarding insurance coverage may be difficult to resolve, i.e., the vehicle would be City property, used by non-City employees.

Based on these factors, purchase by the City of Burlington was not considered feasible.

Four alternatives are described which would satisfy the needs of Downtown Bound, and are financially and logistically feasible. **The proposals have been discussed to some extent with those individuals and organizations which would be involved. However, no formal agreements have been executed, nor has formal support been obtained.** The proposals are presented by EFCA as feasible alternatives for further development by Downtown Bound, the Chittenden County Metropolitan Planning Organization and CCRPC.

VPTA

VPTA has a program for acquisition of vans. The current program would be expanded in the following capacities:

- VPTA could offer leasing terms in addition to purchase terms as a convenience for program participants.
- A demonstration van for 2 week trials could be purchased by VPTA, for shared use throughout the state. This may be acquired directly with federal funds.

Downtown Bound / CCRPC

Commuters would acquire, at their own expense, a van for the purpose of a two week trial. The rental could be from a local auto dealer or car rental agency. If they are interested in participating in a program then the following activities would occur:

- The commuters would register with the VPTA program to acquire a vehicle.
- The commuters would continue to rent a van until the VPTA program delivered a vehicle.
- Downtown Bound or CCRPC would reimburse the commuters the cost of the rental through federal funds (ISTEA). This capability will require further investigation and confirmation if this alternative is pursued in greater depth.
- Insurance is provided by the individual or group.

Private Sector

This alternative requires that the interested commuters rent a van for a 2 week trial, at their own expense. This alternative is financed entirely by private funds. The rental would be from a local auto dealer or car rental agency. If the commuters decide to continue with the program, then the following actions would occur:

- The auto dealer orders a van, which may require from 1 day to 6 weeks for delivery.
- The commuters continue to rent a van until the permanent replacement is delivered.
- When the permanent vehicle is delivered, the commuters are reimbursed directly for their out-of-pocket rental costs by the auto dealer.
- The mode of acquisition is lease or purchase.
- Insurance is provided by the individual or group.

Business Employer

This alternative is a variation on the Private Sector alternative, in that the owner/lessor is a business employer. It is also financed entirely by private funds. The differences are intended to reduce risks and offer additional incentives.

- The commuters rent at their own expense until a decision to proceed is reached.

- The commuters continue to rent a van until the permanent replacement is delivered.
- When the permanent vehicle is delivered, the commuters are reimbursed directly for their out-of-pocket rental costs, through the employer by the auto dealer.
- The mode of acquisition is lease or purchase, however, the business employer retains title.
- The commuters pay the business employer, either monthly or through payroll deductions. The business employer makes the actual lease or loan payments.
- The business employer may use the vehicle during the day for business purposes, such as deliveries and meetings.
- Insurance is provided by the business employer, and extended to the individual or group.

The specifics of each proposal are given in Table 2.

Table 2.
Van Purchase Demonstration Feasible Alternatives

<u>Factor</u>	<u>VPTA</u>	<u>Downtown Bound / CCRPC</u>	<u>Private Sector</u>	<u>Business Employer</u>
Trial van	State-wide available demonstration van	Commuter rental, reimbursed by federal funds through CCRPC	Commuter rental, reimbursed by auto dealer	Commuter rental, reimbursed by employer
Bridge - time between trial and permanent vehicle	No vehicle / up to 120 days for delivery	Continue rental vehicle / up to 120 days for delivery	Continue rental vehicle / 1 day to 6 weeks	Continue rental vehicle / 1 day to 6 weeks
Title	Commuter individual or group	Commuter individual or group	Commuter individual or group	Business employer
Mode of acquisition	Purchase; lease is available	Purchase; lease is available	Lease; purchase is available	Lease; purchase is available
Down payment	10%	10%	None (if leased)	None (if leased)
Cost	Contracted with vendors	Contracted with vendors	Dealer cost plus X%	Dealer cost plus X%
Payment	48 monthly installments	48 monthly installments	Negotiable - 36 to 60 monthly payments	Negotiable - 36 to 60 monthly payments; or employer option
Insurance	Provided by individual or group	Provided by individual or group	Provided by individual or group	Provided by business employer

Costs and Benefits

The monthly out-of-pocket costs over the long term are roughly equivalent for lease and purchase (at 0% financing). The costs of a purchase from an auto dealer will be in excess of the costs to purchase from VPTA, the difference being the financing rate.

The insurance costs should not vary, since the coverage and covered items are constant. Although there is little variation, there are some significant factors related to obtaining insurance². If the van is acquired by an individual, and reimbursed by the other participants for the acquisition and operating costs, insurance companies are likely to perceive this as a business, i.e., it is fee for service. This requires different types and costs of automobile insurance which are different from the familiar personal insurance for individuals. Alternatives to be investigated prior to proceeding are: 1) creating a non-profit organization for ridesharing, and 2) establishing all riders as title holders and authorized drivers.

The second factor is extending employer insurance to cover van insurance, when a business acquires the vehicle. There are non-monetary concerns, such as whether non-company employees would be covered under a business policy. Acceptance of this arrangement is likely to be company specific, particularly, whether a company would accept (possible) additional liability. Financially, transporting non-company employees in a company vehicle has the potential of increasing workmen's compensation by increasing the number of covered employees, and expanding the hours for which they would be covered.

