

**Humanizing Academia in the Machine Age: Lewis Mumford's Influence on  
Circulation and Parking Planning at Stanford**

by

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## **I. Introduction: Chaos in the Machine Age**

*“The new American religion is the religion of the automobile; the new aim of regional planning is to open every area of the metropolis to the motorcar, giving it a ‘sacred right to go anywhere, halt anywhere, and remain anywhere as long as its owner chooses.’”*

*(Lewis Mumford 480)*

Lewis Mumford’s observation on the prevalence of automobiles in cities during the Post-War period aptly describes the situation on the campus of Stanford University in the 1940s. A growing university population and regular use of the private motorcar by faculty, staff, and students as means of transportation within and to and from campus created a chaotic mix of cars, people, and buildings on campus. Few restrictions existed on where motorists could operate or park their vehicles (Figures 1a through 3a). By permitting the free reign of motor vehicles on campus, the University’s approach paralleled the trend in urban planning that Mumford called, “a curious compulsion to serve the machine rather than to respond to human needs” (The Highway and the City 235). Mumford cited the invasion of cities by highways, bridges, tunnels, and parking lots as a manifestation of the widespread belief that mechanical progress should proceed at all cost. He insisted that such progress came at a great cost, however, to the quality of life and the environment. More than an urban planner and architectural critic, Mumford was also a writer and a thinker on culture, civilization, society, and technology. Contrary to popular belief, Mumford was not against the automobile; he merely recognized that society’s obsession with this new technology was taking its toll on the health of the city

and would eventually destroy any environment which it was allowed to overrun unchecked—including the university campus.

Mumford's professional relationship with Stanford University lasted only a few short years during the Forties, first from 1942 to 1944 as a visiting professor in the School of Humanities, then from 1946 to 1947 when president Donald Tressider (1944 to 1948) commissioned him to study future land use and development at Stanford (Stanford University 82). At Mumford's recommendation, Tressider established the University Planning Office in 1945—the first of its kind—and appointed San Francisco architect and Yosemite National Park planner, Eldridge T. Spencer, as its director (Donald Tressider 75). Defining the mission of the experimental Planning Office, Spencer wrote in an early report: “It is strongly recommended that the University should no longer consider temporary measures for the solution of its problems.” By “temporary” he meant, “hastily planned from the point of view of a particular requirement without consideration of the University as a whole” (“A Coordinated Plan,” 1947). For the first time, the University began to view issues of circulation and land use for parking in conjunction with architectural planning and the overall function of the University as an academic institution.

Working with Tressider and the Planning Office, Mumford initiated an enduring plan to control the rampant intrusion of automobiles into the heart of the University campus and gradually return its use to the people. Relevant excerpts from “Campus Planning,” his 1947 report to the University, are listed here:

Buildings should, in future operations, be conceived as a concentrated urban group in a permanent rural setting. To make this concentration possible, the road plan should be revamped, and every tendency toward scattering and suburban

isolation should be resisted as ruinous to the functions of the University. [The three objectives of re-planning the road system are to] create a unified university quarter, free from the invasion of traffic, with the land re-assembled in parcels that will give the maximum use to university functions proper...give access to every part of the University without the disturbance of unnecessary traffic...differentiate the traffic function from the parking function.

The current circulation and parking system at Stanford bears the marks of Mumford's hand: the pedestrian zone, Campus Drive, and the separation of circulation and parking functions can be attributed to his suggestions. More significantly, Mumford's influence extends beyond the physical campus; his ideas have been ingrained in the University's planning philosophy to the present day. A comparison between images of the Main Quad today and those taken in 1940 reveals the striking transformation in character the campus has undergone since Lewis Mumford's days at Stanford (Figures 1b through 3b).

## **II. Olmsted's Plan and The Garden City**

*“Compactness, uniformity of height, internal flexibility, and adaptation to climate were Olmsted's guiding principles in the design of Stanford... his design showed foresight and originality of the highest order.” (Lewis Mumford in “Architecture and the University,” 1947)*

In “Campus Planning,” Mumford regarded Frederick Olmsted's original concept of the Stanford campus (Figure 4) as a paragon of “compactness, concentration, and unity.” He called for a return to Olmsted's values—the “concentrated urban grouping” of buildings—and at the same time, urged the University to preserve its “rural setting,”

particularly as protection against the Peninsula's encroaching suburban sprawl. This emphasis on the combination of urban and rural characteristics suggests that Ebenezer Howard's garden city idea heavily influenced Mumford's views on planning at Stanford. Indeed, the premise of the garden city is to surround an active urban center, limited by population, with an inviolable "green belt" of farmland or parkland, thus avoiding both congestion and urban sprawl (Lewis Mumford 85). Mumford's overall plan for Stanford and many of its details, such as his frequent reference to permanent "green belts" around University lands, reflect the garden city idea of urban planning.

### **III. The Peripheral Circulation System**

*"The basis of the University's circulation should be a system of concentric roads... The circulation proposed consists of peripheral roads forming a rectangle to service the academic areas of the campus." ("A Coordinated Plan," 1947)*

According to Spencer, "the University's system of peripheral circulation was anticipated in the Olmsted plan" ("Development of Circulation," 1958). The peripheral road pattern is readily apparent in the drawing of Olmsted's plan (Figure 4), particularly in the arms of the "Y" that reach toward either end of the rectangular academic area and the corresponding curved road that connects the diagonally aligned residence areas. Placing the academic buildings at the center of the campus and arranging faculty and student housing around them, Olmsted's plan was best served by a circulation pattern that surrounds the central campus area rather than one that goes through it. Logically, Mumford proposed that the main road system should follow the peripheral pattern. The

peripheral road system fits in with Mumford's interpretation of the garden city idea: "Arterial roads, ideally speaking, should engirdle the metropolitan area and define where its greenbelt begins" (The Highway and the City, 249). At Stanford, such a road system would define the boundaries of the academic and residential area. A 1956 diagram by Spencer (Figure 5) shows how the peripheral road bounds the distinct university functions of academics, housing, and athletics within a limited radius from the campus center.

Another source of inspiration for the peripheral circulation system may have been the quadrangular form of the Inner Quad and the pedestrian circulation patterns through its arcades (Figure 6). A study of pedestrian circulation in the courtyard reveals definite patterns along the arcaded periphery of the rectangular courtyard, as well as major and minor paths crossing the interior of the courtyard (Figure 7). Spencer's 1958 report, "Development of Circulation and Parking Study, depicts the campus circulation pattern in exactly the same context: major circulation routes lie along the periphery of a rectangle while interior routes bisect the core of the rectangle (see Diagrams 'A' and 'B' in Figure 8).

Correspondence between Mumford and Tressider indicates that Mumford traveled to Stanford to meet with Spencer at least once in February of 1947 ("Letter to Tressider," 1947). Spencer and Mumford discussed a wide range of campus planning issues from architectural style to dining halls, but Mumford was especially interested in the topic of circulation: "the University's circulation was the subject of most of Mumford's discussions" (notes from Spencer's meeting with Mumford in "A Coordinated Plan,"

1947). In 1949, Spencer materialized Mumford's ideas for circulation in a three-stage plan. The plan called for the construction of three concentric road systems:

1. An inner loop around the core of campus would service the academic buildings and residences.
2. An outer loop would service remaining residences and facilities.
3. A perimeter loop would service the adjacent community and prevent local traffic from using campus streets as throughways.

