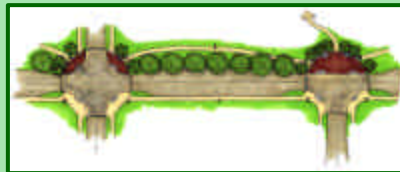


Russian Jack Community Traffic Calming Study

Municipality of Anchorage
Traffic Department

March 2004



**RUSSIAN JACK COMMUNITY
TRAFFIC CALMING STUDY**

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Special thanks goes out to the members of the Russian Jack Working Group. The resident members included:

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- Kathleen Plunkett, Russian Jack Community Council Chairperson,
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LIST OF ACRONYMS

AADT.....	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA.....	American’s with Disabilities Act
ADOT&PF.....	State of Alaska Department of Transportation and Public Facilities
ITE	Institute of Transportation Engineers
MOA.....	Municipality of Anchorage
mph.....	miles per hour
NLB.....	Northern Lights Boulevard
OSHP	Official Streets and Highways Plan
RIRO	right-in, right-out
ROW	right-of-way
RJCC.....	Russian Jack Community Council
TCPM.....	Traffic Calming Protocol Manual

EXECUTIVE SUMMARY

The objective of this Russian Jack Community Traffic Calming Study is to work with the residents of the Russian Jack Community Council to identify transportation and safety improvements that:

- Improve pedestrian and non-motorized traffic accommodations,
- Reduce travel speeds and decrease cut-through traffic,
- Add color and landscape to enhance neighborhood identity,
- Improve neighborhood livability, and
- Enhance neighborhood defensible space.

The project study area includes the Russian Jack Community Council bounded by the Glenn Highway to the north, Northern Lights Boulevard to the south, Bragaw Street to the west and Boniface Parkway to the east.

Significant traffic generators within the study boundary include East High School, three elementary schools, eight community ballparks, “big box” retail development and several other smaller businesses along the Bragaw Street and Boniface Parkway corridors. The remainder of the area is primarily residential, consisting of single family, multi-family, and mobile home development.

Transit routes run along all arterial streets (Bragaw, Boniface, DeBarr and Northern Lights Boulevard) and through the neighborhood along 3rd, 4th, 7th, 8th, Kenai and Klondike Avenues; and Lionheart, Bunnell, Davis, Klevin, Hoyt, Pine, and McCarrey Streets. The Russian Jack study area also encompasses many of Anchorage’s ski and bike trails located in Russian Jack Park.

The portion of the study area located north of DeBarr Road has been the target of traffic calming efforts by the Municipality of Anchorage Traffic Department for several years. Specific traffic calming measures implemented in the study area included temporary speed

humps and reducing the residential street speed limit from 25 to 20 miles per hour. Due to recent budget cuts experienced by Municipality of Anchorage, the temporary speed hump program will not be continued in 2004.

The Traffic Department responded to continued Russian Jack community concerns related to traffic speeds and cut-through volumes by initiating this traffic calming study to develop a framework plan to address traffic calming issues within the Russian Jack Community Council. The Russian Jack Community Council assembled a six-person working group to assist the Traffic Department and DOWL Engineers with identifying the existing concerns and evaluating the proposed countermeasures.

The study team conducted numerous meetings with the general public, Russian Jack Community Council, and working group, and mailed questionnaires to all residents and property owners within the study area (about 5,000 addresses) to determine community concerns within the study area. In addition to questionnaires, the study team solicited input through an initial open house style public scoping meeting. Approximately 45 residents attended the public scoping meeting.

The key issues that emerged from the questionnaire responses, public meetings, and working group included:

- Speeding,
- Cut-through traffic (traffic that uses local street system to bypass arterial congestion),
- Pedestrian safety, and
- Intersection sight distance concerns.

The study team conducted various transportation analyses to determine which community concerns were supported by field documentation. Radar spot speed studies indicated that the 85th percentile travel speeds within the study area were seven to ten mph over the posted speed. Traffic counts showed that residential streets in the study area have annual average daily traffic volumes of less than 2,000 and that the most significant neighborhood collector

street, Pine Street, has an annual average daily traffic volume of about 6,000. Simultaneous 24-hour traffic volume counts were performed at suspected residential cut-through routes.

A crash analysis was performed on the entire study area, excluding arterial streets, for a three-year period from 1999 to 2001. Based on the crash analysis, the study area has a low crash rate and no individual intersection appears to have a significantly elevated crash rate. A total of four pedestrian and two bicycle collisions occurred within the three-year analysis period. No individual intersection had more than one pedestrian collision. However, the successive intersections of Klevin Street/6th Avenue and Klevin Street/7th Avenue combined for two pedestrian and one bicycle collision.

Based on the public comments and technical studies conducted by the study team, the following transportation concerns were the most significant issues as supported by field documentation:

- Speeding along Pine Street (DeBarr Road to Kenai Avenue), Reka Drive (Bragaw Street to Pine Street), 3rd Avenue (Boniface Parkway to Bragaw Street) and 4th Avenue (near Wonder Park Elementary School crossing);
- Cut-through traffic along 24th Avenue/Glacier Street to avoid congestion at the Northern Lights Boulevard /Boniface Parkway intersection;
- Insufficient sight distance along Pine Street at the intersections of Klondike and Kenai Avenues; and
- Pedestrian priority at several locations in the study area; namely, the Wonder Park Elementary School crossings at 4th Avenue and at the Klondike Avenue/Pine Street intersection, the Russian Jack Elementary and East High School crossing at Reka Drive, and the unconventional four-way stop at the 3rd Avenue/Lane Street intersection.

Traffic calming alternatives were considered at the locations listed above to address concerns raised by the residents of the Russian Jack community.

Traffic calming measures to resolve cut-through traffic volumes on 24th Avenue/Glacier Street are not recommended until the impacts of planned capacity upgrades are constructed at the intersection of Northern Lights Boulevard/Boniface Parkway. A new southbound right-turn lane and an extended eastbound left-turn lane are proposed at the Northern Lights Boulevard/Boniface Parkway intersection as part of the State of Alaska Department of Transportation and Public Facilities Highway Safety Improvement Program. Construction is planned for 2004-2005. These improvements will have a direct impact on cut-through traffic volumes and the post-construction impacts should be monitored to determine if additional traffic calming measures (e.g. constructing 26th Avenue and converting the Glacier Street/Northern Lights Boulevard intersection to right-in right-out) are needed to discourage cut-through motorists from circumventing the arterials.

The recommended traffic calming measures in order of priority include:

- Raised pedestrian crosswalks at 4th Avenue, Reka Drive and Klondike Avenue school crossings to give greater priority to pedestrian traffic;
- Speed humps at mid-block locations along Reka Drive (Bragaw Street to Pine Street);
- Chokers along Pine Street (DeBarr Road to Kenai Avenue) with a gateway treatment at DeBarr Road intersection to slow traffic along Pine Street and to increase the neighborhood feel of this collector roadway; and
- A chicane/raised median at the intersection of 3rd Avenue/Lane Street to resolve the turning movements at this offset four-way stop and to give greater priority to pedestrian traffic.

The estimated construction cost for the above-recommended traffic calming measures is \$1,300,000.

1.0 INTRODUCTION

The objective of this Russian Jack Community Traffic Calming Study is to work with the residents of the Russian Jack Community Council (RJCC) to identify transportation and safety improvements that:

- Improve pedestrian and non-motorized traffic accommodations,
- Reduce travel speeds and decrease cut-through traffic,
- Add color and landscape to enhance neighborhood identity,
- Improve neighborhood livability, and
- Enhance neighborhood defensible space.

The project study area includes the RJCC bounded by the Glenn Highway to the north, Northern Lights Boulevard (NLB) to the south, Bragaw Street to the west and Boniface Parkway to the east.

The scope of this study includes the following major task items:

- Examination of existing transportation conditions within the study area. This examination addresses demographics, land use, traffic data, and pedestrian facilities.
- Evaluation of traffic circulation patterns and conflicts within the study area.
- Involving the Russian Jack community through a working group established to advise the project team throughout the development of this study.
- Developing design alternatives to mitigate existing negative transportation impacts, improve the transportation system, increase safety, and improve neighborhood livability.
- Examining impacts of various designs on utilities, street maintenance, emergency vehicle response, refuse services, and pedestrian and transit facilities.

- Identifying estimated construction costs and prioritizing the recommended improvements.

