

CIRCULATION AND PARKING PLAN

Circulation and Parking Plan for the University of Alaska Fairbanks

Fairbanks, Alaska
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Section 4

Parking System Assessment

Parking System Assessment

The UAF campus is unique with respect to the campus population and parking needs. The campus has a large number of full-time and part-time commuter students, and there are considerable topographic and weather considerations related to parking locations. However, like many university campuses, increasing demand for developable land has forced at least some parking to the perimeter of campus.

The existing conditions analysis revealed that the overall parking supply at UAF is adequate to accommodate existing demand. Figure 6 shows the peak hour utilization at individual parking locations, and also within major activity zones. The current peak hour utilization of 70% shows that the system is not significantly over-built or under-supplied. However, there are some areas that are at capacity, and others that are underutilized. Several large parking areas operating at less than 50% utilization tend to be located farther from major activity zones, requiring shuttle connection or a longer walk. Also, the total available parking is reduced by restrictions to specific users or user groups, or lack of electric plug in capability, which is needed during cold weather. While the overall parking system was only 70% full during the peak hour, the general decal parking areas on West Ridge and Lower Campus are estimated to be effectively full, with utilization of 90% or higher.

KAI estimated future parking needs based on anticipated growth in the UAF campus population and the effects of anticipated development on parking supply and demand. The population forecast for UAF was provided by the UAF Office of Planning, Analysis and Institutional Research (PAIR), and is summarized in Table 2.

Table 2: UAF Population Forecast

| Semester | Employees | Students | Total Population | Change from 2003 |
|-----------|-----------|----------|------------------|------------------|
| Fall 2003 | 1,888 | 5,839 | 7,727 | 0% |
| Fall 2005 | 2,081 | 6,438 | 8,519 | 10% |

| | | | | |
|-----------|-------|-------|-------|-----|
| Fall 2010 | 2,413 | 7,463 | 9,876 | 28% |
|-----------|-------|-------|-------|-----|

As Table 2 shows, the UAF population is expected to increase by approximately 10% in the next two years, and approximately 28% by fall 2010, with a majority of near-term growth expected to occur on West Ridge. Based on current parking rates at UAF, the estimated 28% population growth will correspond to 840 additional parked cars during the peak hour. The distribution of growth throughout campus was determined in consultation with PAIR staff. Most of the increase is expected to occur on West Ridge, as staff and graduate student numbers will grow due to increased research activities. Lower Campus will also experience a large share of the growth, associated with general enrollment increases for undergraduate activity.

The estimate of future peak hour parked vehicles is summarized in Table 3. The table shows existing vehicle counts, the estimated increase associated with 2010 population forecasts, and the total number of peak hour parked vehicles anticipated in 2010. This estimate reflects “raw demand” and does not include the necessary “buffer” of parking supply that is needed to accommodate the peak demand.

Figure 6: Existing Peak Hour Parking Utilization

[\(larger map\)](#)