Construction was to proceed in three stages (Figure 9 shows the existing circulation system in 1949). Stage one included the eastern and southern portion of the inner loop (Figure 10). Known as Campus Drive East today, most of it was completed in the 1950s. The actual alignment, however, differed from Spencer's initial diagram (see Figure 14). Stage two included the western portion of the inner loop at the medical center (Figure 11). This section of Campus Drive was finished in 1961. Stage three, shown in Figure 12, was the outer loop, the Campus Drive extensions on the east and west sides to Foothill Road (now known as Junipero Serra Boulevard). The eastern extension was altered from the plan to align with Mayfield Avenue and renamed Campus Drive East. The original Campus Drive to Lomita Drive was renamed Mayfield Avenue (see Figure 15). The Campus Drive West extension was not completed until 1982, although it was approved for construction as early as 1968. The perimeter system (Figure 13) was to link El Camino Real with Foothill Road (now Junipero Serra Boulevard) on either side of the campus via Page Mill Road to the east and Sand Hill Road to the west. The recent opening (1999) of the Sand Hill Road extension to El Camino Real completes the missing link.



#### **IV. The Pedestrian Zone**

*“No city can solve its transportation problem if it neglects the greatest self-propelling vehicle of all: the pedestrian.” (The Highway and the City 119)*

The inner loop, by providing reasonably close vehicular access to all points in the core campus area (Main Quad, Near West, and Near East Region) short of direct access to academic buildings, permitted a return to the “walking campus” that Mumford envisioned. In the last fifty years, more and more of the central part of campus has been designated as a pedestrian zone. Early on, Lasuen and Lomita Streets near the Main Quad were closed to vehicular traffic (Figure 14). They are now called Lasuen and Lomita Mall. Subsequently, sections of Panama and Galvez Streets were turned into pedestrian malls (Figure 15). Serra Street from Galvez Street to Campus Drive West has been gradually transformed from a public through street to a parking area. Mumford specifically mentioned in the 1947 report that the “use of Serra Street for parking should be reserved for special occasions.” In the 1980s, the aforementioned section of Serra Street was completely closed to vehicular traffic except for the Marguerite shuttle bus. In The Highway and the City, Mumford cites the example of Radburn, New Jersey, a town planned exclusively for pedestrian living by the creation of “superblocks,” entire neighborhoods fully insulated from automobile traffic (242). Closing University streets to traffic has in effect turned the central campus area into a “superblock.”

The 1999-2000 Service and Delivery Map of Figure 16 clearly marks the extent of the pedestrian zone by the shaded area. Although the pedestrian zone is closed to general

traffic, it must remain accessible to service, delivery, and emergency vehicles, as well as vehicles carrying special permits. Mumford had an interesting solution to the problem of delivering supplies to buildings within the pedestrian zone: he proposed that all goods and supplies be unloaded at a designated transfer station and conveyed to their final destinations by electric truck (“Campus Planning,” 1947). Somewhat inefficient, Mumford’s idea was never implemented, but electric carts are commonly used today for light duty work and internal transport.

Perhaps the most significant claim of a campus area for pedestrian use occurred in the mid-1980s with the renovation of the Inner Quad courtyard. Prior to the renovation, many people were dissatisfied with the poor condition of the courtyard pavement and the resemblance of its concrete cross-axes to a freeway (“Report on Inner Quad,” 1983). In fact, U.S. Postal Service vehicles and service vehicles frequently traversed the courtyard, further deteriorating its historic character even as many areas outside the Quad were being closed to traffic. The cross-axes were removed during the renovation, since they were not in character with Olmsted’s original design, but there was still considerable disagreement over the new paving material or whether the courtyard should simply be planted with grass. Naturally, the disagreement gave rise to discussion on the symbolic meaning of the Quad and how it should be used. The consensus was that the Quad is not an activity center or gathering place—there are many other people-oriented spaces on campus for the purpose of social interaction—but a place of quiet reflection, “dignified, serious, and contemplative” (“A Coordinated Plan,” 1947). The Inner Quad courtyard should be a place to “stop, ponder pause, sit, chat, and relax” (“Report on Inner Quad,” 1983). It was a place to walk but not hurry through, and more than any other location on

Stanford's campus, a place for the pedestrian rather than the automobile. An important decision that came out of the debate signified the ultimate victory for the pedestrian: all vehicular traffic would be banned from the Inner Quad courtyard. During his days at Stanford, Mumford made clear his admiration of the Inner Quad and urged preservation for its historical and aesthetic value: "All in all, the original quadrangle at Stanford was a miracle of coherent and expressive architectural form: one of the finest examples of corporate building in the nineteenth century" ("Architecture and the University," 1947). By providing refuge from the chaos of the Machine Age we have returned the Inner Quad to what many, including Mumford, believed was its sacred status as the "symbolic heart" of the university.

## **V. Solutions for Parking**

*"The distribution of limited parking resources is a political, economic, and emotional issue. At best, we may be able to achieve a relatively uniform distribution of unhappiness." ("Recommended Parking and Transportation Policies," 1975)*

In his 1947 report to the University, Mumford realized the need to incorporate parking facilities into circulation and land use planning. He wrote as a key objective: "the traffic function should be differentiated from the parking function" ("Campus Planning," 1947). In other words, automobiles should be stored in dedicated parking lots, not on the street. The University's policy of developing off-street parking and limiting curbside parking reflects Mumford's early recommendation. The report describes a system of minor access roads branching off from the main circulation route and terminating into parking

areas. Such a system would provide close access to the inner campus area yet maintain the coherence of the pedestrian zone. Mumford also encouraged the use of landscaping to screen parking facilities and to reduce their contribution to visual chaos on the campus. His overall goal for parking planning was to maintain a “quiet and aesthetic order” which he felt was crucial to the University environment (“Campus Planning,” 1947).

Spencer’s 1958 “Development of Circulation and Parking Study” stressed, in agreement with Mumford’s view, that motor vehicles were deleterious to the university environment and their movement and storage should be controlled. Although Spencer admitted that many faculty, staff, and off-campus students had no other choice but to drive to campus, the free use of automobiles on campus “drains revenue and confuses university function.” Statistics from 1957 indicated that there were about 8700 registered cars on campus, and at an average value of \$1500 per car, the total value of privately owned vehicles on campus was \$13 million. Spencer estimated that the university had to invest an equal amount in land, road construction and maintenance, parking facilities, curbs, and gutters. He questioned whether such a large amount of university resources should be used to accommodate private vehicles, or if the money could be put toward other alternatives such as subsidizing public transportation.

As an urban critic, Mumford voiced similar sentiments, but on a grander scale, about the \$26 billion cost of the 1956 Interstate Highway Act and the comparable expense of extending these highways into cities (The Highway and the City 244). Spencer notes in the report, “The requirements for circulation of vehicular traffic on the campus have changed, and have always differed considerably from the more immediate solutions typical of urban communities.” Perhaps he observed, as Mumford had, how cities

overreacted to congestion by initiating a frenzy of road building. His objectives for a near-term parking plan reflected a distinctly different approach:

1. Decrease the use of campus roads by adjoining communities.
2. Decrease the visual chaos of vehicles on campus.
3. Increase circulation efficiency.
4. Channel money directly into education.

Spencer's proposals to meet these objectives set the stage for Stanford's current parking policies, particularly in the type of parking facilities being built and the fee-based distribution of parking privileges:

1. Restrict automobile ownership by resident students.
2. Utilize surface parking and parking structures within the loop road (Figure 17, Plate 2).
3. Create peripheral surface parking (Figure 17, Plate 3).
4. Institute fee-supported parking (\$30 per year).
5. Restrict access to campus at entry points (Figure 17, Plate 5).

