

# Washington State University Parking Action Plan—A Campus Parking Case Study

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This parking action plan was a comprehensive approach that was designed to minimize resistance to parking fee increases by appealing to the diverse interest groups of Washington State University (WSU). Elements of the plan included (a) increasing the level of service to permit holders by implementing a zone parking system, (b) increasing the parking supply where it is critically needed by means of a parking structure, and (c) improving existing facilities that are hazardous and inadequate. After 20 years of stable permit fees, which really means 20 years of declining fees in real dollars, the university community was confronted with the choice of the phased-in permit fee increases that are described here, or more precipitous increases later. No other choice was available, assuming that the desire existed to improve the parking system. Thousands of dollars had already been spent on studying the parking problems. In April 1989, the WSU faculty senate voted unanimously to adopt this parking plan. Three weeks later, the plan was approved by the WSU board of regents and scheduled for implementation in the fall of 1990.

The parking administration at Washington State University (WSU) has been experiencing continual problems in overcoming resistance to increases in parking fees by the university community in general, and by the faculty senate specifically. The inability to garner financial support for the parking system was jeopardizing the university's ability to satisfy the increasing demand for convenient parking locations. After two unsuccessful attempts to gain approval for substantial fee increases, it became obvious that a comprehensive plan was needed, one that would appeal to the many interests represented in the faculty senate and the university community. As a result, an action plan was developed by the parking administration, integrating recommendations from a parking consultant study completed in the summer of 1988 (1) and recommendations from an earlier marketing study conducted in 1985 (2).

The objectives of the plan were (a) to increase the level of service to permit holders by implementing a zone parking system, (b) to increase the parking supply where it was critically needed by means of a parking structure, and (c) to improve existing facilities that were hazardous and inadequate.

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## BACKGROUND

WSU is located in eastern Washington, 8 mi from the Idaho border and approximately 70 mi south of Spokane, in the city of Pullman (population 23,000 in 1988). The student population at WSU is about 16,000; faculty and staff total 3,600. In addition, there are about 1,000 temporary nonstudent workers. These groups as well as visitors to the campus constitute the parking population. WSU faces a problem in common with most active communities and campuses today—a shortage of parking facilities. Continued growth of student enrollment and faculty and staff members to serve these students have severely strained the current parking facilities.

In 1988, WSU retained a consultant to conduct the parking study (1) that served as a basis for the action plan described here. The key findings of this study were as follows:

- Although there was an overall surplus of parking, there was a shortage of convenient parking, especially in the central campus.
- Parking shortages would get worse before they would get better.
- The development of parking structures was the only way to increase the parking supply.

In order to deal effectively with these problems, the following short- and long-term solutions were recommended:

### *Short-term solutions*

- Implement a zoned parking system.
- Relocate the campus resident parking.

### *Long-term solutions*

- Construct a multilevel parking structure some time between 1995 and 2000.
- Implement a phased increase in parking fees needed to finance the parking structure.

Increasing the parking fees was expected to be the most challenging policy to carry out. The Washington state legislature mandates that parking systems at the state's 4-year colleges and universities are to be self-supporting. This policy means that parking operations, maintenance, and capital improvements (new or upgraded parking facilities) have to

be paid for with local revenues. These revenues exist in the form of permit fees, meter fees, and fines. Money from the state is not available for parking system improvements at WSU.

Although parking permit fees remained relatively stable since 1970, there was considerable resistance to increasing them. In fact, from 1970 to 1985, there were no increases in parking permit fees. Small increases occurred in 1986 and 1987 as part of a 5-year proposal. But WSU postponed the final 3 years of this proposal because of a faculty senate recommendation that later became the catalyst for the WSU study (1). Meanwhile, the problems and their remedial costs continued to increase.