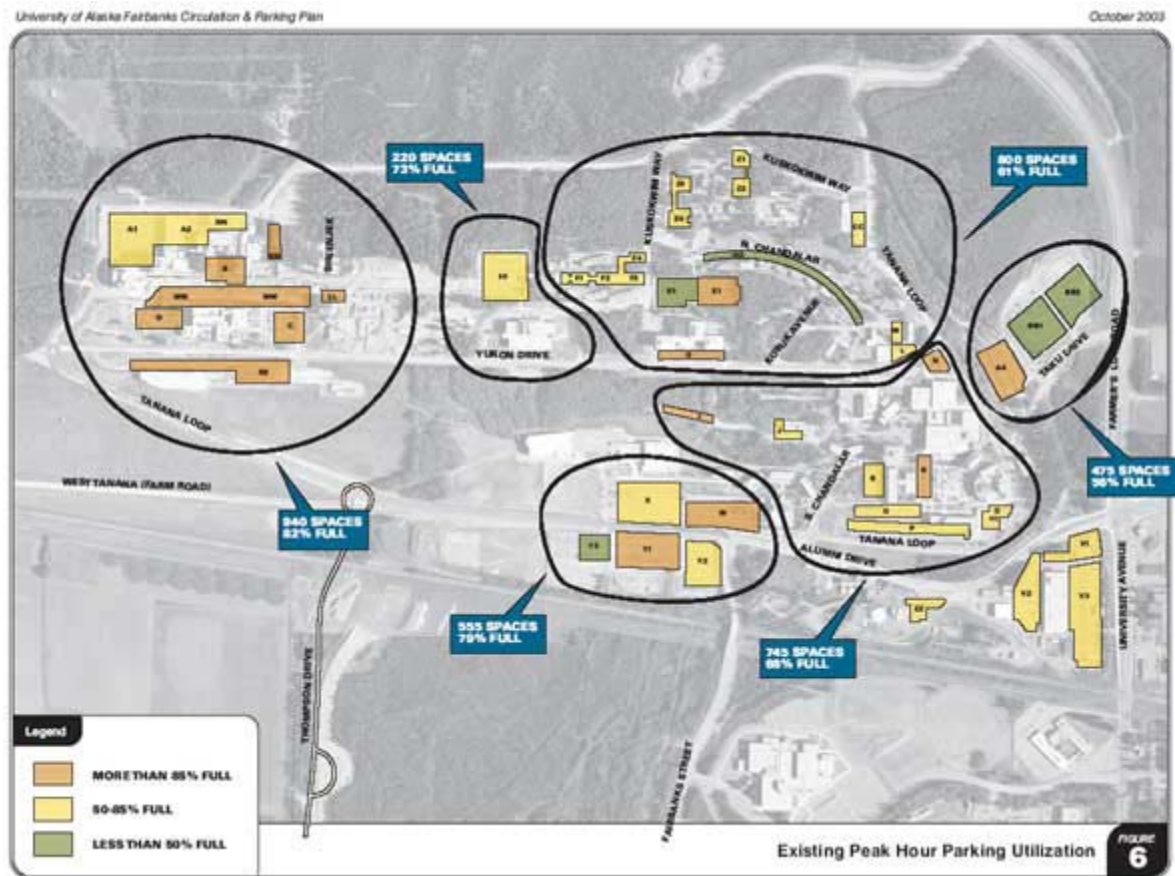


Table 3: Future (2010) Peak Hour Parking Demand

| Location | Share of | Parked Vehicles (Raw Demand) |
|----------|----------|------------------------------|
|----------|----------|------------------------------|

| | Growth | Existing | Increase | 2010 |
|---|--------|----------|----------|-------|
| West Ridge | 40% | 815 | 335 | 1,150 |
| Residential | 15% | 450 | 125 | 575 |
| Lower Campus | 25% | 555 | 210 | 765 |
| Recreational Area | 10% | 415 | 85 | 500 |
| Natural Science | 10% | 150 | 85 | 235 |
| Ballaine/Taku Lots | 0 | 260 | 0 | 260 |
| Peripheral* | 0 | 370 | 0 | 370 |
| Total | 100% | 3,015 | 840 | 3,855 |
| * Peripheral areas include the Facilities Services, Administrative Services, and UPark. | | | | |

As Table 3 shows, parking demand on West Ridge is expected to increase by more than 300 vehicles during the peak hour. On Lower Campus, peak hour parking demand is expected to increase by approximately 210 vehicles. The total parking demand of approximately 3,855 is estimated for the peak hour. While the "raw" parking demand is estimated to be 3,855, the number of spaces to accommodate this demand could range between 4,800 and 5,500 to achieve 80% and 70% utilization, respectively.

Background Parking Supply

The existing parking system has recently been disrupted due to construction activities on West Ridge, resulting in the temporary displacement of 273 spaces and permanent displacement of 222 spaces, primarily from the West Ridge Plaza and behind the Elvey Building. Nearly 300 new parking spaces to serve West Ridge are part of current (summer 2003) construction activities, including an approximately 100 in the new Museum lot. The planned construction activities will result in a net gain of approximately 60 spaces on West Ridge.

In order to evaluate future parking needs, a baseline parking supply was developed assuming all near-term improvements already underway are completed. Table 4 shows the "background parking supply," in comparison to the 2003 existing supply. The background supply includes only those changes that are currently underway on West Ridge. Background supply reflects the parking supply that is known will exist without any additional construction or removal of parking. The background supply is used as a basis of comparison to assist in quantifying the needed changes in parking supply.

As Table 4 shows, the net background parking supply (4,385) for the campus will exceed the estimated 2010 peak hour parked vehicle demand (3,855 from Table 3). While parking on the campus as a whole might be able to accommodate the parking demand, it is not realistic to assume that parking can be managed to completely utilize the entire system throughout the day. For instance, it is unlikely that employees from West Ridge can utilize residential parking in North Campus. In addition, the parking plan must accommodate removal of spaces resulting from new building construction in the future.

Table 4: Background Parking Supply

| Location | 2003 Existing Supply | Background Supply |
|---|----------------------|-------------------|
| West Ridge | 940 | 1,000 |
| Residential | 800 | 800 |
| Lower Campus | 750 | 750 |
| Recreational Area | 555 | 555 |
| Natural Science | 220 | 220 |
| Ballaine/Taku Lots | 475 | 475 |
| Peripheral* | 585 | 585 |
| Total | 4,325 | 4,385 |
| * Peripheral areas include the Facilities Services, Administrative Services, and UPark. | | |

Potential Removal of Existing Parking Areas

As noted in the 2002 Campus Master Plan, the current UAF parking supply includes many small parking lots that serve adjacent buildings. While they may be convenient for a small group of users, the use of multiple small parking lots tends to lead to overall inefficiency of the system in terms of land dedicated to parking facilities and the ability to achieve efficient utilization.

As buildable land and parking conditions become increasingly constrained, redevelopment of some surface parking areas is anticipated. Redevelopment could occur for several reasons, including improvements to pedestrian conditions, consolidating parking areas, or constructing new buildings. The 2002 Campus Master Plan identified several parking locations to be considered for removal or redevelopment. Several lots were identified under Action A13, to reduce parking in the campus interior. In addition, potential building sites identified in the Campus Master Plan may result in loss of existing parking areas. Future parking development must consider the potential loss of the following existing parking facilities. These locations and the potential stalls that would be removed are shown in Table 5.

As Table 5 shows, the combination of proposed redevelopment of existing parking areas could result in the loss of more than 400 parking spaces, most of which will occur in Lower Campus, exacerbating existing parking constraints. Removal of these spaces may be warranted to meet other campus goals and objectives, but doing so removes most of the prime parking locations in Lower Campus. Due to the scale of the potential parking loss and the existing parking constraints in Lower Campus, they should not be removed until replacement parking is available.

Table 5: Potential Parking Lot Removals

| Lot ID | Location | Reason for Removal | Spaces |
|---------------------------------------|-------------------------------|------------------------|--------|
| Lot L | Next to Whitaker | Master Plan Action A13 | 28 |
| Lot N | North of Fine Arts | Master Plan Action A13 | 40 |
| Lot JJ | Wood Center Shuttle Transfer | Master Plan Action A13 | 8 |
| Lot R | East of Signers' Hall | Master Plan Action A13 | 44 |
| Lot O | East of Bunnell | Building Site | 62 |
| Lot MM | West Ridge Plaza | Master Plan Action A13 | 130 |
| Lot G | MBS Complex | Master Plan Action A13 | 53 |
| Lot S | Eielson, West | Building Site | 62 |
| Lot I | Haida (north of Patty Center) | Building Site | 34 |
| Lot P | Bunnell, South (Partial) | Building Site | 70 |
| Summary of Potential Parking Removal | | | |
| Parking reduction on Lower Campus | | | 348 |
| Parking reduction in Residential Area | | | 53 |
| Total Parking Reduction | | | 401 |

Parking Supply Strategies

Potential parking supply measures include constructing new parking, relocating existing facilities, and removing or consolidating small parking areas. Two alternative parking supply approaches were examined. A *Supply Emphasis* approach seeks to increase parking supply in proportion to increased demand, making parking convenience a priority and keeping the parking utilization consistent with current levels. In contrast, a *Management Emphasis* approach seeks to increase the effectiveness of parking facilities through various management measures. If successful, the management approach results in increased peak hour parking utilization above the current levels by increasing transit and shuttle accessibility and ridership, changing the parking decal system, and focusing on peripheral parking areas. The CPS recommended the *Management Emphasis* approach because its objectives are most consistent with the Campus Master Plan goals, particularly with respect to parking facility locations.

Parking conditions will change over time as changes occur in campus population, available parking facilities, and circulation options. The parking management plan should be viewed as a "framework" that should be modified over time as conditions and priorities change, and as resources, needs, and opportunities arise.

Parking Management Emphasis

The Parking Management emphasis is aimed at achieving higher utilization of parking

facilities through efficient management measures. Under this approach, the parking system would be developed and managed to achieve 85% use of parking in key parking areas and 80% overall use during the peak hour, compared to the existing 70% peak hour use. In order to successfully implement this approach, the following parking and multi-modal management measures are necessary:

- Electrify most of the existing parking areas to make their use feasible throughout the winter.
- Increase frequency and capacity of the shuttle system.
- Modify parking prices to encourage efficient transportation choices.
- Develop future residential parking in locations that encourage shared use by other campus activities.
- Improve/provide walking facilities between activity zones and parking areas.
- Improve/provide bicycle facilities between activity zones and parking areas, including bike lanes, bicycle lockers, bicycle racks on shuttle.
- Support carpool/vanpool options through coordination of services, reduced parking fees, and/or premium parking locations.
- Coordinate with Fairbanks North Star Borough (FNSB) to develop a joint UAF/FNSB plan for efficient and improved transit service.
- UAF should work with FNSB to develop transit service through and around Tanana Loop instead of a "U-Turn" at Wood Center.

The estimated 2010 parking surpluses and deficits under this approach are summarized in Table 6. Table 6 is based on peak hour utilization of 80%.

Table 6: Future Parking Surpluses/Deficits

| Location | 2010 Vehicles (Raw Demand) | Target Utilization | Effective Demand (Spaces Needed) | 2010 Background Spaces | 2010 Background Surplus/ (Deficit) | Potential Removals | Net 2010 Surplus/Deficit (Table 5) |
|--------------------|----------------------------|--------------------|----------------------------------|------------------------|------------------------------------|--------------------|------------------------------------|
| West Ridge | 1,150 | 85% | 1,355 | 1,000 | (355) | 0 | (355) |
| Residential Area | 575 | 65% | 885 | 800 | (85) | 55 | (140) |
| Lower Campus | 765 | 80% | 955 | 750 | (205) | 350 | (555) |
| Recreational Area | 500 | 85% | 590 | 555 | (35) | 0 | (35) |
| Natural Science | 235 | 85% | 275 | 220 | (55) | 0 | (55) |
| Ballaine/Taku Lots | 260 | 85% | 305 | 475 | 170 | 0 | 170 |
| Peripheral* | 370 | 85% | 435 | 585 | 150 | 0 | 150 |
| Total | 3,855 | 80% | 4,800 | 4,385 | (415) | 405 | (820) |

* Peripheral areas include the Facilities Services, Administrative Services, and UPark.

As Table 6 shows, in order to achieve 80% peak hour utilization, a net increase of 415 parking spaces would be needed under year 2010 background conditions. The need for new parking supply could be as high as 820 spaces if the parking spaces identified in Table 5 are removed or redeveloped. Future parking demand would have to be accommodated by a combination of new parking spaces and better utilization of existing surplus parking areas. While the table shows the parking demand by area of campus, a critical aspect of this approach is provision of shuttles and other circulation improvements to better utilize peripheral parking areas.

Future Parking Development: Structures vs. Surface Lots



Developing additional parking facilities will be necessary to accommodate anticipated growth at UAF. Parking structures are frequently identified as the preferred form for parking, particularly when the number of needed stalls is large, or when there are multiple parking lots serving the same area. Structured parking has several benefits. By consolidating parking supply, structures reduce the total land used for

parking, and reduce maintenance costs associated with snow removal. With appropriate design, parking structures can also support a more inviting pedestrian environment by providing active ground floor uses and reducing walking distances. Although the benefits of structured parking are significant, construction costs for structured parking are considerably higher than surface parking.

Typically, surface parking lots cost on the order of \$2,000 to \$5,000 per stall, whereas structured parking can range from \$10,000 per stall for the simplest design, to more than \$20,000 per stall. Costs can rise considerably when there are unstable soils, which is the case in some Fairbanks locations. In addition, when a surface parking lot is converted to a structure it is important to consider costs in terms of the net change in parking supply, because replacing a 100 stall surface lot with a 400 stall structure provides only 300 new spaces.