The portion of the study area located north of DeBarr Road has been the target of traffic calming efforts by the Municipality of Anchorage (MOA) Traffic Department for several years. Specific traffic calming measures implemented in the study area include temporary speed humps and reducing the residential street speed limit from 25 to 20 miles per hour (mph). Due to recent budget cuts experienced by MOA, the temporary speed hump program will not be continued in 2004.



Figure 1-1: Location Map



Figure 1-2: Vicinity Map (Project Area is Shaded Yellow)

2.0 EXISTING CONDITIONS

2.1 Demographics

The demographics of an area are important to consider when identifying the special needs of the people living within the study area.

The Russian Jack area is one of the older neighborhoods in Anchorage. According to 2000 Demographic Reports, the Russian Jack population increased 24 percent from 1990 to 1998, twice the MOA average of 12 percent. According to the census, the study area south of DeBarr Road had a population growth of 57 percent, which was the second largest population growth of all Anchorage area census tracts. However, in the period from 1990 to 1998, the study area had one of the lower numbers of additional housing units and average housing sale price. This data suggests a high percentage of families with children and middle to lower income residents.

Four schools lie within the study area, three elementary schools and one high school (see Figure 2-1 for elementary school attendance boundaries). Wonder Park Elementary School is located in the northeast quadrant of the study area, north of 4th Avenue between Pine Street and Boniface Parkway. Students residing north of San Roberto Drive and east of Hoyt Street from San Roberto Drive to 4th Avenue or east of Lane Street from 4th Avenue to Glenn Highway attend this school. Williwaw Elementary School is located in the northwest quadrant, just north of DeBarr Road between Pine Street and Bragaw Street. The rest of the students residing north of DeBarr Road attend this school. Russian Jack Elementary School is located in the southwest quadrant, just south of 20th Avenue between Pine Street and Bragaw Street. Students residing south of DeBarr Road and west of Pine Street attend this school. The remaining area students residing south of DeBarr Road and east of Pine Street attend Nunaka Valley Elementary, which is located outside the study area. According to the school walking boundary maps and the policies of the Anchorage School District, students attending an elementary school located within the study area are not bused to school unless special needs exist. Middle school students residing in the study area attend Clark Middle School located north of the Russian Jack area. East High School is located in the southwest quadrant on the northeast corner of Bragaw Street and Northern Lights Boulevard. Students

residing in the Williwaw Elementary area and students residing south of DeBarr Road attend East High School. The remaining high school students residing within the study area attend Bartlett High School.

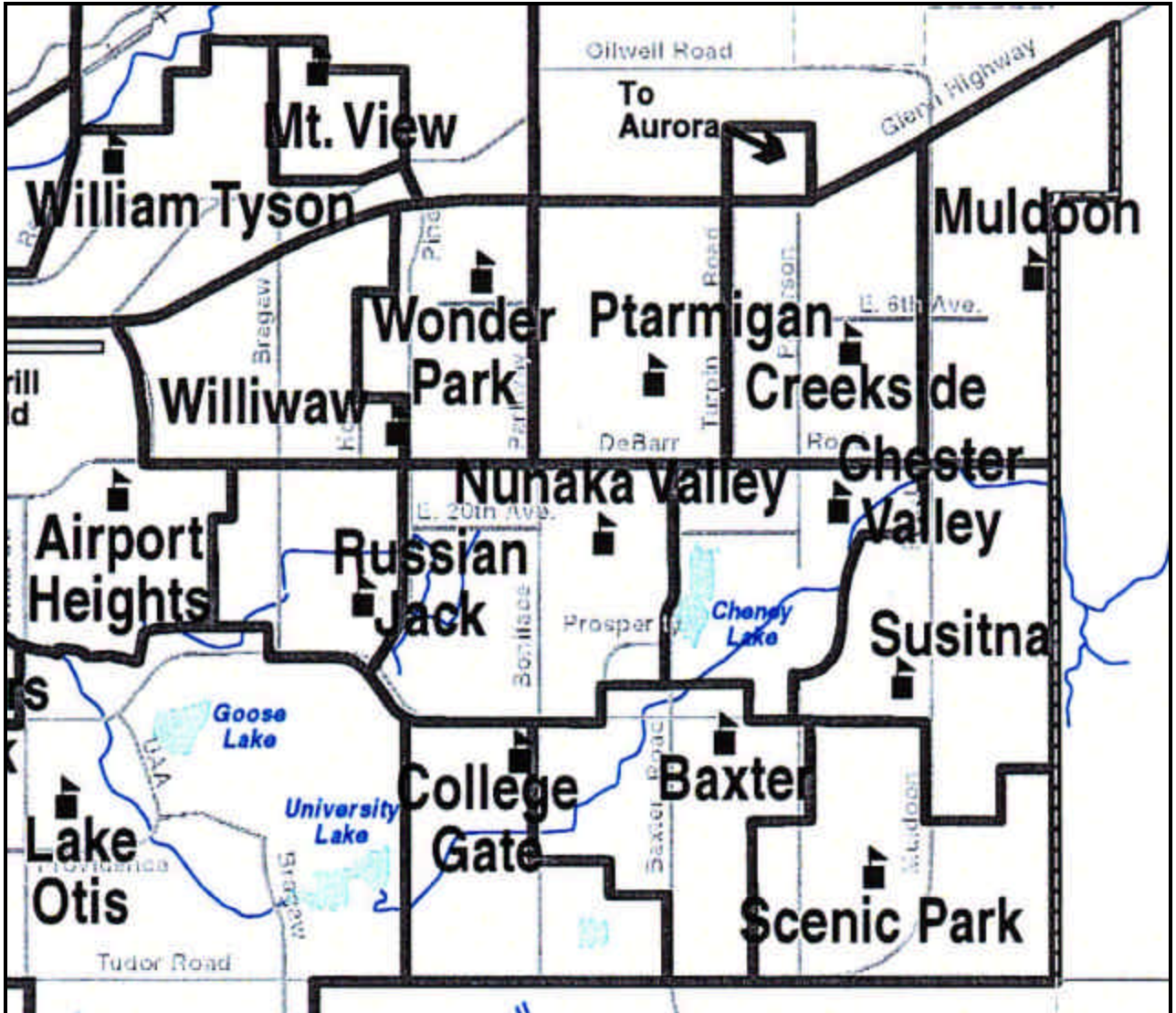


Figure 2-1: Elementary School Attendance Boundaries within the Study Area

The above indicators suggest that a significant portion of the Russian Jack population relies on modes of transportation other than the personal automobile. Pedestrian, bicycle, and transit access and circulation are high priorities and warrant special consideration.

2.2 Existing Land Use

The study area, as shown in Figure 2-2, has a wide variety of land uses. These uses include single family, multi-family, commercial, and public facilities. Each land use has its own traffic circulation characteristics, meaning that they generate or attract different types of traffic depending on the use. For example, these differences include such characteristics as vehicle size, motorized versus non-motorized traffic, 8:00 a.m. to 5:00 p.m. business days versus around the clock, etc.

Figure 2-2 shows that about 50 percent of the study area is zoned PLI, which is Public Lands and Institutions. The PLI zoned areas are currently occupied by public facilities such as the Russian Jack Park, eight ball fields, churches, parks and four public schools. The other 50 percent is mostly zoned R-1, R-2M, and R-3 with some B-3 adjacent to the arterial streets. The non-public land north of DeBarr Road is well mixed between R-1, R-2M and R-3. The land south of DeBarr Road is mostly R-3 west of Pine Street and R-2M to the east. Although there are some single-family homes in this area, mostly north of DeBarr Road, much of the housing area is duplexes and larger (R-2M, R-3, and R-4).

The Reka Drive and Glacier Street/24th Avenue areas have multiple buildings that are six-plex or larger. The density of the population in these areas may contribute to some of the transportation concerns facing the community.

2.3 Streets

The area north of DeBarr Road is characterized by a grid development pattern of wide straight streets and has a mixture of residential, commercial, recreational and institutional uses. The area south of DeBarr Road is a mixture of grid development and collector roadways feeding residential cul-de-sacs.

All streets within the study area are paved with the majority having curb and gutter. The residential streets are typically 36-foot wide from back-of-curb to back-of-curb with two travel lanes and parking allowed on both sides of the street. Residential streets are generally centered within a 60-foot right-of-way (ROW).

The residential areas within the study area are surrounded by high volume arterial streets. Congestion during peak hours contributes to the attractiveness of certain residential streets as cut-through routes.

