University of California at Santa Barbara

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CELLULAR TELEPHONE FACILITIES ON CAMPUS

A White Paper

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Introduction

UCSB has become an extremely desirable location for commercial cellular providers to install cellular transmitter sites for their customers. Over the past ten years, the number of requests for campus space for cell sites has quadrupled. The reason for these increased requests is straightforward: the campus has a considerable community that uses cellular telephone services and also has tall buildings that are attractive as transmitter sites. However, this growing use of campus space for commercial purposes poses questions in need of discussion by the greater campus community so that those responsible for handling such requests are aware of, and responsive to, the entire community's concerns.

The purpose of this paper is to provide interested individuals with information about cellular technology and the history of cell sites on the UCSB campus. This paper will be part of a broader campus consultative process that the Office of Information Technology will coordinate that will seek to obtain opinions from the campus community about cellular technology. The goal of this process is to educate the campus community, to take their concerns into account when proposals for new cell sites are brought to us by vendors seeking to locate their equipment on campus, and to define an inclusive consultative process for operational units.

During the past 10 years, cellular telephones have evolved from rarities to everyday accessories. These and other wireless devices prompted the International Telecommunications Union, the Institute of Electrical and Electronics Engineers, and the European Telecommunications Standards Institutes to develop standards for wireless communications. Users of such devices are provided with the flexibility and convenience of information from any location.

Wireless products are deployed in schools, colleges, and universities where their use may one day provide campus-wide connectivity for students, instructors, researchers and administrators. Wireless LANs may also one day offer a lower cost solution to high speed Internet access with the flexibility to meet the needs of an ever-changing educational landscape. The integration of technology with education is rapidly changing teaching and learning paradigms, as well as the environment within which they take place.

Wireless technology provides users with access to information without having to look for a place to plug in, and network managers with the capability to extend or augment their wired networks without installing additional wiring. The advantages of moving toward a wireless environment include mobility, installation speed and flexibility.

Disadvantages of wireless systems are that they are slower than, and do not offer the performance of, wired systems. They generate sizeable radio waves, and can be disrupted by interference. Another problem with the technology itself is the limited spectrum available for communications. Splitting up an environment into a number of small units increases the overall accessible bandwidth of the communication system, but also increases the cost, as more units are required. When a large number of devices are transmitting, a sizable amount of radio power is generated. The effects of radio communication on human health are being examined, but much more research is needed in this area before conclusions can be reached.

Interfering signals generated by other devices in a business or education environment can temporarily disrupt a communication link through the noise generated. It is important to note that wireless deployments are non-trivial due to significant management and security concerns. These concerns include frequency management, user privacy, access control, and system accountability.

Background on Cellular Telephones

The cellular telephone represents a largely incremental step in a technology development that had been underway since the 1920s. Commercial and technological advances in mobile telephony continue to this day, driven by the seemingly relentless demand for more and more capacity.

Cellular systems are able to accommodate a large number of users within a given geographic area while using a limited portion of the radio frequency spectrum (FM). This high capacity is achieved by using a large number of relatively low-powered base station transceivers to provide service to a small geographic area known as a "cell." Because the transmitters are low-powered, and because FM provides a "capture effect" to suppress interference, their frequencies can be reused in nearby cells, thereby multiplying the number of channels available in a large service area. As users move about, they are switched from one base station to another through a complex and sophisticated system known as a "handoff." Handoffs are accomplished in a nearly instantaneous manner so that users are unaware that their mobile telephones have changed frequencies and been switched to another base station. A computerized control system monitors and directs the entire network, identifying mobile units within the service area and establishing connections over which conversations can take place.

The history of the cellular telephone begins with the history of mobile radio in the 1920s. The first land mobile systems were used by public safety agencies, primarily police departments. The earliest system was tested in Detroit beginning in 1921. It consisted of police calls interspersed in a regular commercial program ("Calling all cars...") that broadcast instructions to police in vehicles. If the police officers wanted to talk back, they had to stop at a police telephone and call in. During the 1930s, two-way systems came into use as transmitters were built that could be operated inside vehicles, and the advent of FM provided much clearer conversations free from vehicular static.

