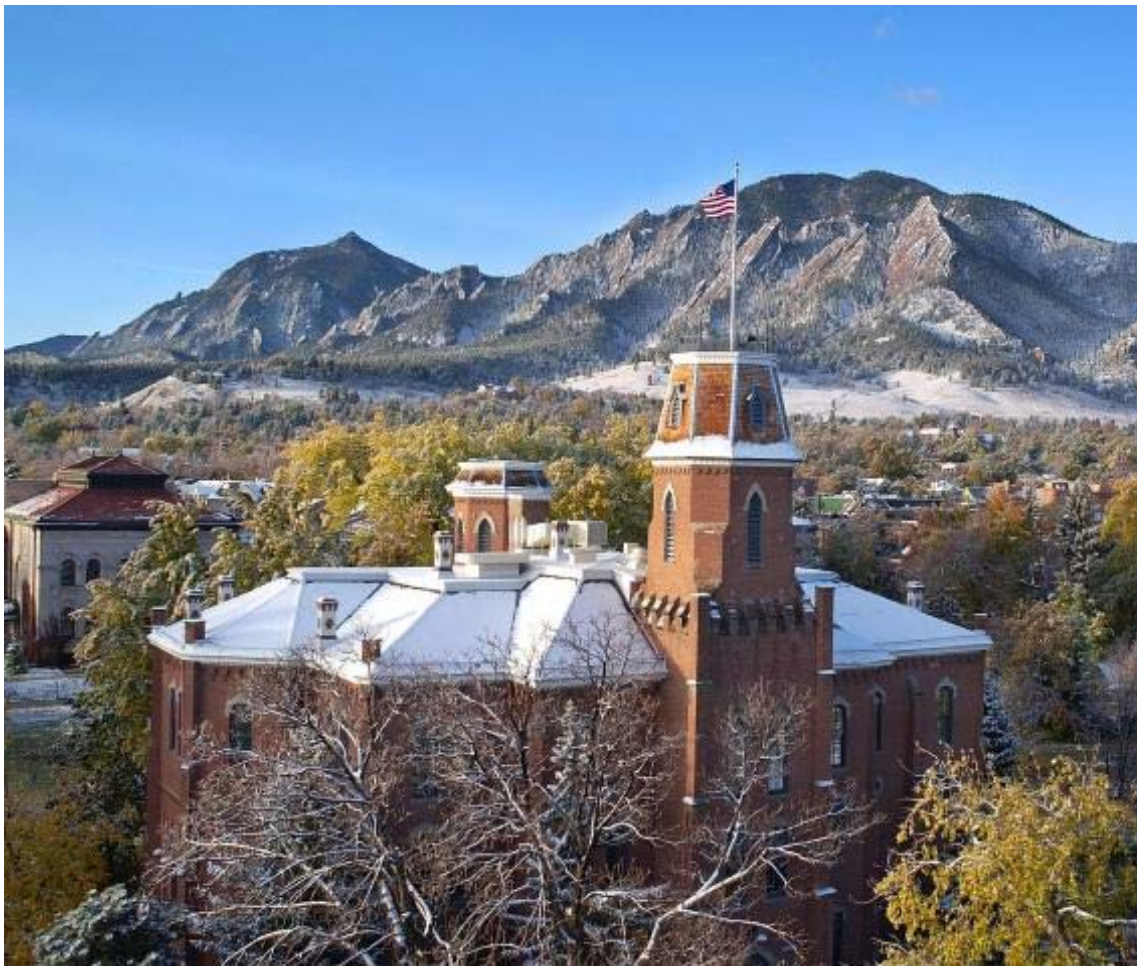
`

TASK FORCE REPORTS

CAMPUS MASTER PLAN



Colorado
University of Colorado at Boulder ™

Table of Contents

REPORT OF THE MASTER PLAN TASK FORCE ON

TRANSPORTATION

"Our commitment to sustainability is long-standing, and it is renewed by the fresh ideas of our students and our employees and the commitment of the chancellor and the leadership of the campus."

–Frank Bruno, Vice Chancellor for Administration

Report of the Task Force on Transportation

January 2010

Introduction:

The membership included representatives from the CU Department of Athletics, CU Recreation Services, City of Boulder Parks & Recreation Department, CU Planning Department, CU Facilities Management, as well as faculty, staff and student representation.

