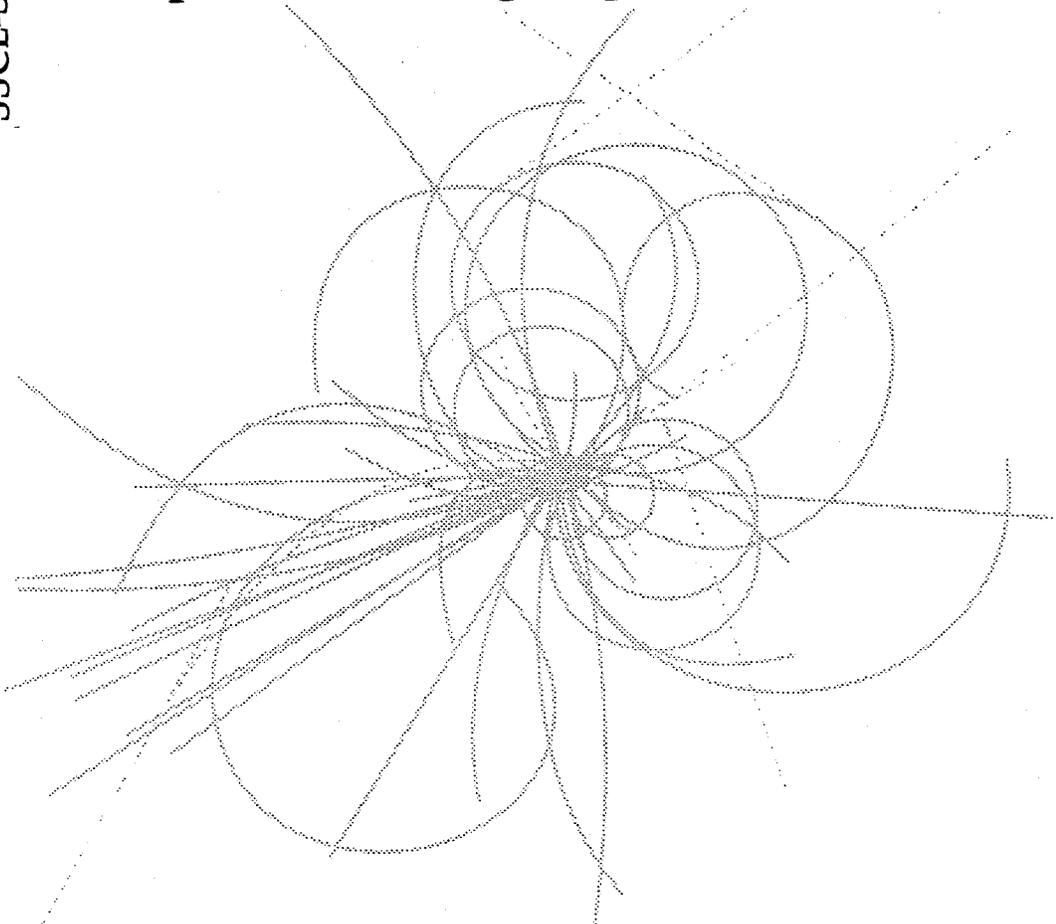


# Superconducting Super Collider Laboratory



## Report of the SSC Laboratory Community Group

June 1991

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**Superconducting Super Collider Laboratory\***  
2550 Beckleymeade Ave.  
Dallas, TX 75237

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In November 1990, SSC Laboratory Director Roy Schwitters appointed a Community Group to assist with the development of the SSCL Site Development Plan, requesting it "to review the progress of the work, to contribute to the data base, and to aid in the decision-making process." The members of the Community Group were Richard Briggs, Larry Coulson, Phyllis Hale, Jim Siegrist, Bob Jones, Sam Kivlighn, Robert Sims, Russ Wylie, and Jim Sanford, Chairman. This report describes the work of the Community Group and documents some of its preliminary recommendations.

CRSS, a member of the Parsons-Brinckerhoff/Morrison Knudsen team, is working on the SSCL Site Development Plan. Prior to their effort, substantial reference material was prepared by the SSC Laboratory and RTK's subcontractor, Johnson, Fain and Pereira. The Community Group has studied and discussed the implications of the recommendations in those reports.

The Community Group has focused on addressing the needs of the different communities that will be based at or involved with the SSC Laboratory, clarifying the key community elements, and identifying the areas in which they interrelate. The largest community is that of the permanent Laboratory staff, which requires an extensive support infrastructure. But an integral part of any high-energy physics laboratory is the vast array of guests, visitors, and users that participate in the work of the institution. The needs of short-term visitors—"the public," interest groups, and school and conference attendees—must also be considered in a comprehensive plan.

The Community Group met numerous times to explore the needs of the different communities. The meetings resulted in clarification of the categories of support needed in and around the Laboratory. A running list of topics was prepared and steadily updated. A copy of the listing is attached to this report as an appendix. The following descriptions expand upon the topical list.

## **Laboratory Program**

As an operating research and development center with associated offices and laboratories, the SSCL will have a complete infrastructure. However, the Laboratory must also address some additional Laboratory-community needs. For effective day-to-day operation of the Laboratory, not only must certain facilities be provided, but also the geographical relationship between the community and the work facilities must be carefully planned. To provide a context for the desired *potential* facilities, a brief description of the planned support facilities is given in this section. Also included are some recommendations on how these facilities should be organized and integrated.

Meeting rooms, varying in size according to need and outfitted with appropriate audio-visual and communications equipment, will be spread strategically throughout the campus to allow a free flow of information. These meeting rooms will be a shared internal resource for the Laboratory as well as a resource for certain outside events.

A large, centrally located auditorium will serve the Laboratory as well as the local community. The auditorium will support large meetings, news- and teleconferences, lectures, and after-hours cultural events. As such, it should be designed with a minimum seating capacity of 1000 and be equipped with a stage, retractable screen, audio-visual equipment, video/telecommunications links, and associated lighting and sound systems.

Because of the rural location of the Laboratory, a full-service, centrally located cafeteria for staff and visitors will be needed. The cafeteria complex should offer a variety, or "carousel," of dining experiences in a pleasant setting. The carousel approach appeals to a range of tastes and eliminates long lines. Individualized take-out centers could include a delicatessen/sandwich bar, grill, ethnic food, salad bar and vegetarian fare, steam table buffet, and bakery/breakfast bar. Food service would be available only during regular working hours; off-hours food service would be provided from a cafe or from vending machines.

Provision of an on-site medical clinic is standard procedure at national laboratories. Because of the SSC Laboratory's large population and isolation, a clinic will be even more vital to the well-being of staff and visitors. The Laboratory medical clinic should be staffed with full-time medical and nursing personnel and provide a complete range of services. The facility should be centrally located, and easily reached by ambulance service from off-site medical facilities.

Although the library will be used primarily by the scientific and engineering personnel of the Laboratory, some general-interest material would be desirable for recreational reading by visitors and guests. In addition to offices and work areas for library staff, study carrels for research and comfortable common areas should be included in the library design. The library building should be located closer to the offices than to the technical facilities to optimize accessibility by the staff. Access to the library after normal working hours will be necessary.

University-based users (as opposed to Division guests) will come to the SSC Laboratory for periods of a few days to a week or more, and they will need temporary offices. The offices should be adjacent to or near the Users Office so that the staff can provide support services as needed. Four temporary offices should be adequate.

Parking should be peripheral but within reasonable walking distance of the work place. Parking for the handicapped should be located close to the building in accordance with applicable statutes. Access for service and delivery vehicles should be limited to an easily controlled approach to each facility. Shuttle service between

facilities should include special parking areas with small covered shelters that contain emergency phones.

## **Conference Center**

As the SSCL becomes the preeminent U.S. research laboratory in the areas of particle physics, detector technology, and accelerator science and technology, the Laboratory will be the host for many national and international conferences on related topics. During the start-up phase of the SSCL, many large technical meetings were held in the Dallas area. But when the permanent site is occupied and the Laboratory becomes operational, it will be preferable to hold most of such meetings at the campus for ready access to facilities, staff, and elements of the infrastructure of the Laboratory. Conferences will typically be 3–5 days in length, although some workshops or summer schools might last for a few weeks. The number of outside attendees will range from a few hundred to more than a thousand. It will probably be necessary to hold conferences with more than 1000 attendees in Dallas or Fort Worth hotels.

The detector collaboration meetings, which will have similar durations and numbers of attendees, will also require conference facilities. The collaboration meetings will need nearby break-out rooms for concurrent sessions of speciality groups. In addition, some of the educational programs will use the facilities and meeting rooms at the center.

In addition to meeting rooms, a range of services should be provided for in the Conference Center complex, including computer terminals and cubicles for temporary use during meetings and conferences. Connection to the Laboratory's computer network will be required to support these activities. The conference facilities would be shared among various Laboratory divisions, and they will serve as an extra resource for overflow sessions.

The Conference Center area could include a "mini-mall" with a newsstand and sundries shop. Credit union facilities with adequate space for regular transactions, a waiting area, and a private room for loan transactions could also be located in this complex. Services such as car rental and transportation could be arranged through the Conference Center staff.

The Conference Center should be located somewhat apart from the main Laboratory complex, and it should provide separate parking facilities to minimize traffic and parking problems and interference with the daily routine of the laboratory. However, the center should also remain in reasonable proximity to Laboratory activities to allow interaction with staff and other needs.

## **Users Center**

The Users Center would provide general hospitality services to a broad range of visitors. The functioning of the research program will require that on-site accommodations be available for short-term technical visitors to the Laboratory. The Users Center could include an after-hours cafe for light refreshments and a "wellness" facility.

A limited amount of short-term housing (for stays of less than one month) on the campus will be needed for visitors and users involved in experimental work. Some combination of single rooms and dormitory-like facilities will be required. The facilities should be on-site, but not in the midst of the central offices and technical facilities.

An exercise or "wellness" facility could be located on the periphery of the Users Conference Center. Its activity rooms should be open before, during, and after business hours and contain indoor/outdoor swimming pools, exercise/aerobics room, sauna and/or whirlpool, and shower facilities.

## **Education Center**

The SSC Laboratory is the first national laboratory to cite an education program of national and international scope as one of its primary goals. To achieve this challenging goal, the Laboratory is developing a broad variety of educational programs reaching out to local and national interest groups as well as interested foreign countries. The Laboratory is considering options such as distance-learning mechanisms, national teacher workshops, and a fully equipped Education Center. It is expected that programs and conferences ranging in length from one-day to several weeks will be offered. In addition, continuing education facilities for staff and visitors might be needed on-site.

The Education Center should include staff and visitor offices, conference rooms, lecture halls, audio-visual presentation rooms, classrooms, laboratories, a computer training facility, and hands-on exhibit areas. Such facilities would make first-hand educational and research opportunities available to students and educators from across the nation and abroad. Like the Visitors Center, the Education Center should be located close to facilities open to the public, such as the cafeteria and the library.

Collaborations and joint programs with local universities will eventually take many forms and involve various scientific and technical areas at the SSCL. One specific need that has been identified and discussed at length is the demand for educational programs in the accelerator technology area. Accelerator science and technology has not been well represented in universities, and it is increasingly clear

that the SSC will have to play a significant role in this area to prepare students for future roles at the Laboratory.

Specific features of the SSCL Accelerator Research and Education (AR&E) program have not been determined, but for purposes of site activity it should be assumed that on-site facilities for the AR&E program will be required and that the facilities will be tied administratively to one or more local universities with courses available through TV hookups. These facilities would constitute a satellite campus similar to those at many laboratories (for example, the University of California at Davis Department of Applied Science at Lawrence Livermore National Laboratory). The number of students involved on-site would be 30-50 at a time; faculty would consist of part-time SSCL staff and several full-time people with offices in the classroom area. Many of the students will work part-time in SSCL programs, so the location of the satellite campus should be in reasonable proximity to the central laboratory buildings.

Many of the SSCL internal training needs could also be met with the proposed Education Center. Classrooms with audio-visual presentation capabilities would provide the SSC staff with distance-learning opportunities for professional development and for participation in academic courses. Training in practical skills could be accomplished with the proposed computer training facilities and with planned laboratory facilities within each division.

## **Visitors Center**

A comprehensive visitors' program would benefit the SSC Laboratory and the field of high-energy physics. The Laboratory Director has expressed a management philosophy of openness and neighborliness: a proactive visitors program would be consistent with that philosophy. Also, the public has many misconceptions about high-energy physics. An open and positive visitors program in which the work of high-energy physicists is presented accurately and attractively would help to dispel some of the public concern associated with research into the atom. Communicating the role that high-energy physics and accelerators play in answering questions about the origins of the universe will be central to the message of the Laboratory.

The SSC Laboratory will be one of the largest scientific instruments ever built. Despite the misgivings noted above, in general the public finds concepts like "the biggest" and "the most powerful" very appealing. Hence, the already keen public interest in the project can be expected to intensify as construction begins and later the experimental program starts to make new discoveries. Laboratory management has already determined that the accelerator complex will be designed so that visitors can see the machine and its associated support facilities. Areas such as the control room will probably also contain viewing spaces for public tours.

To accommodate public visitors, the Laboratory should have a Visitors Center on the west campus. The Center should include a reception lobby, a store selling memorabilia and educational materials, an exhibition hall, an audio-visual presentation room with a 50-person seating capacity, and staff offices and facilities. The Center should be located in the vicinity of the SSC control room, computers, the linear accelerator, and at least one of the interaction halls, all of which will be key features of public tours. The Visitors Center should also be convenient to other facilities that the public may use, such as conference rooms, auditorium and lecture halls, the cafeteria, and the library.

The preferred size of the Visitors Center has not been determined, but a few precedents exist: About 25,000 people a year visit Fermilab, which is about 60 minutes west of Chicago. NASA's center at Houston, Texas, and the McDonnell Observatory in West Texas annually receive more than 866,000 and 120,000 visitors, respectively. In the Metroplex, about 375,000 people visit the Dallas Science Museum each year, and 550,000 visit the Fort Worth Museum of Science and Industry. The number of people likely to call at the Visitors Center could therefore be considerable.

## Science Village

Housing and other forms of assistance should be provided for long-term visitors, at least in part because these individuals and their families will often be unfamiliar with Texas or even with the United States. The committee recommends support of creating a "Science Village" in one of the towns near the Laboratory site to provide long-term housing for such visitors. Short-term visitors and those without families could be accommodated with a smaller amount of on-site housing.

As a major facility for physics research, the SSC Laboratory must have adequate housing for university-based professors and students who come to the site to perform research. These visitors will be guests of the Laboratory, and their terms of stay will average about one year. Proposed on-site housing facilities will accommodate individuals for a short stay, but many of these visitors will be accompanied by their families and will need family housing. This type of accommodation would also be attractive to university team members, collaborative groups, and education program participants, whose length of stay is more than a month or two.

Of particular concern are families from other countries who will need support from one another but who will also have significant interactions with the wider community and its resources. Most scientists from abroad speak adequate English. But they will spend the majority of their time at the Laboratory, as physics experiments demand long hours away from home. The scientists' absence requires their spouses and children to cope with life's day-to-day activities as independently as

possible. However, many of the spouses will speak little English, and, in general, they may be less familiar with the United States. They are generally accustomed to extensive public transportation and often do not drive; many will also have young children, some of school age.

The Science Village should consist of two- and three-bedroom townhouses and apartments and be located within walking distance of shopping, medical facilities, daycare, schools, churches, and a library. For safety and recreation, there should be a park/playground and commons area within walking distance. Locating this "village" within a small town environment, where visitors and their families can interact with the local community, is suggested. Waxahachie and Ennis are both about a 35-minute drive from Dallas and Fort Worth and within approximately the same distance from the campus site. Both of these Ellis County small towns have downtown areas with medical facilities, shopping malls, schools, day care, and other services.

