

Bicycle Initiatives
at the
University of Utah

submitted by the
Campus Bicycle Committee

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Chapter 1

Introduction

1.1 Abstract

This report seeks to outline the current state of bicycle commuting facilities on the University of Utah campus, and to propose a number of improvements to this infrastructure. The goals are both to manage existing bicycle use and to induce more members of the University community to ride to, from, and around the campus.

The particular issues addressed in this report are:

1. Bicycle routes
2. Bicycle security
3. Maintenance of bicycle facilities
4. Education and safety

Recommendations include the following general proposals:

1. Establish an extensive network of bicycle routes throughout the campus, making use of existing roadways (via Class II, striped bike lanes) wherever possible.
2. Working together with the City of Salt Lake and the State of Utah, improve the access to and from the campus, and between different sections of the campus for cyclists.
3. Increase the number of bike racks and bike lockers on the campus so that bicycles can be securely stored once they arrive on the campus. Improve recovery of stolen bikes through a mandatory registration program.
4. Establish mechanisms for direct reporting and repair of bicycle facilities.
5. Initiate an aggressive education and safety program to develop and maintain a harmonious, mixed transportation system that includes cyclists, pedestrians, and motorists as equal partners.
6. Develop a “Bicycle Master Plan” for the University and establish a standing committee to carry out and monitor the success of its proposals.

1.2 Scope of this Proposal

The aims of this report are to document needs in the present infrastructure for cyclists who commute, or would like to commute, to the University of Utah campus, and, more importantly, suggest improvements. We have designated four main areas in which improvements would have the most impact and have structured the work of the committee, and this report, accordingly.

Routes Chapter 2 deals with the bicycle routes on and around the campus, documents what exists, explains some general design and selection criteria, and outlines a series of proposed routes.

Security In Chapter 3, we discuss the two-fold problem of security on the campus. On the one hand, cyclists need to be able to park at or near their destinations secure in the knowledge that they will return to find their bicycles in the state they left them. On the other, new, practical policies and procedures for riding conduct are needed to manage the anticipated increase in bicycle use on the campus. To increase the likelihood of retrieving stolen bikes, and to address some of the issues related to enforcement of bicycle policy, a mandatory registration plan is described in this chapter.

Maintenance Since cyclists are more susceptible to inadequate maintenance than other forms of transportations, Chapter 4 contains several proposals which should improve both reporting and execution mechanisms for the University's grounds and maintenance teams.

Education Very few of the improvements we are suggesting in this report will have effect if they are not transmitted to the users. Hence we have dedicated Chapter 5 to matters relating to education and the distribution of information. Of special importance in this context is the use of education to improve the level of safety for cyclists and pedestrians who use the roads, sidewalks, and bike routes of the campus.

We have not dealt explicitly with the issue of funding for the improvements we suggest since this is beyond the present expertise, scope, and purpose of the committee. While Campus Planning has generated cost estimates for several different sets of routes, we feel that realistic planning, prioritizing, and costing should occur in a second step once the principles of this proposal have been adopted. The CBC is prepared to participate in this process, together with Campus Planning and the University Administration.

We have made every attempt to propose improvements that will meet the needs of cyclists for whom they will be constructed. We feel it is impossible to overstate the need for ongoing involvement of regular cyclists at every stage of developing new facilities. Experience has shown that only by incorporating the needs of the users can efficient and usable improvements be accomplished. The Campus Bicycle Committee is an obvious vehicle for such involvement, since it includes representation from a broad range of groups within the campus community, all sharing a common commitment to making the use of bicycles a functional and attractive means of commuting to the University of Utah.

1.3 Options and Goals

The cyclists who do commute regularly by bike are proof that it is possible to use the bicycle as an effective means of transportation in Salt Lake City. The uniform opinion of potential bicycle commuters that facilities are in need of major improvements underscores the potential for a significant

shift in commuter traffic from automobile to bicycle *if these improvements can be implemented*. The benefits of such a change in commuting are manifold and clearly justify action by the University.

However, even if not actively encouraged by the University, indications are that bicycle traffic will increase, no matter how we respond. At this juncture we appear to have two distinct paths to follow.

1. The University can maintain the *status quo* and attempt to react to crisis situations as they arise.
2. Or the University can assume its leadership role, and its responsibility as the largest generator of traffic in the State, and make the necessary improvements so that this institution becomes known as a place that welcomes and encourages safe, efficient, and harmonious use of the bicycle.

The Campus Bicycle Committee strongly supports the latter position and this document summarizes the results of a year of research and meetings with the aim of devising a strategy to meet this challenge. The goals of this strategy include:

1. Increase ridership from the estimated current 3% to at least 6% of the campus community. This would mean approximately 1000 fewer cars on the campus, the same improvement achieved through the free UTA bus pass program implemented in 1991/92 (at a cost to the University of over \$500,000, or \$500 per car).
2. Fully integrate bicycle use into the traffic flow on and around the campus.
3. Register every bicycle used on campus.
4. Provide safe, convenient bicycle parking and storage for all those who desire to commute to the campus.
5. Implement education programs directed at all members of the campus to ensure the safe and orderly use of bicycles.
6. Institute a grounds maintenance program that is better able to respond to the needs of cyclists and pedestrians.
7. Assume our role as a community leader in encouraging and facilitating human-powered transportation as an alternative to other, polluting forms of transportation.

1.4 History and Background

1.4.1 Bicycle Committees at the University of Utah

We are certainly not the first group that has recommended improvement to bicycle facilities at the University of Utah. Our most recent predecessor, the *Bicycle Access Committee*, was formed at the behest of the Academic Senate in November, 1988, and generated a report which is included in Appendix A.1 of this document [1]. Despite enthusiastic acceptance of this report by the Senate in 1989, virtually nothing of what was proposed by this committee has been implemented. Our recommendations are a superset of those generated by the Bicycle Access Committee, expanded both in their scope and the detail in which we present them. Our message is the same, only the

size and number of the problems have increased in the interim so that the need for action is even more pressing.

The present group, the *Campus Bicycle Committee* (CBC), was formed as a subcommittee of the *Parking System and Public Transportation Advisory Committee* and was asked to report on the adequacy of current bicycle facilities and to recommend improvements. The desired result would be that more commuters would leave their cars at home and ride their bicycles to and on the campus. Since October, 1991, the CBC has met regularly and has expanded to include representation from various geographic regions of the campus and all segments of the university community. We enjoy membership from representatives of the Campus Planning Office, Campus Police, the ASUU, the Salt Lake City Mayor's Advisory Bicycle Committee (MBAC), and the Bonneville Shoreline Trail Committee; membership of the CBC includes both undergraduate and graduate students, faculty, and staff. On May 14, 1992, members of the CBC presented a preliminary report to their parent committee and were encouraged to continue with the full report. Meetings were chaired by Jon Harper during 1991/92, with Dr. Robert MacLeod assuming these duties upon Mr. Harper's resignation from the University in July, 1992. A complete membership list of the committee is included in Appendix A.3.

1.5 Bicycling as a Means of Transportation

The bicycle is the most efficient means by which humans can be transported; a bicycle consumes no fossil fuels, produces neither pollution nor noise, and requires one-twelfth of the space (on the road and in the parking lot) of a car. Cycling benefits not only the environment but also the cyclist, promoting muscular fitness and cardiovascular conditioning, with all the associated improvements in physical and mental health.

Nationwide, 54% of employees live within 5 miles of their place of work and a similar situation prevails around the University of Utah campus. A recent (1992) poll conducted by Louis Harris and Associates for *Bicycling* magazine indicated that while only approximately 2% of Americans reported commuting by bicycle within the last month before the survey, fully 21% stated that they would use their bicycles to commute regularly if there were either safe bicycle lanes, showers and bike storage at work, or financial incentives offered them by their employer (see Appendix A.2). In a report prepared by University of Utah engineering students, the total number of regular cycling commuters was estimated at 1100 individuals, or 3% of the University population [2, 3, 4] (Appendix A.5). The University of Washington in Seattle reports a regular ridership of 7.3% and are currently implementing improvements in facilities with the aim of reaching 15% [5]. They, too, identified safe bicycle access to the campus, internal facilities for storage of bicycles, and campus bicycle routes as the main concerns of cyclists.

While relatively few studies have been carried out at the University of Utah (see section 1.6), results to date reinforce the finding that at least a severalfold increase in ridership could be achieved if bicycle routes to and on the campus were improved and additional, secure parking and bike storage facilities were provided. Likewise, many respondents expressed a need for more direction and education in informing cyclists, pedestrians, and motorists as to the behavior that is expected of them on the campus.

1.6 Input from the Campus

At the University of Utah we know of only two surveys that have been carried out to gauge interest for bicycle commuting. While neither of these have been comprehensive, their results serve at least to direct attention to specific issues of concern to active and potential bicycle commuters.

1.6.1 1991 Survey

Shortly after the formation of the CBC, a request for feedback on bicycle commuting issues was published in the University *FYI* Newsletter, which is delivered to all faculty and staff. A copy was also posted to the campus computer network and responses were collected over the next nine months, in the form of electronic mail messages and letters to the committee. A collation of these responses (almost forty pages of text) is included in Appendix A.4. One response resulted in contact with the University of Washington, whose own *Bicycle Advisory Committee* had just prepared a review of facilities on the Seattle, WA campus [5].

