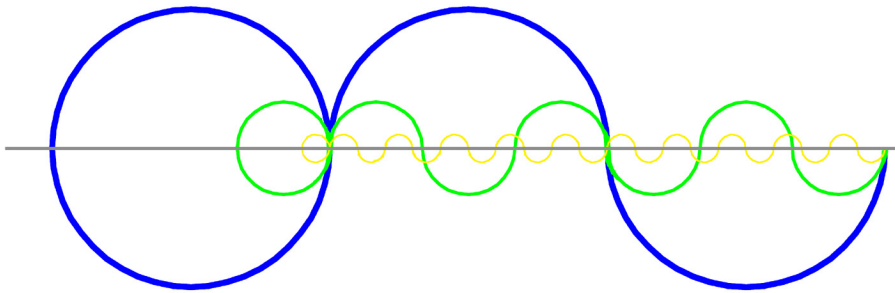

BETWEEN AUTO(mobile) AND BUILDING

A Study of Pedestrian-Oriented Parking Lots

BETWEEN AUTO(mobile) AND BUILDING
A Study of Pedestrian-Oriented Parking Lots

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ABSTRACT

The automobile is undeniably an icon of our modern era. Decades of accommodating the automobile have dramatically transformed the shape and the quality of our physical environment. The typical suburban retail parking lot is one symptom of our automobile dependence.

Frequently the proposed solutions to sprawl development tend to minimize the economic and marketing appeal of a large surface parking lot. For many communities, the anticipated economic benefit and convenience of a suburban retail development overcomes any reservations about the appearance and effect of the associated sea of asphalt. A more achievable design goal might be a pedestrian-oriented parking lot. Is that feasible? What present and future advantages might be gained? What would it be like?

This thesis studies the typical commercial surface parking lot through observation and analysis, leading to the design of an infrastructural system of elements to develop pedestrian-oriented parking lots.

In memory of my grandmothers

Florence Elma Shields Neal Jones
May 1918 - February 2002

Minnie Grubb Berger Adams
November 1922 - April 2002

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to Margrit and Katie who always keep the bigger picture in my focus…
to my brother Mark Jason who unreservedly assists me in all my endeavors…
and especially to my mom who unfailingly supports me whether or not she agrees or understands. I am very pleased to be the daughter of Vicky Neal Adams.

All of you have helped and inspired me immeasurably. Thank you.

Many of the problems that society confronts are of such inordinate complexity that it takes the greatest dedication and zeal to assemble the necessary data, analyze and prescribe. Happily, there are other problems, where a very small perception can produce astonishing results.

Ian L. McHarg
Design With Nature, page 7 : 1969

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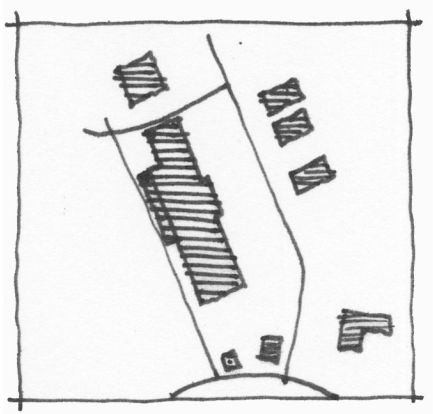
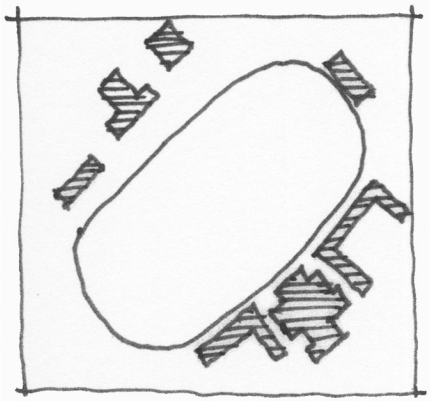
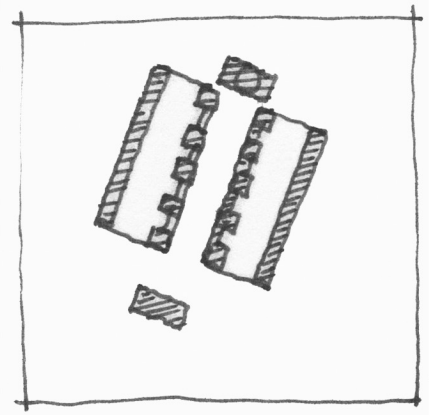