Later reports, such as the 1965 "Parking Master Plan" sought to address both near-term and long-term parking issues in light of the University's rapid population growth, facilities expansion, and diminishing amount of land available for parking. Proposals ranged from the construction of a super underground structure, perhaps beneath the Oval, to large remote lots served by transit service. The preferred approach through the years, however, has been to turn unused campus land into permanent lots much as Mumford originally proposed. The "Master Plan" conceded that if growth were to continue at the present rate, meeting long-term parking demands would require far more drastic

measures. Heeding Mumford's warning to plan with flexibility, it suggested an open-ended approach to planning since future transportation systems might be very different: "What kind of vehicles? How big? Atomic fuel? Air-borne?"

## **VI. Conclusion: Mumford's Legacy Endures**

Mumford's influence on the direction of transportation planning is perhaps most evident in the following excerpts from the University's 1999 "Community Plan and General Use Permit Application" circulation policies:

Maintain Stanford's tradition of providing academic and residential land uses in close proximity to one another to reduce commute distances and automobile dependency.

Continue to apply campus design concepts and site development standards that facilitate pedestrian, bicycle, and transit use.

Encourage walking and bicycling by maintaining the campus system of pedestrian pathways and bikeways that connect places of living and work.

The concentration of University facilities and the elimination of vehicular traffic in the central campus area are exactly what Mumford emphasized in his 1947 report to Stanford. The current parking and transportation philosophy conforms to Mumford's ideas fifty years ago: pedestrians and bicycles have first priority, mass transit has second priority, and the private motor vehicle has last priority. Mumford, Spencer, and his successors in the Planning Office can be credited with reversing the prevailing mindset of the times that the needs of the automobile supersede human needs. Instead, meeting people's needs for a safe, well designed walking environment and convenient, affordable transportation systems through innovative programs (such as the Clean Air Rewards

Program, carpool and vanpool services, the Marguerite shuttle, and extensive bicycle facilities) has become of paramount importance. Just as it did fifty years ago by establishing the first Planning Office of its kind, Stanford has taken a leadership role in developing transportation policies appropriate to modern concerns of traffic congestion, energy conservation, and environmental pollution.

## **VII. Acknowledgements**

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Figure 1a: Entrance to Main Quad with parked cars, 1940. University Archives, collection PC062.



Figure 1b: Entrance to Main Quad, 1999. Photograph by Paul Yih.



Figure 2a: Jordan Hall with parked cars, 1941. University Archives, collection PC062.



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Figure 3a: Southwest corner of Main Quad, 1939. University Archives, collection PC062.



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Figure 4: Olmsted's original plan for Stanford University. University Archives, collection SC486.



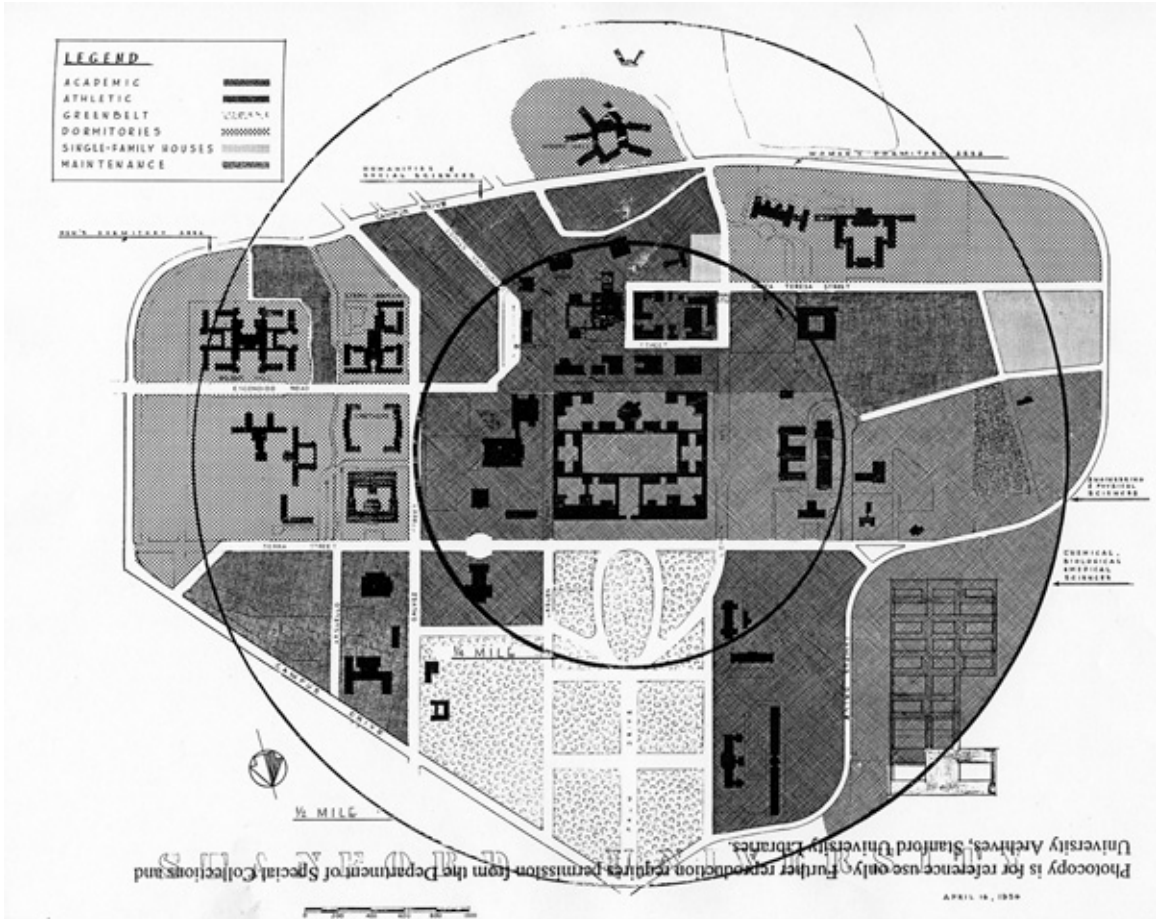


Figure 5: Peripheral Road System. "Report on Master Plan," 1956.



Figure 6: Inner Quad arcade, 1999. Photograph by Paul Yih.