² Discussions with Peter Wellman, Smith Bell & Thompson, Burlington, Vermont, during August - September 1993.

Costs to be calculated which do not differ among programs but differ by type of vehicle are monthly operating costs. Operating costs include items such as gas, maintenance, tolls, and miscellaneous expenses such as maintaining an emergency ride pool.

The short term rental costs can be very high. For example, the daily cost of a Chrysler minivan is approximately \$50 per day. If this is reimbursed at the end of the trial period, it becomes inconsequential. However, if this cost is extended over the 'bridge' period, it could become excessive. A six week rental would cost approximately \$2,100, and a 120 day rental would cost approximately \$6,000.

There are some benefits to a van pool. In addition to the direct cost reduction of sharing expenses there will also be tax benefits. The Transportation Commute Benefit legislation was established by the Comprehensive National Energy Policy Act of 1992³. Employees who travel in a commuter highway vehicle that uses commercial parking are eligible for a total vanpool parking benefit of up to \$155 per month. Each employee is entitled to the commuter highway vehicle benefit of up to \$60 per month. The amount an employee receives is not added to gross income, and is therefore free of income taxes. The amount paid by the employer is deductible as a business expense.

The costs and benefits mentioned to this point are quantifiable, and amenable to a reasonable comparative analysis. However, there are also intangible benefits to ridesharing:

- reduces total commuting costs;
- alleviates stress;

³ The Internal Revenue Service has not completed its regulations for reporting and enforcement of this legislation. Any payments or receipts in this regard should receive appropriate accounting and legal review.

- allows for a more productive use of commute time;
- helps society by
 - conserving fuel,
 - improving air quality,
 - reducing traffic congestion,
 - reduces wear and tear on the transportation infrastructure.

These and other intangible benefits have not been quantified in economic terms due to the difficulty of that exercise. A complete cost benefit analysis should at least recognize these other components.

The possible costs of each alternative are given below. They are for comparison purposes only. Assumptions must be verified, and firm costs obtained, prior to basing a decision on the differences.

Costs and Benefits

Assumptions

Three different distance scenarios are developed: local area to Burlington, St. Albans to Burlington, and Montpelier to Burlington. These correspond to the round trip commuting distances of twenty, sixty and ninety miles. In all cases, total commuting miles per vehicle per year are estimated using two hundred and fifty commuting days per year.

Scenarios based on four different passenger sizes are developed for each of the commuting distances. The sizes are the seven, twelve and fifteen passenger vans currently included in VPTA's program. The fourth size is a five passenger van based on the popular 'minivan' style currently produced by Ford, Chrysler, and General Motors corporations.

The five passenger size is included for analysis under the lease program because it is generally available throughout the year. The five passenger van option evaluated here is referred to as the Luxury Van Plan.

Appendix A contains the detailed bid specifications for all vendors in VPTA's Vanpool Program. For all passenger sizes the specifications call for:

- eight cylinder engines,
- power brakes, front disc and rear drum,
- heaviest duty differential and shocks available,
- AM/FM radio,
- truck size radial tires, and
- minimum fuel tank capacity of thirty gallons.

The bid quotes are submitted annually and vendors may price such selected options as air conditioning, cloth upholstery, driver side air bag, anti-lock braking systems, cruise control and delayed wipers. However, once the VPTA has selected a specific bid package all vans purchased during that year can only be delivered per specification. For example, if the specification calls for the above brake configuration and the purchasing party wants anti-lock brakes, the van must be ordered and delivered with the front disc and rear drum brakes. Only after closing can the party have the brakes changed to anti-lock brakes, personally making the full payment for the change.

The Luxury Van Plan which is included here as an alternative is based on the 'minivan' style currently produced by major auto manufacturers. The estimate of the price which is used in the analysis is based on the following features:

- all wheel drive or front wheel drive,

- V6 engine,
- four captain style chairs and a rear fold-down bench,
- tinted windows,
- front and rear controls for both air conditioning and heat,
- anti-lock brakes,
- AM/FM radio with cassette and equalizer,
- rear radio controls and headphone jacks,
- velour interior.⁴

As noted earlier one reason for including the 'minivan' option is their availability.

Relaxing the requirements for vehicles to qualify is likely to reduce the time required for delivery. Further, added comfort and convenience may well make vanpooling more attractive to a wider audience.

Table 3 shows the 1993 price for each of the van options. The average

⁴ It should also be noted that Chrysler offers a \$500.00 cash reimbursement for the purchase and installation of adaptive driving aids for physically challenged drivers.

Table 3**VAN PRICES: 1993**

Passenger Size	1993 Price
5	\$24,097
7	\$17,177
12	\$18,218
15	\$19,693

price of \$24,097 for the five passenger luxury van is based on a sampling of prices from area Ford, Chrysler, and General Motors dealerships. The average is based on the full sticker price and does not reflect discounts and rebates which may be available.

Vans qualifying for VPTA's program are evaluated under two different financial options: a purchase plan and lease plan. The five passenger luxury van is evaluated only under a lease plan. Tables 4, 5 and 6 show the capital costs, operating costs and average cost per person for each of the distances. Table 7 shows the average cost per person for commuting by private auto for all three distances. Table 8 shows the average total annual cost per person under all of the financing plans.

