

CIRCULATION AND PARKING PLAN

Circulation and Parking Plan for the University of Alaska Fairbanks

Fairbanks, Alaska
March 2004

Section 6

Motor Vehicle Circulation Plan

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The motor vehicle system lays much of the groundwork for the campus circulation system on most universities. This is due in part to the dominance of motor vehicles in mode choice. However, even as emphasis moves toward non-motorized transportation, the motor vehicle system typically represents a substantial infrastructure investment that should be managed to achieve overall connectivity objectives. In most instances, facilities designed primarily for automobiles also serve as travel ways for pedestrians, bicycles, and transit vehicles. For these reasons, an efficient motor vehicle circulation plan can greatly enhance campus circulation for all travel modes.

Key Plan Components

The following motor vehicle system improvements are recommended to address the focus area issues identified in the Motor Vehicle Circulation System Assessment. Figure 11 shows the primary components of the motor vehicle circulation plan.

1. Tanana Loop Alignment and Design

The northern Tanana Loop extension project will provide improved circulation to the UAF campus by completing the Tanana Loop around the UAF campus. The northern Tanana Loop extension will increase accessibility to West Ridge and Yukon Drive, provide a multi-modal connection to future campus growth on the north side of campus in the form of parking, buildings, recreational activities, etc., and will reroute a certain percentage of trips for all modes of travel on campus.

Circulation Opportunities of Tanana Loop Extension

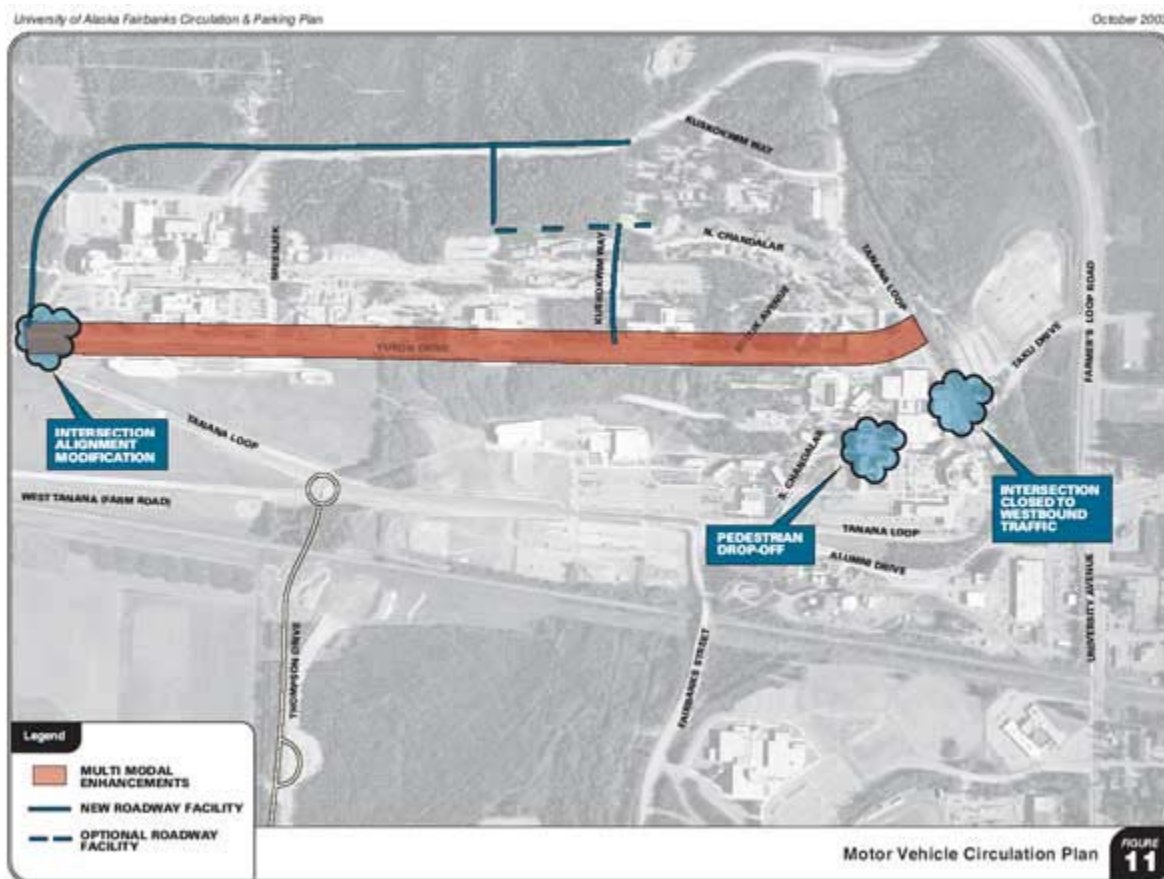
The Tanana Loop extension will provide a significant alternative for east-west campus travel, linking West Ridge and the Residential Area of campus. The roadway has the potential to divert substantial motor vehicle traffic from Yukon Drive, which was