2.4 Traffic Data

Traffic counts and speed data were collected by DOWL Engineers (DOWL) for several locations within the study area with additional traffic counts obtained from previous MOA collected data. These counts provide information concerning the number and speed of vehicles that pass a specific location. This data is useful in characterizing driver behavior in this neighborhood. The traffic counts in Table 2-1 show that the annual average daily traffic (AADT) volume for the typical local street in the Russian Jack area is less than 2,000. The two streets that exceed 2,000 AADT, Reka Drive and Glacier Street, have very high-density housing (eight-plex or larger) adjacent to them. High-density housing typically increases AADT volumes on adjacent streets. Pine Street, the sole neighborhood collector street in the study area, has an average AADT volume of 5,500.

Table 2-1: Russian Jack AADT Data

Location	Between	OSHP Roadway Classification	2003 AADT
4th Avenue	Bunnell Street and Scorpio Circle	Local Road	1,900
6th Avenue	Pine Street and Mellow Place	Local Road	1,750
Bunnell Street	Klondike Avenue and Kenai Avenue	Local Road	300
Klondike Avenue	Pine Street and Bunnell Street	Local Road	850
Pine Street	3rd Avenue and 4th Avenue	Neighborhood Collector	5,700
Pine Street	7th Avenue and 8th Avenue	Neighborhood Collector	5,200
3rd Avenue	Bunn Street and Thomas Circle	Local Road	800
Hoyt Street	8th Avenue and 9th Avenue	Local Road	450
Reka Drive	Katrina Circle and Tamarra Circle	Local Road	2,500
24th Avenue	Ronny Place and Forget-Me-Not Lane	Local Road	1,950
Glacier Street	26th Avenue and Rhyner Court	Local Road	2,625

OSHP = Official Streets and Highways Plan

Table 2-2 shows the average and 85th percentile travel speeds of vehicles that pass a given location. Figure 2-3 graphically shows the 85th percentile travel speeds versus the posted speed for the study area north of DeBarr Road. From Figure 2-3, the 85th percentile travel speed is typically around seven to ten mph over the posted speed.

Table 2-2: 85th Percentile Travel Speed Data

Location	Travel Speed Data		
	Posted	Average	85 th Percentile
3 rd Avenue (near Ray Street)	20	26	29
4 th Avenue (near Shaw Circle)	20	27	31
6 th Avenue (west of Lane Street)	20	26	30
8 th Avenue (east of Klevin Street)	20	26	29
Hoyt (near 7 th Avenue)	20	24	27
Klevin (near 5 th Avenue)	20	25	28
Lane (near 7 th Avenue)	20	24	27
Pine Northbound (near San Roberto Drive)	30	35	39
Pine Southbound (near ballpark entrance)	30	36	40
Reka Drive (between Katrina and Tamarra Streets)	25	30	34
24 th Avenue (near Forget-Me-Not Lane)	20	25	30
Glacier Street (near Glacier Street)	20	24	28
4 th Avenue (east of Wonder Park Elementary School)	20	25	29
Klondike Drive (east of Pine Street)	20	24	28



Figure 2-3: 85th Percentile Travel Speed

2.5 Transit Facilities

As shown on Figure 2-4 the transit routes run along all the arterial streets (Bragaw Street, Boniface Parkway, DeBarr Road and Northern Lights Boulevard) and through the neighborhoods along 3rd, 4th, 7th and 8th Avenues and Kenai, Klondike, Lionheart, Bunnell, Davis, Klevin, Hoyt, Pine and McCarrey Streets.

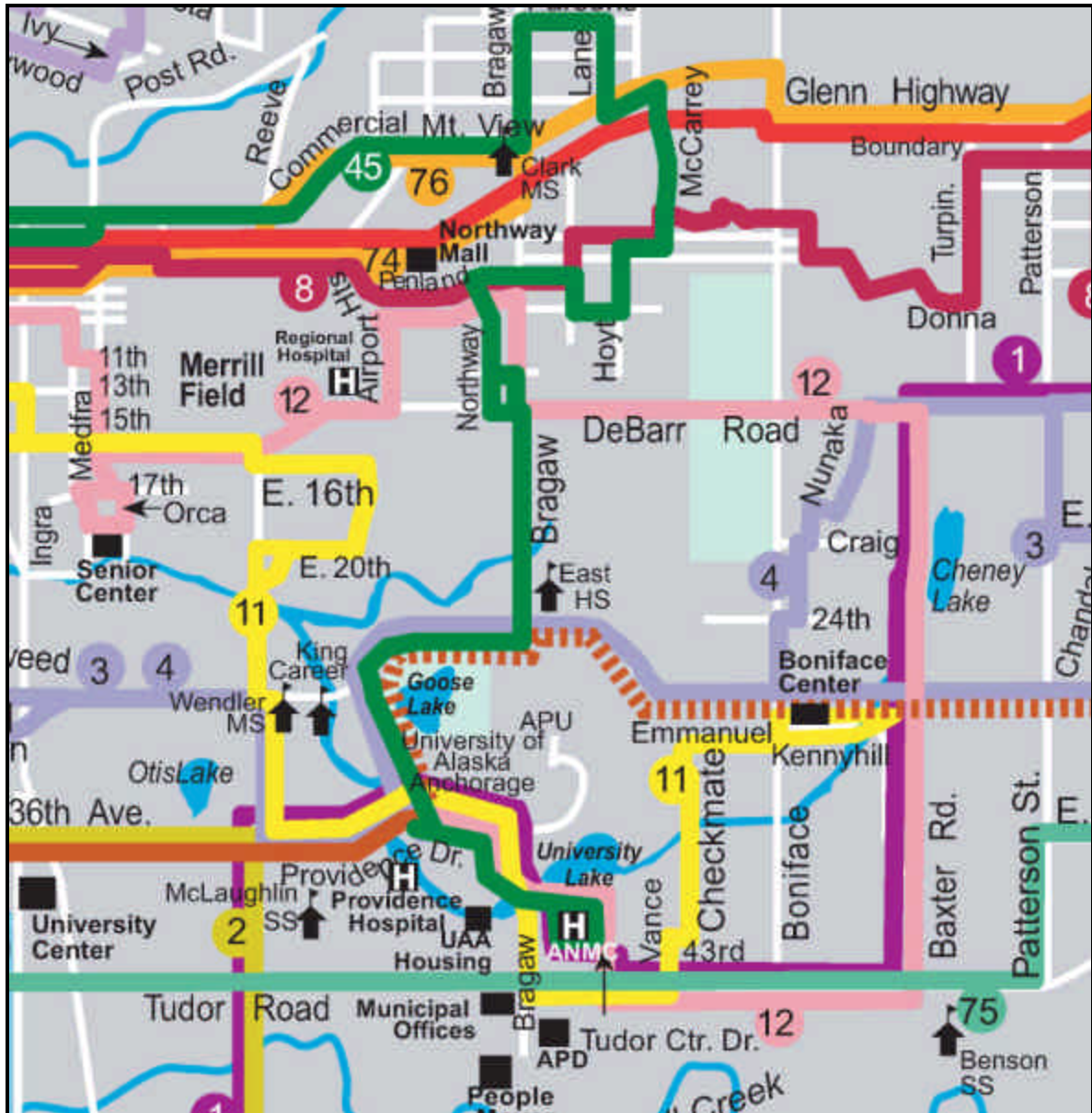


Figure 2-4 – Study Area Transit Routes

2.6 Previous Traffic Calming Improvements/Modifications

The portion of the study area located north of DeBarr Road has been the target of traffic calming efforts by the Traffic Department for several years. Specific attempts to calm traffic included:

- Modifying the posted speed limits to be 20 mph throughout the residential area,
- Strategically locating temporary speed humps to target high speed and cut-through routes, and
- Enhancing traffic control at school crossings.

Reduction of the Posted Speed Limit from 25 to 20 mph

This modification was intended to make travel speeds of 30 mph or greater on residential streets an enforceable offense. Prior to the change in speeds, magistrates would dismiss speeding violations that did not exceed the posted speed by at least seven mph. Residents hoped that by reducing the posted speed to 20 mph, the 85th percentile speed would drop accordingly. However, the speed data in Figure 3-3 suggests that there is little or no difference in 85th percentile speeds between Anchorage roads that are posted at 25 mph compared to the study area roads that are posted at 20 mph. There has also been no empirical evidence to support the notion that the 20 mph speed limits have led to an increased rate of enforced violations.

Enhanced Traffic Control at School Crossings

The 30 mph posted speed limit on Pine Street and the lack of a four-way or signalized intersection in the vicinity of the school crossing resulted in the installation of an overhead flashing school crossing sign and the need for a crossing guard at this location during peak crossing periods.

