

CIRCULATION AND PARKING PLAN

Circulation and Parking Plan for the University of Alaska Fairbanks

Fairbanks, Alaska
March 2004

Section 3

Circulation System Assessment

Circulation System Assessment

The first step in developing a plan is to assess the existing conditions and identify near-term changes on the campus that will impact the transportation and parking system. This section provides an overview of the existing and future operations of the circulation and access systems serving UAF. The assessment includes the pedestrian and bicycle systems, motor vehicle circulation and parking conditions, the on-campus shuttle system, and the campus signing and way-finding system. All these modes of transportation work together to bring students, staff, and visitors to the campus and to their destinations within the campus.

Some of the key changes that will impact the circulation system include:

- Completing the Thompson Drive access
- Significant growth on West Ridge
- Completion of Tanana Loop Road
- Potential residential development west of Kuskokwim Way
- Relocation of most on-campus dining services to the Wood Center

Each of these changes will impact the future circulation system and were considered in evaluating the future needs.

Non-Motorized Circulation Assessment

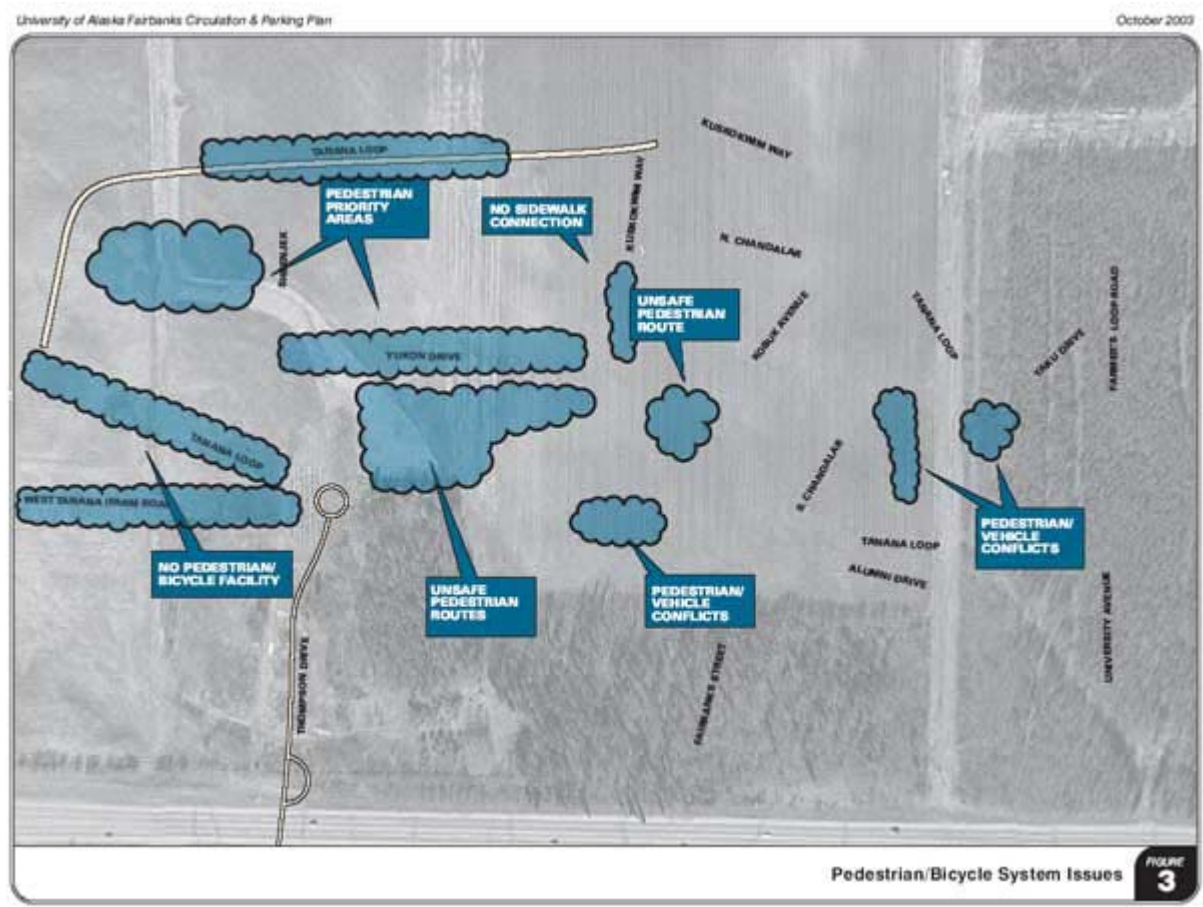
The assessment of existing conditions included an inventory and evaluation of the existing facilities on campus as well as a detailed review of comments received through meetings with the Circulation and Parking Subcommittee (CPS), public open house, and web survey.