identified as a key goal of the 2002 Campus Master Plan. The connections of Tanana Loop extension to Sheenjek Way, Kuskokwim Way and a future Natural Sciences Facility roadway will further facilitate this diversion of trips from Yukon Drive to the Tanana Loop extension.

The extent to which completing the Tanana Loop extension impacts circulation will be greatly influenced by many factors, including roadway design characteristics, alignment, and changes to Yukon Drive. Roadway elements to facilitate this goal of increased motor vehicle appeal on this roadway extension would include wider travel lane widths of 12 to 14 feet, higher roadway speeds of 30 to 35 miles per hour, and access to parking facilities. This is consistent with the alignment concept provided by Harding ESE.

Figure 11: Motor Vehicle Circulation Plan

[\(larger map\)](#)



Tanana Loop Alignment Considerations

The alignment of the Tanana Loop extension must take into consideration the general contours of the topography and soils conditions, the planned functional characteristics of the roadway, and ways to minimize the impacts to the research, education, and recreation activities taking place on the adjacent North Campus lands. This includes existing research programs in the Biological Reserve and protection and preservation of the historic Skarland Trail.

The proposed alignments vary slightly at the west end of the roadway extension at West

Ridge. One option allows a straighter, more direct east-west alignment, with less curvature and thus a higher design speed of 35 miles per hour. This alignment would also require slightly more land and be farther from the existing West Ridge campus section. The Option B alignment has more roadway curvature and thus a lower design speed of 30 miles per hour. This alignment remains closer to the existing West Ridge portion of campus and may require less land to be impacted.

An important factor to consider when UAF chooses an alignment will pertain to the location of any planned future parking lots or buildings. Constructing campus attractions (i.e. buildings, parking lots, etc.) inside, or south of the Tanana Loop extension, would reduce the need for pedestrian and bicycle to cross Tanana Loop at West Ridge. As stated in the Parking section of this Plan, estimated future parking needs will comprise approximately seven acres of surface area. This amount includes new parking to accommodate growth, and replacement parking from redeveloped existing lots. If the parking is intended to be provided in surface lots, approximately seven acres will be needed for their construction. The roadway alignment selection should allot for this future parking need.

Tanana Loop Cross-Section

The Harding ESE concept includes a proposed cross-section showing 14-foot travel lanes and 10-foot shoulders. The combined 48-foot paved cross section is a relatively conservative design, providing more than adequate travel lane width for motor vehicles. The wide travel lanes could encourage high travel speeds. As a result of the high-speed design, it will be important to limit pedestrian crossings.

The cross section does not identify adjacent sidewalks on the Tanana Loop Extension. When the roadway is completed, a parallel pedestrian facility should be provided. Constructing sidewalks adjacent to and in conjunction with Tanana Loop might have cost advantages depending on roadway drainage requirements. As an alternative, a parallel path south of Tanana Loop may provide a more direct and convenient pedestrian path.