Temporary Speed Humps

As the name suggests, temporary speed humps are not permanent but are seasonal attempts to identify locations where permanent speed humps may be worthwhile. Recent budget shortfalls in the MOA have resulted in the decision to discontinue the temporary speed hump program to conserve maintenance efforts for more essential services.

3.0 PUBLIC INVOLVEMENT

The public involvement process is very important to the success of neighborhood traffic calming. Neighborhood input is essential to foster the sense of ownership and maintain a unified voice when road changes are proposed. To solicit input on this project, a combination of an area-wide questionnaire/newsletter, working group meetings, public meetings and regular RJCC updates were held. Flyers and post cards were mailed to all property owners and residents prior to each of the public meetings.

Community members were encouraged to follow the progress of this project via a special website established just for the Russian Jack Community Traffic Calming Study. Residents were also encouraged to contact DOWL with questions and concerns throughout the project either by phone or by a project specific e-mail address.

3.1 Citizen's Advisory Committee (Working Group)

A Citizen's Advisory Committee (CAC) made up of six residents was established to represent the various subarea transportation issues and the CAC was called the Russian Jack Working Group. The working group members were selected based on physical residence and the number of years they lived in the neighborhood to ensure diverse representation and familiarity with neighborhood issues.

The purpose of the working group was to facilitate the identification of issues and develop solutions on behalf of the larger neighborhood and to educate community members about the study. Public meetings and periodic community council updates provided a checks and balances system that validated the working group as representing the larger neighborhood interests.

Table 3-1 summarizes the process used to solicit public input, identify study area concerns, develop procedures for gathering data, generate alternatives and ultimately recommend traffic calming improvements.

Table 3-1: Public Involvement Meeting Summary

Date	Activity	Purpose
9/10/03	RJCC Meeting	Introduced the project to the community council.
9/12/03	Mailed Newsletter w/ Questionnaire	Mailed to RJCC residents and property owners to introduce the project, identify neighborhood transportation concerns, and generate interest in becoming part of the working group.
9/24/03	Public Meeting	Presented project purpose. Identified neighborhood transportation concerns.
10/8/03	RJCC Update	Presented project update. Selected the working group members.
10/13/03	Working Group Meeting	Defined the role of the working group. Began to identify possible issues and develop the process for analyzing issues.
11/10/03	Working Group Meeting	Discussed initial results of transportation analysis results and defined possible traffic calming measures for the areas of concern.
11/12/03	RJCC Update	Presented project update.
11/24/03	Working Group Meeting	Discussed feasible traffic calming measures and chose recommended alternatives. Prioritized recommended traffic calming improvements.
11/24/03	Mailed Newsletter	Notified all residents and property owners of project status and date of final public meeting.
12/10/03	RJCC Update	Presented project update. Discussed recommended improvements and priorities.
12/15/03	Public Meeting	Present project update. Discuss recommended improvements and order of prioritization. Ensure all transportation issues within the scope of the study were adequately analyzed.

3.2 Agency Involvement

Independent meetings were held with Police, Fire, Emergency Services, and Public Works (Street Maintenance) officials. These Municipal agencies are primarily responsible for

public safety. They are also the most knowledgeable in the day-to-day problems, needs, operational considerations and costs associated with providing their services. Agency involvement also included meeting with Anchorage Solid Waste Services, Anchorage School District, and MOA Transit Department. The primary objective of these meetings was to incorporate their recommendations and insure that the design improvements did not cause unacceptable negative impacts to the services these agencies provide.

Agency Comment Summary

A. Anchorage Fire Department

Emergency services have a historical knowledge of the types of calls they get to the area and what their specific response and access needs are. We met with Deputy Fire Chief John Kiewik and he had no major issues with any of the recommendations.

B. MOA Street Maintenance

A meeting with Mr. Dan Southard and other Street Maintenance staff was conducted on December 15, 2003. Their comments are summarized below:

- Coordinate/re-evaluate the locations of bollards on the curb extensions during the design phase of the project.
- On-street parking is particularly problematic for snow removal in the vicinity of Klondike Avenue and Pine Street.

C. Anchorage Solid Waste Services

A meeting with Solid Waste Services is currently scheduled to discuss this draft report. Comments will be included in final report.

D. Anchorage School District

Although this area is designated as walking area to the elementary and junior high schools, there are buses that serve the area for those with special needs and buses which

transport students from other neighborhoods to the adjacent schools. We met with Mr. Steve Kalmes, Transportation Services Director, to receive input from the school district.

1. Pedestrian crossing improvements at 4th Avenue, Klondike Avenue and Reka Drive would be beneficial to the community.
 - Narrow medians are problematic for snow removal.
 - Consider impacts of directing traffic when traffic calming measures are implemented.
2. Changing school crossing signs to pedestrian crossing at Reka Drive will increase pedestrian safety.

E. MOA Transit Department

People Mover currently has four routes that service the Russian Jack community (see Figure 2-4 for People Mover routes). Ms Jody Karcz, Transit Planning Manager, had the following comments with regard to future improvements in Russian Jack:

1. The ridership in this area is relatively high compared to most areas of Anchorage.
2. Raised crosswalk at Pine Street/Klondike Avenue intersection will have very little impact on overall transit system.

4.0 TRAFFIC CALMING PRINCIPLES

4.1 General

The Institute of Transportation Engineers' (ITE) Traffic Calming State-of-the-Practice (Ewing, 1999) defines traffic calming as follows:

Traffic calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes in the interest of public safety and livability.

The ITE definition excludes non-engineering measures such as modifying street appearance to decrease vehicle speeds, increased traffic enforcement, and educating residents on actual vehicle travel speeds and traffic volumes versus perceived travel speeds and traffic volumes.

The traffic calming principles used in this study are in accordance with the MOA Traffic Calming Protocol Manual (TCPM) and include recommendations for both engineers and non-engineering traffic calming measures.

4.2 Applicability and Procedures

The TCPM outlines the traffic calming principles, including applicability and procedures, for recommending traffic calming measures for all streets and highways within MOA. Table 2-1 shows the application guidelines for the various traffic calming measures (TCPM, Table 5).

The design alternatives suggested in this study are essentially "traffic calming" techniques that have been successfully implemented in other communities. They have been specifically adapted to this study area situation to meet the stated needs of the Russian Jack area and special performance needs associated with Anchorage's climate. All traffic-calming measures shown in Table 4-1 were possible candidates for resolving transportation issues in the Russian Jack community. For definitions and examples of specific traffic calming treatments, please refer to the TCPM.

Table 4-1: Traffic Calming Application Guidelines (Recreated from MOA Traffic Calming Protocol Manual, DOWL Engineers, 2001)

Traffic Calming Application Guidelines			
Traffic Calming Measure	Street Classification		Other Restrictions
	Neighborhood Collectors	Local Streets	
Volume Control Measures			
Full Closures	No	May be suitable	
Half Closures Diagonal Diverters Forced Turn Islands	No	500-5,000 vpd ≥ 25% non-local traffic	
Vertical Speed Control Measures			
Speed Humps	Daily volume ≤ 5,000 vpd Posted speed ≤ 25 mph Not on primary emergency routes or bus routes		Grade ≤ 8%
Speed Tables Raised Crosswalks Raised Intersections	Daily volume ≤ 10,000 vpd Posted speed ≤ 25 mph Not on primary emergency response routes		Grade ≤ 8%
Horizontal Speed Control Measures			
Traffic Circle	Daily volume ≤ 5,000 vpd Posted speed ≤ 25 mph		Grade ≤ 10%
Roundabouts (one circulating lane)	Daily volume ≤ 15,000 vpd Posted speed ≤ 25 mph	No	Grade ≤ 6%
Lateral Shifts	Daily volume ≤ 20,000 vpd Posted speed ≤ 25 mph		
Two-Lane Chicanes Realigned Intersections	Daily volume ≤ 5,000 vpd Posted speed ≤ 25 mph		Grade ≤ 8%
One-Lane Chicanes (Two-Way operation)	Daily volume ≤ 2,000 vpd Posted speed ≤ 25 mph		
Narrowings			
Neckdowns Center Island Narrowings Two-Lane Chokers	Daily volume ≤ 20,000 vpd Posted speed ≤ 25 mph		
One-Lane Chokers (Two-Way operation)	Daily volume ≤ 2,000 vpd Posted speed ≤ 25 mph		
Combined Measures	Subject to limitations of component measures		

5.0 TRAFFIC CALMING ISSUES

Several transportation issues related to traffic calming were identified within the Russian Jack study area based on input from the community, public agencies and observations from the project team. Using engineering judgment, the study team chose the following ten areas to analyze in more detail:

- 4th, 5th and 6th Avenues
- Reka Drive (Pine Street to Bragaw Street)
- Pine Street/Klondike Avenue Intersection
- Pine Street (6th Avenue to DeBarr Road)
- 3rd Avenue (Bragaw to Pine Street)
- Pine Street/Kenai Avenue Intersection
- 24th Avenue/Glacier Street
- Pine Street (DeBarr Road to Reka Drive)
- Hoyt Street/8th Avenue Intersection
- Bragaw Street/4th Avenue Intersection

5.1 4th, 5th, and 6th Avenues

5.1.1 Concerns/Issues

The issues identified for the area adjacent to Wonder Park Elementary School include vehicles using the 4th, 5th, and 6th Avenue network as a cut-through route and high 85th percentile travel speeds in relation to the posted speed.