Certain assumptions are common to all of the scenarios. First, the National Personal Transportation Study indicates that six years is the average age of a personal vehicle in the U.S. fleet. Therefore, straight-line depreciation is used to determine the residual value of each vehicle at the end of four years or forty-eight months of use. The residual values are shown in Table 9. Second, the capital costs are assumed to include insurance, license, registration, fees and taxes averaging nine hundred and twenty-two

dollars per year. This is based on a national average for these costs as reported in the 1993 edition of "Your Driving Costs", published by the American Automobile Association.

TABLE 4: STATE PURCHASE PLAN							
Passenger Size	Miles per day	Passenger Miles per Day	Total Commuting Miles per Year per Vehicle	Total Capital Cost	Total Operating Cost	Average Total Cost per Person	Average Air Quality Cost in lbs of Emissions
7	20	140	5,000	\$5,326	\$770	\$871	74
	60	420	15,000	\$5,326	\$2,310	\$1,091	221
	90	630	22,500	\$6,376	\$3,465	\$1,406	331
12	20	240	5,000	\$5,602	\$770	\$531	74
	60	720	15,000	\$5,602	\$2,310	\$659	221
	90	1,080	22,500	\$6,652	\$3,465	\$843	331
15	20	300	5,000	\$5,974	\$770	\$450	74
	60	900	15,000	\$5,974	\$2,310	\$552	221
	90	1,350	22,500	\$7,025	\$3,465	\$699	331

TABLE 5: VANS MEETING STATE SPECIFICATIONS FINANCED BY LEASE							
Passenger Size	Miles per day	Passenger Miles per Day	Total Commuting Miles per Year per Vehicle	Total Capital Cost	Total Operating Cost	Average Total Cost per Person	Average Air Quality Cost in lbs of Emissions
7	20	140	5,000	\$5,026	\$770	\$828	74
	60	420	15,000	\$5,026	\$2,310	\$1,048	221
	90	630	22,500	\$6,076	\$3,465	\$1,363	331
12	20	240	5,000	\$5,278	\$770	\$504	74
	60	720	15,000	\$5,278	\$2,310	\$632	221
	90	1,080	22,500	\$6,328	\$3,465	\$816	331
15	20	300	5,000	\$5,624	\$770	\$426	74
	60	900	15,000	\$5,624	\$2,310	\$529	221
	90	1,350	22,500	\$6,676	\$3,465	\$676	331
TABLE 6: FIVE PASSENGER LUXURY VAN FINANCED BY LEASE							
Passenger Size	Miles per day	Passenger Miles per Day	Total Commuting Miles per Year per Vehicle	Total Capital Cost	Total Operating Cost	Average Total Cost per Person	Average Air Quality Cost in lbs of Emissions
5	20	100	5,000	\$6,682	\$470	\$1,430	74
	60	300	15,000	\$6,682	\$1,410	\$1,618	221
	90	450	22,500	\$7,732	\$2,115	\$1,969	331

TABLE 7: COST OF TRAVEL BY PRIVATE AUTO							
Based on Number of 1 Passenger Vehicles	Miles per Day	Passenger Miles per Day	Total Commuting Miles per Year	Total Capital Cost	Total Operating Cost	Average Total Cost per Person	Air Quality Cost in lbs. of Emissions
5	20	100	25,000	\$7,375	\$2,300	\$1,935	368
	60	300	75,000	\$32,625	\$6,900	\$7,905	1,103
	90	450	112,500	\$48,938	\$10,350	\$11,858	1,654
7	20	140	35,000	\$10,325	\$3,220	\$1,935	515
	60	420	105,000	\$45,675	\$9,660	\$7,905	1,544
	90	630	157,500	\$68,513	\$14,490	\$11,858	2,315
12	20	240	60,000	\$17,700	\$5,520	\$1,935	882
	60	720	180,000	\$78,300	\$16,560	\$7,905	2,646
	90	1,080	270,000	\$117,450	\$24,840	\$11,858	3,969
15	20	300	75,000	\$22,125	\$6,900	\$1,935	1,103
	60	900	225,000	\$97,875	\$20,700	\$7,905	3,308
	90	1,350	337,500	\$146,813	\$31,050	\$11,858	4,961

TABLE 8: NET AVERAGE ANNUAL VEHICLE COSTS:					
PER PERSON BY PLAN					
Passenger Size	Miles per Day	Personal Vehicle	VPTA	Vans Meeting State Specifications	Five Person Luxury Van
		Non-Van Pool	Purchase Plan	Lease Plan	Lease Plan
1	20	\$1,935	-	-	-
	60	\$7,905	-	-	-
	90	\$11,858	-	-	-
5	20	-	-	-	\$1,430
	60	-	-	-	\$1,618
	90	-	-	-	\$1,969
7	20	-	\$871	\$828	-
	60	-	\$1,091	\$1,048	-
	90	-	\$1,406	\$1,363	-
12	20	-	\$531	\$504	-
	60	-	\$659	\$632	-
	90	-	\$843	\$816	-
15	20	-	\$450	\$426	-
	60	-	\$552	\$529	-
	90	-	\$699	\$676	-