2. Yukon Drive Multi-Modal Enhancements

Yukon Drive serves as the central connector for all modes of travel, carrying high volumes of pedestrian and bicycle travel. Specific multi-modal enhancements suggested in conjunction with the Tanana Loop extension would significantly reduce motor vehicle volumes and travel speeds on Yukon Drive, consistent with the pedestrian priority treatment identified in the Campus Master Plan. These were illustrated in the pedestrian and bicycle system section of this Plan. The intention of the Yukon Drive changes is to divert motor vehicle traffic to Tanana Loop extension when construction of the roadway is complete and to emphasize pedestrian, bicycle, and shuttle service on Yukon Drive.

Figures 8, 9, and 10 in the non-motorized circulation plan showed concept sketches for Yukon Drive that would emphasize non-motorized uses. The concepts include narrower traffic lanes, which tend to reduce travel speeds for motor vehicles. The figures also show continuous sidewalks that would be considerably wider than existing and landscaping buffers between walkways and vehicle traffic.



In addition to the specific enhancements identified for Yukon Drive, future motor vehicle access points should be diverted to Tanana Loop and away from Yukon Drive to the extent practicable. UAF may also want to consider closing a portion of Yukon Drive (for example, between Sheenjek Way and Kuskokwim Way) to through traffic for personal automobiles. This type of restricted access is not recommended at this time, but is common on college campuses and would significantly reduce vehicular conflict points for pedestrians

and bicyclists. Should a section of Yukon Drive be closed to private automobile traffic, ensuring safe and convenient access to Tanana Loop could minimize the impacts to vehicular operations.

Bicycles must be accommodated along Yukon Drive. This can be done two ways. The first is to minimize traffic volumes on Yukon such that conflicts between automobiles are minimized. The second option is to construct a parallel path for bicycles that is separate from the sidewalk for pedestrians and not part of the roadway. Given the relatively high volumes and speeds that currently exist on Yukon, a separate path should be considered.

Yukon Drive also presents an excellent opportunity to implement a creative transportation option: a light rail or monorail system. Future feasibility studies should be conducted regarding this possibility.

3. Tanana Loop/Westerly Yukon Alignment

In conjunction with the Tanana Loop extension project, the Tanana Loop/western Yukon Drive alignment is expected to be modified consistent with the concept plan developed in a previous engineering study for UAF. According to the concept, the west terminus of Yukon Drive will be moved slightly south to improve the T-shaped intersection geometry. This improvement is necessary and will allow for a clearer line of sight for drivers on Yukon Drive, improving intersection sight distance and overall safety at the intersection for all approaches.

4. Natural Sciences Facility Connection to Tanana Loop

The 2002 UAF Campus Master Plan shows a planned extension of the Natural Sciences Facility access road from the Natural Sciences parking lot north to the future Tanana Loop extension. This extension would likely facilitate circulation between Yukon Drive and Tanana Loop, providing a diversion path for vehicles from Yukon Drive if and when the previously mentioned multimodal improvements to Yukon Drive occur. This extension will again promote vehicle usage on the northern Tanana Loop as described in the Campus Master Plan and would allow greater vehicle access to the Natural Sciences parking lot. For these reasons, this extension is recommended, as shown in the Campus Master Plan.

5. North Chandalar Avenue Extension

The extension of North Chandalar Avenue to Kuskokwim Way, as identified in the

Campus Master Plan, would further improve connectivity and circulation in upper campus, which is predominately residential land use. This connection would not substantially impact traffic on Yukon Drive but would facilitate potential residential development west of Kuskokwim Way and could allow for efficient shuttle service to serve residential uses. However, as was indicated in the non-motorized circulation plan, a pedestrian and bicycle extension should be provided.

6. Thompson Drive and Roundabout Intersection at Tanana Loop/West Tanana Loop/Thompson Drive

With the new entrance at Thompson Drive, considerations should be given to gateway signage treatments and visitor/information services (kiosk, temporary signs, welcome banners, etc.) along Thompson Drive between Geist Road and Tanana Loop.