Task Force Membership: Bill Emery (Chair), Bryan Flansburg, Christine Thai, Joe Roy, Judy Packer, Melissa Yates, Mike Sweeney, Peter Roper, Richelle Reilly, Shari Philpott, Tom Blumenthal, Will Toor, Xinlin Li

Transportation and Parking Task Force Report

1. Guiding Principles and Issues

An overall consideration in any recommendation is to acknowledge that all transportation and parking issues evoke strong emotions in all participants, including faculty, staff and students. Any solution will have supporters and detractors but some difficult decisions must be made to improve present situations and provide the infrastructure for the future. Problems range from resolving the potential conflicts between pedestrians and bikes/skateboards on campus, the modes of transport between campuses and the transit to and from campus including parking.

Another key issue that has come out in many of our discussions has been "how do we pay for it." It was agreed that virtually all solutions will take additional funding and the question among Task Force Members was where was this funding going to come from? The widely accepted position is that somehow the users need to pay for the solution. This transfer of funding to users could take many forms such as surtax on users, departmental fees, parking pricing, etc. It needs to be recognized, however, that minimizing cost-recovery infrastructure is important. For example, if it costs more to charge for the service, e.g. in collecting transit costs, we will not have been very successful. Developing the cost-charge model for all transit will be very important. These decisions require a better understanding of the cost implications of transportation decisions – essentially understanding what mix of investments in parking, transit, transit passes, and non motorized modes strikes a balance between the total cost and the total benefits of the university transportation system.

Some funding should be set aside for a public relations campaign to inform the user public of the parking and transportation solutions that have been put in place by CU. It doesn't do any good to have a good policy that nobody is aware of. Funds are needed to pay for media to inform those users who are part of the system and need to recognize the system and any changes that have been carried out.

We will first list the set of options for all of these transportation and parking issues and principles before discussing them in detail. There is no effort at this point to place a priority on any of these solutions and we will leave that to the more detailed discussion to follow. To enable that discussion, however, we need to get all of the ideas on the table. Some of these principles should be taken as specific recommendations.

a. Transportation to/from campus, automobile parking

1. Reduce or cap the vehicle miles travelled (VMT) and hence the carbon footprint, local congestion and maintenance impact to roadway infrastructure.

1a. Use parking pricing as a control on VMT by encouraging a transit mode change to mass transit while avoiding the excessive price escalation that decreases parking use, which is well known from increasing parking rates.

1b. Establish modal split targets that support the campus' fiscal, social and environmental sustainability goals. Specifically, cap the share of commuters driving alone (SOV).

1c. Encourage the use of "shared cars" on campus to provide transportation flexibility while not having to drive a personal vehicle.

2. Enhance the ease, flexibility and safety of all modalities with particular emphasis on non-automobile modes of travel.

3. Improve access to city infrastructure from/to campus.

4. Understand and use market forces, (including financial incentives) and behavioral triggers to effect solutions.

5. Integrate with Boulder city and county goals and plans.

b. Inter campus transportation

1. Future CU-Boulder growth will include east campus, Williams Village and south campus.

2. Solutions will depend on the nature of the campus infrastructure planned for the various campuses. Our report depends on the outcome of the plans for these other campuses with east campus being the primary concern.

3. Solutions must be operationally flexible and scalable over time. Large capital investments at the start are likely to be impractical.

4. When large numbers of undergraduates must move between campuses for classes the transportation solution must carry relatively large numbers of passengers over a short period of time. (High volume during peak demand.)

5. Solutions will require coordination with other governmental entities (Boulder City, Boulder County, CDOT and RTD) given that various jurisdictions are responsible for elements of the region's transportation network upon which CU-Boulder relies.

5a. Possible modes of solutions include the following:

- Buses running along Colorado Blvd with an isolated bus lane and priority signaling in crossing 28th and 30th. Buses to continue to loop servicing the Williams Village and other similar solutions.

- A dedicated gondola carrying people between main campus and east campus as well another gondola line connecting main campus with Williams Village.

- A streetcar circulating between the Boulder-Fast-tracks Transportation Center and East/Main campuses.

5b. Seek opportunities to collaborate with other governmental entities on capital improvements; ensure long-term compatibility with city and regional plans.

- Seek to provide enhanced non-vehicular transit modes such as bikes, skateboards and walking.

c. On campus travel

1. The CU-Boulder campus is a pedestrian-oriented area in both aesthetic and travel aspects.

2. Bikes, skateboards and other non-motorized vehicular modes need to be accommodated in a way that provides adequate safety for all modalities. Pedestrian safety and comfort must remain the highest priority.