The existing conditions assessment revealed that accessibility within defined activity centers is good. There are, however, gaps in the pedestrian system between the major activity centers and parking areas. In addition, the topography of the campus can make north/south pedestrian connections difficult. For these reasons, many of the most direct pedestrian routes require that pedestrians share the roadway with motor vehicles, or traverse the steep terrain in undeveloped

areas. The key issues identified in the evaluation are depicted in Figure 3 and summarized below:

- Accessibility within West Ridge with significant expansion of research buildings and the museum
- Need for improvements to the pedestrian environment along Yukon Drive
- Need for pedestrian and bicycle accessibility along all of Tanana Loop
- Lack of a connection between West Ridge and the student recreation area and Nenana Parking Lot
- Lack of a good all-season pedestrian connection between residential area north of Yukon and Lower Campus
- Lack of sidewalk connection on Kuskokwim Way between Yukon Drive and Hess Village

Figure 3: Pedestrian/Bicycle System Issues [\(larger map\)](#)



- Pedestrian/vehicle conflicts north of the Nenana Lots
- Pedestrian/vehicle conflicts on western Tanana Loop Road
- Pedestrian conflicts with automobiles in front of Signers' Hall
- Pedestrian conflicts with automobiles at the Taku Drive/Tanana Loop intersection
- Steep pedestrian grade on Taku Drive from Taku lots

UAF web survey responses were generally consistent with the findings of the existing conditions evaluation. The need for pedestrian and bicycle facilities on Tanana Loop between Nenana Lots/Recreational Area and West Ridge and the lack of a dedicated walkway from the Recreational Area to the Residential Area were both frequently identified. While the non-motorized system

comprises primarily pedestrian and bicycle modes, skiing serves both recreational and transportation needs to and around campus. Other issues identified in the survey include difficulty for pedestrians crossing Tanana Loop from the Nenana Lots; difficulty with the steep terrain on Taku Drive; and deficient lighting on Yukon Drive and in Lower Campus.

Motor Vehicle System Assessment

In general, the existing roadway system serves the UAF campus with good connectivity and adequate capacity at the access intersections. A future conditions evaluation reflects a 28% increase in the UAF campus population, as indicated by the UAF Office of Planning, Analysis and Institutional Research (PAIR). The increase in campus population as well as an increase in research activities will translate to a similar increase in traffic demand throughout the campus. In addition, the future conditions analysis was conducted assuming the following system changes:

- Fairbanks Street will be closed to vehicular access and Thompson Drive will be the primary access to the campus from Geist Road.
- Tanana Loop will be completed from Kuskokwim Way to West Ridge, providing an alternative to Yukon Drive for east-west connections.
- A new roundabout intersection will be in place and operational at the intersection of Thompson Drive, Tanana Loop, and West Tanana Road.

Based on the technical analysis of existing and forecast conditions, responses to the UAF survey/open house, and input from the UAF CPS, the following issues were identified:

- Reduced motor vehicle traffic and enhanced pedestrian and bicycle connectivity on Yukon Drive
- Realignment of the western Tanana Loop/Yukon Drive intersection to improve safety
- The need for a new north-south connection the Natural Sciences Facility to Tanana Loop
- Possible extension of North Chandalar Avenue to Kuskokwim Way in order to increase circulation in the Residential Area, potentially connecting to future residential development west of Kuskokwim Way
- Possible improvements to the Alumni Drive/South Chandalar/Tanana Loop intersection, which can be confusing and is frequently referred to as "Malfunction Junction"
- Taku Drive/Tanana Loop intersection currently has inadequate sight distance on the westbound approach and conflicts with pedestrian crossing at unmarked locations
- Lack of pavement on Kuskokwim Way beside the MBS Complex up to Hess Village
- Conflicts between pedestrians, visitors, and maintenance vehicles at the parking lot near Wickersham Hall and the Gruening Building

The focus areas for the motor vehicle system are depicted in Figure 4.