TABLE 9: PRICE SUMMARY, MONTHLY CASH FLOW AND RESIDUAL VALUE OF VANS								
		Passenger Size/ Finance Scenario	Price	Monthly Payment	Monthly Rate of Use	Monthly Payments in Excess of use	Residual Value After Forty-Eight Months	Payment for Use After Forty-Eight Months
		5/lease	\$24,097	\$480	\$480	\$0	\$8,033	\$360
		7/lease	\$17,117	\$342	\$342	\$0	\$5,725	\$256
		12/lease	\$18,218	\$363	\$363	\$0	\$6,074	\$272
		15/lease	\$19,693	\$392	\$392	\$0	\$6,565	\$294
		7/purchase	\$17,633	\$367	\$245	\$122	\$5,877	\$0
		12/purchase	\$18,701	\$390	\$260	\$130	\$6,233	\$0
		15/purchase	\$20,215	\$421	\$281	\$140	\$6,739	\$0

Analysis

Operating costs and some of the capital costs vary across the scenarios. The operating costs are based on "Your Driving Costs". Operating costs includes gasoline, oil, tire, and maintenance. The national average for private autos is 9.2 cents per mile based on an average of twenty mile per gallon. The operating cost for vans meeting VPTA's specifications is estimated at 15.4 cents per mile. The estimate adjusts "Your Driving Costs" operating costs for ten miles per gallon.⁵ The operating costs of the five passenger luxury van is assumed to be 9.4 cents per mile based on "Your Driving Costs" estimates for light duty pickup trucks and six cylinder vans.

The VPTA purchase plan requires a ten percent down payment on the vehicle. Lease programs involve no down payment. Therefore, the foregone interest on the down payment is the cost of holding financial capital in the illiquid form of a van. Given that the average size of a down payment is approximately the size of an annual IRA investment, it is assumed that the down payment carries a cost of foregone interest at four percent for six years. The foregone interest is added to the bid price for each of the vans sizes in VPTA's program. Table 10 show the foregone interest and the total cost of a purchase in VPTA's program. The cost of capital in the vanpool purchase program is based on a forty-eight month payoff of the total cost of capital shown below.

⁵ The ten miles per gallon estimate for vans in the VAOT program is based on the analysis of the State's Vanpool Program prepared by Carter Goble Associates in the Statewide Transit Needs Study: Volume 1, page. 4-29.

Table 10
Cost of Van Purchase including Foregone Interest

Passenger Size	Bid Price	Foregone Interest	Total Cost
5	\$17,177	\$456	\$17,633
7	\$18,218	\$483	\$18,701
12	\$19,693	\$522	\$20,215

Leases involve finance charges. These vary depending on the term of the lease, with longer term leases paying higher finance charges. The finance charge for the lease is estimated at 7.75% annually. This estimate is derived by adding three percent to the current yield on federal securities with a four year term to maturity. Further, as a rule of thumb the monthly cost for a forty-eight month lease is approximately the same as a monthly payment under a purchase plan based on sixty months. Therefore, each of the lease payments is calculated as if the cost of the vehicle is amortized over a loan period of sixty months. The cost of the lease payment is the estimate of the cost of capital for each of the lease alternatives.

Most lease arrangements require a penalty for exceeding an average of fifteen thousand mile per year. Therefore, for commuting distances involving a round trip distance of ninety miles an additional capital cost has been added to the estimated sixty month amortization. "Your Driving Costs" indicate that an additional annual capital cost is

approximately 14.0 cents per mile for all miles over fifteen thousand. This adds \$1050.00 to the annual capital costs of lease options where the daily round trip is ninety miles.

The cost of capital for private autos is taken directly from "Your Driving Costs". For annual mileage rates of no more than fifteen thousand miles per year the cost of capital is 29.5 cents per mile.

An additional 14.0 cents per mile for all miles over fifteen thousand is added to the base capital cost of 29.5 cents. This is required to adjust for the accelerated depreciation generated by long distance commuting. In the case of the personal auto this is applicable for both the sixty and ninety mile commutes. This adjustment is required because on average only thirty percent of all miles traveled in private autos is for trips to and from work.⁶ Therefore, private autos used for commuting sixty and ninety miles are expected to have annual miles of use of between fifty and seventy-five thousand miles. This accelerated depreciation is part of the opportunity cost of using the private auto as a mode of transportation for travel to and from work.

Estimates of air quality for each of the distance and passenger size scenarios are computed. The savings in emissions are summarized in Table 8. The emissions are a composite of the Nitrous Oxides at .005 pounds per mile, Hydrocarbons at .005 pounds per mile, and Carbon Monoxide at .0047 pounds per mile. These are average rates for a summer day in Vermont.⁷

⁶ This information is based on the National Personal Transportation Study.

⁷ The information on pounds per mile was provided by Mr. Doug Elliott of the Division of Air Quality for the Vermont Agency of Natural Resources.

Referring to Table 8, the largest savings relative to driving a private auto accrues to the option of leasing for vans meeting VPTA's specifications. These savings are not significantly different from the savings associated with VPTA's purchase plan. However, this small savings is misleading and will be discussed below.