3. Solutions that are successful on main campus should extend to other campuses as they develop over time.

4. Solutions must adequately consider the access needs of facilities maintenance vehicles, buses, delivery vehicles, vendors, contractors and others required to access campus by way of motor vehicles. All vehicles should be regulated to support the prioritization and safety of pedestrian movement on campus. Non-official business vehicles should be strictly excluded from the campus core.

Background and Discussion

Transportation and parking issues at CU Boulder have been worked on for quite a while and yet significant problems (shrinking supply of on campus parking, need for increased inter-campus transit capacity, on-campus intermodal conflicts–especially between bicycle/skateboards and pedestrians) remain. Solutions should be scalable (increase with rising demand). Effecting these changes will involve social behavioral changes as much as they do costly infrastructure and facility changes. The emotional responses to these issues have as much to do with social behaviors as they do with the practical problems that most customers face. Thus, where possible, we will separate the practical problems from those that involve strong emotional responses.

We believe that the transportation and parking issues can be divided into three main areas: a. transportation to and from campus including automobile parking, b. intercampus transportation, and c. on-campus travel. Collaboration with city and county planners is instrumental in all three categories to ensure infrastructural compatibility, streamlined goals and community integration. All of the solutions to these problems will require behavioral changes in addition to infrastructure changes. We will separately address the overall parking and parking management issues.

Transportation to/from campus and parking

We wish to initially regard parking only in light of the transit to and from campus problem and will later address the overall parking infrastructure at CU-Boulder with its unique set of problems independent of the transit issues. As stated above, one of the overall guiding principles in this plan is the reduction of VMT and the consequent reduction in carbon emissions from SOV vehicle travel. While most trips to campus by campus affiliates take place by bus, bicycle, or walking, additional efforts will be required to further reduce VMT. Key strategies to reduce VMT include:

a. Affordable, efficient, reliable and flexible mass-transit options.

b. Market oriented parking permit pricing that establishes supply goals and prices to affect demand accordingly.

c. Cultural norms and university community social expectations supporting transit use and non-motorized travel.

d. An expanded "car share" program providing additional transportation flexibility for those not bringing a personal vehicle to campus.

One of the biggest stumbling blocks to instituting one or all of these solutions is first determining, just what the magnitude of the problem is. What are the numbers in terms of VMT? If we are going to set VMT goals we must be able to measure VMT for transit to and from the university. Are all of these people happy with the present parking facilities? An independent study is recommended to provide information required to make decisions about what is needed in terms of VMT reduction and the control of parking demand by pricing. At the moment, we know we would like a reduction in VMT's, but we do not know how much, and to what levels, we should endeavor to reduce the VMT's.

It is also clear that student, staff and faculty-housing location has a great impact on mode choices and VMT. It is outside the scope of this committee to address the question of shifting faculty housing to be closer to campus, but we would recommend that development of faculty and student housing in locations near campus or adjacent to convenient bus routes, designed to minimize vehicle travel, be considered in the master plan update. For the rest of the report we will restrict our comments to transportation to and from present residences. We acknowledge that present housing prices in Boulder have resulted in the younger faculty finding residences in surrounding communities. These realities will continue to increase the transportation challenges that we face.

To decrease VMT we may need to have increased levels of transit service to campus. This may include improved service levels during peak and off peak periods. Any changes to present services must be coordinated with RTD and the city of Boulder. We also advocate a coordinated educational program to inform users of these new services and capabilities. CU Boulder should continue to work with RTD to continue and expand (extend the program to faculty and staff spouses and family members, etc) the eco-pass program and promote the use of bus services in the city. In addition CU Boulder should continue to promote and expand the car share and bike share programs to make it possible for users to visit locations not serviced by RTD at a reasonable cost. We need to have an adequate number of vehicles and bikes available for this service to be effective. CU should do all it can to promote car-pooling, which may cover areas not covered by RTD. Car poolers should continue to have preferential parking that is enforced to make sure this privilege is not abused with people parking preferentially who are not car pooling. Additional financial incentives for carpooling should also be considered.

The campus should also address transportation to campus for large events. There are creative approaches that could be tried as pilot programs – for example, to build in a small charge to ticket prices to allow tickets for sporting and cultural events to function as one day transit passes. The University of Washington has had success with this approach for events at the Husky Stadium in Seattle.