Responses to our survey revealed both the large number of cyclists who would like to use their bicycles to commute, as well as the variety and severity of problems with existing bicycle facilities on and around the campus. Complaints ranged from reports of being soaked by errant sprinklers to the lack of enforcement of bicycle policy, from inadequate parking to negligent work crews leaving trenches unmarked and invisible to the nighttime cyclist, from bike lanes blocked by parked cars during football games to lack of access to shower facilities in the Medical Center. Suggestions included more bike racks, lockers and lanes, a bicycle repair outlet on the campus, reduced automobile speed limits, and bicycle education programs. The specifics of these problems will be described throughout this report, together with suggestions for their amelioration.

1.6.2 1992 Survey

As a result of cooperative efforts among Campus Planning, the CBC, and the Salt Lake City Department of Transportation (SLCDoT), several groups of civil engineering seniors were given the opportunity to study bicycle access on the University of Utah campus as part of the course “Transportation Facilities Planning Reports”, Civil Engineering 572, taught by Mr. Tim Harpst (Director of the SLCDoT) with assistance from Ms. Julie Eldridge, Salt Lake City’s newly appointed Alternative Transportation Coordinator. This produced three separate reports on various aspects of bicycle needs ([2, 3, 4] included in Appendix A.5) , as well as a survey carried out by the students on the campus. Their findings not only corroborated those of our own survey but provided valuable feedback on some of the proposals that were under consideration by Campus Planning and the CBC.

Chapter 2

Bicycle Routes

2.1 Overview of Current Status

At present, the University of Utah allows cyclists complete access, albeit at a restricted speed (10 m.p.h), to all sidewalks within the campus. Otherwise, no special facilities exist to assist in moving bicycles through the campus. Several roads leading to the campus are designated bicycle routes of all three classes* implemented by the City of Salt Lake, but the routes end once the roads enter the campus proper. A small number of roads that traverse the campus have shoulders wide enough for bicycle use (*e.g.*, Wasatch Drive), but these often begin and end without warning.

Jurisdiction over roads that lead through the campus is mixed, with the City of Salt Lake, the State of Utah, and the University of Utah each controlling sections. Likewise, speed limits are inconsistent, ranging from 10 m.p.h. in the parking lots through 25 m.p.h. for some of the innermost roads, to 40 m.p.h for the major thoroughfares. Access to the campus by pedestrians and cyclists is severely restricted along Foothill Drive from Sunnyside Avenue, to Guardsman Way, and along North Campus Drive, east of University Street.

2.2 Route Planning Strategy

2.2.1 Overview

The philosophy of the Campus Bicycle Committee in recommending bike routes is that bicycles are intermediate-speed vehicles and therefore can be (and must be) integrated with both auto and pedestrian traffic.

As described in Chapter 1, the use of bicycles has the potential to impact in a significant way on many aspects of transporting people to, from and around the University of Utah. One major reason that more people do not use their bicycles is that they do not consider the campus a safe place to ride. In our 1991 survey (see Appendix A.4), some long-time bicycle commuters expressed grave concern over whether increased use of bicycles should even be encouraged at the University of Utah because of the already limited bicycle routes. Paradoxically, while there are numerous roadways throughout the campus, the lack of designated bike lanes, combined with the high speed of automobile traffic, reduce their utility. Hence comes our goal of *making existing roadways more amenable to safe bicycle use by implementing reduced speed limits and incorporation of Class II bikeways* (marked by road striping and signs) wherever lane widths and jurisdiction permit.

*See [6] for explanations of bikeways classifications

The value of sidewalks for moving bicycles in and around the central campus area is obvious. Bicyclists, like motorists, wish to park as close as possible to their destination, and, given appropriate caution and mutual respect, we believe, cyclists and pedestrians can co-exist on the same paths. Therefore, it is natural that *bicyclists continue to use all sidewalks on campus*. In order to manage safely the resulting mixture of bicycle and pedestrian traffic, however, some changes are required. Reduced cycling speed, perhaps even dismounting in critical areas during high-use periods, clear, simple rules of conduct for both cyclists and pedestrians, and some marking and designation of selected sidewalks as recommended bike routes are all components of a sensible and practicable plan for mixed use of existing sidewalks.

2.2.2 Design criteria

Here we describe the criteria used to select and recommend routes for bicycle traffic within the University of Utah campus. Some of the definitions for route types reflect standard practice in bike lane design [6], while others were developed for particular application to the University of Utah.

2.2.2.1 Class I routes

Class I bike routes are those that are completely separated from automobile traffic and designated for exclusive bicycle use. An example of such a route in Salt Lake City is the path which parallels Foothill Boulevard from Sunnyside Ave. to Wasatch Boulevard. When naively considered, it would seem prudent to place bicyclists on such dedicated routes. However, even assuming that enough routes of this sort could be constructed to satisfy cyclists' access requirements, in practice, Class I routes have not always been effective. In fact, Class I bike routes have been found to be some of the most dangerous places to ride a bike [7]. One reason suggested for this is the fact that almost every Class I route must ultimately intersect a roadway, or another bikeway. Neither motorists nor cyclists are prepared for this sudden interaction and in the resulting confusion accidents occur more frequently. Of less gravity than physical injury are the prohibitive costs of Class I routes and the intrinsic sacrifice of green space they require. While re-striping an existing roadway to include a Class II bike lane presently costs approximately \$4,000–\$5,000 per mile, including signs, the same mile of Class I route would cost approximately \$50,000 to construct ([8], see Appendix A.6). In light of this information and given the existing situation on the University of Utah campus, we have chosen to propose Class I routes only where they are absolutely required.

2.2.2.2 Routes associated with streets (Class II)

Class II bicycle lanes are areas of the road surface that have been designated for exclusive bicycle use by special surface striping and signs. These lanes are not to be used by cars, either while moving, or when parked, but represent a sharing of the same roadway by motorists and cyclists. In order to cycle onto the University of Utah campus from the city, it is necessary to cross or use one of the many busy streets that encircle or traverse the campus. Where possible, *we recommend Class II routes on all campus streets* for the most efficient movement of bicycles around the campus. Cyclists using the road surface are not on the sidewalks, which will both increase the number of cyclists that the University can safely manage, and ameliorate crowding for pedestrians and other cyclists who are using the sidewalks to reach their final destinations.

To incorporate a Class II route, a street should be wide enough to accommodate the 8–10 feet of bike lane required on both sides. Some parallel parking along the road can be tolerated as long as

there is adequate space for cars and trucks to park completely off the marked bike lane. This may require moving, or even removing, existing automobile lanes or parking. At intersections, there should be appropriate markings and sufficient room provided to allow for motorists turning right and cyclists continuing straight ahead to merge and cross, as described in the standards for bike lanes for the State of California [6].

2.2.2.3 Recommended sidewalk routes

To be designated as a recommended sidewalk bike route, a sidewalk should traverse long distances across the campus, and either be wide enough to accommodate bikes and pedestrians simultaneously or have separate, parallel surfaces. There should be no obstacles such as stairs without bypass lanes or curbs without ramps. Where practicable, steep grades should be avoided for sidewalks that are to be shared by cyclists and pedestrians. All recommended sidewalk bike routes should be marked with signs and contain additional signs where they cross other sidewalks, especially those also designated as recommended bike routes. Although this designation does not in any way preclude bicyclists from using other sidewalks, nor restrict pedestrian access, we hope it will help to direct bicycle traffic to corridors better able to handle safely high volumes of both bicycles and pedestrians.

2.3 Links with Off-Campus Bicycle Routes

The City of Salt Lake already provides, or plans to provide, several bike routes, in the form of marked Class II or unmarked Class III bike lanes, to the campus (Appendix A.6). These routes concentrate the flow of commuters at several access points to the campus proper. One example of this is the Class II bicycle route along Guardsman Way, which links with the Class III route on 1500 East. This route alone accounts for as many as 100 bicycles per hour entering the campus [4]. Discussion among the Departments of Transportation of both the City of Salt Lake and the State of Utah, and Campus Planning is currently underway to expand the number of bicycle access points to the campus, as documented in the proposed Salt Lake City Master Bike Plan ([8], Appendix A.6). The University must play an active part in this process, both to ensure that access is provided where it most needed, and to demonstrate its commitment to bicycle commuting in general.

On the campus side of these access points, there exist almost no special facilities to get bicycle commuters to their final destination safely. For example, at the Guardsman Way access at the corner of 500 South, cyclists share with numerous pedestrians a pair of narrow sidewalks. The existing Class I bike path which parallels Foothill Boulevard ends without warning on a sidewalk on Wasatch Boulevard, with no obvious continuation or even curb access to the roadway. The need for improvement of this situation is obvious, and played a major part in directing the selection of proposed routes described in this report.

2.4 Links with Public Transportation

The use of bicycles and other forms of transportation are not mutually exclusive means of getting to and from the campus. Many commuters to the University currently arrive by car with a rack-mounted bike with which they move around the campus. The Utah Transit Authority (UTA) will soon permit bikes to be mounted on some public buses so that cyclists can ride to the nearest bus stop, use the bus to get to the campus (uphill), and then return home by bike (downhill).

We strongly encourage such mixed modes of transport, especially if cars are being parked in peripheral lots, or, better still, off the campus entirely. Any further stratification of parking permits (and costs) should support this mode of commuting. The use of bikes on buses (or an eventual light rail system) should be seen as a “match made in heaven” since it permits even more people to leave their cars at home and still achieve efficient commute times.