Resistance to a parking fee increase has surfaced with every increase proposal. There are those who resist increases because they might not benefit from a parking structure. However, the addition of several hundred new parking spaces in a parking-deficient area would have a domino effect, allowing a considerable number of people to park closer to their campus destinations whether they actually used the parking structure or not. The main objection to parking fee increases centered on widespread dissatisfaction with the parking system as a whole. Unless WSU could deliver significant improvements in service and convenience for permit holders in addition to the parking structure, there would be little chance of enlisting a broad base of support for permit fee increases. This premise was strongly supported by the 1985 marketing research study (2) on the parking system. One of the recommendations stated the following:

Increase the satisfaction of permit holders. It is important to eliminate the stereotype that a permit is merely a "hunting license" allowing a person to park only if they are able to find an available space.

The report further indicated that "70% (of respondents) expect more guaranteed and available parking with adequate maintenance and services."

The reason for recommending the implementation of a new parking system at the same time was so that with an increase in fees, the permit holders would get an improved product in terms of convenient, available parking. In addition, the new fees would finance a parking structure and other needed physical improvements to the system.

## ZONE PARKING—DESCRIPTION

Zone parking was viewed as a relatively inexpensive way to alleviate some of the parking dissatisfaction that now exists. Zone parking systems are at work on many campuses across the country and represent the latest trend in the management of institutional parking facilities.

Zone parking involves aggregating several parking lots into larger geographic zones. Each zone would have a corresponding permit that would allow the permit holder to park anywhere in the zone. A limit to the number of permits sold for each zone would be set. This limit would depend on (a) size of the zone in terms of the number of parking spaces, (b) use of the spaces observed during vacancy surveys, and (c) price of the particular permit. The objective of a permit limit would

be to provide permit holders with a high probability of finding a parking space in their zone during the course of the day, while maintaining a reasonable occupancy level in each zone. This managing of spaces has been done with a great deal of success in the present WSU parking structures.

Another distinguishing characteristic of zone parking is the way permit fees are structured. Each zone would be priced relative to other zones on the basis of the level of service or utility that it would provide the user. However, unlike the current system of segmented spaces for staff and students, zone parking permits would be valid in only a limited number of parking areas.

The main objective of zone parking would be to shift some of the parking demand away from parking-deficient areas, and into the areas where there was a surplus of parking. This shifting would be done by creating an economic incentive for people to use peripheral parking and also by encouraging more ride sharing and transit use that would slow the increase in parking demand.

## ZONE PARKING—IMPLEMENTATION

### Zone Parking—Elements

The implementation of a zone parking system would require the integration of five key elements:

- Establishing zone boundaries and the parking capacity of each zone,
- Pricing the zones,
- Determining priorities for the distributing of zone parking permits,
- Integrating resident parking into the zone system, and
- Improving parking signs.

### Establishing the Zones

Figure 1 shows the WSU campus as it would be divided into parking zones from A to E. The divisions would be made

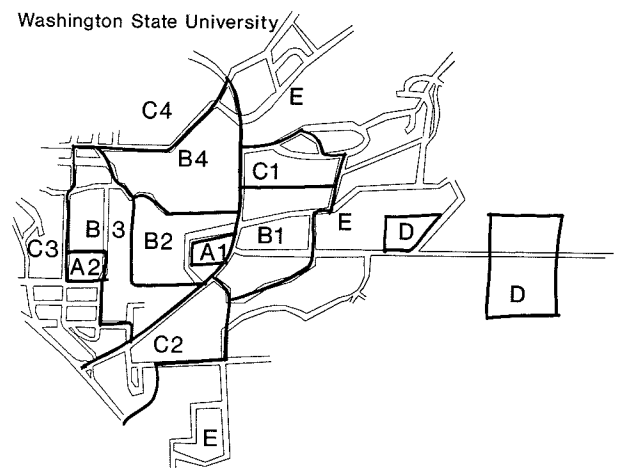


FIGURE 1 Proposed parking zones.

geographically either by major streets or by topography. The letters represent the various value levels inherent in the zones, and hence, relative prices could be assigned to them. These relative values would be based on three criteria: (a) location of the parking facility, (b) quality of the parking facility, and (c) demand for the parking facility.