The university should understand and use market forces to strategically set parking pricing that meets supply and demand goals. Proximity to office or work location plays an important role in the demand for parking, and should be incorporated into the pricing strategy. In other words, price parking just like other real estate where the high demand location is seen as having greater value and has a greater cost associated with the use of that space. This is in sharp contrast to the present parking pricing policy, which rewards users that work in the campus core and yet park in either of the two parking garages. Presently they pay less than users whose offices are located closer to the parking garages. Shifting to the new paradigm in parking prices may motivate users in the central core of CU Boulder to switch to alternate transit modes in getting to campus. In any case the present greatest demand for parking is in the central core of the campus and innovative new practices must be instituted to encourage the parking participants to seek out alternative transportation modalities. Additionally, parking management on campus should maintain an independent business model where parking infrastructure, operation and maintenance should balance against permit or fine revenue–new parking capacity should not be built without financial sustainability.

Finally, the University should understand and affect cultural norms and social expectations surrounding its modal mix. As an example, a large shift towards bus transit and non-SOV modes was seen during the significant fuel-price increase of 2008. Similarly, incoming university students are showing increasing use of bicycles and skateboards, as these forms of transportation are becoming more socially accepted and demonstrated in popular media. The University can affect social expectations for its users through official communications, orientations and behavioral marketing campaigns.

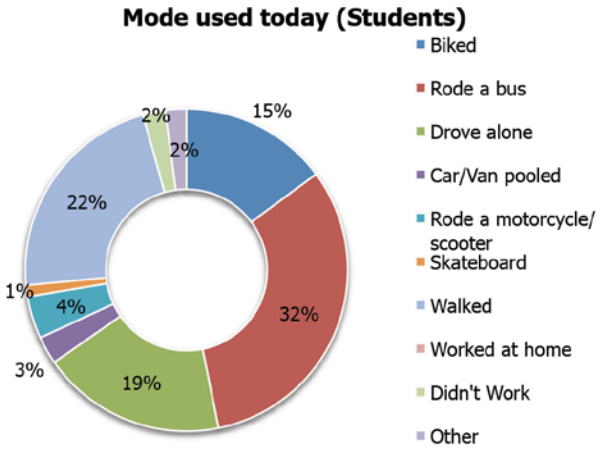
One interesting solution was to institute flex work schedules so that everybody did not need to travel to CU Boulder at the same time. Similarly increasing telecommuting would reduce transportation needs and increase the ability for our present resources to meet the demands. This would reduce the demands on both transport and parking. The suggestion is to let each department, institute or laboratory dictate their own work schedule, which they would then do to optimize the remote and on-site work time while minimizing the transit schedule for the workers.

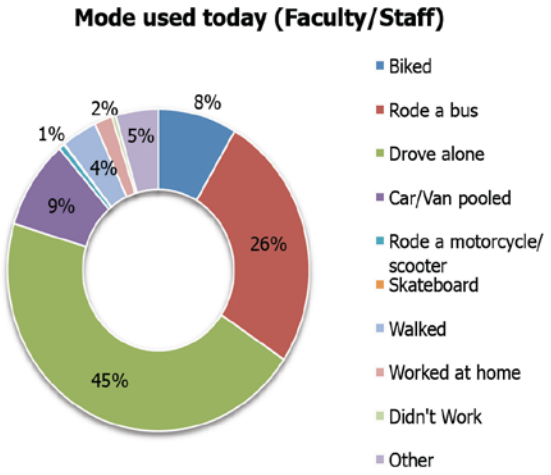
Inter-campus transit

The long-term growth of the CU-Boulder campus includes four major and separate locations within Boulder: main campus, east campus, and Williams Village and south campus. There are already criticisms about the lack of green space on the campus. This means that most future growth is going to have to be directed to east and south campuses as well as Williams Village. These locations are not adjacent to main campus and require use of the existing multi-jurisdictional transportation network. Effective transportation between these growing locations will require improvements to infrastructure and programs.

The easiest campus to consider for growth is east campus, which has been the site of research facilities for many years. The Task Force felt it was inevitable that this campus would build out in the future. While it is tempting to try and keep it a "research park" it is now going to host some basic infrastructure buildings and there are plans for more growth at this site including Flagship 2030 and the Arts and Sciences Strategic Plan. While none of

these plans are firm it appears likely that there will eventually be a need to transfer both students and faculty between East and Main campuses at a rate greater than is possible today.