2.5 Route Recommendations

In order to present the route configuration we propose for the University, we have divided the campus into several regions and will treat each in a separate section below. Figure 2.1 contains a schematic representation of the different regions on and around the campus and how we seek to connect them. We look at routes within each region, but also, perhaps even more important since it reflects one of cyclists’ most often reported needs, we suggest how to *link* different regions. The remainder of this chapter is divided into sections, each of which deals with one of these specific regions, its present status, and which improvements we feel are most appropriate.

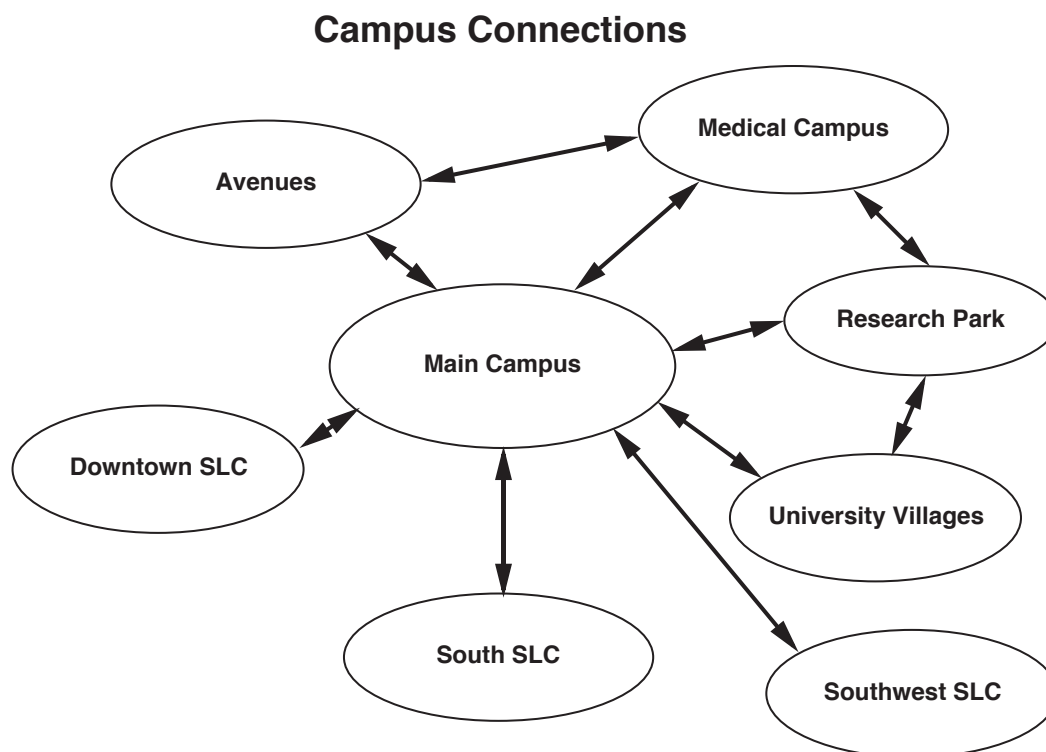


Figure 2.1: A schematic representation of the different areas on and around the campus that we wish to connect with bicycle routes.

Many of the suggestions for improvements to the links to/from the lower campus involve roads that are under either City or State jurisdiction and hence require the active participation of both entities. It is our perception that in the past cooperation between different branches of government with the University has been less productive than it could be. To improve this situation, which will be of benefit not only to bicycle interests, we would like to repeat a suggestion made by our predecessors, the Bicycle Access Committee [1], that *regular meetings among University, State*

and City officials, at least at the level of Planning and Transport Divisions, be instituted. In fact, such meetings have recently (summer of 1992) begun to occur and have already produced tangible results. We recommend that this process be formalized and supported by the University Planning Dept. and Administration.

2.5.1 Upper (medical) campus

2.5.1.1 Present situation

Within the region: We have defined the upper campus to begin at Wasatch Drive and extend eastward to include the golf course, the Broadcast Center (under construction), the Medical Center, with associated research departments, and the University Student Apartments (USA) in the Medical Towers. There are no designated bicycle routes in this part of the campus so cyclists either share the roads with motorists, or use sidewalks. The west side of the north end of Medical Drive has a shoulder which is wide enough for bicycles, but this disappears about 100 yards north of the intersection with Medical Drive South. A great portion of the commuter traffic to this area is associated with employees or medical students and hence follows a stable pattern of arrival in the morning, leaving a bike parked in a single location for the day, and departing the campus later in the day.

Links: The state of the links between the lower and upper parts of the campus was identified as a significant problem in the campus bicycle survey, especially for those who work or attend classes in the medical schools or departments (see Appendix A.4). At present, there are three possible routes between the upper and lower sections of the campus, each of which has limitations for cyclist and pedestrian use.

Wasatch Drive to Medical Drive: This route is probably the most popular one for motorized commuters since it carries traffic from both South Campus Drive and Foothill Boulevard via Wasatch Drive. One of the critical locations on this route for cyclists is the very narrow ramp leading from Wasatch Drive up to Medical Drive, which has been further compromised by recent repaving that has left the curbside several inches lower than the main asphalt surface. There are no sidewalks along this route, which makes it virtually inaccessible to pedestrians.

Sidewalk from Wasatch to Medical Drive: This sidewalk leading through the golf course, beside the new Eccles Broadcasting Center, serves as the major access route for cyclists and pedestrians to/from the upper campus. Together with the complications which arise from the shared use of a rather narrow sidewalk, the utility of this link is hampered at the west (lower) end by an unregulated pedestrian crosswalk on Wasatch Drive, and at the east (upper) end by a difficult intersection at Medical Drive.

North Campus Drive: This route provides motorized access from the Avenues, Federal Heights, and for a good deal of the downtown traffic, via 100, 200, and 300 South. It is singularly unattractive to cyclists and pedestrians due to its lack of sidewalks or bike lanes, its steep incline, and its limited lane width. This route is probably used more frequently by cyclists in the downhill (westerly) direction because bicycles can better flow with motorized traffic at the higher speeds the descent permits.

There is one further route which links the upper and lower campus via roads through Fort Douglas, but this will be discussed in the section dealing with links to and from Research Park (section 2.5.3).

Another major source of bicycle traffic is the Avenues area. To access the upper campus from the Avenues involves either taking an off-road route high above the University, dropping down to Wasatch Drive or below, or carrying the bicycle across one of two very busy and unmarked crossings along North Campus Drive. Exiting the upper campus at the level of Medical Drive does allow legal turning access to either Federal Heights Drive or Penrose Drive, but any other route again requires either leaving the road or navigating a dangerous crossing of solid meridians.

2.5.1.2 Proposed improvements

Within the region: The most important artery through the upper campus is without doubt Medical Drive. Therefore, we recommend the following:

1. The speed limit on Medical Drive should be reduced to 30 m.p.h.
2. A class II bike lane should be implemented on both sides of Medical Drive from at least North Campus Drive to the intersection with Medical Drive South.

Within the upper campus area, the most pressing problem is without doubt the intersection of Medical Drive, Medical Drive South and 1900 East. However, since this intersection also plays a crucial part in the links to and from the upper campus, improvements are described in the next paragraph.

Links: As a general rule, all Class 1 bike routes or recommended sidewalk routes which are constructed or modified for use in linking the upper and lower campus should be made wide enough to handle the anticipated level of both cyclist and pedestrian traffic. This is especially important because of the wide disparity in potential speeds between uphill and downhill bicycle traffic in this part of the campus. There must be space enough for cyclists in the uphill direction to walk their bike, and be passed easily by riders in both directions, without endangering the pedestrian traffic. Where possible, pedestrian and cycle traffic should be separated in dedicated lanes.

The most suitable place for links between the upper and lower parts of the campus is through the golf course and Fort Douglas. We foresee the eventual existence of three such routes:

Southern Link Path This route already partially exists, although widening of the surface is necessary, in the sidewalk that runs by the Eccles Broadcast Center. The west end to this path has recently been incorporated into the driveway of the Broadcast Center, a situation which must be watched for potential safety problems once the building is in operation.

Northern Link Path We propose a second, northern, path, in the form of a Class I bike route, which would run from the intersection of Federal Way and Wasatch Drive, east through the golf course to the entrance to Primary Childrens' Hospital. This route would mesh well with the proposed conversion of Federal Way to a pedestrian mall and we strongly recommend that a separate (Class I) bicycle lane be incorporated into the design of the Federal Way mall.

Fort Douglas Link Such a route would provide access from the southwest corner of the campus to the medical campus and is described in more detail in section 2.5.3

Figure 2.2 shows a sketch of the two routes through the golf course, with the proposed pedestrian/cyclist activated semaphore on Wasatch drive and the Class II routes on the roads.