Location refers to the distance from parked car to destination (see Figure 2). Quality of the parking facility pertains to whether it is gravel or paved, whether it is covered or open, whether there is controlled access, etc. Demand is a more difficult criterion to explain. Other factors being equal, the fee for an employee who parks close to a work site in the east campus should be the same as for an employee who parks near a central campus destination. Assume that the latter employee walks the same distance from parked car to work place as the former employee. On the basis of the first two criteria, location and quality of facilities (assuming both facilities are paved), the two employees should pay the same price for parking. However, the demand for parking in the central campus is much greater than the demand for parking in the east campus. The deficiency of parking in the central campus would imply that more funding for new parking spaces would eventually be directed toward that area. The implication for the east campus employee is that the fee would be less.

Figure 1 shows that there are two *A* zones, four *B* zones, four *C* zones, etc. Numbers used in conjunction with the letters would further narrow the parking areas available with a given parking permit. This policy would allow greater control over the allocations for each zone.

The permit system would work as follows. An *A1* permit could be used in any *B* zone, but could not be used in another *A* zone. Likewise, a *C1* permit could be used in any *D* or *E* zone, but could not be used in another *C* zone. Nor could a

*C* permit move up into an *A* or *B* zone. In other words, a parker could move to any lower level zone, but not to any zones of an equal or higher level.

This policy places a *B* or *C* permit holder at a disadvantage by allowing other permit holders to consume their spaces. But in fact, the sale of permits to each zone would be tightly monitored and managed so that this would happen only rarely. The problem stems from the fact that Parking Services does not have absolute control over those who might park in a given zone, either legally or illegally. For example, there may be a high number of violators in Zone B1 on a given day. Although citations could be issued, the cars could not be removed. Assume they displace three Zone B1 permit holders. If the three permit holders were not allowed to park in the nearest *C* zone, the alternative of parking in a peripheral zone a considerable distance away, if there were spaces available in Zone *C*, would not be acceptable.

Subzones are not needed on campuses that have relatively flat terrain. However, at WSU although Figure 1 is not a topographical map, there are some rather severe elevation differences involved in the four *B* zones. So, someone attending class or working in Zone B1, for example, might not view Zone B3 as an acceptable parking alternative, considering the additional vertical distances involved.

Another concern was the question of vehicular mobility. Unfortunately, there is no way to increase the probability of finding a parking space for some permit holders during the course of the day without reducing vehicular mobility for others somewhat. The two parameters represent a direct trade-off. However, employees who need short-term access to service areas to perform university functions could still use a service permit at no extra charge. For personal convenience, they could purchase a permit for a higher-level zone.

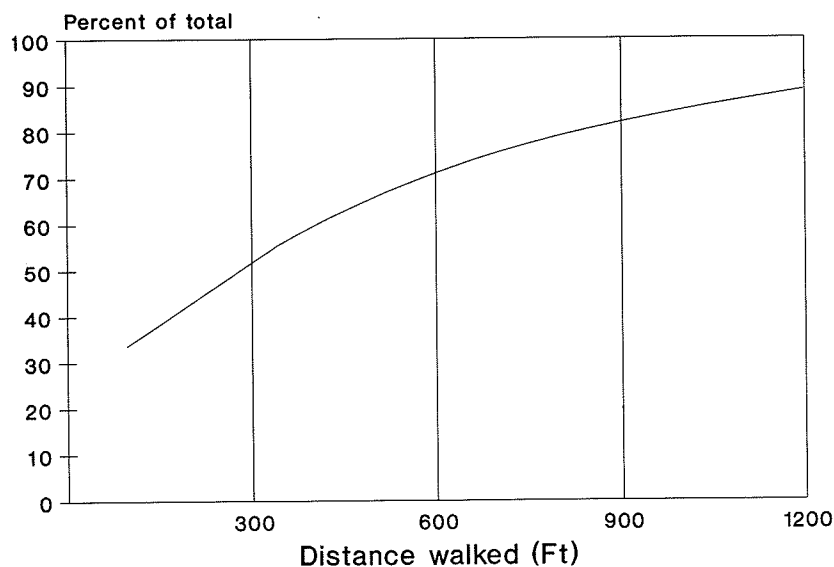


FIGURE 2 Existing walking distances at WSU.