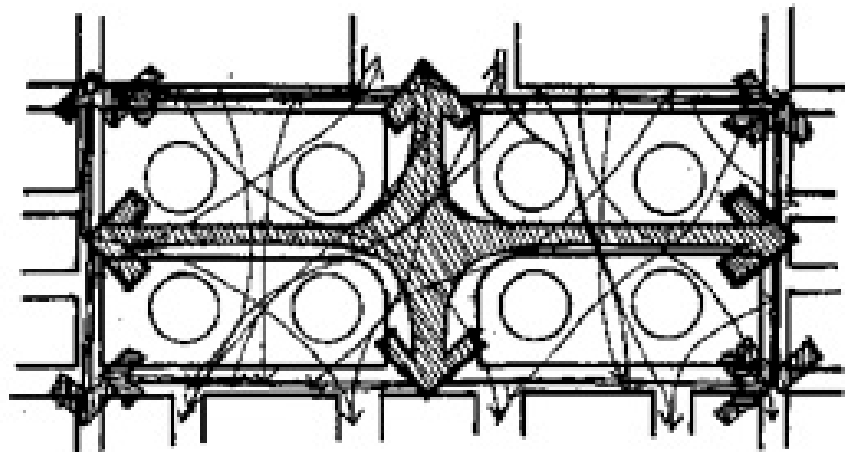


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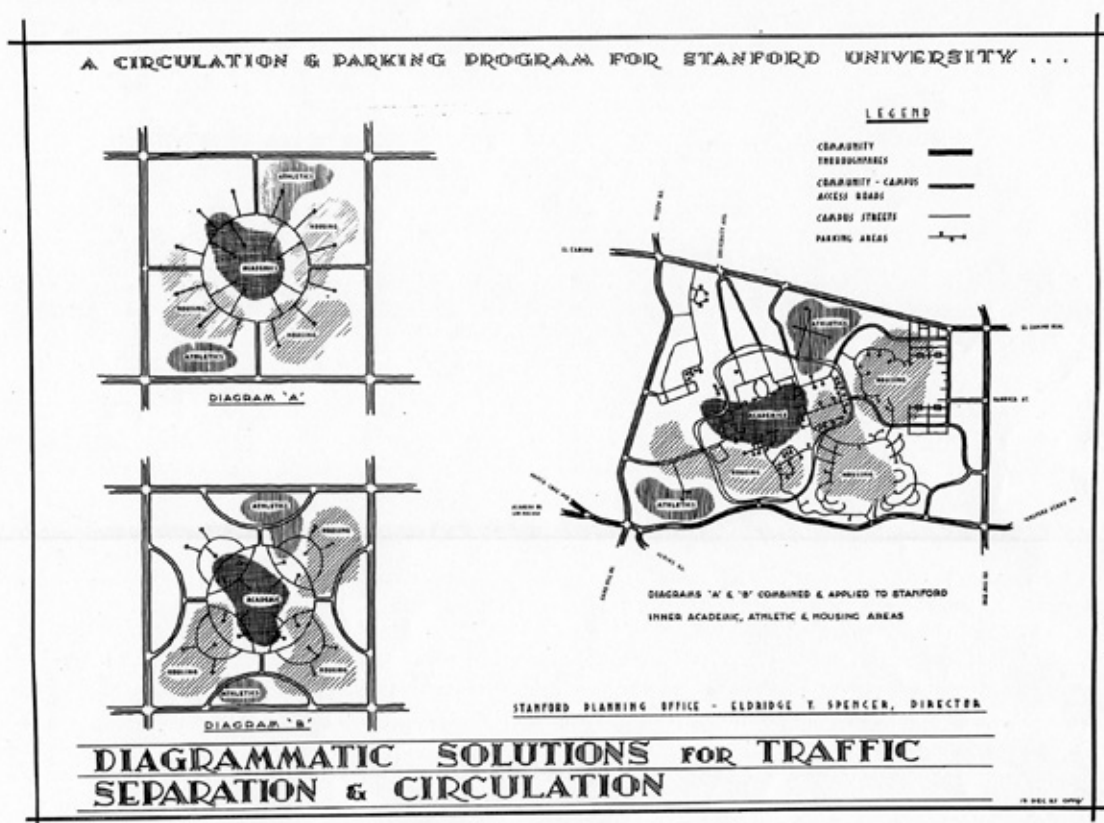


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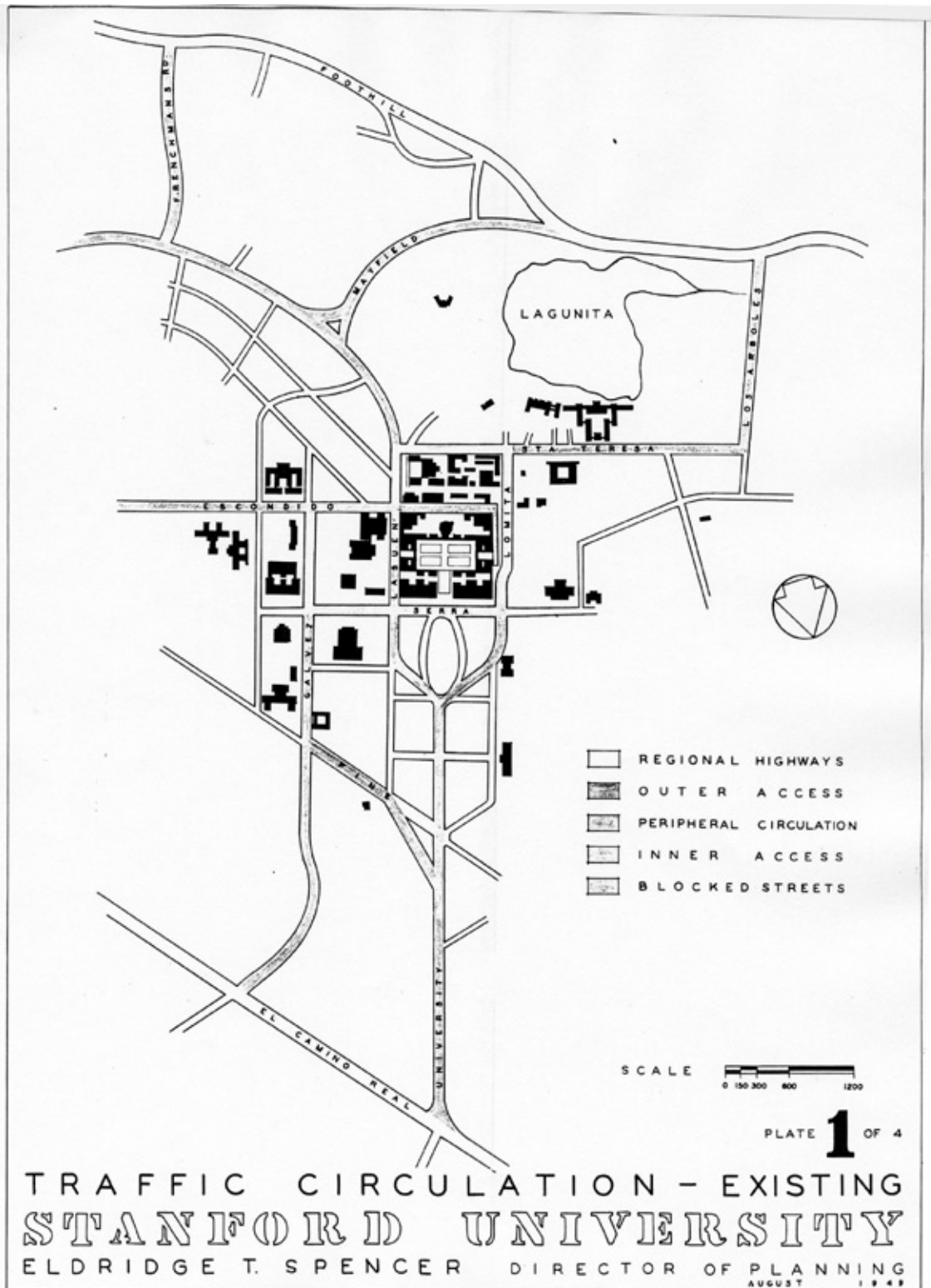


Figure 9: Existing traffic circulation, 1949. University Archives, collection SC486.