In order for these links to be used safely by pedestrians and cyclists, access to the routes must be improved. We recommend the following specific measures to this end:

Medical Campus Connections

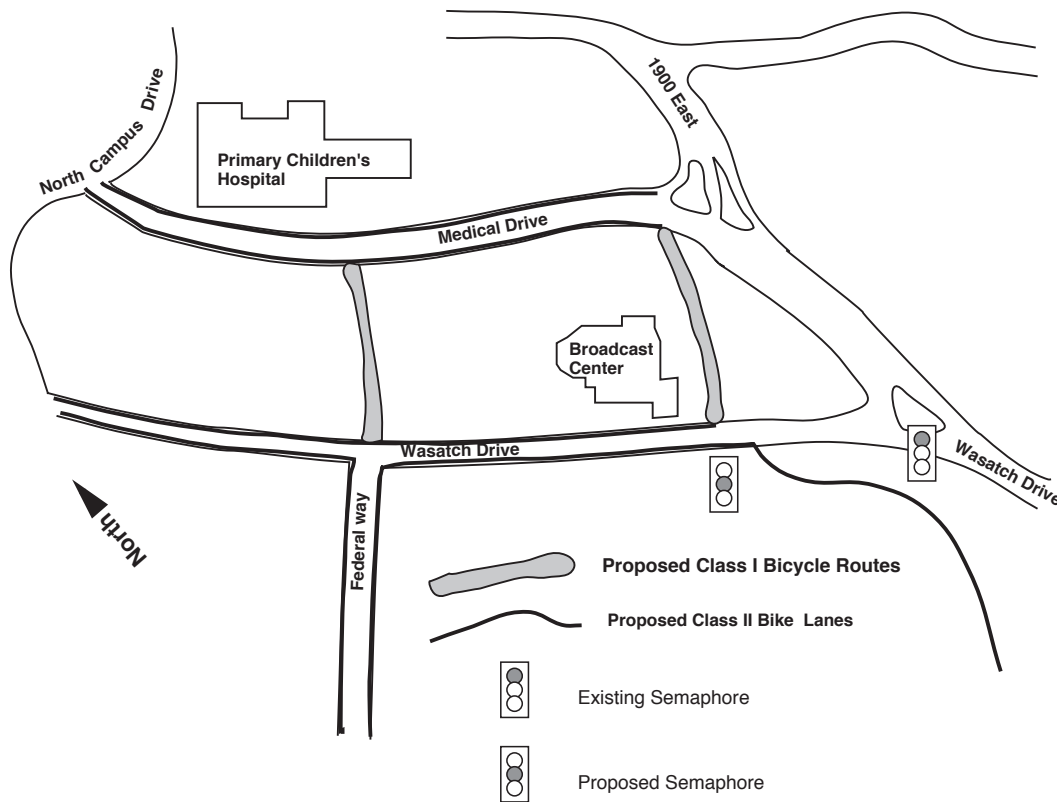


Figure 2.2: A sketch of the links between the lower and medical sections of the campus, together with the proposed Class II bike lanes and pedestrian/cyclists activated semaphore on Wasatch Drive.

1. The speed limit along Wasatch Drive and Medical Drive be reduced to 30 m.p.h. along their entire lengths.
2. A Class II bicycle lane be established in both directions on Wasatch Drive between South Campus Drive and North Campus Drive.
3. The intersection at Medical Drive and 1900 East is a major hub for the medical campus and while its current level of complexity is intimidating, it fails to meet even the basic the needs of pedestrian, handicapped, or bicycle access and requires close examination and improvement.
4. A Class I bike lane and sidewalk be installed on the south side of Medical Drive where it leaves Wasatch and climbs toward the upper campus. This route should bypass the intersection with 1900 East and provide access for cyclists heading to either 1900 East or Medical Drive South.
5. Pedestrian/cyclist semaphore be installed at the junction of the Southern Link Path with Wasatch Drive. These lights would be controlled by those wishing to cross, and could perhaps be programmed to flash amber during anticipated high-use periods.

6. A similar semaphore be installed on Medical Drive at Primary Children's Hospital where the proposed Northern Link Path meets Medical Drive. Suitable crosswalks and breaks in the median should also be constructed at this location.
7. A Class I bike lane be constructed which would provide access to Ballif Road (and eventually South Campus Mall) from the southern link without having to enter the Van Cott Hall parking lot. This route could parallel the existing sidewalk, but be sloped more gradually and meet Ballif Road beyond the first curve.
8. A break in the pavement that would allow cyclists to cross North Campus Drive at Wasatch Drive (and Penrose Drive) be constructed and provided with cyclist/pedestrian controlled semaphore.
9. Prior to its eventual conversion to a pedestrian mall, Federal Way should be converted from three automobile lanes to two automobile and two bike lanes.

2.5.2 Lower campus

2.5.2.1 Present situation

We have defined the lower campus of the University to be the region west and north of Wasatch Drive, east of 1300 East and south of North Campus Drive. This area probably sees the most traffic, certainly the most student traffic, of any part of the campus and a good portion of this traffic is bicycle and pedestrian. Due to this high density of travellers and destinations, this is also perhaps the most difficult area to manage, as cyclist and pedestrian meet each other in large numbers on the limited sidewalk space, with divergent destinations. Traffic patterns differ from those in the upper campus, with frequent movement of bicycles from building to building as students change classes, or visit the library and the Olpin Union.

Links: There are several important access routes used by cyclists to enter and leave the lower campus, besides those discussed in other sections of this report. The most heavily used is certainly the intersection at Guardsman Way and 500 South, where some 100 cyclists per hour were counted ([3], Appendix A.5). The design of this intersection and the light change pattern that is implemented there seem to conspire to encourage certain dangerous cycling practices (*e.g.*, riding against the flow of traffic in a southerly direction on the east side of Guardsman Way). This intersection is also heavily used by pedestrians and cyclists who leave their cars in the Guardsman parking lot [3], as well as commuters from the West Village of University Student Apartments.

Another major feeder road to the lower campus is University Street. Despite its present Class III bike route status, this road remains very busy with limited space for cyclists to maneuver. Hence, many cyclists leave this road and enter the campus as soon as possible, to continue their north/south journey via sidewalks. This street is a perfect example of what could be gained by establishing safe bike lanes so that cyclists would complete more of their journey on the road and not the sidewalks of the campus. As part of the City Development Block Grant program for 1993, funding is being sought by representative of the Mayor's Bicycle Advisory Committee to finance a conversion and extension of a Class II bicycle route on this street.

Access to the campus via 400 South is currently problematic because of the difficulty of getting from the right-hand (south) lane of 400 South across the road and into the campus before entering the tunnel at Rice Stadium. A bike ride through the tunnel in its current state is a harrowing experience for the cyclist because visibility is poor, lanes narrow, and the road curving.

For commuters approaching from north of the University, the situation is particularly difficult when attempting to cross 100 South/North Campus Drive. There are presently no signals to stop traffic along the entire northern boundary of the campus, hence no safe crossing possible for cyclists and pedestrians during rush hours.

2.5.2.2 Recommended improvements

This core of the lower campus area has been the target of several studies and a survey performed by students of the 1992 Civil Engineering 572 class (see Appendix A.5). There have been several different strategies suggested for improvement of bicycle facilities in this part of the campus, including: designation of certain sidewalks for the exclusive use of cyclists; division of existing sidewalks into bicycle and pedestrian sections, indicated by paint striping or signs, sometimes with widening of present sidewalks; restrictions on riding within the central portion of the lower campus for some part of the day; construction of several dedicated Class I bike paths to cross the campus.

Based on the studies and surveys carried out, and our own observations of this and other comparable universities, we feel that a combination of the above list of strategies, in modified form, would be the best solution. We agree with many respondents to the survey that any approach should contain a significant education component and that regulation be applied only when problems persist (see Chapter 5). For example, on the shared sidewalks, at present neither cyclists nor pedestrian really know where they are expected to be and some clear ‘rules of the sidewalk’ must be made public. We suggest that sidewalk users operate under a “keep right” policy, with the slower traffic (pedestrians) to the outside and the faster (cyclists) near the middle, much like multi-lane highways work.

We do not believe that significantly restricting either cyclist or pedestrians to particular routes will work in the congested core of the lower campus. We feel that by providing better, safer bicycle access to buildings via the roadways that already exist, we can reduce the pressure of large number of cyclists on the sidewalks. Cyclists will take a longer route if they can ride it safely at higher speeds than the sidewalks allow. In matters of right-of-way, there should be no question that the pedestrian is to have highest priority, and that cyclists are to yield and adjust their speed and behavior according to traffic levels.

At particularly busy times (*e.g.*, during morning class changes), there are limited parts of the campus that could be designated as “dismount zones”, in which cyclists would only be allowed if they walk their bicycles. Such areas should generate enough pedestrian traffic to warrant such treatment, and should offer alternate bypass routes to cyclists, *e.g.*, the plaza east of the Marriott Library. During less-critical times of day, these same zones could revert to a “caution zones” status, with restricted speed limits and warnings to cyclists to be particularly careful. We do not recommend implementation of such a measure at this time but see it as a possible solution to congestion problems should they become otherwise unmanageable.

We also encourage the designation of certain sidewalks as “recommended sidewalk bike routes”, which will be marked by signs and highlighted in a campus bicycle map. Such a designation should not restrict pedestrian traffic, but simply indicate that because of their advantageous size and design, these sidewalks are particularly well suited to mixed bicycle/foot traffic (see Section 2.2.2.3 for details of this designation).