The five person van shows only about fifty percent of the savings of the seven person van under the lease option for the twenty mile commute. However, the five person van shows a higher savings than vans meeting the VPTA's specifications for both the sixty and ninety mile commuting distances. The reason for this is that the higher operating costs of VPTA style vans outweighs the savings in capital costs as commuting distances increase. This result is contingent on the accuracy of the Carter Goble Associates estimates of an average of ten mile per gallon for the current vanpool fleet.⁸ The result does indicate that operating costs should be carefully evaluated in vanpool programs.

As indicated the savings involved in vanpooling relative to commuting by private auto do not fully capture the costs and benefits of the various vanpooling options. Table 9 contains a summary of the cash flow impacts of the various alternatives.

From a cash flow perspective leasing has the advantage that it synchronizes the rate of payment with the rate of use of the asset. Even with finance charges, leasing a van meeting VPTA's specifications is cheaper per month than under the purchase plan. Further, the purchase plan carries a hidden cost to the participants since under the purchase plan the vanpool is paying an additional monthly charge of \$122, \$130 and \$140 per month for the

⁸ All of the 'mini-vans' surveyed are rated at twenty miles per gallon for highway driving. Vans meeting VAOT's specifications are likely to have somewhat poorer rating because of the larger engines and heavier weights of the vehicles.

future use of each of the respective van sizes. This is equivalent to taking an interest earning asset and placing it in a non-interest bearing account. The cumulative cost of this over the four years at an interest rate of four percent is approximately \$611, \$650 and \$701 respectively for the seven, twelve and fifteen passenger vans.

At the end of the lease term the vanpool has the option of purchasing the vehicle. The column in Table 9 labeled Payment for Use After Forty-Eight Months is derived by amortizing the residual value of the leased vehicle over twenty-four months at 7.75 percent.

The sixty month weighted average monthly costs for the lease plans are \$456, \$325, \$344 and \$373 respectively for the five, seven, twelve and fifteen passenger vans. Adjusting the monthly payment for the purchase plan to explicitly recognize the lost interest, the sixty month weighted average costs of purchasing a van are \$319, \$339 and \$366 respectively for the seven, twelve and fifteen passenger vans.

Leasing is a viable alternative to the current purchase plan and it could be implemented outside of the current federal program. The **real** capital cost of purchasing a van is only marginally better than the **real** capital cost of leasing a van for each of the passenger sizes. However, from a cash flow perspective the leasing is a superior alternative.

The five passenger options highlights the importance of operating costs. Over longer distances even with fewer passengers there is a greater saving than for vans meeting VPTA's specifications. Further, the five passenger options may be more appropriate to Vermont's scale of businesses and low density rural residential development pattern.

SUPPLEMENTAL DISCUSSION

Financing

The project as it was proposed only includes purchase as a mode of acquisition. The VPTA program focuses on purchase, although leasing may be acceptable within the federal guidelines. The following analyses exclude the additional costs of registration, title fee and other acquisition costs, which will be assumed to be identical regardless of the mode of acquisition.

The proposed alternatives include leasing as a mode of acquisition. The primary reasons are:

1. the monthly out-of-pocket costs may be equal to or less than the purchase costs;
2. individuals cannot deduct the interest portion of an installment loan, making cashflow a more significant factor;
3. concerns over individual or group ownership may be reduced;
4. automobile dealers can become 'competitive' with the VPTA purchase program, allowing additional alternatives to become feasible.

As an example, consider the comparison in Table 11 between a purchase payment through VPTA and a lease payment through a third party leasing company. The figures are hypothetical, for explanatory purposes only.

Table 11
Comparison of Purchase and Lease Options

<u>Item</u>	<u>Purchase (VPTA)</u>	<u>Lease</u>
Vehicle Cost	\$25,000	\$25,000
Financing	0 %	10 %
Salvage value	-	\$8,500
Down Payment	\$2,500	-
Term	48 months	48 months
Monthly Payment	\$468.75	\$416.67

Assuming that the figures are reasonable, the monthly out-of-pocket costs are roughly equivalent. The most significant differences are: a) the purchase requires a down payment of \$2,500 versus the lease, and b) at the end of the term the van is owned by the individual or group which purchased the vehicle, versus no ownership on the lease. It may be desirable to mention to prospective participants in any of the programs the value of leasing versus purchasing, which may make any program more desirable.

Incentives

Equivalency

One way of providing incentives to rideshare is to provide a program such that it is at least equivalent to single occupant commuting. Some of the factors which make personal vehicles desirable are low cost, low responsibility and low risk. Evaluation of the four proposals presented above could include these criteria against which to measure each alternative. Their use as criteria are described below.

Low cost - The time and financial cost to participate in the program should not be greater than the time and commitment to acquire and maintain a personal vehicle.

Low responsibility - Vehicle maintenance and administrative effort should not be greater than that required for a personal vehicle.

Low risk - The financial commitment, and options to withdraw from the program, should not be more onerous than if one were to trade-in or acquire a new vehicle.

Each proposal exhibits some of these characteristics.

Value-Added

Other types of incentives for ridesharing would be to make the experience more desirable than single occupant commuting. Some of the topics which have been mentioned in the course of this research are briefly described. They are meant to be examples of concepts to stimulate ideas, rather than as specific proposals.