The sale of parking permits for Zones A, B, C, and D would be limited. The sale of permits for Zone E would not be limited. The limit on the sale of parking permits for Zones A through D would range between 10 and 30 percent over the parking capacity of the zone. The amount of oversell would depend primarily on use of the zone, which would be determined by surveys. Use will vary depending on the type of persons using the spaces. For example, because student vehicles turn over at a higher rate per day, the oversell in zones used primarily by students would be higher than in zones used primarily by faculty and staff. In time, the best limits would be established for each zone, and until then a conservative approach would be taken. The objective would be to provide at least a 95 percent chance of finding a parking space during peak parking times.

### Pricing the Zones

Pricing, or establishing the fee for each zone, is the most sensitive element of this plan. Not only is it sensitive to the people who have to pay, but it is the most critical consideration for making zone parking work. Zones should be priced to accomplish the following objectives:

1. Provide adequate revenue for needed capital improvements,
2. Provide adequate revenue for the operations and maintenance of the parking system,
3. Shift parking demand away from zones with parking shortages into peripheral zones where parking surpluses now exist,
4. Encourage the use of Pullman Transit and other alternative transportation modes, and
5. Encourage car pooling.

The traditional approach for setting parking fees has emphasized comparisons with other colleges and universities. These comparisons are seldom valid, because every institution is different regarding funding sources for parking. For example, not all university parking systems are self-supported. Some may be partially subsidized by other university funds, while others may have construction funds available for the development of parking facilities, such as parking structures. Although comparisons need not be discarded, the merits of comparisons have been overstated in the past. WSU is set within a rural environment, but its parking problems are of an urban nature, requiring urban-like solutions. Because the objectives stated are worthwhile, emphasis should be placed on permit fees that help to realize those objectives, rather than on copying the fees of other institutions with different parking problems. In short, fees should be established that make the system work.

In summary, parking permit fees should reflect the actual cost of providing an acceptable level of service and facilities, and should also reflect a representative dollar value for the benefits received. These attributes have been absent in recent years. As Dr. John Cook, Professor of Transportation Engineering at WSU, stated several years ago in his 1980-1981 parking study: "Parking fees should reflect the actual cost of

providing the improved service. Utilizing these revenues for parking purposes is an equitable method of assuring that funds will be available for the continuing program of parking improvements."

The proposed parking permit fees are not intended to penalize people. The highest proposed fee is for Zone A, the parking structures, which will cost \$200 per year by the 1994-1995 academic year. The monthly cost for this benefit would be approximately \$16, or about \$0.72 per day. On the other hand, those who are more price sensitive would still be able to park in a peripheral lot at today's permit prices. Although they may be inconvenient, the peripheral locations are only 5 to 10 min away from the central campus for an able-bodied person.

### Providing Capital Improvements

The most important objective of parking permit fees is to provide a financial base for needed parking improvements. Parking capital improvements include the development of new parking spaces (i.e., in a parking structure), or the upgrading of existing parking spaces. Capital parking projects must be funded with local revenues. There is approximately \$1.2 million currently in reserve for parking improvements. This amount is not enough to accomplish what is needed in the long or short term at WSU. The cost of maintaining and developing parking is high, and these costs increase every year like everything else. The table below, which is based on empirical data, indicates the cost of developing parking on a cost-per-space basis at WSU.

Type of Facility	Cost per Space (\$)
Gravel surface	500 to 1,000
Paved (asphalt/concrete)	1,500 to 2,000
Structure	5,800 to 17,500

The WSA parking study suggests that a parking structure will be needed by 1995. Figure 3 shows the recommended parking permit fee increases for the next 6 years through the academic year 1994-1995. The fees in Figure 3 are based on the parking study, and assume (a) that zone level pricing would not begin until fall of 1990, and (b) financing would be needed for a parking structure by 1995.

Other parking projects deserve serious consideration. These include parking areas that are already being heavily used, or those that will increase in usage as a direct result of zone level pricing. These other projects total \$1.6 million, well above the \$1.2 million now in reserve.

### Supporting Operations and Maintenance

Although parking fees have remained stagnant for nearly 20 years, operating and maintenance costs have gone up with inflation as expected. The graph in Figure 4 shows actual and projected annual balances of the parking system at the current level of parking fees. Projected expenses are based on a 5 percent increase in salaries, maintenance, and construction costs. The projected \$100,000 deficit for the current academic year is the result of \$90,000 in parking lot surface mainte-

	Current		Zone Parking Begins				
	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Structure	\$84	100					
Staff	59	60					
Commuter	45	45					
Resident	39	45					
Zone A			125	145	165	185	200
Zone B			100	120	140	160	175
Zone C			80	95	110	120	130
Zone D			60	70	80	90	100
Zone E			40	40	45	45	50

FIGURE 3 Proposed annual permit fees.

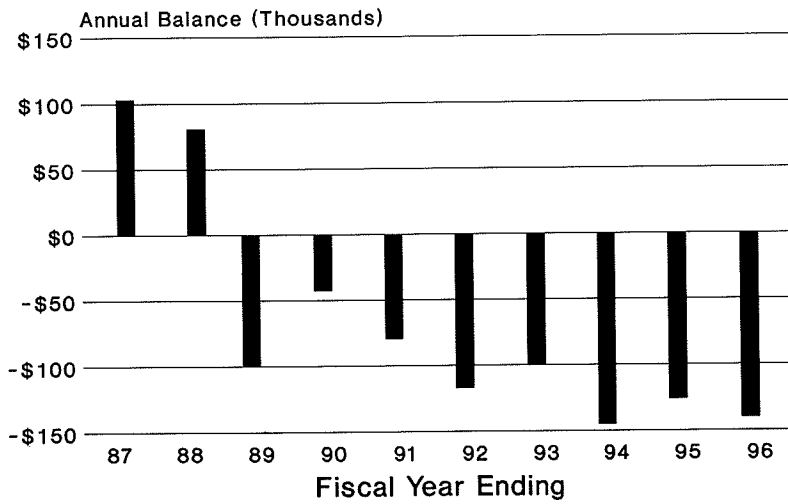


FIGURE 4 Actual and projected annual balances for parking services.

nance, and approximately \$100,000 in small gravel parking lot projects. An additional \$200,000 to \$300,000 in parking lot surface maintenance will be budgeted in the next 3 years. If this maintenance work is delayed much longer, the total replacement of parking lot surfaces could be required.

Figure 4 also assumes that no funds would be expended for additional parking spaces, or for improving existing gravel lots beyond the 1988–1989 fiscal year. Without a significant fee increase, by the end of the 1995–1996 fiscal year, the \$1.2 million reserve could be reduced to \$311,000, without new parking spaces or even improved parking spaces.

### *Shifting Parking Demand*

Permit fees should be set to allow people to choose the parking situation that they are willing to pay for. By making peripheral parking economically attractive, the usage of peripheral parking should increase, and peripheral fees (for Zone E) would remain stable.

Permit holders hunt for the space closest to their destination in an attempt to maximize their dollar value. The permit holder who pays a fee for parking in a given zone, when that fee reflects a corresponding level of convenience for parking availability and quality of the facility, would have received dollar value. The permit holder could obtain even closer spaces by arriving earlier than other parkers. Providing people more choices and convenience should increase their satisfaction with the parking system.