Figure 2.3 describes a few of the improvements we suggest for the South Campus Drive area of the lower campus. A list of specific recommendations for improvements in the lower campus area includes the following:

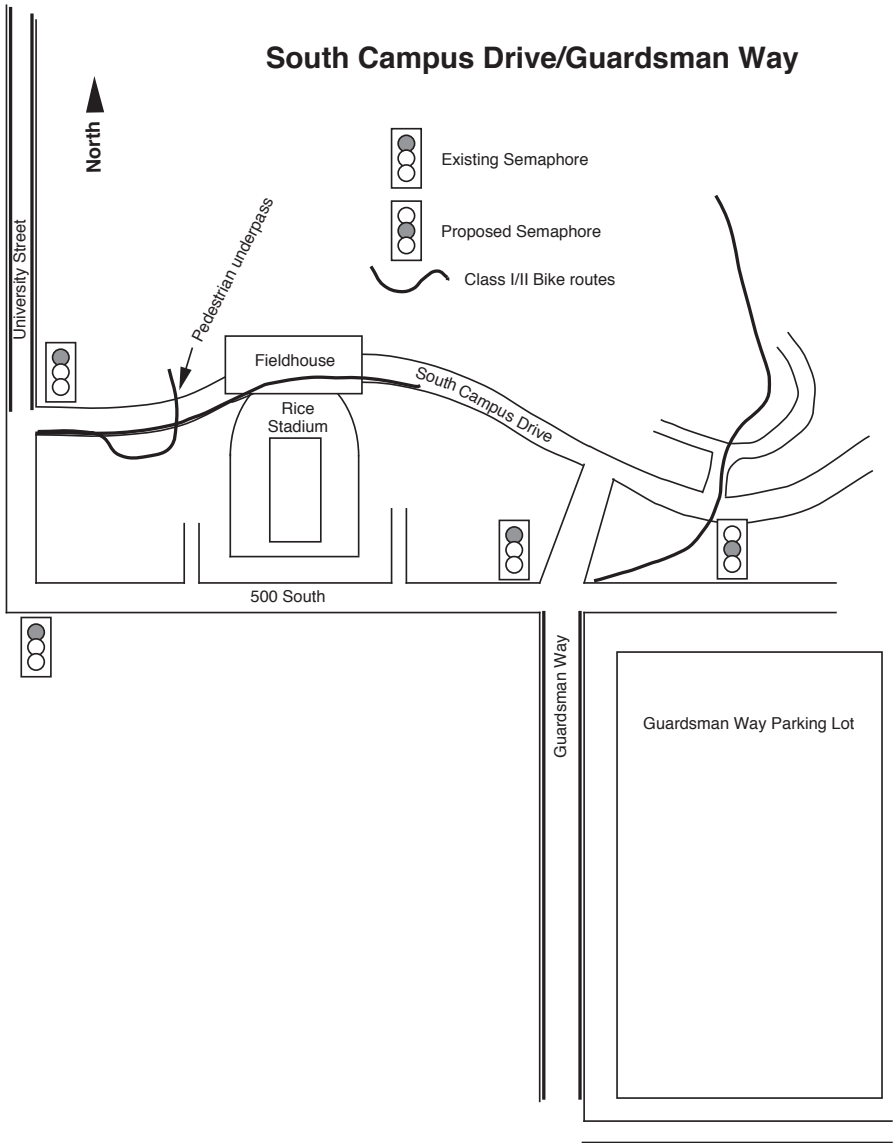


Figure 2.3: A sketch of the South Campus Drive area, including the proposed improvements in Class I and II bike routes and additional semaphore.

1. Continue to allow access by both cyclists and pedestrians to all sidewalks.
2. Aggressively educate users in the behavior expected of them when using the sidewalks (see Chapter 5)
3. Designate as recommended sidewalk routes the following:
 - (a) the sidewalks which runs from Merrill Engineering Building, between Student Services and the Union to the Marriott Library Plaza, and then on by the School of Architecture to the intersection with South Campus Drive.
 - (b) South Campus Mall
4. Add Class II bike routes to all roads through the campus.

5. Reduce the speed limit on smaller roads through the University to 20 mph.

Links: Below are the specific suggestions relating to linkage to/from the lower campus, organized according to the area these links could serve.

Regarding the intersection at Guardsman Way and 500 South, we propose the following changes:

1. Widen both of the sidewalks leading from the northeast corner of the intersection to South Campus Drive and designate one for cyclists, the other for pedestrians.
2. Add a pedestrian/cyclist activated semaphore where these sidewalks cross South Campus Drive
3. Implement a no-car segment in the light cycle of the intersection so that cyclists and pedestrians can cross diagonally and safely reach the appropriate lane when they leave the intersection.
4. Add a Class II bike lane on Campus Center Drive where it enters the Guardsman Way/500 South intersection so that cyclists can line up to proceed straight across 500 South and not be threatened by right-turning cars.
5. Strictly enforce the laws which forbid parking on the Guardsman Way Class II bike lanes, especially during events at Rice Stadium and the Huntsman Center.
6. On the east side of Guardsman Way, either level and widen, or remove the existing unregulated parking spots. Cars are currently wedged into the spots on a steep incline which allows only poor visibility of passing cyclist in the bicycle lane.

For the west access to the campus, we recommend:

1. Constructing a Class II bike lane on University Street by restricting parking on the west side of the street (currently under application through City Development Block Grant program).
2. Providing bicycle access from South Campus Drive to the underground pedestrian tunnel from Rice Stadium parking to the plaza in front of the Einar Neilson Fieldhouse.
3. Converting the sidewalk that passes under the Rice Stadium tunnel (currently unused since pedestrian traffic is forbidden), into a class Class I bike lane along the south (climbing) side of the tunnel.
4. Adding Class II bike lanes on the south side of South Campus Drive from the intersection with University Street to the tunnel bike lane, then beyond the tunnel to the bus shelter.

For access from the north, we recommend the following:

1. Construction of a semaphore at North Campus Drive and South Wolcott Street.
2. Restriction of speed on North Campus Drive to 30 mph.

For commuters approaching the University from the VA Hospital and Foothill Boulevard we recommend the following:

1. Construct sidewalks and semaphore at the corner of Foothill Boulevard and Wasatch Drive. Cyclists should be able to ride on the northwest side of this intersection to the entrance of the Wasatch Clinics in order to access the campus through the parking lots southwest of South Campus Drive. This recommendation is currently under discussion by a University/City/State committee which has met informally to discuss joint projects of this nature. At present, it would appear that is the University is willing to construct the necessary sidewalks, the State will alter the intersection as required.
2. At the semaphore, provide access for cyclists on the Class I bike lane to cross Wasatch at the intersection with Foothill and join the sidewalk described above.
3. Continue the Class I bike lane parallel to Foothill Boulevard further up Wasatch Drive and provide for smooth transition to a Class II bike lane that should run the rest of the way up Wasatch Drive to the entrance to Fort Douglas.
4. Construct a pedestrian/cyclist semaphore on South Campus Drive at 1820 East.

2.5.3 Research Park and Fort Douglas

2.5.3.1 Present situation

University Research Park (URP) is not only home to many university-related industries, it also includes the East Village of University Student Housing and its 322 one-, two-, and three-bedroom units. If just one person from each apartment in the East Village were to use a bicycle to commute the 1–2 km to the campus, this would represent a 35% increase in bicycle traffic over current levels and achieve one-third of our goal of increasing bicycle use from 3 to 6 percent of the university community. Hence we feel that special consideration be given to the bicycle facilities that link all parts of the University Student Housing system to the campus (see section 2.5.4).

Within the region: The chief problems with cycling in URP are the level of motorized traffic during peak periods and the lack of any bicycle lanes or shoulders. Corners and crossings are designed for unimpeded flow of automobile traffic and the typical flow patterns are often intimidating and unsafe for cyclists. This is most acute at the corner of Arapeen Drive and Colorow Way, in cases where motorists swing right, up the hill, while cyclists attempt to continue straight along Arapeen towards the University Park Hotel and the the path which leads to Fort Douglas. Once they reach the three-way intersection at Arapeen and Wakara Way, cyclists are faced with further obstacles as they negotiate the crossing to the path since the exit/entrance ramp to the Park Hotel forms an unregulated fourth street with the cyclists destination unclear to motorists.

Fort Douglas currently provides excellent conditions for cycling with numerous, lightly used roads and low speed limits. Unfortunately, there are only three locations where openings in the fence allow even pedestrian access to Fort Douglas (Main entrance at South Campus and Wasatch Drives, East entrance near the Red Butte Gardens, and the South Entrance via Chipeta Way/Connor Road in URP).

Links: Bicycle links between the University Research Park and the University of Utah can be characterized as potentially excellent with some relatively minor improvements in maintenance, signs, and publicity. Besides serving the residents of the East Village, the URP can also serve as a useful access route for bicycle commuters approaching from southeastern parts of the city, via

Sunnyside Avenue. While there are no bike routes at present in the URP proper, a narrow, but frequently used path exists beside the Park Hotel leading to Fort Douglas. Fort Douglas (and Red Butte Arboretum and the upper campus) can also be reached by bike via the upper roads of URP by traversing gates on the extension of Chipeta Way and Connor Road. Access to Fort Douglas is more difficult than it should be — even a specially installed bicycle gate at the north side of Fort Douglas near the Skaggs Hall parking lot is permanently locked. The potential for useful links through Fort Douglas is immense given its strategic location between upper and lower campus and between URP and the University.