Guaranteed Ride Home This service is already being provided as a joint effort between Downtown Bound and CATMA. It epitomizes value-added incentives.

Vehicle selection The project focused on van pools, with capacities of 7, 12 or 15 occupants. An option available with the private sector proposals would be to allow cars as well as vans. This has several desirable aspects:

1. It may be easier to form 2 pools of 4 rides instead of one pool of 7 or more rides because of the rural nature of Vermont.
2. Cars may offer a wider selection of safety features, such as ABS, front-wheel drive, all-wheel drive and air bags.

3. Comfort accessories may be more available in cars than in vans. The section on Comfort Accessories below describes this more fully.

Services A drawback to ridesharing is the inability to run errands as needed. As an incentive, there are services available for grocery shopping, pick-up/delivery, dinner preparation and similar types of errands. Four Star Delivery Express is a company providing some or all of these services. It is conceivable that these companies could meet the arriving rideshare pool to obtain orders, and deliver those orders when the pool is scheduled to depart. The commuters would have less need to travel during working hours⁹.

Comfort Accessories Vehicle accessories could make the travel more comfortable, and therefore, ridesharing more desirable. It would be beneficial to allow each rider to perform activities independently without requiring other riders to participate as well. Some examples of these types of accessories would be individualized lighting for reading, cellular phone, pull-down tables for writing, portable refrigerators for snacks and beverages, lounge type seats, individual radio jacks with earphones, and so on. These types of features would minimize the constraints associated with being a passenger. It should be noted that the additional cost could certainly be a factor during the acquisition. However, the incremental cost of including these types of accessories may be marginal, considering that the costs are distributed among four or more riders, over a period of 36 to 60 months.

⁹ This is also an incentive for businesses to support rideshare programs.

Free Parking Not having to pay for parking is a strong financial incentive. This is accomplished by sharing the cost of parking among the riders in a van, or through specific programs which offer free parking to van pools.

There are certainly other types of value-added incentives, which should be given consideration in increasing the desirability of ridesharing.

APPENDIX A
VEHICLE DESCRIPTIONS

**DETAILED SPECIFICATIONS FOR 8 PASSENGER WINDOW TYPE
VAN 6010 G.V.W. RATING**

To have windows all around, vented where available.

<u>WARRANTY</u>	The manufacturer's standard warranty shall be furnished with the new vehicle.
<u>G.V.W. RATING</u>	6010 pounds minimum.
<u>ENGINE</u>	318 cubic inch minimum, 8 cylinder, with maximum engine cooling system
<u>TRANSMISSION</u>	three (3) speed minimum automatic with transmission cooler.
<u>BATTERY</u>	Heavy duty 600 CCA - 100 reserve minimum.
<u>ALTERNATOR</u>	12 volt, 100 amp minimum.
<u>HEATER & DEFROSTER</u>	High output. Heavy duty, fresh air plus auxiliary heater for rear.
<u>CIGARETTE LIGHTER AND ASH TRAY</u>	
<u>LIGHTS & FLAPS</u>	Legal for Vermont, dome light in passengers compartment and body. Mud flaps, front and rear, securely fastened, all rubber or metal and rubber.
<u>MIRRORS</u>	One inside day-night tilt type. Two outside matching mirrors low mount break-away type, door mounted. Manufacturer's original equipment.
<u>TIRES</u>	Tires to be truck radial type, to meet G.V.W. ratings, with full size spare wheel and tire.
<u>SEATS</u>	Best quality available. Total seating capacity - 8 passengers with rear seats demountable. Seat belts for all seats. Vinyl or cloth and vinyl upholstery.
<u>SPRINGS</u>	To conform to G.V.W. rating. Heavy duty shock absorbers all around.

Detailed Specifications - 8 Passenger Window Type Van
Page 2

FRONT STABILIZER BAR Heaviest duty available for G.V.W. rating.

COURTESY LIGHT ACTIVATED BY FRONT DOORS

IN CAB HOOD LOCK RELEASE

AXLE CAPACITY To conform to G.V.W. rating.

OIL PRESSURE GAUGE

BRAKES Power. Front - disc. rear - drum.
Heaviest duty available for G.V.W.

HEAVY DUTY INSULATION PACKAGE To include full length head liner, insulated side panels and insulation pads under floor covering.

ANTI-FREEZE To minus 35 degrees Fahrenheit, permanent type.

FUEL TANK Minimum capacity 30 gallons.

ROOF VENT

POWER STEERING

TINTED GLASS ALL AROUND

COLOR To be selected by user group at time of order from the manufacturer's standard color chart. Color chart should be included as part of this bid package.

TANK TYPE OR BLOCK TYPE ENGINE HEATER

AM/FM RADIO Factory installed

MISCELLANEOUS Heaviest duty differential available for G.V.W. Heaviest duty shock absorbers available for G.V.W. In addition - to conform to all Federal and State Laws which are applicable.