University Mall - 18 acres (1974)



The Drillfield at Virginia Tech



The Lawn at University of Virginia

Comparison of scales

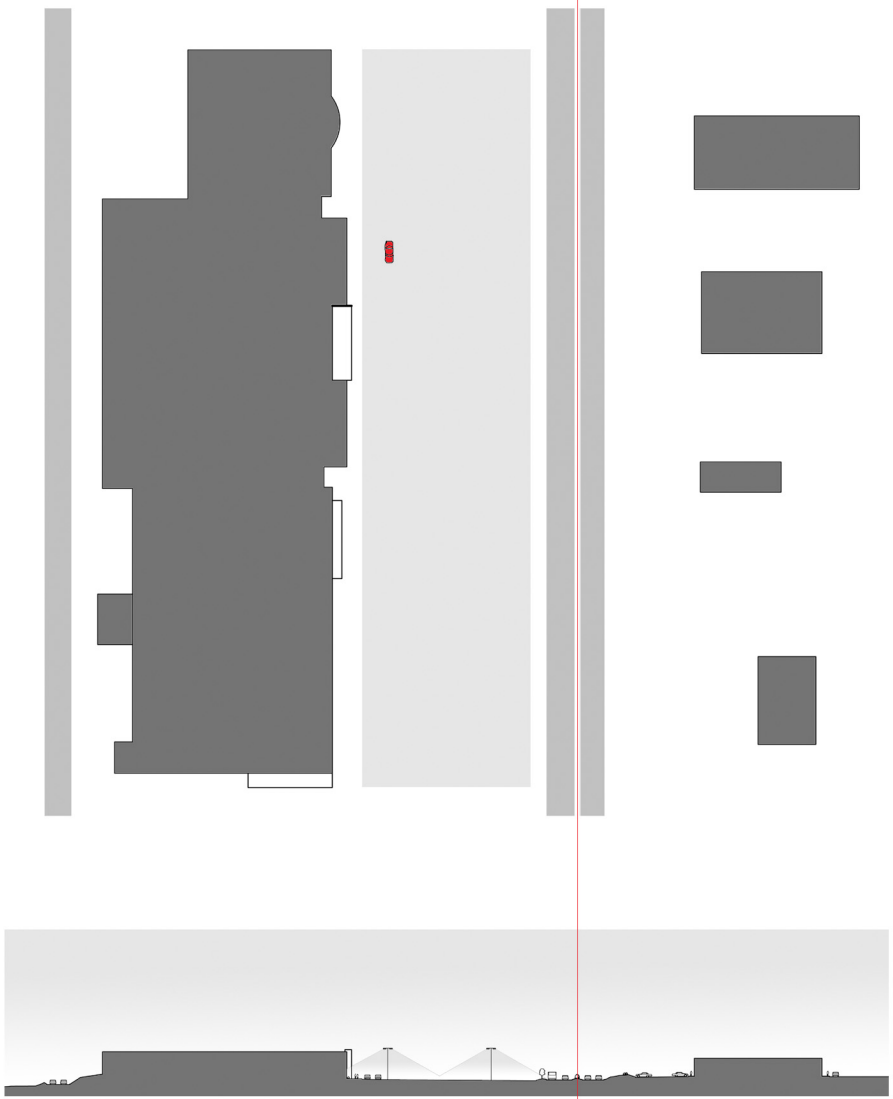
SITE

University Mall was the starting point of this thesis.

"*Everyone knows that something is wrong, but what is it?*"

University Mall belongs to the first generation of shopping center development, meaning that the anchor stores were originally located in the historic downtown of a community. In 1974, Roses' Discount Store moved from its downtown location in historic Blacksburg to become the main anchor store for University Mall. One decade later, the much larger New River Valley Mall was built a few miles away, and University Mall began to decline in the face of that competition. Continuing the historical trend, New River Valley Mall has been severely challenged by so called category-killers and other discount big boxes.