5.1.2 Existing Conditions

The stretch of 4th Avenue between Boniface Parkway and Bunnell Street is classified by the OSHP as a local street, has a 2003 AADT of 1,900, and the posted speed limit is 20 mph. The roadway consists of a 32-foot paved street that allows parking on both sides of the road but does not have striped parking lanes. Based on the study team observations and residents' comments, the on-street parking is substantially underutilized resulting in a roadway that looks like a wide straight street the majority of the time.

5.1.3 Analysis

The 4th, 5th, and 6th Avenue network was identified as having a high cut-through traffic volume during morning and evening peak hours from vehicles avoiding the intersection of DeBarr Road and Boniface Parkway. A cut-through analysis was performed on the network. 24-hour traffic volume distributions were collected at four locations around the perimeter of the network. Results of the analysis showed that the peak hour factor at all four locations was within the typical range of eight to 12 percent. Figure 5-1 shows the 24-hour traffic volume distribution for all four locations.

Based on the traffic data and site observations, the estimated percentage of non-neighborhood cut-through traffic is less than 10 percent. About 20 years ago, 6th Avenue was the primary east-west route between Pine Street and Boniface Parkway until a portion of the 6th Avenue ROW was vacated and closed to through traffic. Now the 4th/5th/6th Avenues route is one of the two most convenient east-west routes for local traffic in this neighborhood.

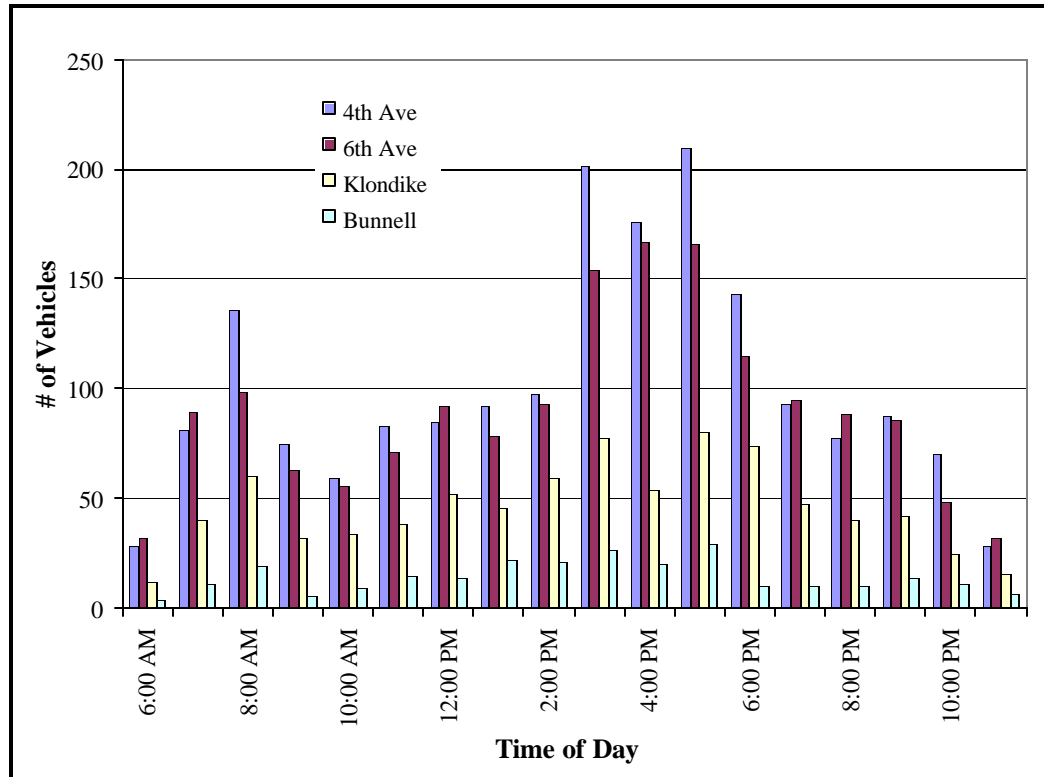


Figure 5-1: 24-hour Traffic Volume Distribution – 4th, 5th, 6th Avenues

A radar spot speed study was performed along 4th Avenue near the Wonder Park Elementary School crossing. The results of the speed study indicated that the 85th percentile speed was 29 mph; nine mph over the posted speed.

5.1.4 Possible Alternatives

Based on the TCPM application guidelines found in Figure 4-1, the following alternatives were considered for calming traffic on 4th, 5th and 6th Avenues.

- No action.
- Installation of speed bumps/humps at mid-block locations along 4th Avenue.
- Construction of a raised crosswalk at the 4th Avenue school crossing. The crosswalk would help delineate the school crossing while helping to reduce travel speeds on 4th Avenue.
- Construction of a choker at the 4th Avenue school crossing. A choker will help reduce 85th percentile travel speeds, provide a shorter school crossing, and make 4th Avenue look narrower and less attractive to potential cut-through traffic on Boniface Parkway.

5.1.5 Evaluation

Figure 5-2 illustrates the advantages and disadvantages of each of the considered alternatives






































































































Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit/School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
<p>Key</p> <p> Low, Unlikely, No</p> <p> Mid, Moderate, Possible</p> <p> High, Likely, Yes</p> <p>N/A Not Applicable</p>												
TRAFFIC CALMING TOOLBOX												
Speed Humps along 4th												\$20,000
Raised School Crossing on 4th												\$45,000
Choker at School Crossing on 4th												\$60,000
Full Closure on Bunnell between 4th and 5th												\$30,000
No Action												\$0
NON ENGINEERING MEASURES												
Additional Speed Limit Signs along 4th												\$750
Increased Enforcement along 4th												Unknown
All-way Stops at intersections along 4th, 5th, and 6th												\$5,000
Speed limit with radar display along 4th												\$30,000

Figure 5-2: 4th, 5th, and 6th Avenues Evaluation of Traffic Calming Measures.

5.2 Reka Drive, Pine Street to Bragaw Street

5.2.1 Concerns/Issues

Based on public input, Reka Drive from Bragaw Road to the future intersection with Pine Street was included in the analysis to address high 85th percentile travel speeds and the potential for cut-through traffic.

5.2.2 Existing Conditions

Reka Drive is classified by the OSHP as a local street and has a 2002 AADT of 2,500 and a posted speed limit of 25 mph. The roadway consists of a 32 foot paved street that allows parking on both sides of the road.

5.2.3 Analysis

A radar spot speed analysis indicated that the 85th percentile speed was 34 mph; nine mph over the posted speed. The difference between the posted and 85th percentile speeds seemed particularly excessive given the curvilinear roadway and relatively short roadway length.

A school is not visible from Reka Drive so the existing school crossing signs are not effective. More appropriate signage would be to replace the school crossing signage with pedestrian crossing signage.

5.2.4 Possible Alternatives

Based on the TCPM Application Guidelines in Figure 4-1, the following alternatives address traffic calming issues on Reka Drive:

- No action,
- Construct a raised crosswalk (speed hump) at Reka Drive school crossing,
- Construct additional speed humps at mid-block locations,
- Replace school crossing signs with pedestrian crossing signs to improve sign visibility, and
- Construct a choker at the school crossing.

5.2.5 Evaluation

Figure 5-3 illustrates the advantages and disadvantages of each considered alternative.