Shuttle System Assessment

The existing shuttle service provides frequent connections between most major activity zones. The existing routes, identified below, are shown in Figure 5.

1. *Nenana Express*, connecting the Nenana parking lots and Lower Campus
2. *Taku Express*, connecting the Taku and Ballaine parking lots and Wood Center
3. *West Ridge Express*, connecting Wood Center and the West Ridge
4. *We-Nana Shuttle*, a temporary shuttle service during West Ridge construction, connecting West

Ridge with the Nenana parking lots.



The Taku and Nenana Express are oriented toward campus parking facilities. Riders using the shuttle to get from their automobiles to the Lower Campus are well served with frequent shuttle pick-ups. In April 2003, Transportation Services initiated the We-Nana route, connecting West Ridge and the Nenana Parking Lots. The West Ridge Express provides frequent connections between West Ridge and Lower Campus, though capacity is sometimes constrained during class changes. During these peak times, shuttles sometimes fill up and must pass up waiting passengers, who have to wait for the next shuttle, or forego shuttle

service.

UAF also offers a demand-response shuttle serving off-campus administrative buildings, locations not served or connected by the fixed-route system, and persons with temporary or permanent disabilities. Evening shuttle service combines several of the routes.

In addition to the campus shuttle, the Fairbanks North Star Borough (FNSB) operates the Red and Blue Lines with stops at Wood Center. FNSB Transit estimates that 40 to 50% of their total ridership is going to or from UAF.

Shuttle vehicles are owned by Transportation Services and are rented by Parking Services for use as shuttles. UAF operates seven transit vehicles, including:

- Four 15-passenger buses: two serve the West Ridge Express, one serves the Taku Express, and one is used for the temporary We-Nana route
- One 33-passenger bus: it serves the Nenana Express
- Two 11-passenger buses: used for demand-response (dial-a-ride) service

Survey responses indicate that recent changes in the shuttle system operations have been successful at improving service quality. In particular, reliability has improved, largely as a result of hiring professional drivers.

Ridership history for the shuttle services is depicted in Chart 1. As the chart shows, ridership is by far the highest on the Nenana Express, though the Taku and West Ridge Express routes also have consistently high volumes. Ridership has generally increased for the system, especially for Nenana and West Ridge Express routes. The West Ridge Auxiliary Shuttle (We-Nana route) is very new and has lower ridership than other fixed routes, but according to Transportation Services staff, acceptance of the service is growing.