While there are many methods of transferring people between these two locations we feel it is critical to realize that this transfer needs to start at a modest level and grow with time. Eventually all of the transportation modes mentioned here would likely become part of the CU Boulder infrastructure. Transportation between the campuses will likely involve a wide variety of modes including: walking, biking, and buses (loops and east-west across 28th and 30th streets possibly with bus lanes and priority signaling, and perhaps even a dedicated gondola system and/or a street-car loop connecting east campus with the Boulder transit hub at Colorado and 30th). This system must develop over time and it will not be possible to have all of these modes available initially. A solution that uses the present transportation infrastructure is the most reasonable alternative and we believe it can be made to fulfill the requirements both for the present and the near future as we develop the more long-term, multi-mode transportation solution.

As stated previously the most cost-effective method of presently meeting this inter-campus requirement would be to install a bus priority signal and westbound buses traveling in dedicated bus lanes to get across 28th and 30th Sts. on Colorado Avenue. Another option would be the installation of "queue jump" lanes at the intersections to minimize bus waits for signal cycles. Both options would support higher levels of service and shorter travel times for buses moving between east and main campus. The former option would provide for shorter "headways" for buses traveling the route, but is more likely than the latter to detrimentally impact north/south traffic along 28th and 30th. Such bus transit could move people on a regular basis from remote surface parking on east campus or at Williams Village.

At present, parking on East campus is free for the research buildings but as the new Systems Biotechnology building is completed it will bring with it parking under the management of PTS, which will charge for parking. It is likely that the parking adjacent to the area's

buildings that are supported by the general fund (e.g., CASA and LASP) will also convert to being managed by PTS and will then become fee based parking facilities. Other surface lots may be built both on east campus and at Williams Village and a regular bus route will be needed to move these people from their cars to main campus and/or east campus. The price of parking at these lots should reflect an appropriate share of the costs of operating this transit system, and be low enough to provide an incentive to park remotely and use transit to get to main campus. Decisions on the appropriate supply of parking in this area should reflect the goal of reduced VMT, the use of pricing to regulate demand, and the overall financial sustainability of the transportation system.

In addition to buses, it is a crucial near-term priority to improve the connectivity between campuses for pedestrians and bicyclists. Paths and tunnels should be maintained to the level where those who choose could walk or bike between campuses feel safe doing so and have little interaction with the general vehicular public.

Some constituents have argued that a future solution to the inter-campus transit requirement is across 28th and 30th streets between main and east campus. A second "sky way" could be installed between main campus and Williams Village. They argue that this approach has some real advantages in that it has a low carbon environmental impact, has a rather low-cost operation, can carry sufficient transit passengers if operated correctly. It will still require some flex scheduling of classes on east campus to increase the time between classes and making it possible to move between classes. The problem has been studied by Doppelmyer Inc. in Denver who estimates that a gondola system between main and east campuses would cost about $4.5 million. The Task Force was concerned that wind could impact the operation of this system even if Doppelmyer concluded that would occur for only 2% of operating hours. Analysis of the fiscal, operational and institutional business impacts of providing or not providing alternative transit mechanisms during the projected 2% "downtime" of a campus gondola system is recommended. Further study is needed to determine just how this system would fulfill the requirements of moving people between main and east campuses.

Finally, RTD intends to build both a bus rapid transit system along US 36 and a commuter rail line linking Longmont, Boulder, and Denver. Both of these may play important roles in access to campus from other parts of the metropolitan area. The BRT will provide direct access to Williams Village and to main campus. The rail line will have a station located at 30th and Pearl. While the timeline of both the rail and BRT lines is uncertain, it is important for CU to work with RTD, the City of Boulder, Boulder County, and CDOT to ensure that appropriate bicycle, pedestrian, and high frequency transit connections are provided to the rail station and to BRT stops. When Fast-tracks builds a rail line between Denver and Boulder terminating at the Boulder Transportation Center at 30th and Pearl streets, it may be possible to have a "street-car" circulating between this Transportation Center and East and Main Campuses. This system would be a cooperative effort between the City of Boulder and CU Boulder. This system would make it possible to live in Denver and go to school at CU Boulder.