Although the construction costs for structured parking are high, many campuses determine that structured parking is a suitable solution to parking needs, especially when a campus has limited buildable land supplies. At UAF, this is especially true on Lower Campus, where both building density and parking demand are high and buildable land is limited. As noted in the Campus Master Plan, opportunities to combine structured parking with other capital development projects is encouraged in order to provide parking along with new academic, service, or administrative buildings. As the supply of parking on Lower Campus is reduced, shuttle service to perimeter parking areas will play an increasingly important role in campus circulation and access.

Parking Facility Location Considerations

Location of parking is a critical element in managing the parking system effectively. Whether parking is provided in structures or surface lots, several considerations can

assist in making location decisions.

- Access Transportation Facilities: New parking facilities in the periphery of campus should be located within major roadways (Tanana Loop) in order to limit potential pedestrian crossing issues on Tanana Loop.
- Location of the Parking Demand: parking should be located as close as practicable to the area generating the parking demand.
- Land Requirements: Land requirements can be estimated assuming that parking facilities will occupy approximately 300 to 350 square feet per stall. Parking facility sites can best achieve efficient design where the buildable footprint is at least 200 feet on its shortest side.
- Impacts on Internal Circulation: Parking facilities should not be located in areas where motor vehicles are secondary to pedestrian and bicycle accessibility. A good example is that large parking areas should not access Yukon Drive, given the multi-modal goals for Yukon Drive.
- Ability to Share Parking: As new residential development occurs, parking should be developed in areas that can be shared with other buildings, rather than as accessory parking to specific housing units. The added flexibility of potential shared use parking lots will help to achieve more efficient utilization of parking facilities.
- Enhanced Linkages Between Uses: Where practicable, parking should be located in a manner that increases the cohesiveness of the campus. For instance, on West Ridge, parking should be located generally east of West Ridge and south of the planned Tanana Loop extension. This would facilitate shorter walking distances to the Residential Area or Lower Campus. Conversely, additional parking development on the west side of West Ridge should be avoided because it would further elongate the campus, increasing walk/shuttle/bicycle distances between West Ridge and the east side of campus.

The Campus Master Plan identified four sites for potential structured parking. These sites and the estimated number of levels and spaces are summarized below along with a brief evaluation.

Ballaine Lot, 4 levels, 100 spaces per level, 400 total spaces

This proposed parking would provide a total of 400 spaces. However, the existing Ballaine surface lot has 164 spaces, according to the inventory provided by Parking Services. As such, the net gain in parking would be approximately 235. Based on typical costs of \$20,000 per stall, the total price tag for the parking would be \$8,000,000. When calculating the cost per *net new space*, the cost would be approximately \$34,000 per stall ($\$8,000,000/235$ stalls). This illustrates the importance of looking at net new parking when converting from surface to structured parking.

Nevertheless, the Ballaine Lot provides many potential benefits as a site for a parking structure, including mixed uses of the building, and the concept of providing a pedestrian elevator with pedestrian bridge access to Lower Campus. Vehicle access to the site is good, and proximity to Lower Campus makes it convenient to a high demand area.

Lot west of Bunnell, 2 levels, 40 spaces per level, 80 total spaces

Similar to the Ballaine site, this site would replace significant surface parking so that the net gain in parking is limited. Structured parking at this location may be suitable,

especially if combined with building construction at this site.

The provision of 40 spaces per level for structured parking usually results in a large amount of surface area being dedicated to ramping and internal circulation, rather than parking. There may be opportunities to utilize the steep grade to accommodate access and circulation efficiently.

Lot east of Arctic Health, 2 levels, 86 spaces per level, 172 total spaces

There are currently 73 parking spaces in this parking lot. Therefore, the estimated 172 parking spaces would reflect a net gain of just around 100 spaces. If building height is limited to two levels, the potential net gain in parking would significantly increase the per stall cost of a structure at this location.

West Ridge unknown location, 4 levels, 58 spaces per level, 232 total spaces

Similar to the Bunnell site, the estimated 58 spaces per level would likely result in a large proportion of surface area being dedicated to ramping and circulation. Given the high demand for parking in West Ridge, it is recommended that if a suitable site can be identified for structured parking, a larger footprint (200' by 200' minimum) be developed, which would provide approximately 100 spaces per level.