Chart 1. Shuttle Ridership Trends

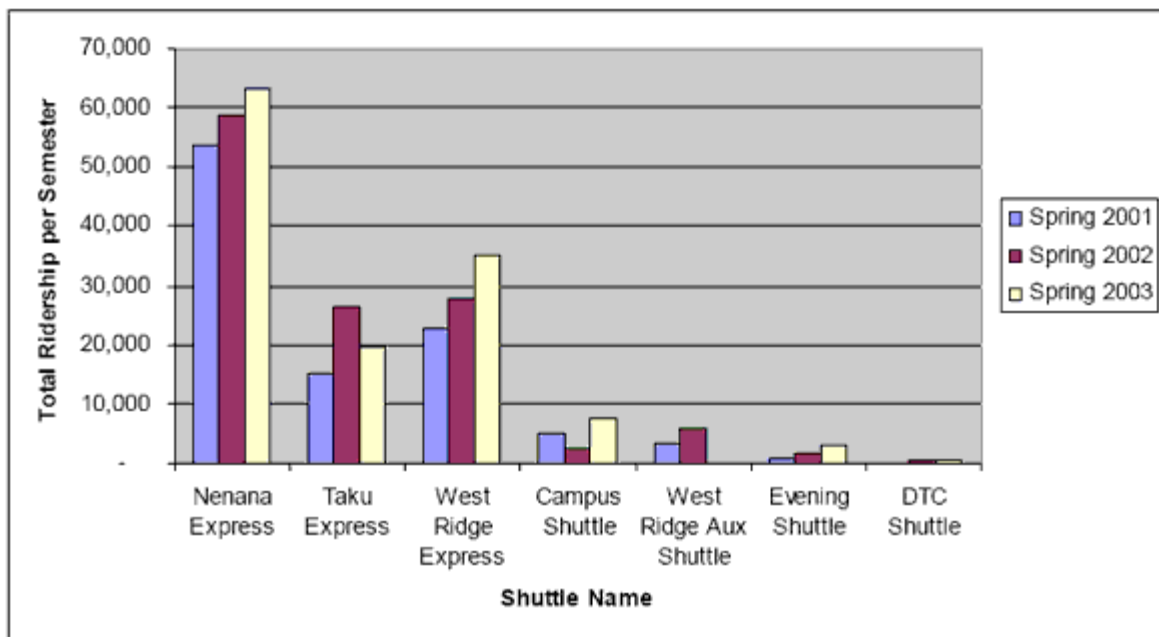


Figure 4 - Motor Vehicle System Focus Areas [\(larger map\)](#)

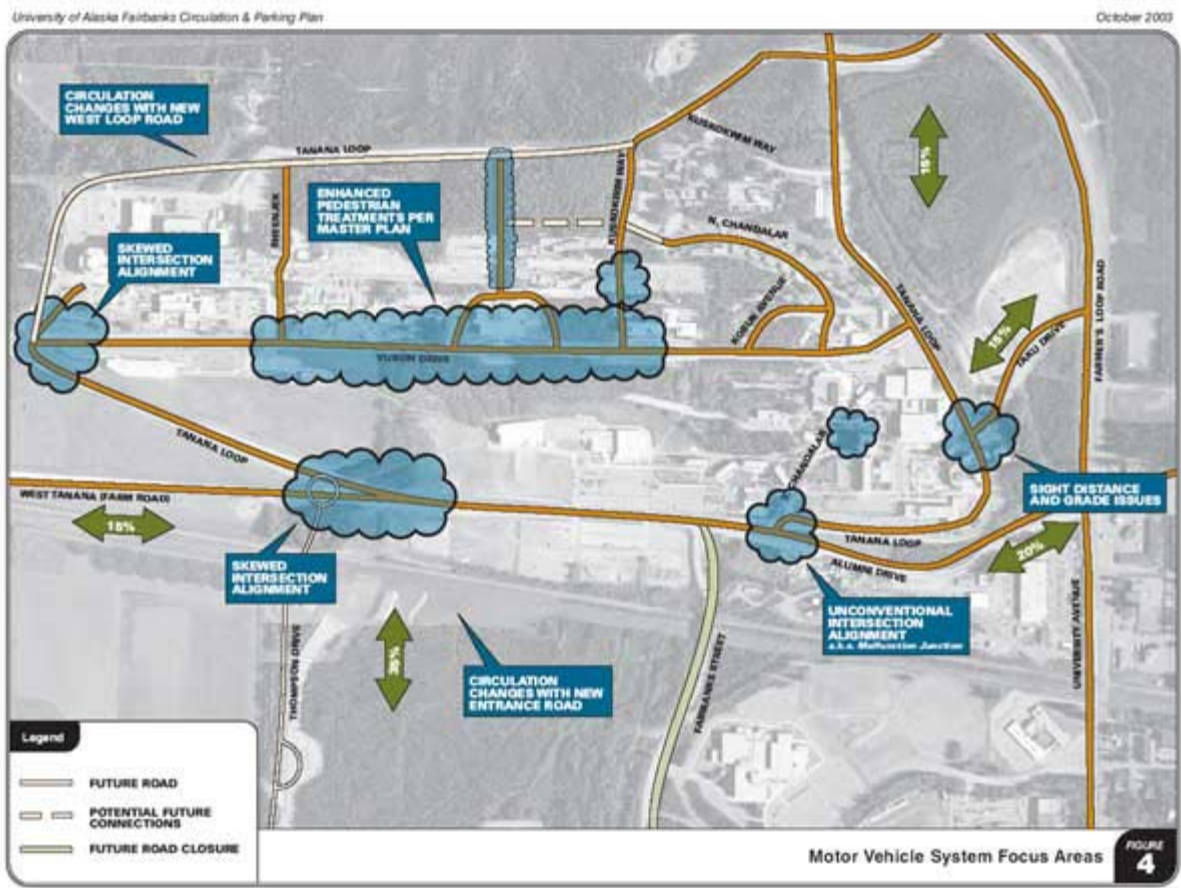
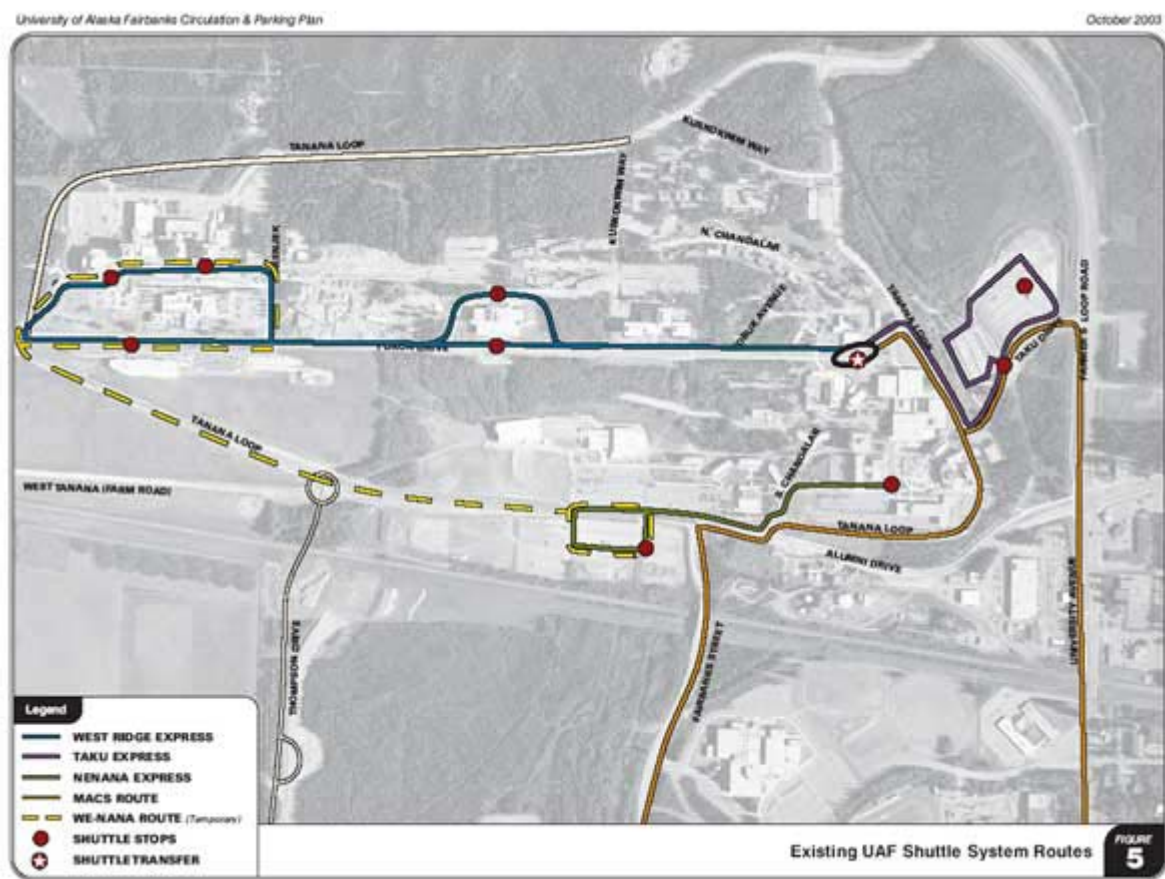


Figure 5: Existing UAF Shuttle System Routes

[\(larger map\)](#)



Shuttle Service Funding Evaluation

Financial consultants E.D. Hovee and Company evaluated the existing financial conditions of the parking and shuttle system. Their evaluation compared the UAF shuttle system with other college and university shuttle systems. The survey of other systems shows that while some campuses have shared responsibility arrangements with other agencies or jurisdictions, the UAF form, owned and operated by the university, is most common.

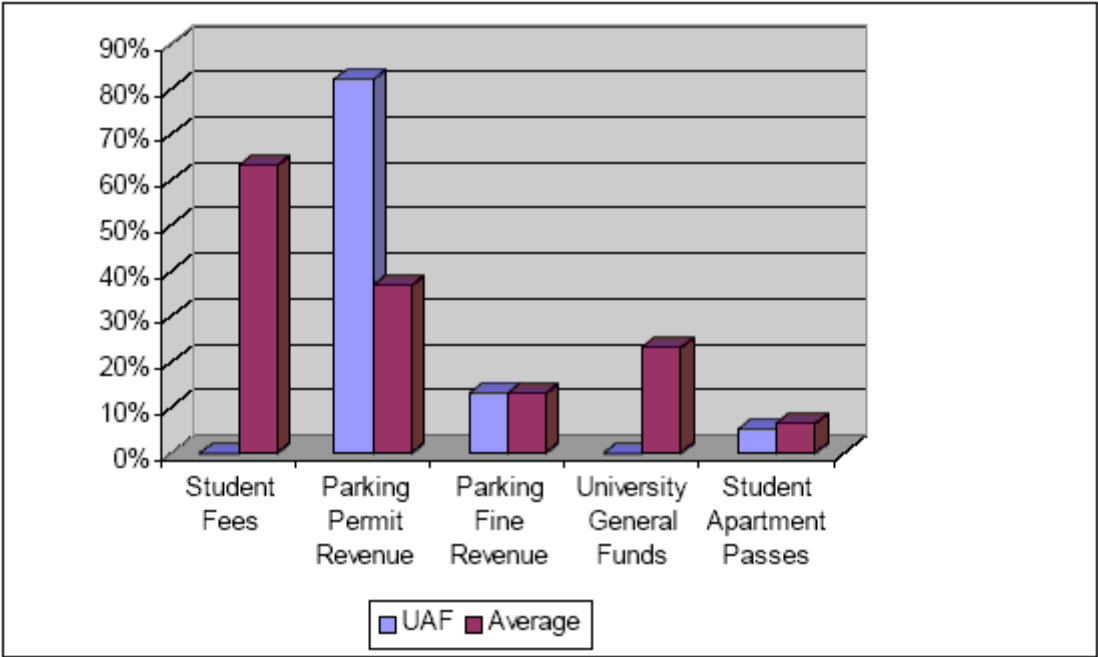
Operating expenses per passenger trip at UAF are at about the center of the range for both indicators, with roughly half of the programs performing at a lower cost/expense rate and roughly half at higher rates. UAF expenses per passenger trip (at \$1.16) are slightly higher than the median of university-owned-and-operated transit or shuttle service programs (median is \$1.02). UAF expenses per operational hour (at \$36.00) are also consistent with the median for this performance indicator.

While UAF fits well within the norm for university shuttle systems, a significant difference is in the reliance on parking revenues to fund shuttle services. Chart 2 summarizes revenue sources for other pre-paid campus shuttle services.

As the chart shows, student fees are the primary source of shuttle revenues at most colleges and universities, followed by parking permit and fine revenue. At UAF, revenue from parking permits,

meters, and fines account for approximately 95% of shuttle funding.

Chart 2. Sources of Prepaid Revenue for Campus Transit Systems



Note: Total exceeds 100% due to multiple responses.

Source: *Transportation on College and University Campuses: A Synthesis of Transit Practice*, Transportation Research Board – National Research Council, 2001.

As UAF grows and more land area is used to develop new facilities, new parking facilities will need to shift to the perimeter of campus as identified in the Campus Master Plan. This will increase reliance on the shuttle system for internal campus circulation. Over time, system improvements, including an expanded fleet, will be needed to provide adequate convenience, safety, and efficiency to support the overall campus circulation and parking system.