Key	Low, Unlikely, No		Mid, Moderate, Possible		High, Likely, Yes		N/A		Not Applicable		Estimated Construction Costs	
	○	◐	◑	◒	◓	◔	◕	◖	◗			
	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	
TRAFFIC CALMING TOOLBOX												
Speed Humps along Reka at mid-block locations	◑	◒	○	○	◑	◒	◑	N/A	◑	◑	◑	\$15,000
Raised crosswalk at school crossing	◑	◒	○	◒	◒	◒	◑	N/A	◑	◑	◒	\$45,000
Choker at school crossing	◑	◑	○	◑	◑	◒	◑	N/A	◒	◑	◒	\$60,000
Chokers at mid-block locations	◑	◑	○	◑	○	◒	◑	N/A	◒	◑	◒	\$120,000
No action	◒	○	○	○	○	◒	○	N/A	◒	◒	◒	\$0
NON ENGINEERING MEASURES												
Replace school crossing signs with pedestrian crossing	◒	○	○	◒	◒	◒	○	N/A	◒	◒	◒	\$500
Increased Enforcement along Reka	○	◒	○	◑	◒	◒	○	N/A	◒	◒	◒	Unknown
Reduce speed limit from 25 to 20 mph	◒	◑	○	◑	◑	◒	○	N/A	◒	◒	◒	\$500
Speed limit with radar display along Reka	◒	◒	○	◑	◒	◒	○	N/A	◒	◑	◒	\$30,000

Figure 5-3: Reka Drive – Pine Street to Bragaw Street Evaluation of Traffic Calming Measures

5.3 **Pine Street/Klondike Avenue Intersection**

5.3.1 Concerns/Issues

The issues raised at the Pine Street/Klondike Avenue intersection include intersection sight distance concerns on Klondike Avenue and pedestrian safety at the Pine Street school crossing.

5.3.2 Existing Conditions

Pine Street and Klondike Avenue are classified by the OSHP as a neighborhood collector and local street, respectively. The intersection has a 2002 AADT of 6,000 and a posted speed

limit of 30 mph on Pine Street. The roadway consists of two 11-foot travel lanes with seven feet parallel parking lanes on both sides of the road. The intersection is two-way stop controlled. A school crossing on Pine Street is located at the south leg of this intersection.

5.3.3 Analysis

The stop bar on Klondike Avenue is located 27 feet from the edge of Pine Street's traveled way, which is nearly double the distance used in the MOA to determine intersection sight distance. From the existing location of the stop bar, the sight distance in both directions is less than 100 feet, which is less than the recommended American Association of State Highway and Transportation Officials (AASHTO) sight distance of 170 feet for a 35 mph design speed. The sight distance is obstructed by 72-inch high wood fence to the south and a 46-inch high concrete retaining wall to the north. When the sight distance is measured from the standard MOA location, 14.5 feet from edge of traveled way, the sight distance to the south exceeds 170 feet but the sight distance to the north is still slightly below the recommended distance at 150 feet.

A crash analysis at this intersection was completed using the last three years of available crash data, 1999-2001. No documented crashes involving turning movements onto Pine Street from Klondike Avenue occurred. During a site visit, westbound between 1999-2001 motorists on Klondike Avenue generally stopped about 12 feet past the stop bar in order to comfortably make turning movements onto Pine Street. The defector stopping location does not obstruct through traffic on Pine Street due to the buffer created by the on-street parallel parking lane, but the north/south pedestrian crossing on Klondike Avenue was obstructed.

Klondike Avenue has a sidewalk on the south side that is a primary school walking route. This route leads to the south approach of Pine Street where a school crossing is located. The school crossing has an overhead flashing warning signal and crossing guard for peak student crossing periods. As shown on Figure 2-2, the boundary of Wonder Park Elementary School extends across Pine Street and is a designated walking route. The Pine Street/Klondike Avenue intersection has the only striped crossing for a significant portion of the Wonder Park student body. Peak hour pedestrian volumes were counted and showed 25 crossings during the afternoon peak hour.

5.3.4 Possible Alternatives

Based on the TCPM application guidelines in Figure 4-1 the study team considered the following alternatives to calm traffic at the intersection of Pine Street/Klondike Avenue:

- No action.
- Construct a choker at the intersection and relocate the stop bar on Klondike Avenue closer to the Pine Street traveled way. A choker will also reduce the crosswalk length on Pine Street by around 40 percent.
- Reduce the height of the retaining wall from 46 inches to 30 inches.
- Construct a raised crosswalk at the Pine Street school crossing. A raised crosswalk would reinforce the school crossing while helping to reduce travel speeds on Pine Street. Based on public input, the segment of Pine Street from 6th Avenue to DeBarr Road was included in the analysis to address high 85th percentile travel speeds, the potential for cut-through traffic, and the lack of pedestrian facilities.

5.3.5 Evaluation

Figure 5-4 illustrates the advantages and disadvantages of each considered alternative.



















































Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
<p>Key</p> <p> Low, Unlikely, No</p> <p> Mid, Moderate, Possible</p> <p> High, Likely, Yes</p> <p>N/A Not Applicable</p>												
TRAFFIC CALMING TOOLBOX												
Construct choker at intersection												\$120,000
Raised School Crossing												\$45,000
No action												\$0
NON ENGINEERING MEASURES												
Reduce height of retaining wall to the north		N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A	\$40,000
All-way Stop at intersection												\$3,500

Figure 5-4: Pine Street/Klondike Avenue Evaluation of Traffic Calming Measures

5.4 Pine Street, 6th Avenue to DeBarr Road

5.4.1 Concerns/Issues

Based on public input, the segment of Pine Street from 6th Avenue to DeBarr Road was included in the analysis to address high 85th percentile travel speeds, the potential for cut-through traffic, and the lack of pedestrian facilities.

5.4.2 Existing Conditions

This stretch of Pine Street is classified by the OSHP as a Neighborhood Collector and has a 2002 AADT of 5,500 and a posted speed limit of 30 mph. The roadway consists of two 12 foot travel lanes with eight feet parallel parking lanes on both sides of the road. Based on the study team observations and residents' comments, the on-street parking is substantially underutilized resulting in a roadway that looks like a wide straight street the majority of the time. Traffic control consists of a four-way stop at the 6th Avenue intersection.

5.4.3 Analysis

Not surprisingly, a radar spot speed analysis indicated that the 85th percentile speed on Pine Street is 40 mph; 10 mph over the posted speed. Parking observations indicate that the on-street parking on the east side of the road is seldom used with the possible exception of recreational traffic that parks on the street during softball games.

Pine Street serves numerous pedestrian generators including two schools, eight ball fields, and several parks.

A crash analysis was performed on three years of data, 1999-2001. Of the few documented collisions, the only reoccurring collision type was rear-end collisions on Pine Street that appeared to be the result of turning traffic that was rear-ended by higher speed through traffic.

Based on the State of Alaska Department of Transportation and Public Facilities (ADOT&PF) traffic data, Pine Street has experienced a fairly aggressive traffic volume growth rate (two to five percent) over the past seven years.

5.4.4 Possible Alternatives

Based on the TCPM Application Guidelines in Figure 4-1, Pine Street is not eligible for traffic calming without approval from the MOA Traffic Engineer because it has a posted speed limit greater than 25 mph. The Traffic Engineer approved this exception and the Application Guidelines were reapplied.

The following alternatives address traffic calming issues on this segment of Pine Street:

- No action,
- Construct a raised intersection at 6th Avenue (this would require removing the north/south stop signs on Pine Street at this four-way stop),
- Construct a gateway feature on Pine Street near the DeBarr Road intersection to reinforce the neighborhood priority and make motorists aware of the neighborhood identity,
- Construct a choker at 6th Avenue,
- Construct a choker/raised intersection at 8th Avenue intersection (two-way stop, secondary ballpark entrance),
- Construct a choker at San Roberto Drive with the possibility of relocating the main ballpark entrance to this location, and/or
- Construct chokers at mid-block locations.

5.4.5 Evaluation

Figure 5-5 illustrates the advantages and disadvantages of each of the considered alternatives.

Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
<p>○ Low, Unlikely, No</p> <p>◐ Mid, Moderate, Possible</p> <p>● High, Likely, Yes</p> <p>N/A Not Applicable</p>												
TRAFFIC CALMING TOOLBOX												
Construct raised intersection at 6th Avenue	○	●	○	◐	◐	●	○	●	●	◐	●	\$175,000
Construct choker at 6th Avenue	○	○	○	◐	◐	●	◐	●	●	◐	●	\$120,000
Construct choker at 8th Avenue	○	◐	○	◐	◐	●	◐	●	●	◐	●	\$90,000
Construct choker at San Roberto	○	◐	○	◐	◐	●	◐	●	●	◐	●	\$90,000
Construct chokers at mid-block location	○	◐	○	○	○	●	◐	●	●	◐	●	\$150,000
No action	●	○	○	○	○	●	○	●	●	●	●	\$0
NON ENGINEERING MEASURES												
Construct gateway at Pine/DeBarr Intersection	○	◐	○	◐	◐	●	●	●	●	●	●	\$100,000
Increased enforcement along Pine Street	○	●	○	◐	●	●	○	●	●	●	●	Unknown
Reduce speed limit from 30 to 25 mph	●	◐	○	◐	◐	●	○	●	●	●	●	\$500
Speed limit with radar display along Pine Street	◐	●	○	◐	●	●	○	●	●	◐	●	\$30,000

Figure 5-5: Pine Street – 6th Avenue to DeBarr Road Evaluation of Traffic Calming Measures

5.5 **3rd Avenue, Bragaw Street to Pine Street**

5.5.1 Concerns/Issues

The issues raised through public input on 3rd Avenue include high 85th percentile travel speeds in relation to the posted speed and potential pedestrian/vehicle conflicts due to the offset four-way stop at the Lane Street intersection.

5.5.2 Existing Conditions

This stretch of 3rd Avenue is classified by the OSHP as a local street and has a 2002 AADT of 800 and a posted speed limit of 20 mph. The roadway consists of a 32 foot paved street that allows parking on both sides of the road. The intersection of 3rd Avenue/Lane Street is an unconventional, offset four-way stop. The offset intersections are approximately 100 feet apart. Lane Street intersection is the only stop sign on 3rd Avenue from Pine Street to Bragaw Road. Conifer Park is located on the northeast corner of the intersection with a pedestrian crossing located in the middle of the offset legs.

5.5.3 Analysis

A crash analysis along 3rd Avenue was completed using the last three years of available crash data, 1999-2001. Two reported crashes occurred at the Lane Street/3rd Avenue intersection. The intersection control at Lane Street/3rd Avenue was changed from a two-way stop to an unconventional four-way stop in 2001. Thus, there is not enough available crash data to determine if any safety issues exist due to the unconventional four-way stop.

5.5.4 Possible Alternatives

Using the TCPM application guidelines in Figure 4-1, the following alternatives were considered to address transportation issues along 3rd Avenue:

- No action.
- Installation of speed bumps/humps at mid-block locations.
- Close the south leg of Lane Street/3rd Avenue intersection and change the intersection to a conventional three-way stop. Additional ROW along the south leg of Lane Street would likely be required to construct a turnaround for street maintenance vehicles.
- Construct a raised median on 3rd Avenue between the two legs of the offset four-way stop at Lane Street with chokers at each end of the median. This would

create a modified chicane that would restrict turning movements from Lane Street to right-in, right-out (RIRO) and eliminate the stop signs on 3rd Avenue.

- Construct a raised median along 3rd Avenue that would restrict turning movements at the south leg of Lane Street to RIRO with the remaining portion of the intersection becoming a conventional three-way stop with chokers.

5.5.5 Evaluation

Figure 5-6 illustrates the advantages and disadvantages of each considered alternative.

Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
<p>○ Low, Unlikely, No</p> <p>◐ Mid, Moderate, Possible</p> <p>● High, Likely, Yes</p> <p>N/A Not Applicable</p>												
TRAFFIC CALMING TOOLBOX												
Speed humps along 3rd Avenue	◐	●	○	○	○	●	◐	N/A	◐	◐	◐	\$20,000
Closure of south leg of Lane Street/3rd Avenue	○	○	◐	●	◐	○	○	N/A	◐	●	◐	\$150,000
Chicane w/ raised median at Lane Street /3rd Avenue	○	●	○	●	●	◐	◐	N/A	●	◐	●	\$200,000
Raised median blocking one approach at Lane /3rd Avenue	◐	◐	○	◐	◐	◐	◐	N/A	●	◐	◐	\$40,000
No action	●	○	○	○	○	●	○	N/A	●	●	◐	\$0
NON ENGINEERING MEASURES												
Additional speed limit signs along 3rd Avenue	●	◐	○	○	●	●	○	N/A	●	●	●	\$500
Increased enforcement along 3rd Avenue	○	●	○	◐	●	●	○	N/A	●	●	●	Unknown
All-way stops at an intersection along 3rd Avenue	●	○	○	○	●	●	○	N/A	○	○	○	\$1,000
Speed limit with radar display along 3rd Avenue	◐	●	○	◐	●	●	○	N/A	●	◐	●	\$30,000

Figure 5-6: 3rd Avenue Evaluation of Traffic Calming Measures

5.6 Pine Street / Kenai Avenue Intersection

5.6.1 Concerns

Public comments raised concerns at the Pine Street/Kenai Avenue intersection with regard to intersection sight distance on the east approach to the Kenai Avenue/Pine Street intersection.

5.6.2 Existing Conditions

Pine Street and Kenai Avenue are classified by the OSHP as a neighborhood collector and local street, respectively. The intersection has a 2002 AADT of 6,000 and a posted speed limit of 30 mph on Pine Street. Pine Street consists of two 11-foot travel lanes with seven feet parallel parking lanes on both sides of the road. Traffic control consists of a stop sign on Kenai Avenue.

5.6.3 Analysis

The stop bar on Kenai Avenue is located 21 feet from edge of Pine Street's traveled way. From the existing location of the stop bar, the sight distance to the south exceeds the minimum 170 foot design standard, but the sight distance to the north is less than 100 feet. Large trees and a wood fence on the northeast corner limit the sight distance. When the sight distance is measured from the standard MOA location, 14.5 feet from edge of the opposing street's traveled way, the sight distance exceeds 170 feet in both directions.

A crash analysis at this intersection was completed using the last three years of available crash data, 1999-2001. No reported crashes involving turning movements onto Pine Street from Kenai Avenue occurred. During a site visit westbound between 1999-2001 motorists on Kenai Avenue generally stopped about 12 feet past the stop bar in order to comfortably make turning movements onto Pine Street. The defector stopping location does not obstruct through traffic on Pine Street due to the buffer created by the on street parallel parking lanes, but the north/south pedestrian crossing on Kenai Avenue was obstructed.

5.6.4 Possible Alternatives

Based on the TCPM application guidelines in Figure 4-1 the study team considered the following alternatives to calm traffic at the intersection of Pine Street/Kenai Avenue:

- No action.
- Construct a choker at the intersection and relocate the stop bar on Kenai Avenue closer to the traveled way.

5.6.5 Evaluation

Figure 5-7 illustrates the advantages and disadvantages of each considered alternative.




Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
 Low, Unlikely, No  Mid, Moderate, Possible  High, Likely, Yes N/A Not Applicable												
TRAFFIC CALMING TOOLBOX												
Construct choker at intersection												\$60,000
Construct choker on eastside of Pine Street between Klondike and Kenai Avenue												\$80,000
No action												\$0
NON ENGINEERING MEASURES												
Remove trees and relocate fence on northeast corner		N/A	N/A			N/A	N/A	N/A	N/A	N/A	N/A	\$3,000
All-way stop at intersection												\$1,000

Figure 5-7: Pine Street/Kenai Avenue Evaluation of Traffic Calming Measures

5.7 **24th Avenue/Glacier Street**

5.7.1 Concerns

Based on public input, 24th Avenue from Boniface Parkway to Glacier Street and Glacier Street from 24th Avenue to Northern Lights Boulevard were included in the analysis to address the elevated 85th percentile speeds and to determine the magnitude of cut-through traffic that is circumventing the congestion at the Boniface Parkway/Northern Lights Boulevard intersection. Residents also expressed the desire to have 26th Avenue constructed between Glacier Street and Wesleyan Drive to improve neighborhood access onto Northern Lights Boulevard.

5.7.2 Existing Conditions

Glacier Street and 24th Avenues are classified by the OSHP as local streets, they have 2002 AADT volumes that are approximately 2,600 vehicles per day, and they have posted speed

limits of 20 mph. The roadway consists of a 30' paved street that allows parking on both sides of the road. The 24th Avenue/Boniface Parkway intersection is signalized, the 24th Avenue/Glacier Street intersection is an all-way stop and the Glacier Street/Northern Lights Boulevard intersection is a 2-way stop. 24th Avenue is the only residential street that neighborhood traffic can use to turn left onto Boniface Parkway (northbound).

The 60 foot wide 26th Avenue right-of-way is currently undeveloped and has an earthen berm that prevents motorists from using this right-of-way.