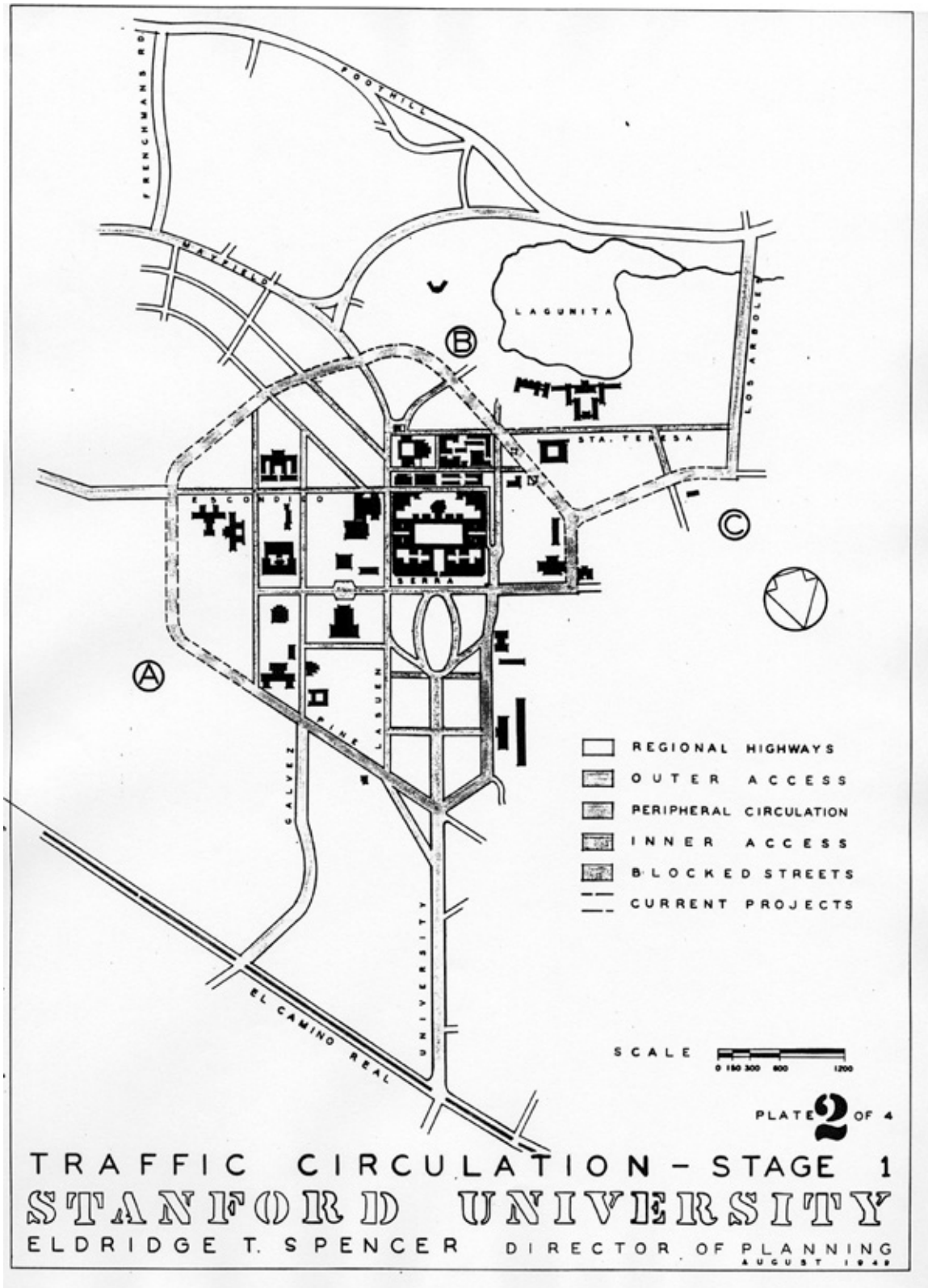


Figure 10: Traffic circulation plan, stage 1. University Archives, collection SC486.