### *Increasing the Use of Pullman Transit*

As long as riding the bus is more expensive than parking, most people will choose to drive and park. The current price for an annual bus pass is \$99.00. The highest annual permit fee is \$84.00. However, when you consider that 90 percent of WSU's parkers pay less than \$60.00, it is no wonder that more people do not ride the bus! The proposed fees should lead to increased ridership for Pullman Transit, which may, in turn, allow Pullman Transit to increase service, and stabilize (or perhaps even reduce) fares.

### *Encouraging Car Pooling*

As parking fees increase, so should the number of people that car pool. The independence derived from having a car available is valuable. On the other hand, in a small community where many people work similar schedules and live near each other, the potential for car pooling is great. However, just like the bus scenario, there is little economic incentive to car pool.

### **Determining Priority for Distributing Zone Parking Permits**

The next step in implementing the zone system involves determining in what order people will get to choose their preferred parking zone. Under the current system, parking spaces are allocated by priority to the three segments, staff (faculty and

staff), commuter students, and resident students, and each parking area is signed accordingly.

Consider that under the zone parking system there would be four segments of parking users ranked accordingly:

1. Faculty and staff;
2. Graduate students on appointment, living off campus;
3. Graduate and undergraduate students, living off campus; and
4. Resident students, living on campus (graduate and undergraduate).

Each of the first three segments would participate in some form of early parking registration in which applicants would be asked to state their three or four most preferred zones. They would be assigned zones on the basis of three factors: (a) priority, (b) date of application, and (c) years of employment, or class standing. Assignment of resident parking areas, which would be handled differently, is discussed separately in the next section. Applications would be entered into a computer, and a list for each zone would be generated. Applicants would receive their zone assignments in the mail over the summer. When it came time to buy their permit for the year, they would either present their notice of zone assignment or a list would be checked at Parking Services. Zones would be assigned to early registration participants first; all others would select their preferred zones on a first-come, first-served basis without regard to priority.

### **Integrating Resident Parking into the Zone System**

Reserved spaces characterize the benefits of resident priority parking. Parking spaces in these lots are issued exclusively to resident students who qualify on the basis of points awarded within each residence hall.

The WSA study recommended the relocation of central campus resident parking to peripheral parking lots. Their rationale was that, because resident students were already living on campus, their need for parking was not as great as those living off campus who rely on their vehicle to get them to school or to work. The WSA study did not take into account the issues related to retaining students in the residence halls.

The following policy is a compromise that deals with the needs of resident students, but provides some flexibility in terms of the parking needs of other segments.

1. All parking lots that are presently assigned to residence hall students would remain designated as such. These spaces would be integrated into the proposed zone system as R Zones, which would maintain their own integrity, and would not be oversold or made available to faculty, staff, and commuter students, unless demand from resident students for those spaces is insufficient.
2. The Zone R permits would be priced the same as Zone C permits. Peripheral parking would be available to all resident students at the Zone E price of \$40.00 per year.

### **Improving Parking Signage**

One of the major advantages of the zone parking system is that it would allow for the simplification and improvement of

parking signs. The most effective signs are those with the least language and the greatest number of visual cues.

Signing could be improved by (a) minimizing the amount of text, (b) increasing the amount of visual communication; (c) placing signs in a consistent location, at each entrance; (d) using larger signs; and (e) minimizing the cost of sign replacement by using fewer signs.

## CONCLUSION

The issues related to parking problems are complex, and the solutions are expensive. The current fees are inadequate to maintain the status quo in terms of physical parking facilities.

Most social services increase in price sooner or later, and the cost of parking is no exception. But for the first time, an increase in fees would be accompanied by a significant increase in service.

## REFERENCES

1. Wilbur Smith Associates. *Washington State University Parking Study*. Pullman, Sept. 16, 1988.
2. S. Holt et al. *Washington State University Parking Services Study*. Pullman, Spring 1985.

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*Publication of this paper sponsored by Committee on Parking and Terminals.*