2.5.3.2 Recommended improvements

The following changes would greatly improve access by cyclists and pedestrians to/from the University Research Park, Fort Douglas, and the University East Village:

1. Within Research Park, in the short term, measures should be taken to temper the speed and flow of the motorized traffic. These include stop signs at the corner of Arapeen Drive and Colorow Way and a 3-way stop at the corner of Arapeen Drive and Wakara Way (especially important to gain access to the path beside the Park Hotel).
2. In the long term, through either increased road width or (preferably) reduction in meridian width, add Class II bike lanes along both sides of all roadways in URP.
3. All further road construction or alteration should automatically include provisions for bicycle paths. Such provisions are always easier to incorporate and finance when planned into the project from the start.
4. Install a Class II bike route through Fort Douglas from the north end of the Park Hotel path to the intersection of South Campus Drive and Wasatch Drive. At the moment, this route is one-way but could easily support a Class II bike lane in both directions.
5. Upgrade the Park Hotel path to a Class I bike lane so that this route can support both bicycle and pedestrian traffic. Improvements required include widening and trimming to increase visibility, establishing adequate drainage at the lowest spot (water collection and freezing are hazards in winter) and lighting for evening use. Install signs directing cyclists to this route.
6. For the upper, eastern route through Fort Douglas (Conner Road), modify gates so that cyclists do not need to dismount to pass. There are presently three gates which can potentially bar a cyclist from entry, one of which is permanently closed. All of these should be mounted with a gap wide enough for bicycles.
7. Open the existing bicycle gate on the north side of Fort Douglas and install other, similar access gates along the west edge of Fort Douglas.
8. Improve lighting near all gates in and around Fort Douglas; they are now dangerously invisible at night.
9. Mark a Class II bike lane to direct cyclists from Wasatch Drive between South Campus Drive and Medical Drive up through Fort Douglas to the existing (locked) gate on the north side of the Fort.
10. Include bicycle routes in **all** future plans for the development of the Fort Douglas area.

2.5.4 University Student Apartments

The University Student Apartments (USA) provide housing for students, faculty and staff of the University in three locations, all within easy cycling (even walking) distance of the University. The East Village, located near the south entrance to University Research Park, contains 322 units, the West Village, located between Sunnyside Avenue, Foothill Blvd, and the VA Hospital complex, contains 620, and the Medical Towers, located in the southeast corner of the upper campus, contains 151 units. With almost 1000 one-, two-, and three-bedroom apartments, each of which must be occupied by at least one regular campus commuter, there is immense potential for bicycle use among these residents. In fact, parking around the East and West Villages is currently a considerable problem, even though two parking spots are available for each apartment. We feel that the residents of the University Student Apartments should be seen as an especially important target group for any initiatives to shift commuter traffic from motorized to non-motorized means, a position that is strongly supported by both the administration and the elected Residents' Council of the USA.

2.5.4.1 Present situation

The situations at the East Village and Medical Towers have been covered in sections 2.5.1 and 2.5.3, respectively. The West Village is the largest of the three areas of USA and is also the only one with existing bicycle facilities. Cycling within the West Village is supported by the reduced speed limits and the recent installation of speed bumps. At present there exist a paved Class I route connecting the West Village with the Guardsman Way parking lot, as well as a second mixed Class I, II and III path from the north exit of the West Village into the V.A. Hospital grounds. The exit of the first route from the village is marked by a gate in order to keep small children from reaching Red Butte Creek, and the surface of the path is in disrepair. Unfortunately, the lack of controlled crossing along Foothill between Sunnyside and Guardsman Way precludes use of the second route to access the campus.

2.5.4.2 Recommended improvements

For recommendations related to East Village and Medical Towers, see relevant section of this report. To improve usage of the routes leading from the West Village we recommend the following:

1. Improve surface, maintenance, lighting and signs of the bike route leading from the West Village to Guardsman parking lot. While USA requires that a barrier be maintained on this route for the safety of small children, some sort of automatic gate (spring-loaded closing) would be much more functional.
2. Extend the route from the edge of Guardsman parking lot to join with the Class II bike lane on Guardsman Way.
3. Provide a crossing from the V.A. Hospital across Foothill Boulevard to allow residents of the West Village to use the north bicycle route from the West Village. The best location for this would be at the intersection of Foothill Boulevard and Wasatch Drive. The design of the crossing should then incorporate the Class I bicycle route which runs parallel to Foothill Boulevard from Sunnyside to Wasatch Drive. See also section 2.5.2 for more detail on this crossing.

2.5.5 Bonneville Shoreline Trail

The focus of this report is undoubtedly on routes and facilities which will serve to improve bicycle *commuting* and has failed to include any discussion of *recreational* trail development. This reflects both our mandate and our priorities. Developments over the last months allow us to break this pattern for one specific project, the Bonneville Shoreline Trail.

The Bonneville Trail is a proposal for a Class I recreational trail that will eventually link Logan to Mona, spanning six counties, via a route along the historic shoreline of Lake Bonneville. The section of the trail which runs behind the University of Utah has been designated as the first segment to be acquired and developed and the University has recently agreed in principle to provide the necessary easements. Negotiations will soon begin as to the exact alignment of the trail.

This trail has immense potential as a recreational facility and will provide access to many areas currently unreachable along the East Bench of the Salt Lake Valley, forming a backbone for multiple use of the precious foothills of the Wasatch Front. If trail standards are brought to the level currently envisioned by trail supporters, this route will also be available to commuters and hence provide safe routes for cyclists and pedestrians from Federal Heights, the Avenues, and the Sunnyside/East Bench areas of the city.

We strongly support this development and recommend that the University consider rapid approval of the proposal and welcome it as both a recreational and commuter facility that has few equals in this country.

Chapter 3

Bicycle Security

3.1 Bicycle Thefts

3.1.1 Introduction

Bicycle theft is an ongoing problem on campus. During calendar year 1991, the University police investigated 83 stolen bicycle cases and recovered 16 bicycles (19%). During the first seven months of 1992, they investigated 55 stolen bicycle cases and recovered 15 bicycles (27%). The police were able to obtain serial numbers or other identifying numbers on two-thirds of the stolen bicycles and enter them on a national crime database system. Many of the bicycles had owner-applied social security numbers or city/county license number decals.

University police records state that 85% of the stolen bicycles were secured in some fashion; 33% by some form of cable lock, 28% by “U” lock, and 24% were secured in a locked room such as a dorm room, laundry room, or bicycle locker.

3.1.2 Recommendations

It is the Campus Bicycle Committee’s view that greater use of quality bicycle racks and lockers in conjunction with high security “U” locks offers the best option to reduce the bicycle theft problem. Bicycle licensing (registration) offers the best option for recovering a stolen bicycle. The availability of such locks is already widespread and any campus bicycle repair facility (see section 4.3) should include “U” locks in their base inventory. As part of the bicycle education effort (see Chapter 5) efforts should be made to inform campus cyclists of the risks and solutions.

3.2 Bike Racks and Lockers

3.2.1 Present status

Currently there are not enough bicycle racks and lockers on campus to accommodate the student, faculty, and staff demand. Several years ago the Director of Campus Planning made a decision to use the “ribbon rack” exclusively based on aesthetic, function, and cost factors. After a great deal of research and discussion the Bicycle Committee has agreed to support the ribbon rack decision with knowledge that there are better options from a function standpoint. The basic ribbon rack unit holds 4 or 5 bicycles.

There are 140 ribbon racks (enough for approximately 700 of the estimated 1100 current regular cyclists [2]) at 53 locations throughout the campus. At present bicyclists are forced to use railings, trees, and parking meters to secure their bicycles. Harry Corsi of Campus Planning is currently coordinating the phased bicycle rack installation program. Phase V was cut from 80 to 26 ribbon racks due to Campus Planning priorities and funding allocation. The 26 new racks are to be installed before and during the Academic Year 1992/93. Approximately 400 more ribbon racks at a cost of approximately \$1,100 each are required on campus to provide adequate security for the expected level of bicycle usage. This will bring the capacity up to approximately 2500, enough for our stated goal of a doubling of bicycle use on campus.

Bicycle lockers are currently available for long-term rent at the University Hospital and University Dormitory area. For Dorm occupants and regular commuting bicyclists the bicycle locker offers distinct advantages over a bicycle rack.

3.2.2 Recommendations

Only if there are adequate racks, at convenient locations, can members of the University be expected to commute by bicycle. Hence, we recommend the following:

1. the rack program be expanded drastically over current levels.
2. While we support the choice of the ribbon design as the standard rack for the campus, efforts should be undertaken to acquire a rack which has more space between the loops. This would permit more efficient filling of the racks. A further improvement would be to obtain racks which are covered with a plastic coating that protects the finish of attached bicycles. Such racks do exist already (see sample outside Salt Lake City Department of Transportation, 333 South 200 East)
3. Every effort should be made to reduce the cost of obtaining and installing such racks. One possible option is the use of bolt-mounted ribbon racks, which require only that anchors be installed, instead of the installation of a new concrete slab each time a rack is added.
4. The CBC, in coordination with Campus Planning and Parking Services, should study the possibility of greater availability, location, and rent structure of bicycle lockers.

3.3 Bicycle Registration Plan

3.3.1 Background

The Bicycle Committee supports the University Police position that a bicycle registration program will increase the likelihood that a stolen bicycle will be recovered. Discussions have taken place with Wayne Shepherd, Chief of University Police and ASUU representatives concerning mandatory registration of bicycles on campus. Since Salt Lake City Code 12.80.010 states

- A. It is unlawful for any person to operate or ride a bicycle upon any of the streets, alleys, sidewalks or public ways of this city: 1. Unless such bicycle has been registered, licensed, and is displaying the proper license, as hereinafter provided; ...

the most straightforward approach to University bicycle registration is to adopt the City/County process. Wayne Shepherd agrees with this approach. It should be noted that Brigham Young

University has mandatory bicycle registration and uses the Provo City Licensing Department's process. The University of Colorado at Boulder also has its own mandatory registration program, while it recognizes and accepts other valid registration stickers in lieu of its own.

During Winter Quarter 1992, Russ Messerly, Assistant Director of the University Bookstore agreed to be an on campus outlet for the City/County Licensing Department for bicycle registrations. A limiting amount of marketing of the service produced 5 sales of City/County bicycle licenses. The Bookstore has discontinued the service for business reasons (\$7.50 profit did not cover training costs).