On campus transit/traffic

With the recent increases in campus bicyclists and skateboarders, elimination of the dismount zones and reductions in enforcement capabilities, intermodal conflict has arisen as an issue critical to maintaining a safe and comfortable pedestrian-oriented campus. The Task Force concluded that presently there are no rules governing the transit across campus and there are and will be conflicts between the transportation modes. There are wide ranges of issues that must be addressed if any solution is to be effective. In a similar study a task force at Indiana University recommended:

1. Undertaking an extensive safety education program ensuring that the campus community understands the "rules of the road" and the inherent dangers associated with pedestrian, bicycles and vehicle traffic on campus.

2. Forming a standing committee or advisory body to maintain oversight of campus traffic safety issues and coordinate efforts with the City of Bloomington.

These recommendations underscore the importance of a behavioral change in people moving about campus and the need for long-term oversight and enforcement.
Since this is such an important issue we will address it in steps: first regarding vehicular traffic on campus, second the issue of bikes, skateboards and pedestrians traveling across campus and finally, the long-term infrastructure to enforce and maintain these capabilities.

Vehicles on campus

There are four types of vehicles on campus:

a. Buses

b. CU-owned service vehicles

c. Delivery vehicles

d. Private vehicles

While we acknowledge that there is a need to allow buses, delivery vehicles and CU-owned service vehicles access to most campus buildings, it is not always clear that there is a need for private vehicles to access the few roads that transect the core campus. Often it is easy to argue one's way into being allowed to drive through campus, which results in a great many private cars on campus. This adds to campus congestion, degrades pedestrian safety and makes it more difficult for buses and maintenance vehicles to carry out their assigned tasks. Often private vehicles park on the sidewalk or in other locations where they impede bus traffic and inconvenience pedestrians.

The Task Force felt that private vehicles should be excluded from the core of the main campus. This would require a change in historical parking arrangements for the limited number of parking spaces in the core of campus. In order to exclude private vehicles from this core it would be necessary to make other arrangements for those people who traditionally use these few remaining spaces in the core of campus.

Another suggestion that has been around for a while is to develop a "ring road" around the edge of campus that could be used by service and delivery vehicles to access buildings with less interaction with bikes, skateboards and pedestrians. This solution has been used effectively at many other universities. While a ring road for main campus is a bit more difficult it could be done. This is not a simple solution but has many attractive aspects that could provide a much more pedestrian friendly campus in the future. It is a solution that was recommended in the previous Master Plan but was not implemented. It merits further consideration and study as a possible contribution to solving the congestion problem on campus. Additionally, as we develop plans for the east campus, provisions should be made for a ring road there to avoid the problems we presently face with main campus. With respect to delivery vehicles we could limit the size of delivery vehicles to reduce campus congestion, encourage the use of smaller-electric vehicles for transit on campus to reduce congestion and limit the carbon footprint, and require some deliveries to be accommodated via dollies and hand trucks. We could also create a delivery schedule for buildings in the central core of campus to reduce conflicts with bikes and pedestrians.

The reduction in private vehicle traffic would make the main campus much more accommodating to pedestrians, bicyclists and skateboarders. Here we still have major conflicts that are emotionally charged for all campus users. Nevertheless, it is clear that we need to develop methods whereby all transportation modes are accommodated safely and comfortably. A solution to this problem is critical now and in the future as the potential for bodily harm is presently high and will rise as congestion on campus increases .

There are many possible solutions:

1. Segregated bike/skateboard and pedestrian lanes (construction of physical barriers required).
2. Dismount areas with pedestrian right of way (with adequate enforcement).
3. Adequate bicycle racks at edges of pedestrian-only zones.
4. Create pedestrian only 18th St mall.
5. Improve route finding on each campus (better maps, directional signs).
6. Use textured paving to delineate pedestrian routes.
7. Develop more safety awareness for everyone.
8. Implement a pedestrian zone where pedestrians have the right of way over bikes and skateboards.

Concurrent with the Transportation Task Force process, an intermodal/pedestrian safety action team (previously "pedestrian safety committee") has also been discussing, researching and brainstorming solutions to improve intermodal safety and comfort. This group should strive to develop membership includes the diverse perspectives of those affected by the issue, and should establish an ongoing committee or advisory group to continue the discussion and monitoring of safety and comfort issues.

Clearly the solution will involve some combination of these elements. Like the people at Indiana University, we at CU Boulder are in need of a behavioral change that will take education, information dissemination and enforcement. While part of the infrastructure change is to setup the educational components, another will be to establish the enforcement mechanisms. Most everyone agrees that the reason that earlier recommendations were not effective was that they were not enforced and therefore did not result in any culture change. The enforcement will also require long-term oversight, meaning that some type of board or committee must be formed and employed to ensure that these "rules of the road' are implemented and sustained.