PRICING SHEET

8 Passenger Window Type Van

QUOTING:

Make:

Model Name:

Model Number:

Engine Disposition: CC CI

G.V.W. Rating:

Wheelbase:

Tire Size:

EPA Mileage Rating: City Highway

Battery:

Alternator Output (Amps):

Warranty: Months Mileage

OPTION:**COST:**

1. Limited Slip Differential
2. Larger Capacity or auxiliary fuel tank
Size:
3. Air conditioning - front only, factory installed
4. Air conditioning - front and rear, factory installed
6. Optional trim package, including price and details
Details:
7. Delayed wipers
8. Cruise Control
9. Rear Window Washer/Wiper
10. Chrome bumpers - front and rear

Options - 8 Passenger Van
Page 2

OPTION:

COST:

11. Cloth upholstery
12. Rustproofing - five year full repair warranty
13. Emergency equipment, to include:
A 16 unit first air kit provided and mounted in an accessible location. A 5 lb. ABC fire extinguisher provided and mounted in an accessible location. A triangular reflector kit.
14. Larger Tires
Size:
15. Additional cost for driver side air bag
16. Additional cost for driver side and passenger side air bag
17. Additional cost for anti-lock braking system
18. Extended warranty. State length, any deductible and details:

**DETAILED SPECIFICATIONS FOR 12 PASSENGER WINDOW TYPE
VAN 7500 G.V.W. RATING**

To have windows all around, vented where available, with double swing type passenger door(s) on right side and twin center opening doors on rear with vented windows.

WARRANTY The manufacturer's standard warranty shall be furnished with the new vehicle.

G.V.W. RATING 7500 pounds minimum.

ENGINE 350 cubic inch minimum, 8 cylinder with maximum engine cooling option.

TRANSMISSION Three (3) speed minimum automatic with transmission cooler with auxiliary oil cooler.

BATTERY Heavy duty 600 CCA - 100 reserve minimum.

ALTERNATOR 12 volt, 100 amp minimum.

HEATER & DEFROSTER High output. Heavy duty, fresh air plus auxiliary heater for rear.

CIGARETTE LIGHTER AND ASH TRAY

LIGHTS & FLAPS Legal for Vermont, dome light in passengers compartment and body. Mud flaps, front and rear, securely fastened, all rubber or metal and rubber.

MIRRORS One inside day-night tilt type. Two outside matching mirrors low mount break-away type, door mounted. Manufacturer's original equipment.

TIRES Tires to be truck radial type, to meet G.V.W. ratings, with full size spare wheel and tire.

SEATS Best quality available. Total seating capacity - 12 passengers with rear seats demountable. Seat belts for all seats. Vinyl or cloth and vinyl upholstery.

SPRINGS To conform to G.V.W. rating. Heavy duty shock absorbers all around.

Detailed Specifications - 12 Passenger Window Type Van
Page 2

FRONT STABILIZER BAR Heaviest duty available for G.V.W. rating.

COURTESY LIGHT ACTIVATED BY FRONT DOORS

IN CAB HOOD LOCK RELEASE

AXLE CAPACITY To conform to G.V.W. rating.

OIL PRESSURE GAUGE

BRAKES Power. Front - disc. rear - drum.
Heaviest duty available for G.V.W.

HEAVY DUTY INSULATION PACKAGE To include full length head liner, insulated side panels and insulation pads under floor covering.

ANTI-FREEZE To minus 35 degrees Fahrenheit, permanent type.

FUEL TANK Minimum capacity 30 gallons.

ROOF VENT

POWER STEERING

TINTED GLASS ALL AROUND

COLOR To be selected by user group at time of order from the manufacturer's standard color chart. Color chart should be included as part of this bid package.

TANK TYPE OR BLOCK TYPE ENGINE HEATER

AM/FM RADIO Factory installed

MISCELLANEOUS Heaviest duty differential available for G.V.W. Heaviest duty shock absorbers available for G.V.W. In addition - to conform to all Federal and State Laws which are applicable.

PRICING SHEET

12 Passenger Window Type Van

QUOTING:

Make:

Model Name:

Model Number:

Engine Disposition: CC CI

G.V.W. Rating:

Wheelbase:

Tire Size:

EPA Mileage Rating: City Highway

Battery:

Alternator Output (Amps):

Warranty: Months Mileage

OPTION: _____ **COST:** _____

1. Limited Slip Differential
2. Larger Capacity or auxiliary fuel tank
Size:
3. Air conditioning - front only, factory installed
4. Air conditioning - front and rear, factory installed
5. Price reduction for 12 passenger seating in 15 passenger
van to allow storage space at rear of van
6. Optional trim package, including price and details
Details:
7. Delayed wipers
8. Cruise Control
9. Rear Window Washer/Wiper
10. Chrome bumpers - front and rear

Options - 12 Passenger Van
Page 2

OPTION:

COST:

11. Cloth upholstery
12. Rustproofing - five year full repair warranty
13. Emergency equipment, to include:
A 16 unit first air kit provided and mounted in an accessible location. A 5 lb. ABC fire extinguisher provided and mounted in an accessible location. A triangular reflector kit.
14. Lower step, to include:
Step to be constructed of heavy gauge, diamond plate metal, extending from just behind the front mud flap and running the length of the rocker panel; to be bolted with brackets eighteen (18) inches on center to underside of vehicle and to rocker panel seam to floor pan; providing approximately an eleven (11) inch minimum step surface at a height of approximately thirteen (13) inches above the ground.
15. Interior grab bar, to include:
To be constructed of two (2) inch diameter steel tubing, extending vertically from the floor to the top of the back of the passenger bench, and to be positioned abutting the rear corner, on the loading side of the first bench. Bar to be secured by welding or bolting to the structural floor of the vehicle and capped with rubber fitting.
16. Extended Warranty. State length, any deductible and details:

**DETAILED SPECIFICATIONS FOR 15 PASSENGER WINDOW TYPE
VAN 8600 G.V.W. RATING**

To have windows all around, vented where available, with double swing type passenger door(s) on right side and twin center opening doors on rear with vented windows.