3.3.2 Recommendations

The CBC feels that a mandatory bicycle registration/licensing should be adopted on the basis of the City/County procedure, not a second University registration. The central on-campus registration point and data base should be at Parking Services, with several subordinate registrations sites available (*e.g.*, Union, University Bookstore, Campus Police). Cyclists who have registered their bicycles at other City/County or bicycle shop locations would be required to provide the license number to Parking Services for the University data base.

3.4 Bicycle Policies and Procedures

3.4.1 Background

There are currently several sets of policies and procedures for cyclists on the campus of the University of Utah. Besides the State of Utah, the City of Salt Lake provides in sections 12.80 and 5.18 laws which outline the prevailing laws for operating and registering bicycles (see Appendix A.7). The University of Utah has its own set of applicable policies and procedures, No. 5-14 *Operating regulations for Bicycles, Skateboards, and Scooters* (see Appendix A.8).

Enforcement of any of these statutes is haphazard at best, due largely to the lack of adequate resources within the Campus Police force. Perhaps more important, there is a virtually complete ignorance among cyclists as to what their privileges and obligations are when they enter the campus on bicycle. Despite this ignorance, there are nonetheless many perceptions and opinions as to what is, or should be, restricted, especially among pedestrians who often feel besieged by "crazy" cyclists as they zoom about the sidewalks of the campus. A similarly negative perception exists among the ground-keeping and maintenance crews of the University, who, rightly or wrongly, attribute significant damage to lawns and flower-beds to unfettered and malicious cyclists.

3.4.2 Recommendations

We believe that an approach which stresses education and the shared use of the campus can achieve more than an increase in enforcement or a tightening of existing laws. Chapter 5 deals with the particulars of the education scheme we propose. One very positive change that has occurred over the last several years is the increased use of bicycles by members of the Campus Police, and more recently, members of Parking Services. The use of bicycle-based police forces has increased dramatically in the last ten years and have been found to not only improve relations between police and the population, but also to result in increased efficacy of patrolmen. Hence, with regards to the enforcement officers of the campus, we recommend the following:

1. An education based program to increase awareness for safe, legal cycling behavior, which includes active participation by members of the campus police, be developed.
2. Police and Parking Services should be supported in their use of bicycles in campus, both in terms of resources and supplies, but also in the form of special recognition for those officers who volunteer to join the “bike patrols”.
3. Should the education based approach prove inadequate, additional resources should be provided to the Campus Police so that enforcement can be carried out on some realistic scale, perhaps with the inclusion of a student bike patrol.

There are several problems with the current policies and procedures for the University of Utah, which we would also recommend be addressed. We do not feel it is appropriate that cyclists be treated in the same group as skateboarders, scooter operators, and inline skaters. A bicycle, especially when viewed as a utilitarian means of commuting, is an infinitely more versatile and efficient vehicle and can be controlled and maneuvered with much greater ease and safety than these other modes of transportation. As to the particulars of the current policies and procedures, there are several specific items which we feel need changing to reflect the role and capabilities of bicycles as commuter vehicles. Hence, we recommend the following:

1. Establishment of a student/faculty/staff subcommittee to review annually policies and procedures to insure that they keep pace with the changing bicycle/pedestrian environment on the campus.
2. The policies and procedures for the University of Utah should be reformulated to remove cyclists from the group of other non-motorized vehicles. The wording of the policies should be changed accordingly.
3. In policy 3, the speed limit for bicycles on campus should be left at 10 m.p.h. in parking lots but raised to 15 m.p.h. on sidewalks, as long as no other restriction applies (see Chapter 2 for discussion of such restrictions).
4. Policy 5 states that bicycle paths *must* be used when they are available. This law has been opposed by many bicycle advocates as inappropriate since there exist numerous situations where a bicycle path may be rendered unusable, or unsafe, due to weather, road conditions, maintenance, *etc.* It also reinforces an auto-centric tendency to impose restrictions on where cyclists may ride and opposes the more progressive trend towards cyclists and motorists sharing roadways. This policy should be removed, or restated to confirm cyclists’ rights to use *all* roadways on the campus.
5. A mandatory bicycle registration be incorporated into the procedures and policies of the University.
6. A policy regarding ‘slow-down or’ ‘caution’, or dismount zones be added.

Chapter 4

Maintenance

The best facilities are useless if adequate maintenance is not provided. This is certainly the case with transportation facilities, and especially so for facilities designed for cyclists. While cars can cope with irregular road surface or detours with relative ease, the same obstacles to a cyclist can significantly lengthen the route (and travel time), puncture tires, increase the chance of falling, and even produce life-threatening situations. As a result, standards of repair that are routinely accepted by motorists are intolerable to cyclists. Responses to our surveys at the University of Utah indicate that there are problems in maintenance of existing facilities used by cyclists, problems we feel to be more the result of ignorance of cyclists' special needs than of inadequacies in the overall quality of the Grounds and Plant Operations divisions. In this section, we outline some of the existing problems and provide suggestions for ways in which maintenance of bicycle facilities could be improved in the future. A proposal is also described by which a bicycle repair facility would be located on the campus.

4.1 List of Required Maintenance Items

The following is a sample of the problems that were either reported to us as a result of the survey conducted in 1991, or were discovered from our own observations on the campus. They are representative of what could be done to improve *immediately* the quality of cycling on the campus.

1. Many sprinklers around the campus are misdirected so as to spray either across sidewalks, or over bicycles parked in bike racks (*e.g.*, near the northwest door of Merrill Engineering Building).
2. During construction projects, better marking of the sidewalks, especially for night riding, should be provided. In the past, holes or gravel patches have been left unmarked and unlighted. Cyclists are typically moving faster, and are more affected by poor surfacing, than pedestrians.
3. There are several spots on the campus where lighting does not provide cyclists with a clear view of corners and/or obstacles like stairways.
4. Snow removal is often inadequate, even after the storm has passed and there has been time to clean up properly. Some bike racks are even covered by snowbanks from removal. Hardy cyclists *do* venture out during the depths of winter.

5. Bushes and shrubbery severely limit sight lines at the intersection west of the Union Building on the main north/south sidewalk between the Marriott Library and the Student Services Building. The same is true at the intersection of South Campus Mall and the sidewalk between Marriott Library and the School of Architecture.
6. The concrete blocks used in the sidewalks are often in poor repair and alignment. In one stretch between Merrill Engineering and the Marriott Library Plaza, we found 317 of 624 segments that were severely damaged. Possible causes of this are improper surface treatment of the concrete, and inadequate support of the sidewalks, especially since they see such frequent automobile traffic.
7. The wind sensor at the Tanner Fountain is sheltered from the wind and does not adequately prevent spray reaching large portions of the surrounding plaza, presenting both a dangerously slipper surface (especially in winter months) and increased damage to the concrete.

4.2 Reporting Mechanism

To ensure the long term level of repair that we feel bicycle facilities on the campus require, a new mechanism for reporting problems needs to be implemented. It is no longer enough to depend on reports of maintenance crews as they travel about the University, if only because they are either motorized or on foot and hence lack the cyclist's perspective.

The solution to this problem is, we believe, to involve the users of the system and allow them access to reporting mechanisms that will draw the appropriate attention to maintenance needs as they arise. To this end, we suggest two new reporting mechanisms:

Phone reporting A phone number should be made generally available so that problems can be reported as they appear. A procedure in Plant Operations should be devised so that such problems are passed to the appropriate crews for inspection and repair. A similar system has been implemented at the request of the Mayor's Bicycle Advisory Committee for street cleaning within the City of Salt Lake whereby anyone can report locations where gravel, dirt, or debris present a hazard to cyclists.

Written reporting Forms should be designed and placed in numerous locations all over the campus so that suggestions for improvements, maintenance problems, *etc.*, can be reported. This would not only provide a mechanism for reporting maintenance problems but also serve to generate new suggestions for improvements to the bike route system. Such a reporting mechanism already exists in Seattle, Washington, and a sample of their reporting card is included in Appendix A.9.

4.3 Bike center on campus

4.3.1 Background

Even with perfectly maintained bicycle facilities, minor breakdowns of the bicycle itself are inevitable, and often inconvenient. While private bicycle shops exist near all urban university campuses, numerous universities (*e.g.*, University of Washington in Seattle, University of Colorado in Boulder, and University of California at Sacramento) have established their own bicycle repair centers on campus. The advantages of such a service include the convenience of an on-campus location,

with more flexible hours of business, and the ability to carry out minor repairs while the owner is working or in classes on the campus. In addition, such a shop can offer users the opportunity to repair their own bicycles at nominal cost. Most respondents to the survey carried out by the CBC suggested that, indeed, a campus bike center would be a welcome addition and would make bicycle commuting more attractive (see Appendix A.4).

The purpose of a bike center would not be to usurp the function of the existing bike shops, but to provide specific support services **exclusively** to members of the campus. Possible services would include:

- Repair of simple mechanical problems, *e.g.*, flat tires, broken chains and cables, skipping gears, defective brakes.
- Sales of basic cycling needs, *e.g.*, tires, tubes, locks, brake pads, helmets.
- Entry of bicycles in the campus registration program (see section 3.3).
- Provide repair stands and tools which for nominal cost would be available for do-it-yourself repair jobs.
- Serve as a site for courses in bicycle maintenance and repair.

Any major repairs would be passed on to the local bike shops and no bicycles, or larger components would be offered for sale. An on-campus facility of this sort could also serve as a valuable meeting point for cyclists and serve as a focus of interest and contact with the campus cycling community.