There was agreement on the Task Force that the "engine alley", once a "dismount zone" for bicycle riders should again be a pedestrian only area. To achieve this goal it will be necessary to provide alternate routes for bikes, which could be the parallel sidewalk on the south side of the Norlin Quad. If this is to be an effective bike area it will be necessary to terminate the "engine alley" dismount zone at the 18th street cross walk and allow the bikes to circulate around the library. This solution is only a partial solution as there are many other areas where the conflicts between pedestrians and bikes/skateboards are very frequent and serious. We recommend a specific study to layout the best pedestrian only areas on campus with a simultaneous selection of alternate routes for bike and skateboards.

Once again we emphasize that an accompanying consideration in all of this is the need for enforcement to effect a "dismount zone" and bike/board paths. The present enforcement effort is not consistent and widespread enough to enforce this type of restriction. Without

enforcement none of these plans will be realized. The Pearl Street Mall is evidence of this where enforcement in the key to keeping this area free of bicycles and skateboards.

Event Parking and Traffic Flow

It must be recognized that CU is and will be an increasing venue for athletic events, concerts, high-school graudations, etc. During these events CU-Boulder and community parking and transportation resources need to be optimally utilized to provide convenient commuter access, parking and reasonably expeditious traffic flow into and out of campus. This will involve more transit, traffic and parking management to be successful but it must be planned for if CU is to succeed in being a successful and attractive event venue for Colorado.

Parking Allocation and Management

Independent of the transportation problems outlined above CU Boulder has some separate issues that relate strictly to parking. One such issue that has been reviewed by earlier transportation studies is the fact that CU Boulder has 4 different and separate parking administrations. While Parking and Transportation Services (PTS) has the responsibility for most of the spaces on campus there are still 3 other groups that administer their own parking: Athletics, Housing and the Research Property System. The Athletic Department also manages parking inventory, but doesn't control enough spaces to significantly affect parking management policy and decision making and will not be factored into this discussion.

The other two entities, however, have a large number of spaces, which are fairly arbitrarily administered. It is recommended here that these two other parking systems be integrated

with PTS. While it is true that parking rates will vary greatly between these 3 different it seems only reasonable that they should all 3 be administered by one single agency. This should reduce the need for administrative responsibility and affect some economy in managing the parking resources. This will become increasingly important as east campus is built out and PTS managed spaces are juxtaposed with research administered spaces.

We must also acknowledge that the central core of main campus is running out of space to put any additional parking. Thus, management of parking capacity becomes necessary. Many suggestions have been made to control parking and influence VMT. The sustainability panel recommended a return to the previous CU Boulder policy from some years ago that freshmen were not allowed to have cars, which would eliminate the need for freshman parking on campus. Consideration would have to be given to that freshman that need a car to get home during holidays, work, etc. A remote lot could be set up for these students.

No real guiding principle was arrived at by the Task Force for managing campus parking infrastructure. It seems implicit, however, that the campus parking be most available for those faculty and staff who must drive to work. These are the core workforce that make the university function and as such should have the highest priority when parking capacity is allocated.

Final Recommendations

1. Provide a reasonable parking rate structure for the core-campus and peripheral campus parking which uses the market based pricing model for those who choose to drive; which is generally used as the basis for pricing other real estate resources.

2. Use parking prices to help reduce VMT while avoiding the potential of pricing the Parking and Transportation Services out of business.

3. Encourage the use of "shared cars" and other innovative solutions to make it easier for faculty, staff and students to not drive to school.

4. Recognize the necessity of future growth on East Campus and promote reasonable solutions to the problem of commuting between campuses. This should encourage more bike and pedestrian transit and start with bus rapid transit. Future circumstances may motivate CU and Boulder City together to put up a gondola or perhaps start a streetcar that would service East and Main campuses.

5. Strive to maintain CU as a primarily pedestrian zone while providing opportunities for bicycle and skateboard riders to get across campus without a lot of interaction with pedestrians.

6. As much as possible, ban private vehicles from entering main campus or transiting through it.

7. Promote the use of smaller and electric vehicles for maintenance uses. Consider the construction of a ring road to promote traffic around the university rather than directly through it.