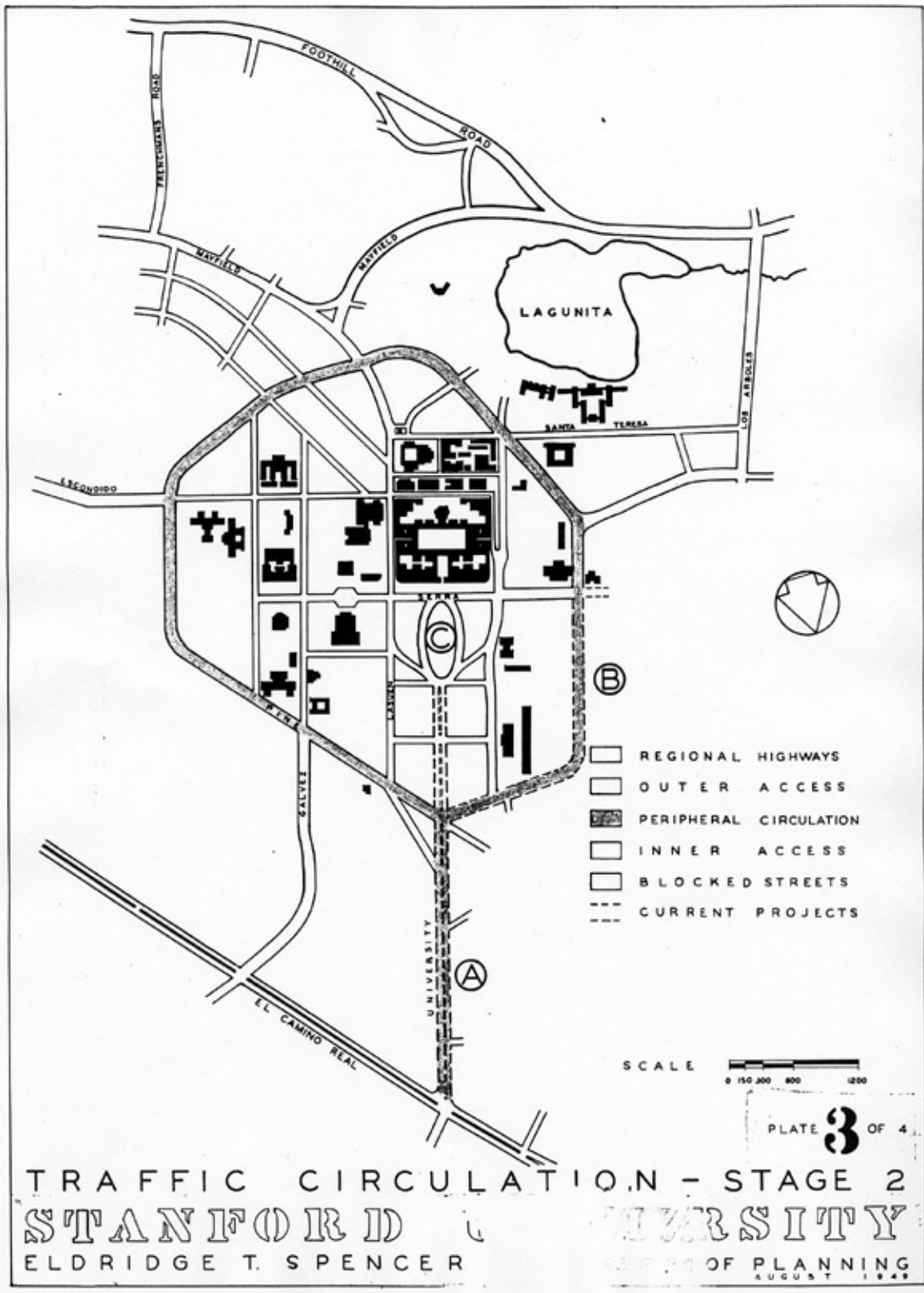


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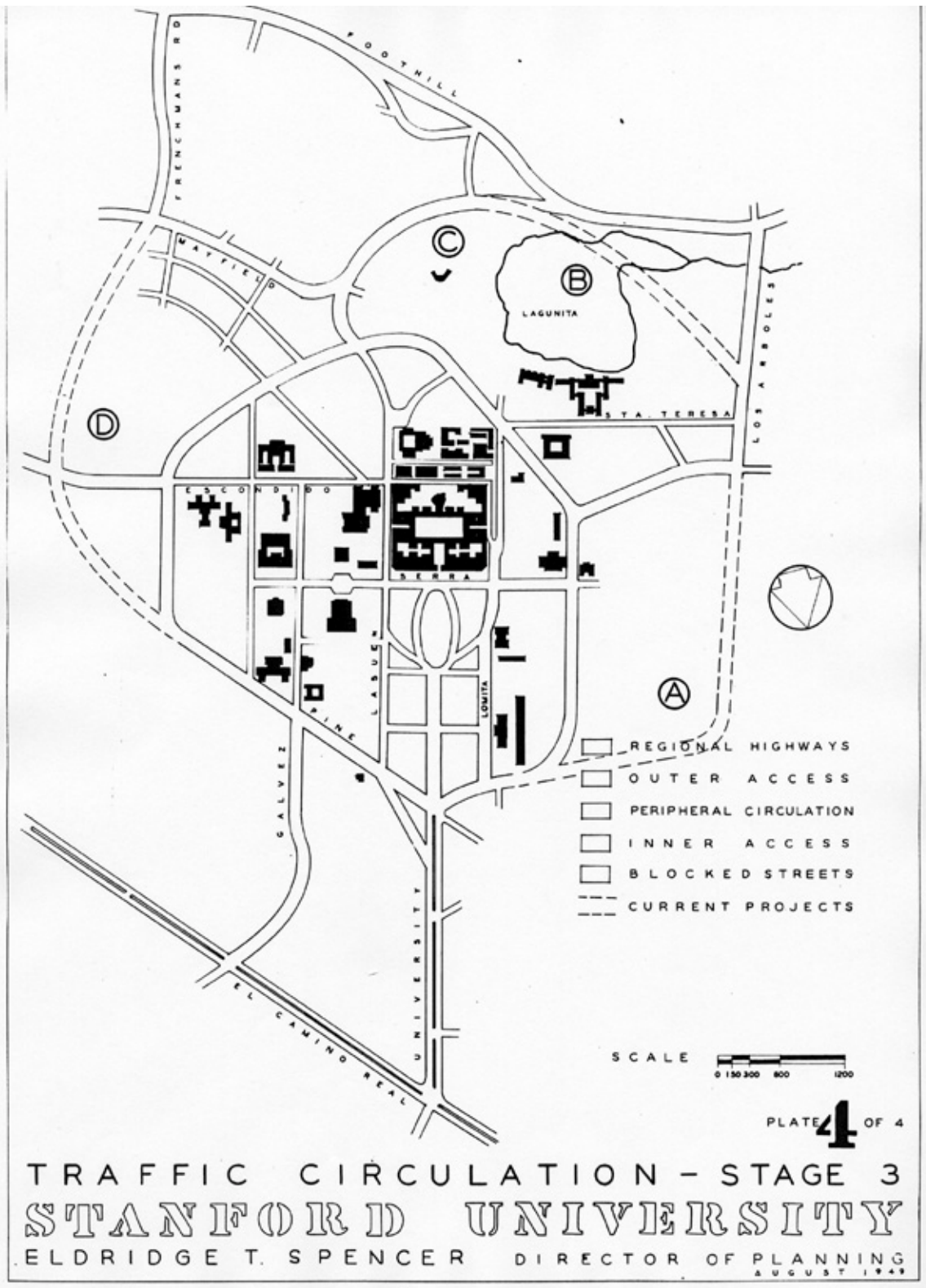


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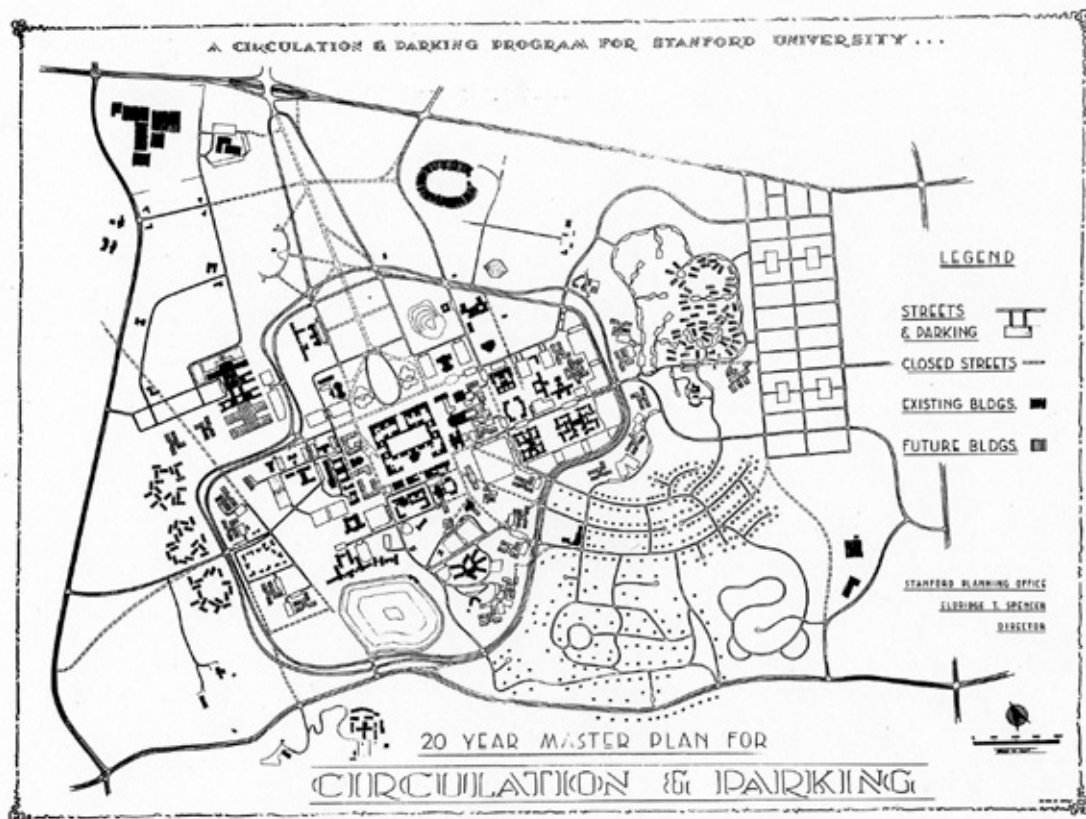


Figure 13: Perimeter circulation system. “Development of Circulation and Parking Study,” 1958.