Analysis, observation and study of the site reveal the opportunities for intervention that form the substance of this thesis. In addition to developing a "line of inquiry" for further study, this thesis also reveals ways of working and other devices useful to sustain and enliven a present and future practice of architecture.



Plan and section of typical site context

EMERGING CONDITIONS

A study of emerging conditions in a retail environment illustrates the opportunities available to the architect.

Parking ratios are generic. Each space requires an average of 350 square feet for car storage and circulation. The size of the parking area is typically 150% the footprint of the building.

The building is pushed to the rear of site with extensive setback from street.

The axis of the primary automobile entrance is frequently not aligned with the axis of the primary pedestrian entrance. The lot entrance is more dependent on adjacent traffic intersections than on a relationship to the building.

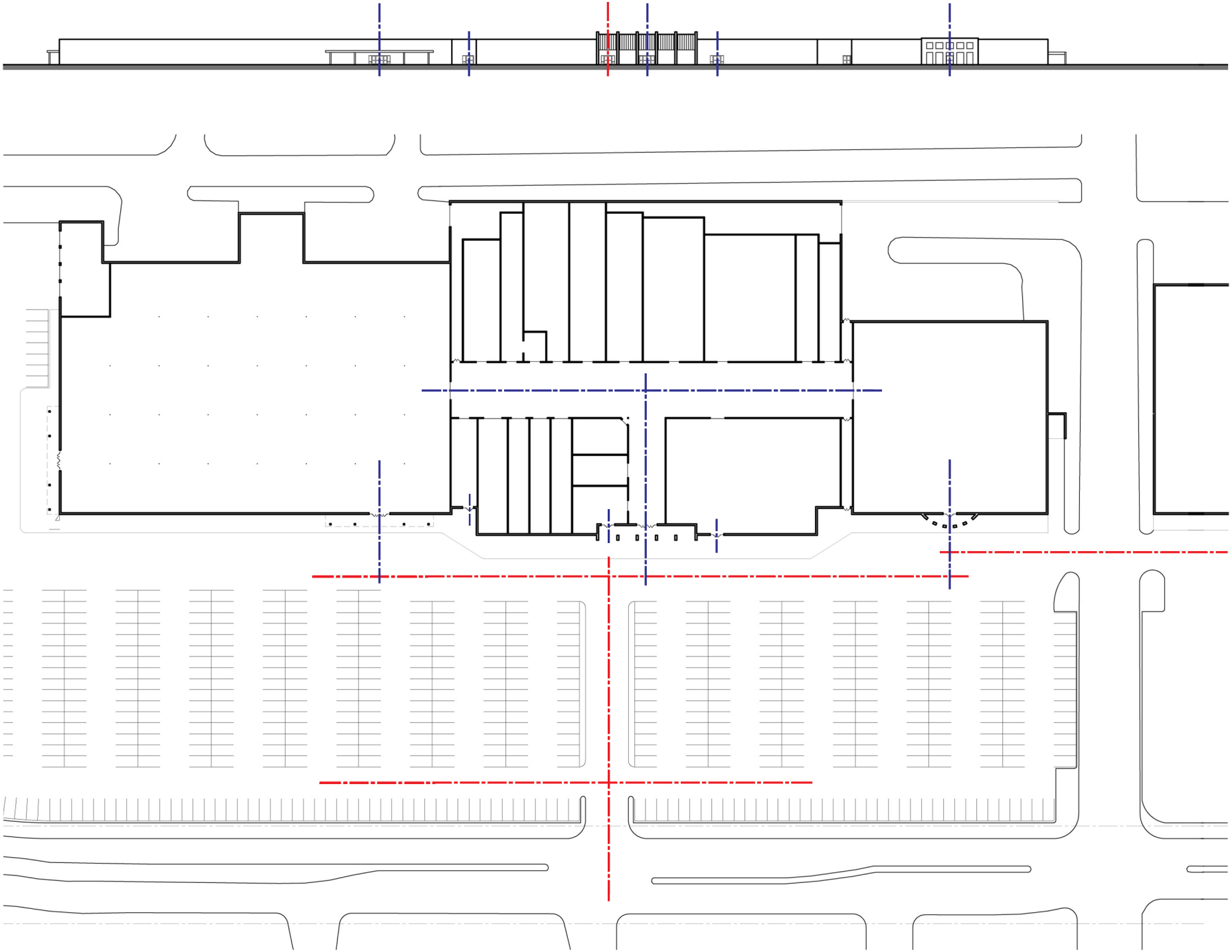
Application of an efficient parking module to an irregular site results in leftover spaces that are typically paved with unnecessary hard surfacing.