<u>WARRANTY</u>	The manufacturer's standard warranty shall be furnished with the new vehicle.
<u>G.V.W. RATING</u>	8600 pounds minimum.
<u>ENGINE</u>	350 cubic inch minimum, 8 cylinder with maximum engine cooling option.
<u>TRANSMISSION</u>	Three (3) speed minimum automatic with transmission cooler with auxiliary oil cooler.
<u>BATTERY</u>	Heavy duty 600 CCA - 100 reserve minimum.
<u>ALTERNATOR</u>	12 volt, 100 amp minimum.
<u>HEATER & DEFROSTER</u>	High output. Heavy duty, fresh air plus auxiliary heater for rear.
<u>CIGARETTE LIGHTER AND ASH TRAY</u>	
<u>LIGHTS & FLAPS</u>	Legal for Vermont, dome light in passengers compartment and body. Mud flaps, front and rear, securely fastened, all rubber or metal and rubber.
<u>MIRRORS</u>	One inside day-night tilt type. Two outside matching mirrors low mount break-away type, door mounted. Manufacturer's original equipment.
<u>TIRES</u>	Tires to be truck radial type, to meet G.V.W. ratings, with full size spare wheel and tire.
<u>SEATS</u>	Best quality available. Total seating capacity - 15 passengers with rear seats demountable. Seat belts for all seats. Vinyl or cloth and vinyl upholstery.
<u>SPRINGS</u>	To conform to G.V.W. rating. Heavy duty shock absorbers all around.

Detailed Specifications - 15 Passenger Window Type Van
Page 2

FRONT STABILIZER BAR Heaviest duty available for G.V.W. rating.

COURTESY LIGHT ACTIVATED BY FRONT DOORS

IN CAB HOOD LOCK RELEASE

AXLE CAPACITY To conform to G.V.W. rating.

OIL PRESSURE GAUGE

BRAKES Power. Front - disc. rear - drum.
Heaviest duty available for G.V.W.

HEAVY DUTY INSULATION PACKAGE To include full length head liner, insulated side panels and insulation pads under floor covering.

ANTI-FREEZE To minus 35 degrees Fahrenheit, permanent type.

FUEL TANK Minimum capacity 30 gallons.

ROOF VENT

POWER STEERING

TINTED GLASS ALL AROUND

COLOR To be selected by user group at time of order from the manufacturer's standard color chart. Color chart should be included as part of this bid package.

TANK TYPE OR BLOCK TYPE ENGINE HEATER

AM/FM RADIO Factory installed

MISCELLANEOUS Heaviest duty differential available for G.V.W. Heaviest duty shock absorbers available for G.V.W. In addition - to conform to all Federal and State Laws which are applicable.

PRICING SHEET

15 Passenger Window Type Van

QUOTING:

Make:

Model Name:

Model Number:

Engine Disposition: **CC** **CI**

G.V.W. Rating:

Wheelbase:

Tire Size:

EPA Mileage Rating: **City** **Highway**

Battery:

Alternator Output (Amps):

Warranty: **Months** **Mileage**

OPTION: _____ **COST:** _____

1. Limited Slip Differential
2. Larger Capacity or auxiliary fuel tank
Size:
3. Air conditioning - front only, factory installed
4. Air conditioning - front and rear, factory installed
5. Price reduction for 12 passenger seating in 15 passenger
van to allow storage space at rear of van
6. Optional trim package, including price and details
Details:
7. Delayed wipers
8. Cruise Control
9. Rear Window Washer/Wiper
10. Chrome bumpers - front and rear

Options - 15 Passenger Van
Page 2

OPTION:

COST:

11. Cloth upholstery
12. Rustproofing - five year full repair warranty
13. Emergency equipment, to include:
A 176 unit first air kit provided and mounted in an accessible location. A 5 lb. ABC fire extinguisher provided and mounted in an accessible location. A triangular reflector kit.
14. Lower step, to include:
Step to be constructed of heavy gauge, diamond plate metal, extending from just behind the front mud flap and running the length of the rocker panel; to be bolted with brackets eighteen (18) inches on center to underside of vehicle and to rocker panel seam to floor pan; providing approximately an eleven (11) inch minimum step surface at a height of approximately thirteen (13) inches above the ground.
15. Interior grab bar, to include:
To be constructed of two (2) inch diameter steel tubing, extending vertically from the floor to the top of the back of the passenger bench, and to be positioned abutting the rear corner, on the loading side of the first bench. Bar to be secured by welding or bolting to the structural floor of the vehicle and capped with rubber fitting.
16. Extended Warranty. State length, any deductible and details: