

4.0 ALIGNMENT ALTERNATIVES

Project termini are a significant consideration when developing possible roadway alignments. On the west end, four potential termini alternatives were identified to extend Nelson Road to Fairview Loop:

1. An improved at-grade crossing in the vicinity of the existing Valley Block & Concrete (VBC) driveway,
2. Extend Nelson Road westward across the Valley Block & Concrete property, then turn north across Fairview Loop via a separated grade crossing,
3. Extend Nelson Road to Fairview Loop near the Linlu Lane intersection, and
4. Extend Nelson Road to the projected extension of Seward Meridian Parkway, then turn northwards to intersect at Fairview Loop.

The middle segment of the proposed transportation corridor intends to take advantage of the existing Nelson Road right-of-way from the crossing near Wasilla Creek to its terminus at the western limits of The Ranch Subdivision.

On the east end, Trunk Road will be extended from the existing interchange at Parks Highway to Nelson Road. This option recognizes the proposed relocation of Trunk Road, which is a DOT&PF project scheduled to begin construction in 2009.

A No-Action (No-Build) Alternative is also considered. All alternatives, except No-Action, include the following:

- o Construction of a new two-lane roadway from Parks Highway to Fairview Loop.
- o Accommodating future growth by acquiring 100 feet of ROW.
- o Providing an asphalt pathway along the roadway.

Refer to Appendix C for a detailed depiction of the alignment alternatives.

4.1 NO-BUILD ALTERNATIVE

The no-build alternative would not construct any improvements and would be contrary to the MSB's intent to serve the project's purpose and need. The level of service would likely continue at the existing levels and change proportionally to increased travel demand in the future.

4.2 NELSON ROAD EAST

This option would relocate the South Abby Boulevard crossing to an existing private crossing serving Valley Block and Concrete. The Abby crossing would be closed under this option, as dictated by the Alaska Policy on Highway/Railroad Crossings.

The existing private crossing at VBC has insufficient storage between the tracks and the roadway. School buses cannot use this crossing without storage between the roadway intersection and the tracks, so this option will require realigning Fairview Loop Road away from the tracks to create vehicle storage similar to the existing Abby crossing. This will require property acquisition and relocation of utilities.

In order to mitigate the potential queuing problem, the proposed configuration of the Nelson crossing and adjacent intersection with Fairview Loop Road will include relocating Fairview Loop to the north to create storage between the crossing and Fairview Loop Road for a school bus and two vehicles (approximately 100 feet). The Nelson Road approach will provide a left turn lane, right turn lane, and an 8 foot shoulder on the right for potentially "trapped" vehicles to clear the crossing. Capacity analysis at the proposed Nelson/Fairview intersection shows that a configuration consisting of left and right turn lanes along with an 8 foot shoulder on the right will work without traffic backing up onto the crossing. There may be an exception in later years as traffic builds towards the projected 2030 ADT for periods immediately following the end of the school day for the new elementary school. During those 15 minutes, it may be possible that traffic will queue up beyond the crossing approaching Fairview Loop Road. The presence of the left turn lane and the 8' shoulder will allow vehicles who may become trapped to get into another lane and clear the crossing.

If the Nelson Road East alternative is the only connection constructed, all traffic from the subdivisions south of the tracks and the elementary school will have to access Fairview Loop via this crossing. This may require signalization of the Nelson Road/Fairview Loop Road intersection in the future to accommodate the traffic volumes and enable the railroad signal to preempt the traffic signal to clear the Nelson Road approach of standing traffic prior to the train's arrival.

Traffic flows in the subdivisions would also change under this option. The Abby Boulevard crossing would be closed. Garden Terrace residents would utilize Timothy Lane for access to the new Nelson Road crossing, and almost all traffic volumes would disappear from Abby. Nelson Road would become the primary access for homeowners and the elementary school.