World War II demonstrated the superiority of FM transmission (only U.S. forces used significant numbers of FM battlefield systems) which proved easier to use and more difficult to jam than AM systems. Following WW II, many servicemen returned to civilian life with knowledge of radio technology and an appreciation of the value and convenience of mobile radio communications.

The decades of the 1950s and 1960s saw few new developments in cellular technology. Effective implementation could not come until the 1970s, when the appearance of microprocessors and economical computers became generally available, and most of the major technical hurdles in the development of the cellular phone had been surmounted. In 1979, the first commercial cellular system, owned by NTT, the Japanese national telephone company, began operation in Tokyo utilizing tried and true Radio Frequency (RF) technology. Cellular systems in the Nordic countries also entered service about the same time. The development of cellular technology outside the U.S. did not encounter the same level of regulatory barriers that delayed the commercialization of cellular within the U.S. In addition, in the Nordic countries, an aggressive cooperative research program

consisting of local academics (who were much more involved in mobile radio than their U.S. counterparts), and the telecommunications equipment manufacturers Eriksson and Nokia drove the development of the Scandinavian system.

In October 1983, the first pilot cellular system in the United States began operating in Chicago. The second system, in Baltimore/Washington, was activated in December 1983. In 1984, Motorola shipped the first commercial portable cellular telephone (with a suggested price of $3,000 - $4,000). By the end of 1984, Motorola's sales of cellular phones reached $180 million annually from essentially zero the year before. As early as 1988, some cellular systems (particularly New York and Los Angeles) were already becoming overloaded as the promise of nearly infinite expansion of capacity derived from cell splitting turned out to be more costly and difficult than foreseen. Nonetheless, cellular expansion continued unabated, and by 1990 cellular construction permits had been issued for at least one system in every market in the United States, and the cellular subscriber count topped 5 million. Two years later the number of cellular subscribers had doubled, by 1995 had reached 25 million, and it is currently estimated to be just over 50 million.

History of Cellular Telephone Sites on Campus

Due to the distance from metropolitan areas Los Angeles and San Francisco, the Santa Barbara area was relatively late in getting cellular networks deployed by the commercial providers. There were large gaps in the commercial providers' coverage areas in the rural areas along U.S. Highway 101. This coverage gap was initially addressed by the installation of roadside emergency telephones by the State of California, which uses a mix of cellular and solar power technologies that allowed stranded drivers to access emergency services. This project allowed the commercial providers to extend their networks into smaller commercial markets like Santa Barbara. However, the mountains behind Santa Barbara posed a problem, as it was difficult for the low level cellular transmitters serving Highway 101 to penetrate into the canyons or along the scenic routes, like State Highway 154, where customers desired service. Commercial providers needed a higher broadcast point.

AT&T Wireless (then Cellular One) was the first company to recognize this requirement and, in 1991, entered into an extended business relationship with the University for a cell site on the top of Storke Tower. The height of Storke Tower was attractive to AT&T as it significantly improved its signal penetrations into the mountains. The campus administration assigned the revenue to Associated Students, providing a new funding source for KCSB. AT&T installed four transmitters in the top of Storke Tower just below the Carillon, and connected their equipment to the rest of their wireless network using a microwave dish, which is still in use today.