4.3.2 Recommendations

The CBC recommends the establishment of a campus bike center, as outlined in the previous section. Based on our discussions with Mr. Rob Jones of Outdoor Recreation, we further recommend that he be permitted to create such a facility within the Outdoor Recreation facilities. Access to the bike shop would be open to all students and all those with valid memberships to the campus recreation facilities. Mr. Jones has also expressed enthusiasm for setting up a bicycle maintenance and repair course through the Department of Continuing Education. His previous experience with a similar facility at the University of California at Sacramento indicate that he is uniquely qualified to carry out such a proposal.

Chapter 5

Education and Safety

One of most surprising results of our 1991 survey was the opinion prevalent among many long-time bicycle commuters that the campus of the University of Utah cannot handle more bicycles without the standard of safety degenerating to an intolerable level. Some even felt that we were already overloaded and that no attempt should be made to encourage more bicycle use. Many also expressed the feeling that too many cyclists were delinquent in their riding behavior. This brought us to two conclusions, the first, that we need to improve the bicycle infrastructure before we encourage more commuters to switch from their cars to their bikes, and the second, that any increase in bike use has to be linked to an education and safety program. This emphasis on education became more and more pressing as we began to imagine sidewalks with twice or three times the number of bikes sharing space with each other and a few brave pedestrians.

The suggestion to carry out an education and safety program at the University is not new — this was one of the recommendations made by the Bicycle Access Committee ([1], Appendix A.1). Similar suggestions have been made by the Bicycle Access Committee at the University of Washington [5]. The Salt Lake City Mayor’s Advisory Bicycle Committee is presently undertaking a similar plan and work is underway to implement a bicycle safety program.

5.1 Campus Bicycle Map

A map of the campus which shows existing bicycle routes, facilities, and access roads would serve not only to inform cyclists new to the area, or new to the practice of bicycle commuting, but could also provide invaluable opportunity to present safety and education material to cyclists. The City of Salt Lake has just published a new bicycle map of the city (included in the Salt Lake Master Bike Plan — Appendix A.6) with material on everything from bicycle maintenance to tips on appropriate behavior in various traffic situations. We have further examples of bicycle maps from the campuses of the University of Washington and Colorado at Boulder. An equivalent map for the University of Utah must be a fundamental component of any safety and education plan.

5.2 Bike Safety Information

The theme which reverberated throughout the survey results was that cyclists, pedestrians and motorists had to be better aware of how to deal with the various mixtures of traffic that are encountered on the campus. We feel that a great portion of the critical interactions involving

cyclists are a result of ignorance on the part of some or all of those involved. The problem here is twofold. The policies that are in place to regulate bicycle use are not generally known, and there are situations for which no policy exists. On sidewalks, for instance, there are no clear rules on where cyclists and pedestrians are to travel, even though overtaking situations in both directions are inevitable. Recommendations regarding bicycle policies are dealt in section 3.4.

Some specific recommendations regarding cycling safety are the following:

1. Establish rules of the road for sidewalk use; we suggest that the center of all sidewalks be used for cycling, the edges for pedestrian, and the normal “keep right” rules be followed.
2. Cyclists are always to yield to other users of the sidewalks and should ride in single file. Pedestrians must respect the actions of cyclists and try not to unnecessarily impede or endanger their progress.
3. Encourage the use of lights on bikes after dark, through education, a subsidized purchase plan, and eventually enforcement of existing City and State laws regarding lighting systems on bicycles.
4. Lift the general maximum speed limit for cyclists from 10 to a more realistic (and enforceable) 15 mph.
5. Where warranted, implement either limited-time *caution zones*, in which the speed limit drops to 5 mph, or *dismount zones*, in which cyclists must walk their bicycles.

A recent and very positive development has been the formation of the Student Bicycle Committee (SBC), consisting of representatives of the ASUU and students at large, which seeks to address numerous safety and educational issues among campus cyclists. In conjunction with the CBC, they are presently developing strategies for a user-driven safety program, which will include articles in the Utah Daily Chronicle, a safety/cycling survey, and some significant cycling events in the spring of 1993. The ASUU has also designated some \$20,000 for bicycle improvements on the campus, with education and safety identified as highest priority items. The importance of student involvement in issues of safety and education cannot be overemphasized. Students are clearly the major users of bicycles on the campus, especially in the lower campus area where safety issues are most pressing, and campaigns aimed at this group are best devised by their peers.

5.3 Publicity

Several responses from the CBC 1991 survey contained suggestions for improving the level of bicycle ridership by engaging in publicity programs similar to those currently used by the Salt Lake City Mayor’s Bicycle Advisory Committee (*e.g.*, Mayor’s Bike-to-work Day) and others. Proposals included media events with the President of the University riding a bike on the campus.

We feel that publicity *per se* is currently of secondary importance to all the other issues discussed in this report. Good facilities, safe, secure bike storage facilities, and a comprehensive education and safety program must be developed and will to some extent advertise themselves. The campus bike map, articles in campus media, and the presence of a bicycle center on the campus will ensure that information is disseminated. We do, however, intend to support and participate in activities which focus on improving safety and cycling education, be they activities organized by the SBC, or those originating from other bicycle advocacy groups.

Chapter 6

Conclusions

6.1 What now?

Our intent in formulating this report was to suggest a starting point for development of bicycling facilities on the University of Utah campus. We hope that the report will generate discussion within the offices of Campus Planning, Buildings and Grounds, Plant Operations, Public Safety, Auxiliary Services, and Parking Services. All of the agencies have contributed to the process and we thank them for their input and encouragement.

It would be fitting, we feel, if from this report were to evolve a “Bicycle Master Plan” for the campus, a blueprint for bicycling facilities that would be incorporated into the University’s global Master Plan. Such a plan has recently been adopted by the City of Salt Lake and the existence of such a document is crucial to the coordinated expansion of bicycle use.

Once adopted, we further hope that funding will be made available to actually implement some of these proposals. Much of the cost of developing a cycling infrastructure can be seen as a “one-shot” affair. Bicycle traffic is much less abusive than motorized transportation and facilities tend to last much longer than roads and parking lots. Maintenance costs are thus commensurately lower and replacement intervals lengthier. Compared to virtually any other plan currently being evaluated to reduce the traffic and parking catastrophe on the campus, bicycle improvements are cheaper, both in the short and long term. To ignore this possibility for such significant and permanent improvements would be, we feel, a mistake.

6.2 Funding of the Proposals

In June, 1992 the Associated Students of the University of Utah (ASUU) General Assembly approved \$19,137 to be used to fund new bicycle racks on campus and to provide bicycle information to students. We recommend that these funds be matched by the administration of the University so that project implementation can begin.

As a result of the emphasis given to bicycle commuter facilities around the University in the Salt Lake City Bikeways Master Plan [8], there is every reason to anticipate an influx of support from several sources. For example, all of this year’s bicycle-related applications for City Development Block Grants are for routes that provide access to the campus. Likewise, in a joint City/State/University effort, funding from the federal Intermodal Surface Transportation Enhancement Act (ISTEA) is currently being sought to develop and improvement bicycle facilities on our around the campus.

In summary, the timing could not be better for the University to seriously consider providing resources for bicycle projects. In fact, a lack of support for projects within the University would very probably seriously undermine efforts to achieve similar support from external sources.

6.3 Ongoing Role of the Campus Bicycle Committee

The projects outlined in this report are extensive and will probably not be executed within a few months or even a single year. As new bicycle support facilities are brought online, adjustments will undoubtedly be necessary to respond to changing conditions. At present, there is no office or personnel dedicated exclusively to bicycle issues, neither in the design and planning, nor the implementation and maintenance. In fact, it was the lack of coordinated effort on bicycle issues that prompted the formation of the Campus Bicycle Committee and has provided the impetus for our efforts.

One recommendation of our predecessors, the Bicycle Access Committee, was that a standing committee be created and given “the ongoing responsibility for developing campus policy concerning bicycle use on campus and bicycle access to campus” [1]. The fact that the only improvement in infrastructure since this report was tabled has been the addition of 100 bicycle racks underlines the crucial need for some continuity in matters related to cycling on and around the campus. We therefore repeat the earlier recommendation that the Campus Bicycle Committee become a standing committee charged with fulfilling the goals and targets outlined in this report.

Appendix A

Appendices

A number of documents only available in paper form were part of the original report. In this electronic version, we list these items with reference to the source, where available.

A.1 University of Utah Bicycle Access Committee Report

This was a report prepared by a previous committee and the document is available in the University of Utah Marriott Library.

A.2 National Bicycle Survey

Results of a national bicycle survey carried out by Bicycling Magazine.

A.3 Membership List

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A.4 1991 Survey

A survey carried out on the campus in 1991/92 to solicit suggestions from the users and potential users of cycling facilities at the University of Utah.

A.5 Civil Engineering 572 Reports

The report from a 1992 class project in the University of Utah Civil Engineering 572.

A.6 Salt Lake City Master Bike Plan

The 1990 version of the Salt Lake Master Bike Plan, since massively improved and available from the web site www.slcgov.com/transportation/BicycleTraffic/master.htm.

A.7 Salt Lake City Bicycle Laws, Chapters 12.8 and 5.18

Some excerpts from the Salt Lake City laws that apply to cycling.

A.8 University of Utah Bicycle Policies and Procedures

Policies for cyclists and pedestrians at the University of Utah.

A.9 Citizen Bicycle Improvement Suggestion Card

A card for submitting requests to improve bicycle facilities.

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