4.3 NELSON ROAD WEST

This alternative extends Nelson Road westward across an active gravel pit (operated by Valley Block & Concrete), and then turns north across Fairview Loop via a grade separated crossing over the railroad tracks east of the intersection at Old Matanuska Road. This option would

bridge the existing rail and planned ARRC realignment. Fairview Loop would also be realigned to create an at-grade intersection with the rail overpass. This alternative will require utility relocations, improvements along Fairview Loop, and right-of-way acquisition; it may also potentially cross wetlands.

4.4 NELSON ROAD EXTENSION

This alternative extends Nelson Road westward to Fairview Loop - near Linlu Lane. Where Nelson Road crosses the future ARRC realignment, a "Rail over Road" grade separation would be constructed by ARRC. The eastern half of this alignment extends across an active gravel pit (operated by Valley Block & Concrete). Further to the west, the alignment crosses an unnamed creek, traverses a steep incline and intersects Fairview Loop. To mitigate impacts of the large embankment required to transition from the gravel pit to Fairview Loop, the alignment was shifted northward. The existing intersection at Fairview Loop and Linlu Lane would be reconfigured. This alignment has residential impacts and will likely require utility relocations and improvements along Fairview Loop; it may also potentially cross wetlands.

4.5 TRUNK ROAD EXTENSION

This segment of the corridor starts at the existing Parks Highway/Trunk Road interchange. The alignment extends Trunk Road southward along East Valley Circle, passing the east side of Northstar Speedway, then moving southwest where it crosses the railroad tracks by "Road over Rail" grade separation, and connects to Nelson Road. This segment of the corridor has business impacts, will likely require utility relocations, and crosses Wasilla Creek, an anadromous stream, as well as wetlands.

At the request of MSB, two sub-options were evaluated for the Trunk Road intersection at Parks Highway, a four-way intersection and a roundabout. The Traffic Analysis suggests a four-way intersection would perform relatively well for the next 5 to 10 years, but the level of service will slowly begin to deteriorate as private development increases south of the Parks Highway. Preliminary analysis suggests a series of mini-roundabouts would mitigate property impacts and provide an appropriate level of service into the design year. Given that DOT&PF will construct a roundabout on the north side of the interchange as part of their Trunk Road realignment project, a roundabout on the south side warrants further consideration during the design study.

4.6 SEWARD MERIDIAN

This alternative begins at the Nelson Road right-of-way near Wasilla Creek, transitions northward to the section line, and continues due west to the projected extension of Bearing Tree

Lane. The route then follows another section line due north to the intersection at Fairview Loop. This route has residential impacts, including farm land, crosses an unnamed creek, and potentially crosses wetlands. Given plans to extend Seward Meridian to Fairview Loop at this location, the new intersection at Fairview Loop may require a traffic signal.

5.0 MAJOR DESIGN ELEMENTS

5.1 SOILS

According to the Matanuska Valley Area Alaska soil survey conducted by the United States Department of Agriculture, the soil characteristic of the Trunk Road / Parks Highway Interchange is KnB. KnB soils are generally silty loam with low shrink swell potential and 1.5 inches per hour permeability capacity. The soil characteristic of the Nelson Road / Fairview Loop is KnC. KnC soils have similar characteristics as the KnB soils described previously.

A geotechnical investigation to confirm actual subsurface conditions should be completed once the preferred alternative has been identified.

5.2 DRAINAGE

Runoff will be generally held in shallow ditches parallel to the roadway. Ditch slopes will have a minimum slope of 0.5% recommended by AASHTO. There may be areas where drainage improvements are necessary. A field survey should be conducted to verify drainage conveyances within the project area.

5.3 RIGHT-OF-WAY

There isn't continuous ROW to extend Trunk Road south of the existing interchange at Parks Highway or Nelson Road west to Fairview Loop and acquisition will be required. The number of affected properties is dependent upon the alternative selected by the MSB. The recommended minimum width of ROW is 100' for the proposed road improvements, pedestrian facilities, and potential utility corridor.