# STANFORD UNIVERSITY

1908-1909

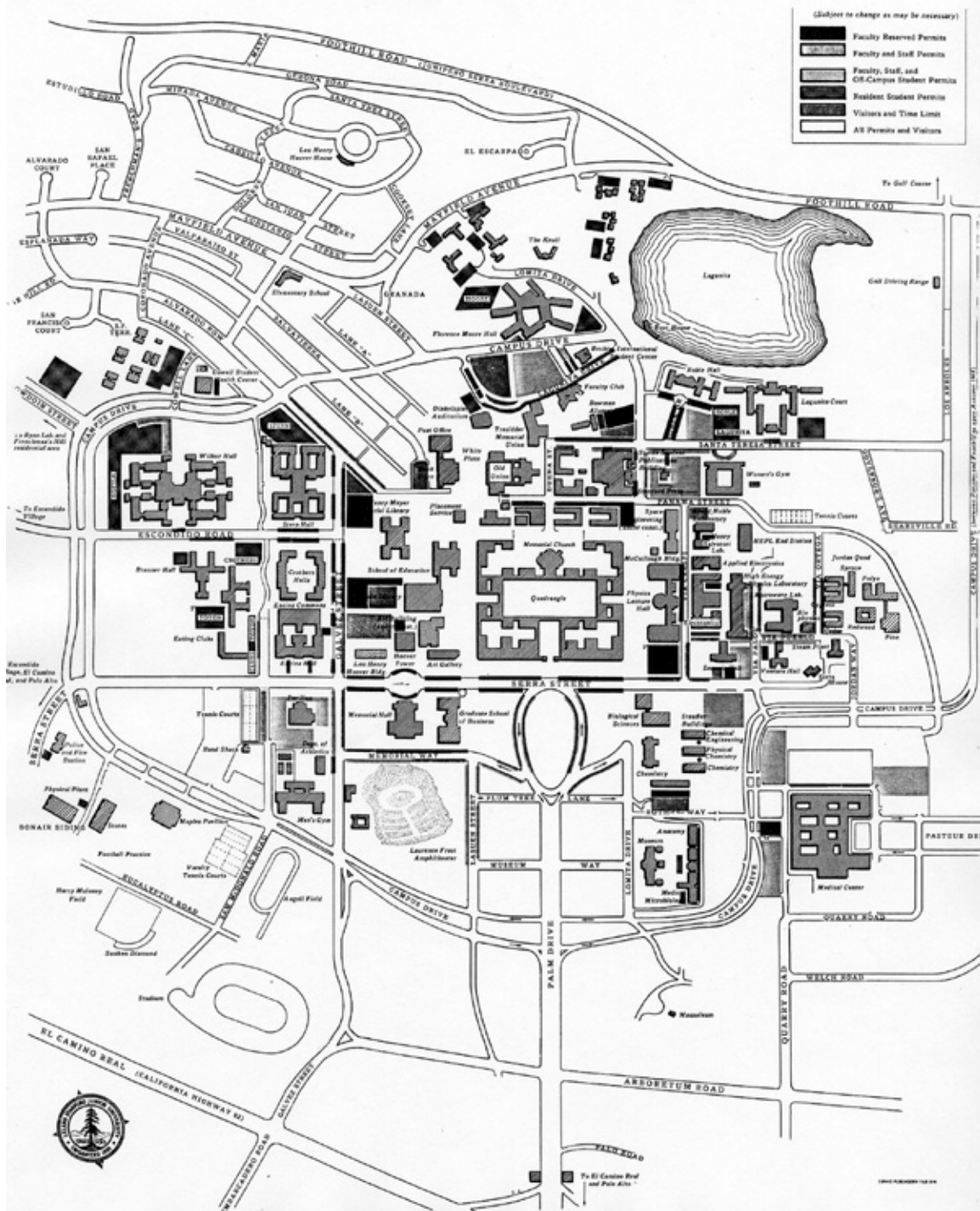


Figure 14: Stanford University parking map, 1968-1969. University Archives, collection SC486.

# STANFORD UNIVERSITY

WARNING: CHECK SIGN DESIGNATIONS BEFORE PARKING.  
TOW AWAY ZONES ARE ENFORCED.

## CAMPUS PARKING 1978-79

■ A Permits	● Handicapped
■ A and B Permits	■ Motorcycle (permit only)
■ A, B, and C Permits	● Pay Lot
■ Resident Student Permits	● Community Physician
■ Time Limit	

Free permits are issued to CARPOOL vehicles. For further information, see Stanford University Parking Regulations pamphlet or call 495-3444.

■ MARGUERITE - free bus shuttle every 10 minutes, 6:30 a.m. to 6:30 p.m., Monday through Friday. The shuttle is extended from the Medical Center to Stanford Shopping Center between 9:30 a.m. and 2:30 p.m.

All conditions, regulations, and parking area designations shown on the map are subject to change at any time.