While service frequency is generally good for most of the routes, there are concerns that total travel times are sometimes excessive and cause students to be late to class. The average travel time between major origin and destination pairs are summarized in Table 1. Shuttle time estimates were estimated with help from Transportation Services staff. Average Wait Times were estimates as one-half the average headway for each route. For instance, if shuttles are scheduled to arrive every 10 minutes, an average wait time of 5 minutes was assumed. The total travel time is the sum of the shuttle time and the wait time. Travel times do not include walk times to specific buildings within a destination area. Some areas of campus, such as the recreational area, are not directly served by the shuttle system and therefore passengers must walk from the nearest shuttle stop.

Table 1: Existing Shuttle Travel Times

	Estimated Travel Time (In Minutes)*		
Connection	Shuttle Time	Ave Wait Time	Total
Fixed Route Direct Service			
West Ridge – Wood Center	5 to 6	5 to 6	10 to 12
West Ridge – Nenana Lots**	5 to 6	5 to 6	10 to 12
Lower Campus (Eielson) - Nenana	4 to 5	4 to 5	8 to 10
Wood Center – Taku Lots	3 to 4	3 to 4	6 to 8
Fixed Route with Transfer			
West Ridge - Taku Lots	8 to 10	10 to 12	18 to 22
Fixed Route with Walk			
West Ridge – Recreational Area	No Direct Service. Travel time is same as West Ridge to Nenana Lots plus walk between Nenana Lots and SRC		12 to 15
Wood Center - Nenana	No Direct Service. Travel time is same as Nenana – Eielson plus walk between Eielson and Wood Center		10 to 13
Wood Center – Recreational Area	No Direct Service. Walk between WC and Eielson Stop, Walk between Nenana and SRC. Plus 8 to 10 minute shuttle ride.		14 to 16
Demand Response Service			
Lower Campus (Eielson) – Residential Area* (Hess Village)	5 to 6	10 to 15	15 to 20
West Ridge-Residential	5 to 6	10 to 15	15 to 20
* Travel time estimates do not include walk time.			
** Temporary We-Nana service			

As Table 1 shows, most connections have relatively low travel times and are below 15 minutes in total travel time. Exceptions are for those transferring between West Ridge and Taku Lots, which increases the time considerably. This transfer is usually required for students with classes in both West Ridge and Lower Campus. Capacity limits are another issue for the West Ridge Express. During class change times, vehicles frequently fill up so that shuttles have to pass waiting passengers, who then have to wait for the next shuttle or walk to Lower Campus. This frequently causes them to be late for class. Demand response service can usually be accommodated in 15 minutes, slightly longer during busy times.

Signage and Way-Finding

The signage and way-finding system on campus provides a means of simplifying and clarifying the organization of campus. When the system is successful, a first-time visitor can easily find a

destination without having to travel out-of-direction, or stop in traffic to read signs. The signage system should identify roadways, major attractions, parking areas, and shuttle stops.

The 2002 Campus Master Plan identifies the need for signing and way-finding improvements to clarify the campus for visitors, and to tie in a unifying theme throughout the campus. During field observations, KAI noted several deficiencies in the current signage system, including lack of consistency in sign styles, inconsistency in sign location, and lettering that is too small to read at travel speeds. One example is the RV parking sign on Yukon Drive west of the Natural Sciences Facility. This sign is small with small lettering, yet it is intended to serve RV drivers, many of whom tend to be older visitors with diminishing vision. Visitors may also have difficulty knowing which areas are open for visitor parking. In particular, the Koyukuk Drive and Arctic Health East lots are not clearly signed as visitor parking areas.

In 2001, UAF hired a design consultant to develop a signing and way-finding plan for the campus. Currently, prototype signs are being constructed for testing. However, a comprehensive signage plan has not been completed.

Signage Issues to Consider

A comprehensive signage and way-finding plan would significantly improve circulation and parking conditions at the university by simplifying travel paths to major attractors, clarifying parking designations, and identifying shuttle routes and stop locations. A new sign style is being tested, however the effectiveness could be compromised if there is a lack of consistency in signage throughout campus.



In addition to signage, visitors to campus often need other information, such as what buildings are hosting certain events, locations they can park, and instructions on how to use the shuttle and pathway systems within the campus. Many universities locate a visitors center or special mapping at their main entrances for this purpose. While there are no near-term plans for a visitors center at the new Thompson Drive entrance, there is a planned Visitors Kiosk, which will serve a similar function.