In 1998, Verizon Wireless (then GTE Wireless) approached the campus with similar technical requirements to AT&T's in 1991. Verizon Wireless initially desired to have their cellular site on the top of the Library but retreated due to the structural limitations of the building, lack of available space, and the need for the campus to preserve that location for its own radio systems. These systems support emergency services for public agencies such as the campus Police, the County Fire Department, and the California Highway Patrol. These systems also serve UCSB operational units, including Facilities Management and Housing & Residential Services. All must avoid potential and operational conflicts between RF transmissions as well as personnel access. At the request of Associated Students, upon the recommendation of then-Vice Chancellor of Administrative Services David Sheldon, and in consultation with the then active SCAPE committee, Verizon Wireless was permitted to construct a cellular site in Storke Tower. To accommodate space for their equipment, Verizon Wireless replaced Storke Tower's rest rooms. It was planned that the ongoing funds generated by this agreement with Verizon Wireless would allow Storke Tower, a donor building and ineligible for State building maintenance funds, to upgrade its aging infrastructure and leaking roof.

In 2000, the cellular market shifted significantly for the campus and the community as the use of cellular phones both on campus and in the surrounding communities increased dramatically. In 2001, aesthetic and health concerns were raised in the local community, and the City of Santa Barbara and other South County governments issued a moratorium on the construction of new cellular sites in the areas surrounding the campus. Hampered

by the moratorium, cellular providers searched for a location where cellular sites could be constructed without being affected by local regulations. The campus, being a State entity, was identified as an excellent location, but had serious drawbacks.

These cellular providers recognized that the concentration of students, faculty, and staff in daily attendance, as well as the students in residence both on campus and in Isla Vista, represented a significant market for their growing wireless services. They also recognized that their competitors, AT&T and Verizon Wireless, already had their cellular sites in place. But the substantial nature of the construction of campus buildings, and the number of trees both surrounding and populating the campus, made it very difficult for RF transmissions to serve their customer's hand held telephones from their existing off campus sites. These new providers realized they needed to have their own transmission facilities on campus to compete with other providers already here.

In 2001, the campus was approached by Cingular (previously PacBell Wireless) with a request to install a cellular site on campus. The company had been suffering increasing complaints from their customers about the unavailability of their network both on campus and in Isla Vista. Cingular has a broad customer base in the Bay area as well as much of Southern California. As both regional areas are home to many of our students, Cingular was under significant pressure to provide reliable service on campus.

With restrictions to any Library location, and absence of any readily available space in Storke Tower, Cingular entered into negotiations with the campus to place a new cellular site on the roof of South Hall. The campus was next approached by Sprint to construct a new cellular site on the roof of Phelps Hall. Then came Nextel with an interest in building a site on campus. At the same time, AT&T 's license agreement in Storke Tower came up for negotiation. AT&T requested a doubling of the transmission capacity of their exiting site.

At the request of Vice Chancellor David Sheldon, an advisory committee was formed with members from Business Services, Environmental Health and Safety, Facilities Management, Administrative Services and Communications Services. The committee was tasked to standardize the terms and conditions of the growing number of cellular site license agreements and to attempt to negotiate an increase in the monthly rental income. Revenue would be used in a manner consistent with UCSB Policy 5601, I.1, Policy on Antenna Installations, (http://www.policy.ucsb.edu/vcas/isc/antennapol.pdf).

During September 2001, in consideration of the immediacy of their service needs, the campus granted Cingular's request to place a temporary cellular site, or COW (Cell on Wheels), in the field behind building 300 (CLAS) until the permanent site on South Hall was completed. That project, after gaining approval to proceed from the campus Design Review Committee (DRC), was put on hold in early 2002 at the request of members of several departments in South Hall who were concerned about having to work near an active cellular site and thus petitioned the Chancellor to stop the project. As the University and Cingular had already executed a contract for the cellular site, this issue was resolved by the allowing Cingular to build a "micro cell" in the Carillon of Storke

Tower -- with plans calling for them to build out the stairwell underneath the carillon for their electronic equipment. Since the micro cell in Storke Tower has limited capacities, Cingular will be allowed to build a second permanent site at a location, yet to be finalized, but Harder Stadium is being studied. When these projects are complete, Cingular will remove the COW behind Building 300 (CLAS). Cingular also has a COW currently installed behind Harder Stadium, which serves Isla Vista, Family Housing, Highway 101, and the airport.

