

TRANSPORTATION AND CIRCULATION WHITE PAPER

1. The 1988 Long Range Development Plan:

- a. Reduce traffic and parking demand:
 - Strengthen Transportation Systems Management (TSM) program with the goal of diverting at least 40% of all passenger trips to and from campus to alternatives to the single-occupant auto;
 - Identify businesses and solicit proposals from private business vendors to provide on-campus services to the on-campus residential population
- b. Parking Management strategies:
 - Use parking ratios to set maximum limits on parking supply and distribution of parking among users (faculty/staff, graduate students, apartment residents, etc.).
 - In years when LRDP Housing Goals are unmet, the number of remote parking spaces can increase to an “Overarching Maximum” — equivalent to 8,400 total parking spaces when enrollment reaches 15,000 students.
 - Require 90% average daytime utilization in “activity zones” prior to construction of new parking;
 - Promote commuter parking in remote lots via differential parking fees.
 - Make multiple use of parking supply (commuters, events attendees, etc.).
 - Phase out close-in parking for undergraduates.
 - Limit availability of remote parking permits to undergrads in residence halls, especially first-time freshpersons.
 - Construct up to two new remote parking lots when warranted.
 - Construct up to two centrally-located parking structures with as many as 750 spaces each.
- c. Proposed roadway improvements to support campus circulation:
 - Meyer Drive Extension (from Heller to Hagar) and a second extension to Coolidge Drive, if Eastern Access is realized.
 - Restrict vehicle traffic on Steinhart.
 - Northern Loop Road (from Heller to Chinguapin) to reduce cross-campus traffic demand on McLaughlin Drive.
 - Close McLaughlin Drive to private vehicles when Northern Loop Road is built.
 - Construct a new campus entrance (from Empire Grade to the Northern Loop Road) to serve the upper campus lands.
 - Construct an eastern access (from Highway 1 to Coolidge Drive).
 - Widen Mission Street with UC funding assistance and improve traffic flow at major Mission Street intersections (Mission/Chestnut and Mission/Bay).
 - Build a grade-separated interchange at Hwy 1/9 intersection and widen the Hwy 1 bridge across the San Lorenzo River when such improvements are warranted.
 - Install traffic signals at various intersections (Hagar/Coolidge, Heller/Empire Grade, Western/Empire Grade, Laurel/King) when warranted.
- d. Expand transit services to accommodate increased campus demand:
 - Campus Shuttle System.
 - SCMTD transit services to UCSC.
 - Consult with SCMTD to maximize use of a fixed guideway system, if found to be feasible.
- e. Improve pedestrian circulation system:
 - Create a “Pedestrian Spine” along Steinhart Drive.
 - Augment pedestrian network (sidewalks) with new facilities.
 - Construct grade-separated pedestrian crossings along Heller Drive.
- f. Improve bicycle circulation network and amenities:
 - Realign Bike Path and lanes near South Entrance.
 - Construct Class II bike lanes along major campus roadways.

- Expand cycling amenities (bike parking, lockers, showers, etc.).

2. Existing Conditions:

a. Vehicle transportation and TSM effectiveness:

- Campus TSM programs have proven more successful than forecast:
 1. Alternative mode split sustained at better than 50% since 1989.
 2. A Fall 2003 study found this mode split at 55.4%—the highest ever measured.
- Mitigation Measure 8-4 requires annual per capita trip rate of 1.59 or less:
 1. Per capita trip rate of 1.52 or lower since 2000-01.
 2. Achieved per capita trip rate of 1.37 in Fall 2003.
- Overall campus ADTs rising more slowly than enrollment:
 1. While the campus enrollment has increased by 60% since 1987-88, Average Daily Trips (ADTs) measured through the two campus entrances have grown by only 33%. ADTs recorded during Fall 2003 recorded 24,913 vehicle-trips passing through the two campus entrances per school-term weekday.
 2. The LRDP EIR projected a total campus population of 19,583 people generating between 31,688 ADT (with Maximum Campus Housing) and 38,612 ADT (Minimum Campus Housing) when enrollment reached 15,000 students. At present (2003-04), the campus has 92.6% of this projected population and only 64.5% (Max. Housing) to 78.6% (Min. Housing) of the projected traffic.

b. Parking Management:

- Total parking supply is currently 5,063 spaces (including 284 motorcycle spaces) — far below the 8,400 maximum allowed spaces under the 1988 LRDP. Approximately 560 parking spaces have been removed due to construction between Fall 1988 and Fall 2003.
- Actual parking ratios are below the 1988 LRDP's maximum parking ratios.
- Current status of parking utilization and "activity zones:"
 1. Average daytime parking utilization exceeded 90% in six of seventy-six parking areas, of which two were remote lots totaling over 1,200 spaces and two others provided less than a dozen spaces each.
 2. Overall utilization of auto parking spaces campus-wide is 74.3%. This figure reflects relatively low utilization of Reserved parking spaces (1,335 spaces at 59.6% utilization) and higher utilization of Permit spaces (3,444 at 80.0% utilization).
 3. Various factors arising since 1988 suggest that the LRDP's reserved parking guidelines may warrant modification, in particular where underutilized Reserved spaces lower the overall utilization within a heavily-utilized lot or zone. These include: ADA requirements for disabled and medical parking spaces; Reserved parking spaces for commuter vanpools; Reserved parking in areas with high numbers of A Carpool permit-holders; certain delivery and/or drop-off parking.
 4. Parking demand in several areas (Health Center/Science Hill, Cowell College/Quarry Plaza) has spread across several of the "activity zones" defined in the 1988 LRDP, indicating that these zones might warrant redefining.
- Commuter demand for remote parking is high and, in combination with long-term "stored" vehicles associated with campus residents, results in remote lot utilization rates well above 90%.
- Special event parking demand has grown during weekdays (as well as during evenings and weekends), when commuter parking demand is generally greatest.
- Undergraduate "C" permit parking occupies approximately the same number of close-in parking spaces in 2003-04 as in 1987-88, but nearly all are in college parking lots.
- Residential freshmen and sophomores are prohibited from obtaining any parking permit other than by exception.
- Of the two 750-space parking structures, only the 486-space Core West Parking Structure has been built.
- Neither of the two new remote lots have been constructed. West Remote was expanded in 1991-92 by approximately 35 spaces, and up to 400 "virtual" parking spaces have been realized through attendant parking within the aisles of the East Remote lot.
- Recognize and monitor the linkage between parking availability and campus-related traffic:

1. Concern expressed during the Core West Parking Structure EIR process that additional parking would generate additional traffic. In fact, campus ADTs dropped slightly after Core West opened and transit ridership among faculty and staff increased — possibly in response to higher parking fees necessary to fund the Core West structure.
 2. Led to the Master Transportation Study (MTS), a jointly-funded project of UCSC and the City of Santa Cruz addressing citywide transportation issues through 2020 intended to inform updates of the City's General Plan and UCSC's LRDP. The Santa Cruz City Council accepted the MTS December 9, 2003.
- c. Provide roadway improvements:
- No Meyer Drive Extension Phase 1.
 - Mission Street widened, Mission/Chestnut intersection improved. An October 2003 traffic study assessing current Levels of Service (LOS) at 26 off-campus and 16 on-campus intersections found 4 off-campus and 3 on-campus intersections operating at LOS E or worse. Two of the four off-campus intersections (Bay/Escalona and Bay/California) met left-turn channelization warrants. Peak hour signal warrants were met at two intersections: Bay/Escalona and Hagar/Coolidge (which is slated for signalization during Summer 2004, pending release of State funds).
 - While accepting the MTS report December 9, 2003, the Santa Cruz City Council unanimously passed an amendment prohibiting the construction of an auto roadway to UCSC across the Pogonip.
 - Traffic signals installed at Campus Facilities/Coolidge during Spring 2003; installation of traffic signals at Hagar/Coolidge intersection is planned for Summer 2004.
- d. Expand transit services:
- Campus transit service growth (compare level of service and total ridership 1987 vs. 2002-03):
 1. The Day and Night Shuttle program has grown by over 155% since 1987-88, moving a weekday average of 13,470 passengers during October 2003.
 2. During Fall 2003, four separate Day Shuttle routes operate from 7:30am until 6pm Monday through Friday, with two providing 10-minute headways. Three separate Night Shuttle routes provide headways of 10-minutes or better between 6pm and 10pm and 12-minute headways from 10pm until approximately 12:30am seven nights a week.
 3. Campus Transit services expanded to include the Westside Shopper Shuttle and the Fremont BART Connector.
 - SCMTD transit service growth (hours of service, ridership comparison, etc.):
 1. SCMTD student ridership has increased more than 38% since 1987-88, transporting an average of 8,200 riders/day during 2002-03.
 2. A fully-subsidized SCMTD bus pass for faculty and staff was introduced in July 1989; ridership in October 2003 averaged 676 riders/day.
 - New and/or improved transit stops and shelters have been constructed throughout the campus (College 8/Porter, East Remote, Campus Facilities, etc.).
 - Bi-directional SCMTD Service through the campus instituted in Fall 2001, following reconstruction of several bus pullouts and the right-turn from McLaughlin Drive to Hagar Drive. Bi-directional service reduced "stacking" of buses at pullouts, reduced travel time for selective transit riders, and increased SCMTD's ability to accommodate cross-campus transit travel.
 - Late-night "Night Owl" transit service introduced by SCMTD Fall 2002:
 1. Provides on-demand "flexible" route service from midnight until 2am Monday through Friday, and from midnight until 3am Saturday and Sunday.
 2. During the 2002-03 academic year, the Night Owl averaged 97 passengers/night with typical weekend ridership of approximately 200 passengers/night. Average ridership during the first two months of Fall 2003 is up to 146 passengers/night.
 - SCMTD's Fixed Guideway study evolved into SCCRTC's Major Transportation Investment Study (MTIS), resulting in consideration of transit options along the rail corridor and widening of Highway 1 east of the Fish-Hook.
 - Transit services have grown with support of the UCSC student body, which approved four of six separate ballot measures since 1988 to increase the quarterly Student Transit Fee to the current \$69/quarter.

- In Spring 2003 UCSC TAPS contracted with Urbitran consulting to develop a Comprehensive Transit Study for the campus, addressing both SCMTD and TAPS-operated services. Their final report is anticipated early in Winter 2004.
- Disability Van Service was transferred from the Disability Resource Center to TAPS in 1997. Approximately 7,500 passenger-trips were accommodated via DVS vehicles during 2001-02.
- e. Improve pedestrian circulation system:
 - Pedestrian bridge constructed between Health Center and Natural Sciences 2, at Oakes College.
 - Limited “pedestrian spine” created along Steinhart Drive.
 - Some ongoing ADA improvements and pathway additions/improvements (ex. Hagar Drive).
- f. Improve bike network and amenities:
 - Improvements to Bike Path (curve at Farm/Lower Quarry crossing, Camfac/Coolidge intersection).
 - Construction of Class II bike lanes along Hagar Drive.
 - Expansion of bike parking throughout the campus.
 - Installation of several shower facilities for bike commuters.
 - Creation and expansion of the Bike Shuttle:
 1. Program introduced in Spring 1999, providing rides for 14 passengers per van from Bay/Mission intersection through the campus on 15-minute frequencies from 7-10am weekdays. In Fall 2000, service expanded to begin at 6:45am; additional service capacity provided in Fall 2003 reduced headways to 10-minutes.
 2. Average daily ridership of 77.4 passengers/day during 2002-03.
 - Installation of bike racks on all TAPS vanpools and SCMTD buses.

3. Key Physical Issues:

- a. Ability to maintain and expand the success of campus TSM/TDM programs.
- b. Constrained access routes to campus via residential neighborhoods feature congested roadways, unacceptable LOS at certain intersections during peak hours.
- c. Ability of campus road network to accommodate additional traffic.
- d. Existing on-campus surface parking lots converting to in-fill development sites.
- e. Cost of parking garages as parking solution.
- f. Limited hours of parking enforcement.
- g. Campus-related parking issues in surrounding neighborhoods.
- h. Transit capacity necessary to accommodate increased demand.
- i. Pedestrian/vehicle conflicts (congestion at ped xings) slows transit system, add to roadway congestion.
- j. Bike network inadequate/incomplete.
- k. Address access issues between campus and off-campus facilities (eg. Westside admin offices), off-campus parking management.
- l. Class scheduling often require large numbers of students to travel across campus in short timeframes.
- m. Campus topography and distance between facilities influences ADA accommodations.
- n. Elevation change between upper and central campus will influence future campus circulation planning.

4. Possible Approaches:

- a. TDM:
 - Expansion/replacement of Vanpool fleet, possible “up-scaling” to Buspools if appropriate.
 - Use of new technologies to retrieve information and provide access.
 - Consider use of on-demand delivery services, taxis to move people/things around campus.
 - Consider revisions to class scheduling to reduce cross-campus travel during peak times.
- b. Parking:
 - Expand hours of parking enforcement.
 - Construct additional remote parking.
 - Construct additional close-in parking in garages and/or underground.
 - Develop remote parking off-campus (possibly joint use with City and/or LML).
 - Implement parking management programs at off-campus facilities.

- Develop and implement Carsharing program to allow students and employees access to vehicles without needing a personal vehicle on-campus.
 - Consider constructing an entry point parking facility with transit/shuttle hub.
 - Provide short-term parking for faculty and staff at meeting and administrative facilities.
 - Develop a parking wayfinding system for new students and visitors, and consider a parking guidance system with changeable message signs to identify available parking spaces campus-wide.
 - Increase use of Zoned Parking permits, linked to permit pricing.
 - Consider a “Pay At Exit” use-based fee instead of monthly parking permit fees; fee structure could be varied to encourage off-peak travel.
 - Re-examine replacement parking for new buildings and development that pre-empts existing parking. Require that new building projects include in their budget an amount to replace any spaces lost for construction, with funds accruing to the parking budget for use in developing new facilities.
 - Provide strategically-placed visitor parking facilities with good wayfinding.
 - Explore off-campus “storage” parking facilities for on-campus residents who use vehicles infrequently.
- c. Traffic and Access:
- Improve access routes to campus.
 - Enhance on-campus circulation network (roads, bridges, traffic signals, channelization).
 - Provide improved wayfinding systems.
 - Consolidate campus meeting facilities in high-access areas of campus, or establish secondary off-campus meeting facilities.
 - Develop focused traffic engineering plans for congested street segments and intersections.
 - Explore application/feasibility of Transportation Systems Management solutions for city streets such as: reversible lanes, incident management systems, improved signal coordination, Intelligent Transportation Systems solutions, traveler information systems, High Occupancy Vehicle lanes, etc.
 - Carefully consider land uses and proximity to maximize trip linking and internalization of trips (i.e. retail services for on-campus residents).
 - Build off MTS social marketing plans to develop educational/promotional programs to change travel behavior.
 - Explore off-campus transit-oriented housing opportunities.
 - Develop a special event traffic management plan.
- d. Transit:
- Improve transit route coverage and service hours on- and off-campus.
 - Plan for replacement and expansion of Metro and UCSC transit fleets.
 - Improve transit services to/from UCSC facilities located on Westside of Santa Cruz, as well as between campus and Westside.
 - Improve special event transit service.
 - Expand transit services and capacity to accommodate campus growth, including development of the Upper Campus lands.
 - Work with SCMTD to develop a Bus Rapid Transit (BRT) or Rapid system accessing the campus (BRT systems utilize exclusive bus lanes, while Rapid systems use express service, signal pre-emption and bus priority features (e.g. queue jump lanes) to improve service).
- e. Pedestrians:
- Develop a Pedestrian Master Plan with design guidelines.
 - Improve/complete the on-campus pedestrian circulation network.
 - Design and install improved wayfinding systems (signs, maps, etc.).
 - Promote walking options on-campus to reduce auto and transit dependencies.
 - Consider pedestrian/transit zones (car-free zones) to accommodate peak “swarms” between classes.
 - Review locations and standardize pedestrian crossings.
 - Install new pedestrian safety technologies such as crosswalk flashers and flashing signs.
- f. Bicycles:
- Develop and implement a Bicycle Master Plan.
 - Improve/complete the on-campus bike circulation network and advocate for completion of off-campus bike routes serving the campus community.

- Promote additional secure bike parking at/near off-campus transit stops.
- Provide additional/improved on-campus bike parking, including secure and covered parking, charging stations (for e-bikes), shower and locker facilities.
- Integrate the upper campus recreational trail system with the rest of the bike circulation network.
- Re-establish bike education programs (i.e. BEEP) and make bicycle regulations and policies readily available.
- Conduct engineering study of existing campus roads to determine ways to provide a continuous bike lane or off-street paths that parallel roads.