7. South Chandalar Avenue/Tanana Loop/Alumni Drive Alignment

The intersection of South Chandalar Avenue/Tanana Loop/Alumni Drive (also known as “Malfunction Junction”) has existing characteristics that cause this intersection to operate as a compound intersection. This leads to driver confusion, especially for drivers unfamiliar with the intersection. As was discussed in the intersection operations portion of this document, this intersection is operating acceptably and is forecast to continue to do so in the 2010 background scenario. The intersection is well signed and there has been no indication of any previous crash problems at the intersection. Yet in the recent UAF student, faculty and visitor survey, under motor vehicle areas to improve from a driver perspective, the alignment of this intersection was the most commonly identified.

The Campus Master Plan recommended that a roundabout be constructed to replace the existing intersection. Traffic operations under this option, as well as three other alternatives were evaluated. The roundabout option was found to operate adequately. However, while the existing intersection can be confusing and cumbersome, it was found to operate adequately and no history of safety problems was identified. Given the high cost of the mitigations and the numerous other opportunities for circulation investments, no mitigation to this intersection is recommended at this time.

8. Taku Drive/Tanana Loop Intersection Issues

The intersection of Taku Drive and Tanana Loop is located such that the surrounding land topography and grade create intersection sight deficiencies. Taku Drive leading up to Tanana Loop is at a very steep uphill grade. Thus, this vehicular movement from the Taku Drive westbound approach is uncontrolled, allowing vehicles to avoid stopping on the steep grade of Taku Drive. This is key under icy conditions, where vehicles would not be able to easily regain traction to continue forward motion from Taku Drive on the steep grade. The sight distance deficiency for the westbound movement and southbound movement, coupled with pedestrian crossing issues on Tanana Loop near this intersection could result in an unsafe condition under heavy traffic or pedestrian volumes.

It is recommended that Taku Drive west of the extension offices be closed to through traffic other than shuttle buses and emergency vehicles. The closure should not occur

prior to the completion of the Tanana Loop extension. An added benefit of such a change is that it would support the shift in traffic to Tanana Loop and away from Yukon Drive. Traffic analyses indicate that this change could be implemented without significant impacts on the overall system operations.

This traffic change will require education and enforcement to ensure compliance, especially during early phases. If frequent violations become a problem, a mechanized gate could be installed to restrict access to authorized vehicles only. Physical changes to Taku Drive to help communicate its intended operations could include reducing Taku Drive to one lane in the shuttle-bus only areas, or constructing roadway “chokers” or other curb extensions and surface treatments, particularly at the end points of the limited access portions of the roadway. These changes could be implemented in order to clearly communicate a variation in intended roadway usage.

9. Kuskokwim Way from Yukon Drive to North Chandalar

The short unpaved segment of Kuskokwim Way was identified in the recent UAF student, faculty, and visitor web survey as a motor vehicle concern. Concerns at this location mostly relate to dry conditions where dust creates problems for both pedestrians and vehicles from a discomfort and perhaps slight safety perspective. The majority of Kuskokwim Way is paved except for this short segment.

This segment of roadway should be paved and dedicated pedestrian walkways should be provided.

10. Wickersham Hall/Gruening Passenger Drop-off

Drivers frequently use the parking area located near Wickersham Hall and the Gruening Building as a drop-off area. Due to the relative layout of the parking lot, circulation is limited due to dumpster and UAF facilities parking space locations. Options to allow better circulation at this location would include realigning or eliminating strategic parking spaces and relocating the dumpsters out of the relative path of travel. Due to the relatively high volume of pedestrians and motor vehicle traffic, a specific design effort will be needed to minimize conflicts.

UAF Facilities Services parking and dumpsters should be removed from this location to allow more safe and efficient drop-off.

11. Short-Term Drop-offs near Campus Buildings

As the campus moves toward a perimeter parking system, ways must be identified to accommodate the short-term parking requirements of the university community, including quick drop-offs. For many, one of the difficulties of parking at the perimeter and walking is carrying items to buildings. Oftentimes, in addition to a briefcase or bag, people are bringing other items. It is important that people are able to park close to their destination for ten minutes or less in order to take items into buildings. Once they have dropped off their items, they can then proceed to the perimeter parking lots.