Also in 2001, AT&T installed a COW behind Harder Stadium for approximately two months to provide interim cellular coverage while they upgraded their facility in Storke Tower. It has subsequently been removed. Verizon Wireless was able to upgrade their facility without utilizing a COW.

In 2002, after several "town hall" type meetings with building occupants, and after gaining approval from the DRC, Sprint completed negotiations with the campus for a new cellular site on the northeast corner of the roof of Phelps Hall. The new site was activated in December 2002.

Currently there is one formal request outstanding from AT&T Wireless to build a second cell site on campus, preferably in the Harder Stadium area. That request is moving very slowly while the campus enters into a dialogue on the future of cellular sites on campus. There is an informal request from Nextel also pending. Francisco Torres has several cellular sites atop that building operated by Verizon Wireless, Sprint, Alpine and AT&T.

Current Terms and Locations of Cellular Sites on Campus

In the early years, it was mutually beneficial for the campus and cellular providers to enter into long-term "lease" agreements. The first two agreements between the campus and AT&T and Verizon Wireless were for ten (10) years. In recent years, the UC Regents have discouraged campuses from entering into space agreements with cellular providers due to bad experiences in the Bay area. Individual campuses are, of course, free to enter into such long-term relationships if they desire, but it is recommend such agreements not be made for periods longer than five years. It is now UCSB practice that all new agreements for cellular sites have five-year terms without options for renewal. This ensures that the campus has an opportunity for fresh negotiation at the end of each term and provides it with the option to cancel agreements completely. Cellular providers pay local "market rates" for space on campus, which is similar to what they pay leaseholders in the general community. Verizon Wireless is the last cellular provider to enjoy a ten-year term. Their agreement with the University, if renewed, would comply with the five-year term rule.

At the present time, there are ten working cellular sites on or off the core campus, and four in planning stages:

AT&T's contracted site in Storke Tower
Verizon Wireless's contracted site in Storke Tower
Sprint's contracted site in Phelps Hall
AT&T's contracted site on Francisco Torres
Alpine's contracted site on Francisco Torres
Cingular's contracted site on Francisco Torres
Sprint's contracted site on Francisco Torres
Cingular's temporary COW west of South Hall behind the CLAS building
Cingular's temporary COW west of Harder Stadium behind Storke Field
Cingular's temporary Micro Cell in Storke Tower
Cingular's contracted Micro Cell in Storke Tower (in planning)
Cingular's contracted site in Harder Stadium (in planning)
AT&T's proposed site in Harder Stadium (in planning)
Nextel's desired site –location to be determined (in planning)

Verizon Wireless and AT&T's existing cellular sites in the carillon area of Storke Tower are fully housed and not visible to the general campus community. They are contained entirely within a building and primarily use facility support space (electrical and equipment rooms) to house the cellular provider's equipment. Cingular's Micro Cell at the top of Storke Tower will be a third example when completed.

Another type of working cellular site uses rooftops and/or sides of buildings for exterior antennas but house their equipment inside buildings. Examples of these are Sprint's on the roof of Phelps Hall and those currently installed on the sides of the Francisco Torres residential housing complex.

A third type of cellular site in the planning process requires the construction of individual buildings (20' X 30' approx.) adjacent to campus infrastructure. Cingular and AT&T have proposed this type of cellular site for Harder Stadium using the athletic field lights as possible antenna support structures. This type of cellular site has yet to be accepted by the University due to questions raised by campus planners as to the appropriate use of campus land for such initiatives, as well as developmental constraints and environmental impact issues. Planners have indicated they prefer that the campus identify a single internal building location for such use so as to have the least possible impact on the greater campus community. Harder Stadium has been identified as a possible location for this single building

In November 2002, and with the campus planner's recommendations in mind, a proposal was made by the OIT to the Executive Vice Chancellor to assign an area under the bleachers currently enclosed by a chain link fence on the southwest side of Harder Stadium for future cellular sites. The area could house between four and six cellular sites, and cellular antenna structures might not be required if the existing field lighting standards could be used. The project could provide for the upgrade to Harder Stadium's aging electrical power and communications infrastructure and agreement revenues might help mitigate vehicular activity, noise congestion and off-hours access to the fringe of the campus. However, the Physical Activities and Recreation Department is currently using the space and this proposal was not accepted.