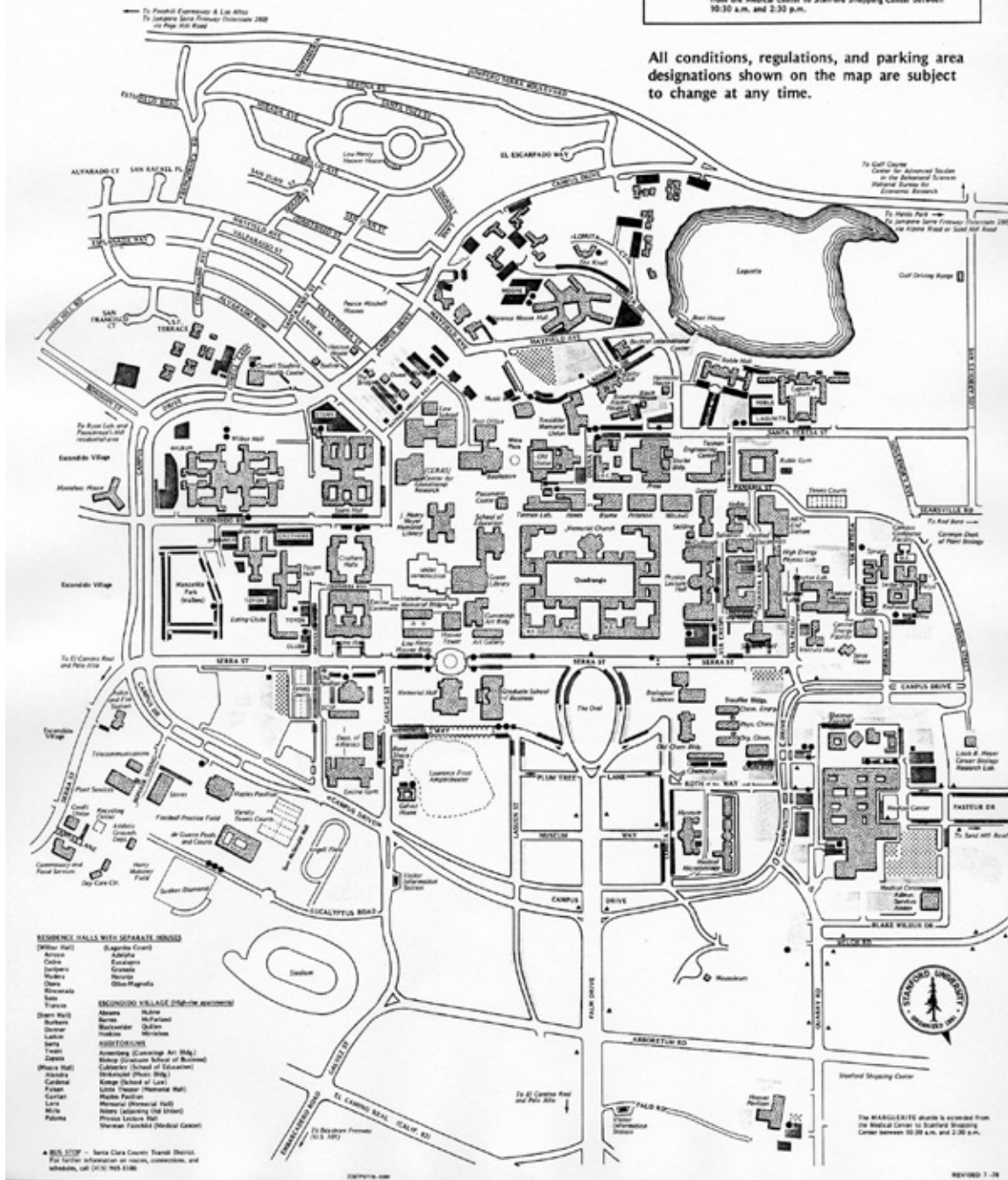


Figure 15: Stanford University parking map, 1978-1979. University Archives, collection SC486.



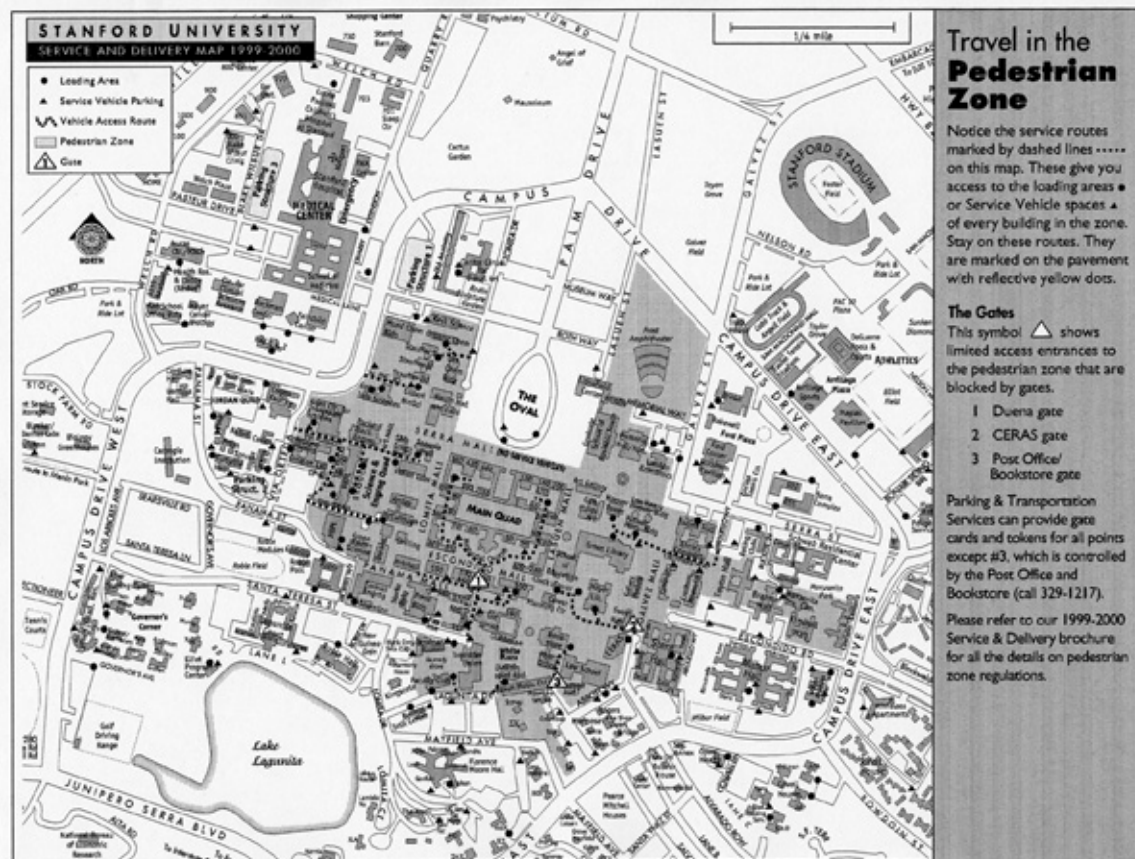


Figure 16: Stanford University Service and Delivery Map, 1999-2000. Stanford University Parking and Transportation Office.

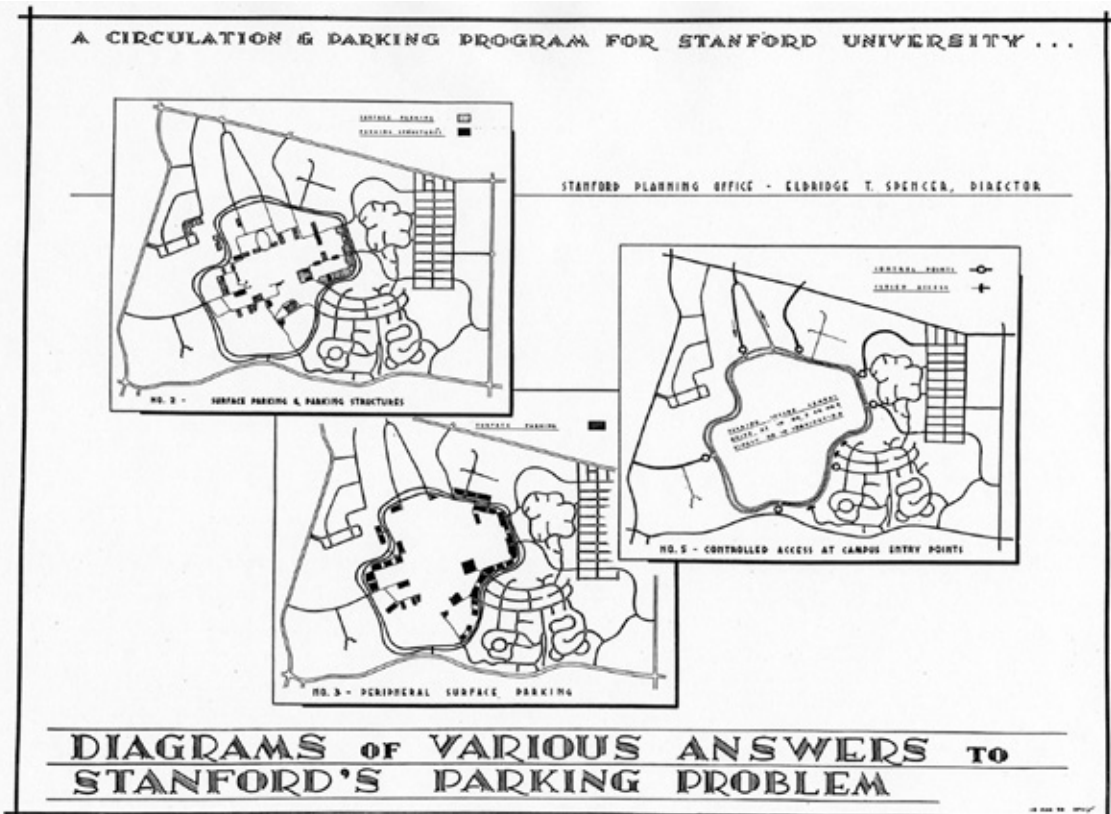


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