The parking lot bleeds into the street without a defining edge.

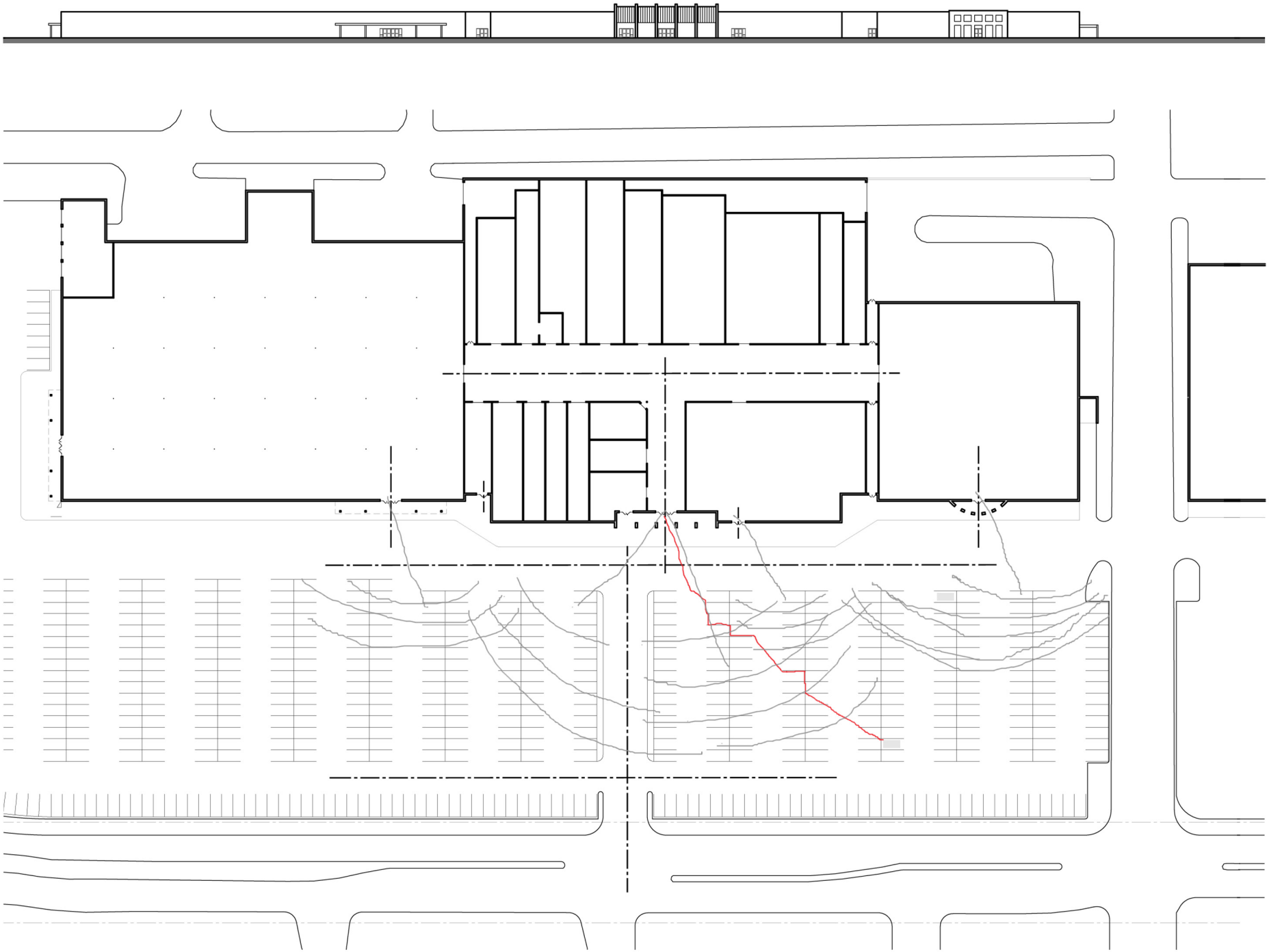
The designated sidewalk along the exterior wall does not function as pedestrian circulation.

Required fire lanes push pedestrians further from the building facade.

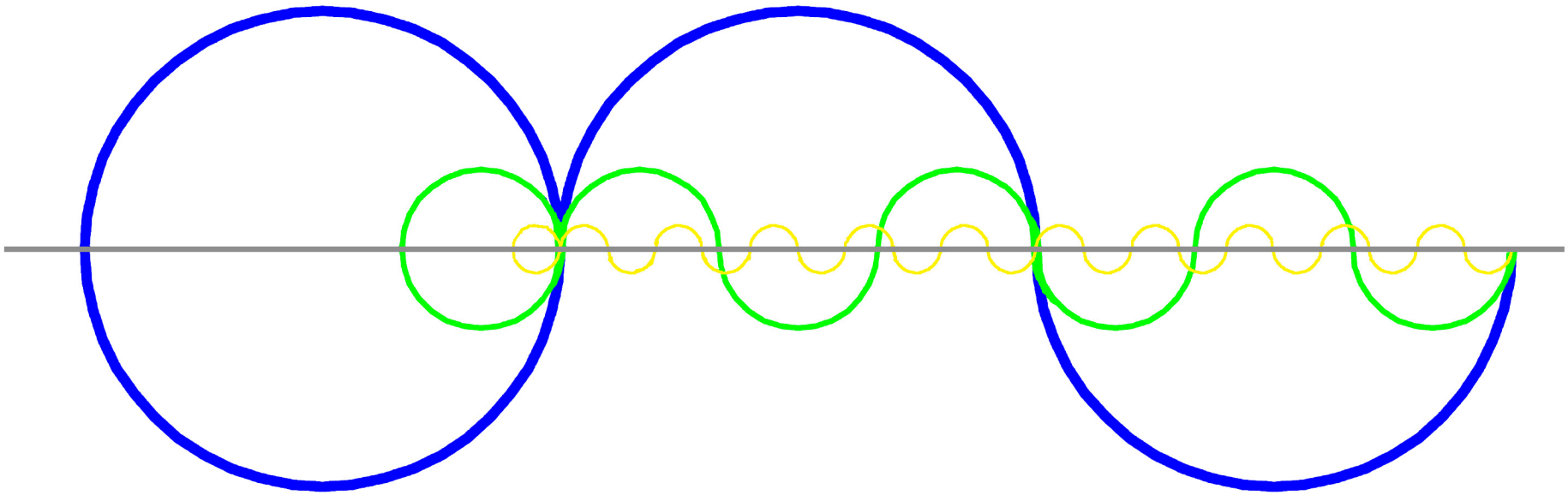
All construction, visible and invisible, is oriented and directed at the automobile. Little consideration is given to the pedestrian beyond that necessary to ward off litigation.



Vehicle (red) and pedestrian (blue) circulation paths - University Mall



Motorists tend to park in arcs to minimize walking distance (red) and time in parking lot

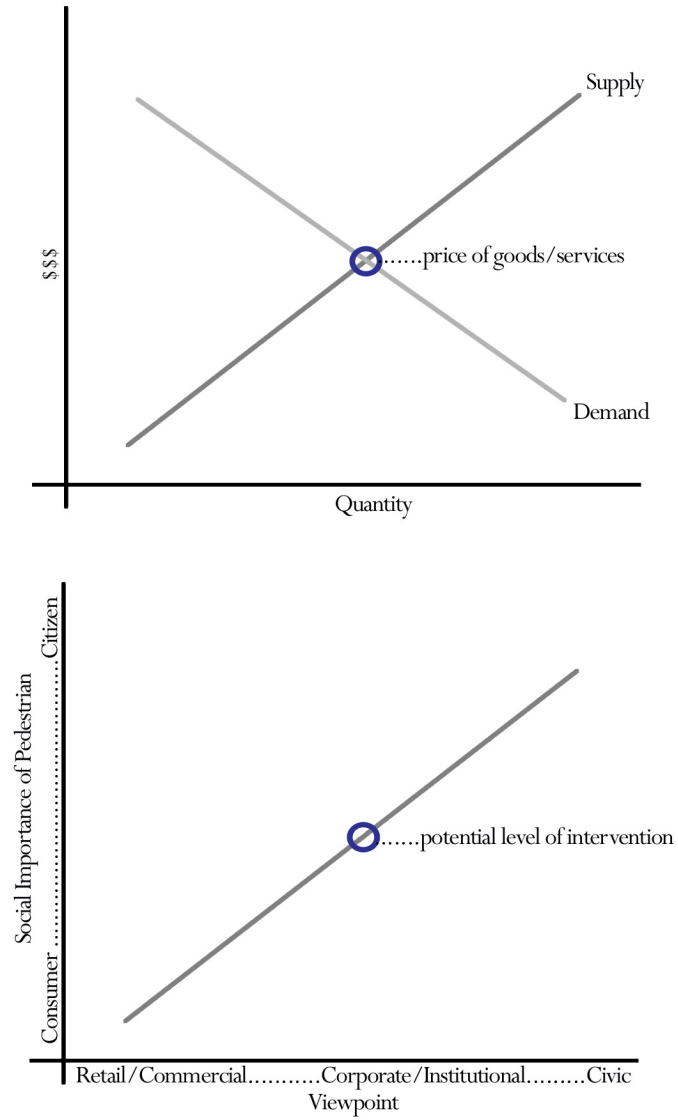


Comparison of respective speeds of pedestrian (yellow), bicyclist (green) and motorist (blue)

OPPORTUNITY

Current design standards are oriented to the automobile. Whether moving or parked, automobiles have an insatiable desire for prime pedestrian space. Even in a parking lot, the right-of-way remains with the car, placing the pedestrian at a disadvantage. Further the average speeds of the pedestrian, bicyclist and motorist are 3, 10 and 30 miles per hour respectively. The automobile has an enormous mechanical advantage over the two. Allowing the automobile to have the choicest path of least resistance dramatically impacts the pedestrian experience.

The parked auto is a greater determinant of our environment than the moving auto (mobile).



Traditional economic supply/demand graph translated for parking lot intervention potential

FEASIBILITY

A feasibility study analyzes the viability of an idea. A variety of scenarios must be developed and tested. A correct viewpoint and approach must be defined. Rarely is one scenario overwhelmingly negative or positive; rather the tradeoffs between risks and rewards are defined. A negative result in one scenario does not mean that the idea is not good. It means that conditions must change, the idea must be organized differently, or that limitiations and flaws must be overcome for success.

Which is more important - automobile or pedestrian? The perceived importance of the pedestrian has a direct relationship to the level of intervention available to the designer. Is the pedestrian viewed as a consumer or citizen?

Modern commercial development is dominated by market forces and short-term financial imperatives. Moving the motorist along high speed collector roads into vast (read convenient) parking lots and then into the store entrance in the most expedient manner is the focus. Once inside the store amidst product displays, the pace deliberately slows. The pedestrian is a by-product of a retail process geared solely toward personal consumption.

Even though shopping venues have become a quasi-public realm in function, the controlling entity does not view the shopper as a citizen. Therefore, any potential for intervention is guided *almost* exclusively by the perceived desires of the consumer. "Almost" is used because a civic body could require proffers from a developer that would not typically be considered.

A corporation or institution such as a hospital or university has a greater perception of the social importance of the pedestrian. Pedestrians are considered, not quite as full-blown citizens, but as a much higher class of consumer. The aesthetic appearance and experience of the parking lot by the pedestrian, whether employee or patron, is given more attention, although the parking lot remains largely single-purpose.

Historically, municipalities have had the greatest perception of the pedestrian as a citizen with full rights to the urban experience, no matter their class or status. As longer term payback periods become acceptable, significantly higher levels of intervention and more complex multi-functionality become available to the designer.

current design standards

Construction of new surface lot
Lynchburg, Virginia

ZONING ORDINANCES

Zoning ordinances currently influence parking lot design and promote a disconcerting homogeneity in the American landscape. Los Angeles - a sprawling megacity and Blacksburg - a historically compact college town have the same model ordinance as their zoning base. The size of parking lots is primarily regulated by the adoption of generic ratios. These ratios are stated as 1 space per *X* square feet, with *X* ranging anywhere from 200 to 1000 square feet, depending on occupancy class.

These ratios are adopted by planners to satisfy the peak demand for free parking, although it should be noted that parking is never "free"; it may be at no charge but the cost is always bundled into the cost of services or products associated with that site. Everyone pays for parking, whether they use it or not.

Where do these ratios for minimum parking requirements come from? After extensive research on this subject, Donald C. Shoup, Professor of Urban Planning at the University of California, has concluded that "no one knows." Frequently, planners do one of two things - either they adopt the standards of an adjacent community or they consult handbooks from the Institute of Transportation Engineers. Relying on the neighboring community's ordinance may simply repeat someone else's mistakes, and fails to reveal the original source of the requirements. Shoup states that consulting the ITE handbook, *Parking Generation (2nd ed.)*, is also unreliable.

These generic ratios have changed little since the 1950's when the suburban shopping center and move from a traditional downtown occurred. Any change has only been to increase the size of the parking lot corresponding to the increase in personal automobile use.

Freshly-baled field
Pittsylvania County, Virginia

MINIMUM PARKING REQUIREMENTS

The generic ratios that stipulate minimum parking requirements are not based on an average of parking spaces needed on an annual basis, but rather are weighted towards the ten peak shopping days of each year between the Thanksgiving and Christmas holidays. Therefore 97% of the year, the typical retail parking lot is vastly under utilized and appears abandoned.

Fallow is much different than abandoned.

Fallow is a resting and rejuevenating for renewed productivity. It is necessary and required. It holds promise of future harvests.

Unused parking does not have the same visual and intellectual "rightness" of a field lying fallow.

But could it?

Lawnmowers on sidewalk at Wal-mart
Amherst County, Virginia

Spring nursery stock in a Wal-mart parking lot
Amherst County, Virginia

MINIMUM PARKING REQUIREMENTS

When the minimum parking requirements of the zoning ordinance are followed, the typical retail parking lot has a substantial excess of parking provided during the majority of its operational lifespan. In addition, many developers think "bigger is better" and provide even more parking than the minimum; very few ordinances impose a maximum ratio or penalty for excessive impervious area.

The excess parking is clearly observed by the seasonal appropriation of large areas of parking for spring nurseries, patio furniture displays, boating equipment, playground equipment, storage sheds, lawnmowers, gas grills, etc.

The ambiguous margins between the peak parking needed and the actual parking used are often wasted. This is not necessary. There is an extensive array of activities that can occur in these margins. However current design standards do not encourage the design of parking lots that support multi-functional and compatible uses

Run-off to where?

STORMWATER MANAGMENT

Other ordinances that influence parking lot design are those related to stormwater management, erosion and sediment control, and land-disturbing activities.

As authorized by the Clean Water Act, the United States Environmental Protection Agency has regulated the National Pollutant Discharge Elimination System (NPDES) permit program since 1972. This permit program is administered at the state level by the Virginia Department of Conservation & Recreation. Typically, development activities that disturb one acre or more of land must comply with the regulations of this program for stormwater management to address water quantity and quality.

Runoff is defined as the rainwater that is not absorbed by the ground on which it lands, and therefore it "runs off." The volume, frequency and peak rate of run off causes tremendous property damage locally and over a much larger region, depending on the watershed. This rainfall runoff also carries non point source pollution that is frequently toxic and detrimental to plant and animal life, including humans.

As these stormwater requirements have increased, the cost of compliance has risen. Low impact development (LID) uses natural resources and improved design methods to contain these costs while achieving the desired development. Issues of site feasibility, such as topographic/geological constraints, drainage area, maintenance access and environmental impacts affect the choice and related cost of compliance methods. For instance, soil permeability is a significant factor in utilizing infiltration trenches or basins. Soils that are sandy have a higher perm rate than those containing clay; soils with over 30% clay content require more excavation and more aggregate to use infiltration techniques.

As development occurs on less favorable land and as stormwater regulations become more stringent, the architect has the opportunity to use stormwater management techniques to constructively shape and define a parking lot.