Lastly, there are two working COW's (Cell On Wheels) in use by Cingular: on the west side of South Hall and behind Harder Stadium. Plans call for these units to be removed when the permanent cellular sites are constructed in Storke Tower and Harder Stadium.

Issues Associated with Campus Cellular Telephone Sites

Whether cellular sites on campus benefit the institution is central to this discussion. Members of our faculty, staff and student communities who own cellular telephones certainly want to them to work as well on campus as they do in the general community. A cellular telephone can increase a person's feeling of security by providing the ability to summon help in the event of mechanical difficulties with vehicles or other roadside mishaps, in summoning emergency services, or being able to contact family members and friends quickly.

Consultation Issues and Operational Issues

The question as to what the proper consultation process is for approval of cellular sites on campus is still unanswered. One of the goals of this paper is to open a dialogue with the campus to address campus concerns and to develop a process that will serve its multiple needs.

In the past, the consultation process began with an interested cellular provider approaching the campus through Business Services. Business Services would then coordinate with various groups to facilitate the request. These groups included Facilities Management, Environmental Health and Safety, Administrative and Auxiliary Services, Communications Services and, of course, Business Services. Academic, staff and student consultation was achieved by presentation to the Design Review Committee. Consultation with building occupants, if any, was coordinated by the cellular vendor and Business Services.

In the fall of 2002, the Office of Information Technology (OIT) assumed the duties of coordinator of cellular site placement on campus from Business Services. Prior to that, the OIT (via Communications Services) was involved only in ensuring that cellular sites did not interfere with other wireless systems or other services on campus. The OIT decided to become more directly involved because of its role in providing campus-wide telecommunications services so that a well-defined consultation process is established, and that viable sites are identified that ensure minimal interference with campus services and research unit initiatives. However, while the OIT has assumed the role of coordinator, it has not assumed the role of a proponent for such projects.

In this new approach, once a proponent has been identified, we suggest that a review process might include the following bodies and organizations:

- Budget and Planning
- Business Services
- Office of the Executive Vice Chancellor
- Environmental Health and Safety
- Facilities Management Design and Construction as well as Physical Facilities
- Academic Senate
- Council of Planning and Budget

- Design Review Committee (DRC)
- Office of Information Technology

It is reasonable to expect the campus community will have a growing desire for access to wireless applications in the future. The very nature of supporting wireless communications infrastructure is complex. Recent experience with interference between the existing campus radio system and a commercial cellular provider has demonstrated that the resolution of conflicts is both time consuming and burdensome on existing campus technical resources.

Split responsibilities for managing wireless relationships, whether campus or commercially provided, is unwise as it increases the complexity for timely problem resolution in the future.

Health and Safety Issues

Providing relatively reliable cellular service in open geographic areas is not a problem for cellular service companies. However in a campus environment where radio waves are absorbed or shielded by multi-story buildings and copious landscaping, reliable cellular service can be spotty or totally unavailable. To meet their needs, cellular providers must bring their transmitters in closer proximity to their customer's hand held units. This means the campus endures sustained radio transmissions from the cellular transmitters.

The Food and Drug Administration (FDA) has stated there is no definitive scientific evidence indicating negative health effects from the low levels of electromagnetic energy emitted by cellular telephones. However, some recent studies suggest a possible link between cellular phones and cancer and warrant follow-up to determine with more certainty whether cellular phones are absolutely safe.