## **Other Needs**

The following topics are examples of other potential uses of the land and facilities of the Laboratory.

### *Recreation*

Recreation facilities should provide for both indoor and outdoor activities that are accessible to the campus and science village. The surrounding communities might also take limited cooperative advantage of them.

The indoor facilities should include a wellness center with a gymnasium, swimming pool, and table tennis area. Several multi-functional meeting rooms could easily be converted for use by various hobby groups and local civics organizations. The SSCL Recreation Association already has groups interested in aerobics, art, biking, dancing, horseback riding, gardening, hiking and camping, shooting, sailing, softball, tennis, and volleyball.

Recreation facilities for individuals or groups should be available before and after work, during lunch-time, and on weekends. With ample acreage available, some outdoor space could be allocated for nature trails, jogging paths, lighted athletic fields, and tennis courts. Designated park areas will offer special educational opportunities for playground equipment that demonstrates fundamental concepts in physics.

The SSCL Riding Club has proposed that the Laboratory consider one of several existing ranch properties for use as an equestrian center. The boarding stable and riding facilities would be maintained and operated by the club, following bylaws similar to those at Fermilab.

### *Daycare*

Attracting a daycare provider to the Laboratory is important for a variety of reasons, including the side benefits of reduced tardiness and absenteeism, heightened productivity, and increased retention of trained employees. On-site daycare would also help to attract people from the competitive high-tech and scientific marketplace to the rural Laboratory site. It would not be necessary for the Laboratory to actually provide daycare—instead, it would supply appropriate land or buildings for lease to a DOE-approved outside provider. Factors to weigh when considering on-site daycare are the number and ages of children requiring daycare and the number and location of daycare centers within a given radius of the Laboratory.

Ideally, the center would have both indoor and outdoor play areas, kitchen facilities, classrooms, and an office area. The daycare provider should offer programs for infants, pre-school children, and possibly “after-school” care for younger school-age children. “Drop-in” care would be helpful for visiting scientists and families during relocation. Summer camp programs for older children should also be considered as an option.

## Appendix A: List of Possible Community Activities

Technical Facilities	car rental
accelerator	vending, sundries, etc.
experimental areas	newsstand
control rooms	credit union/bank
operations center	money exchange
Offices/Laboratories	post office
assigned by division	mail boxes
technical visitors	UPS service, etc.
Computer Support	Transportation Center
on- and off-site linkage	airport connection
conference center	bus linkage to nearby towns
science village	shuttle stop at Laboratory
technical assistance	Users Center (on site)
Meeting Rooms	Housing (< 1 month)
division usage	hotel-like
limited availability for others	dormitory/hostel
Auditorium (c. 1000 people)	"Wellness" Center
lectures	exercise room
seminars	swimming pools
after-hours cultural events	Cafe (also open after hours)
Cafeteria	with beverage license
daytime meals	Visitors (public) Needs
vending after hours	Visitors Center
Medical	reception lobby
ambulance	store for memorabilia
Library	exhibit hall
study carrels	presentation room
Users Office	Tours
temporary offices	guided
Conference Center	self-guided
Facilities	Education Center Concepts
meeting rooms	Education programs
break-out rooms	interns
computer rooms	summer students
parking/garage facilities	Satellite campus
storage lockers	courses in accelerator tech.
Services	adult-education courses
mini-mall	Training facility
travel	at the Lab?
	video conferencing

Science Village (off site)

Housing ( > 1 month)

town houses

apartments

Clustered Facilities

guest office

local community room

language courses

play group facility

Integrate with Community

shopping

medical

transportation

Community Services

recreation

schools

churches

movies

Other

Recreation

jogging paths

hobby rooms

playing fields

equestrian center

golf

Day care

regular program

drop-in service

summer camp