Like televisions, alarm systems, computers, and all other electrical devices, cellular telephones emit electromagnetic radiation. In the United States, cellular telephones operate in a frequency ranging from about 850 to 1900 megahertz (MHz). In that range, the radiation produced is in the form of non-ionizing RF energy. This RF energy is different from ionizing radiations such as that emitted by a medical x-ray, which can present a health risk at certain doses.

At high enough levels, RF energy can be harmful because of its ability to heat living tissue to the point of causing biological damage. In a microwave oven, for instance, it is the RF energy that cooks the food -- but the heat generated by cell phones is very small in comparison. A cellular telephone's main source of RF energy is its antenna; the closer the antenna is to a cellular telephone user's head, the greater the person's expected exposure to RF energy. While the many studies currently underway may bolster current scientific knowledge, they may never be able to prove cellular telephones to be absolutely safe. Proving that cell phones don't cause health problems presents the insurmountable scientific obstacle of trying to prove a negative. Some experts have stated that even if the studies in progress were to find relative effects for brain cancer, the absolute increase in

risk would probably be much smaller than the risk stemming from the use of cellular telephones and motor vehicle collisions.

The Federal Communication Commission (FCC) has adopted an exposure standard for cell sites. Cell phone companies are required as a condition of their FCC license to follow this standard. The UCSB Environmental Health and Safety Radiation Group will review all new installations using the FCC criteria. For more information regarding health issues associated with cellular telephones and transmitters, see the following web sites[1]:

http://www.fda.gov/cellphones/

http://www.fcc.gov/oet/rfsafety/cellpcs.html

http://www.mcw.edu/gcrc/cop/cell-phone-health-FAQ/toc.html

http://www.tassie.net.au/emfacts/mobiles/index.html

http://www.fda.gov/fdac/features/2000/600_phone.html

http://www.iegmp.org.uk/report/text.htm

http://www.who.int/inf-fs/en/fact193.html

Space and Building Infrastructure Issues

Space is certainly at a premium in every building on campus. Whether it is in the best interest of the institution to provide space for commercial use is a topic worthy of discussion. Granted, the space the cellular companies request is primarily building infrastructure space (electrical rooms, terminal rooms, attics, storage areas, etc.) and not research or classroom space. However, such infrastructure space is also at a premium to meet departmental needs for storage, equipment and growth. As cellular telephone providers attempt to place their network infrastructure deeper into the core of campus and closer to their customers, conflicts arise with those faculty and staff who do not want to be exposed to cellular transmitters for extended periods of time.

There is also the issue of the impact the commercial cellular providers have on campus structural, electrical and communications infrastructure inside buildings. Every building has a limited amount of electrical and communications wiring capacity with some spare capacity for growth. Cellular transmitting equipment requires substantial amounts of electrical power and some common communications wiring to sustain them. A major planning issue for cellular installations is to assure the institutions electrical capacity is preserved so that campus department funds or state funds do not have to be used to

[1] Positions or opinions expressed in these web sites are not endorsed by the Office of Information Technology nor is this considered a comprehensive list of documents published on this subject. Its purpose is to provide the reader with general information of the issues.

replace lost capacity. Conversely, cellular installations create an opportunity for the campus to improve or repair its electrical and communications capacities at the cellular provider's expense on a one-time basis. License agreements also require the cellular provider to either reimburse the University or pay the provider directly for the ongoing utility services they use.

The use of campus infrastructure space for cellular providers increases parking and vehicle congestion since commercial cellular providers need to support their sites. As their technical support personnel come in from nearly anywhere in the State, technicians arrive unannounced and unaware of campus rules on parking, guidelines of driving on sidewalks, or working near classrooms and offices. This situation also adds to building security concerns as these transient technicians wander about seeking access to their equipment.

If the campus decides that it is in the best interest of the campus to allow cellular sites to remain on campus, it may become necessary to located technically suitable space the furthest distance possible away from core campus.

Financial Issues

The licensing of space for commercial cellular sites creates a source of revenue for the campus. The current recurring "rent" for a commercial cellular site is approximately $3,000 per month or $36,000 per year[2], with annual adjustments for inflation. Funds received for the two existing and the third underway in Storke Tower go directly to Associated Students. Funds received for the three working sites on core campus were assigned to the Americans with Disabilities Act Program through the Chancellor's discretionary fund.

As stated earlier, the student body is by far the largest customer base of the commercial cellular providers. It is their need for service that has brought these providers here. But the popularity of cellular telephones has caused a significant decrease in the use of telephone lines for our students in University-owned residence halls and apartments. For many years the campus has enjoyed the financial benefit of pooling campus departmental and student long distance traffic. On average, this financial benefit amounted to approximately $375,000 per year and has allowed campus telephone rates to remain relatively stable.

This has also brought to the campus a source of revenue that has been used to improve and maintain the campus' information technology infrastructure. Projects this revenue has previously funded include: the initial underground fiber optic cabling for the campus, acquisition of the campus' 800MHz radio system, initial funding for Geography's Talking Sign project, subsidization of the acquisition of a substantial number of backbone data switches and routers which connect the campus to Wide Area Networks (WAN) and the Internet, installation of cable modem service to serve ResNet in student apartment

[2] These are general figures. Actual dollar amounts are subject to the terms and conditions of individual agreements.

housing, and the installation and maintenance of the campus emergency telephone system.

As students have moved away from using campus telephone services to using commercial cellular providers, the revenue the campus generated moved with them to the benefit to the commercial providers instead of the campus. Therefore, it is reasonable to assume that without this subsidization, departmental expenses for telecommunication and network services will presumably rise at a faster rate than expected. This is not to say that the move of student traffic and associated revenue from land based to wireless lines would have never happened, only that it may have been accelerated by the improved service coverage by commercial cellular providers on campus.

On face value, it appears that cell sites represent an opportunity for new revenues for the campus. In reality, these revenues represent a shift of funds that the campus has enjoyed in the past from other sources such as resident student long distance service and public (pay) telephones, which are in steady decline. The loss of these revenue sources represents potential increases in direct expenses to support existing campus safety systems such as emergency telephones, as well as faculty and staff telephone rates.

Questions for the Campus's Consideration

As stated earlier, the purpose of this paper is to:

a) provide interested individuals with information about cellular technology and the history of its use on campus,
b) outline a broader campus consultative process that Office of Information Technology will coordinate and which seeks to obtain opinions from the campus about cellular technology,
c) frame an inclusive academic consultative process for operational units to follow.

Questions for consideration:

While reliable cellular telephone service is certainly desired by University faculty, students and staff, is it an appropriate use of space in or on our buildings even if such projects improve campus infrastructure?

If so, should the campus identify space on the fringe of the Main campus as much as practicable, such as the proposal for Harder Stadium, so the greater campus community is minimally exposed to sustained cellular transmissions?

Is the contradictory state of health concerns significant enough for the campus to consider restricting cellular providers from installing and maintaining cellular sites on campus?

Besides consultation with the Academic Senate, the Faculty Welfare Committee, the Council of Planning and Budget, the Design Review Committee, the Office of the Executive Vice Chancellor and the current departments involved in the installation of new cellular sites (Budget and Planning, Environmental Health and Safety, Facilities Management Design and Construction and Physical Facilities and the Office of Information Technology) are there others that should be included in the planning process?

Concern has been expressed by those responsible for managing cellular site installations about the process used by commercial cellular providers for construction of their sites. Design and construction tasks are performed outside of the campus' processes, which circumvents normal construction and review procedures. There is some risk for the campus to turn over pieces of its infrastructure to a third party and not own what has been constructed. Should the campus instead of the cellular provider hold all construction contracts as a requirement of installing a site?