5.7.3 Analysis

A radar spot speed analysis indicated that the 85th percentile speed was 30 mph; 10 mph over the posted speed. Traffic counts were performed to estimate the magnitude of the cut-through traffic. Based on a vehicle destination analysis, cut-through traffic accounts for approximately 15 percent of the p.m. peak hour traffic volume (30 cut-through vehicles out of 200 total vehicles). The majority of cut-through traffic is due to inadequate storage length on the eastbound left-turn lane and the lack of a southbound right-turn lane at the Boniface Parkway/Northern Lights Boulevard intersection.

The cut-through traffic volumes are marginally acceptable for a roadway of this classification. Based on the TCPM, the cut-through volume is not adequate to justify aggressive traffic calming measures such as diverters, or full or partial closures. Figure 5-8 shows the 24-hour traffic volume distribution for 24th Avenue near the school crossing.

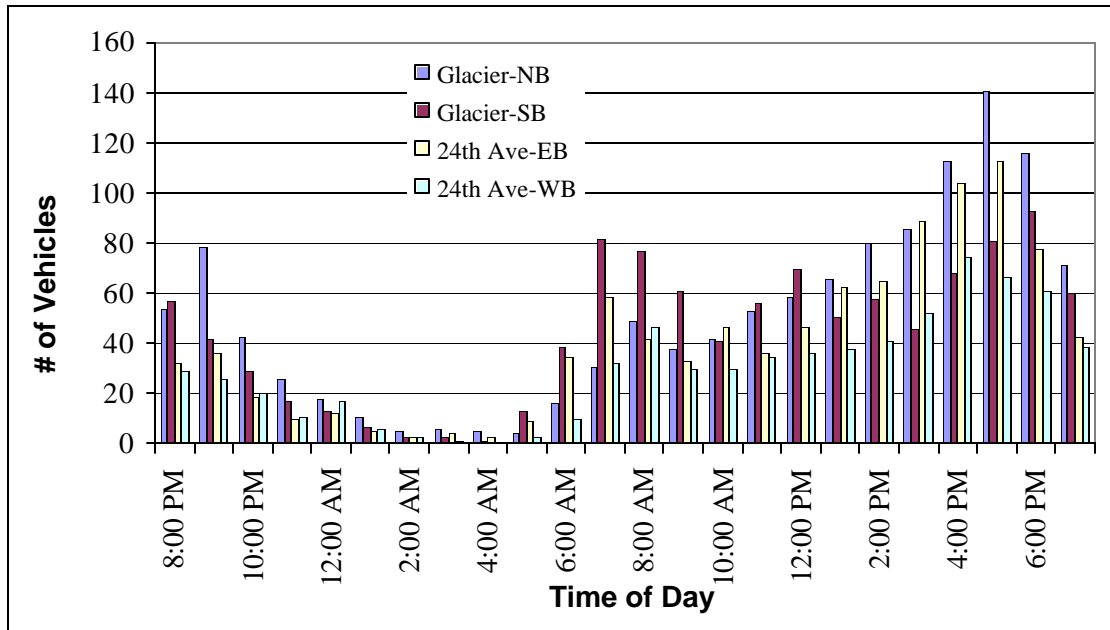


Figure 5-8: 24-hour Traffic Volume Distribution – 24th Avenue/Glacier Street

Construction of 26th Avenue to connect Glacier Street and Wesleyan Drive and converting the Glacier Street/Northern Lights Boulevard intersection to RIRO would improve neighborhood access onto Northern Lights Boulevard by facilitating southbound left-turns at a signalized intersection. This modification is not required from a capacity standpoint, but it would help to calm traffic on Glacier Street and on Wesleyan Drive by creating a more circuitous cut-through route for non-neighborhood traffic.

5.7.4 Possible Alternatives

Based on the TCPM Application Guidelines in Figure 4-1, the following alternatives were considered to address traffic calming issues on Glacier Street and 24th Avenue:

- No Action,
- Construct speed bumps/humps on 24th and Glacier to reduce speeds and discourage cut-through,
- Lengthen eastbound left-turn pocket at Boniface Parkway/Northern Lights Boulevard intersection, and/or

- Construct a southbound right-turn pocket at the Boniface Parkway/Northern Lights Boulevard intersection.

5.7.5 Evaluation

Figure 5-9 illustrates the advantages and disadvantages of each considered alternative.




















































































Key	Minimize Cost	Speed Reduction	Volume Reduction	Safety Improvements	Pedestrian / Bicycle Improvements	Maintain Access to Surrounding Area	Reduce Cut-Through Traffic	Minimizes Impacts to Transit / School Buses	Minimizes Impacts to Emergency Access	Minimizes Impacts on Maintenance	Minimizes Additional Noise	Estimated Construction Costs
Key  Low, Unlikely, No  Mid, Moderate, Possible  High, Likely, Yes N/A Not Applicable												
TRAFFIC CALMING TOOLBOX												
Speed humps along 24th and Glacier								N/A				\$20,000
Lengthen eastbound left-turn lane at NLB/Boniface								N/A				By Others
Add southbound right-turn lane at NLB/Boniface								N/A				By Others
No action								N/A				\$0
Construct 26 th Avenue and convert Glacier Street/NLB to RIRO								N/A				\$150,000
NON ENGINEERING MEASURES												
Increased enforcement along 24th and Glacier								N/A				Unknown
Reduce speed limit from 25 to 20 mph								N/A				\$1,000
Speed limit with radar display along 24th/Glacier								N/A				\$30,000

Figure 5-9: 24th Avenue/Glacier Street Evaluation of Traffic Calming Measures

5.8 Pine Street, DeBarr Road to Reka Drive

5.8.1 Concerns

Based on public input, the segment of Pine Street from DeBarr Road to Reka Drive was included in the analysis to address the potential for cut-through traffic that might result from linking Bragaw Street and DeBarr Road via Pine Street/Reka Drive.

5.8.2 Proposed Conditions and Analysis

This section of Pine Street is under construction and is scheduled for completion in summer 2004. With parkland on one side and commercial land use on the other the existing corridor has few access points, a relatively narrow proposed traveled way at 34-foot wide, no pedestrian crossings, and no residential driveways. For these reasons, traffic calming measures are not recommended for Pine Street. The primary issue with regard to this roadway is that it will create a cut-through route via Reka Drive connecting DeBarr Road to Bragaw Street. This issue reinforces the need for traffic calming measures on Reka Drive to deter non-local traffic from circumventing the arterials.

5.8.3 Disposition

Based on the above analysis, traffic calming modifications to this segment of Pine Street were not considered further.

5.9 Hoyt Street/8th Avenue Intersection

5.9.1 Concerns/Issues

Based on public input, the intersection of Hoyt Street and 8th Avenue was included in the analysis to address elevated 85th percentile speeds and the potential for cut-through traffic.

5.9.2 Existing Conditions and Analysis

Hoyt Street and 8th Avenue are both classified as local roads in the OSHP. They have AADT in the vicinity of 450 vehicles per day and the posted speed limits are 20 mph. The existing roadway widths are 30 feet (excluding the curb and gutter). The intersection is part of a transit route where buses are required to turn. Traffic speeds along Hoyt Street appear to be within the normal range for comparable residential streets in the Russian Jack neighborhood. Based on the collected field data, traffic calming measures to reduce speeds on Hoyt are not recommended. If the mobile home park along Hoyt Street is redeveloped and traffic circulation is altered, a future evaluation may be needed.

5.9.3 Disposition

Based on the above analysis, traffic calming modifications to the Hoyt Street or 8th Avenue corridors were not considered further.

5.10 Bragaw Street/4th Avenue Intersection

5.10.1 Concerns/Issues

Based on public input, the intersection of Bragaw Street and 4th Avenue was included in the analysis to address sight distance concerns for turning movements from 4th Avenue.

5.10.2 Existing Conditions and Analysis

Although outside the scope of this study, public comments were received in regard to potential sight distance obstructions at the intersection of Bragaw Street and 4th Avenue. This issue is being referred to the project team for the Bragaw Street Surface Rehabilitation project that is in progress.

5.10.3 Disposition

Based on the above analysis, traffic calming modifications to the Hoyt Street or 8th Avenue corridors were not considered further.

6.0 RECOMMENDATIONS / ESTIMATED CONSTRUCTION COSTS

The following traffic calming measures are recommended based on engineering analysis and public comment. The recommendations are numbered in order of priority as ranked by the study team in conjunction with the Russian Jack Working Group. Corresponding improvements are illustrated on the Framework Plan shown on Figure 6-1.

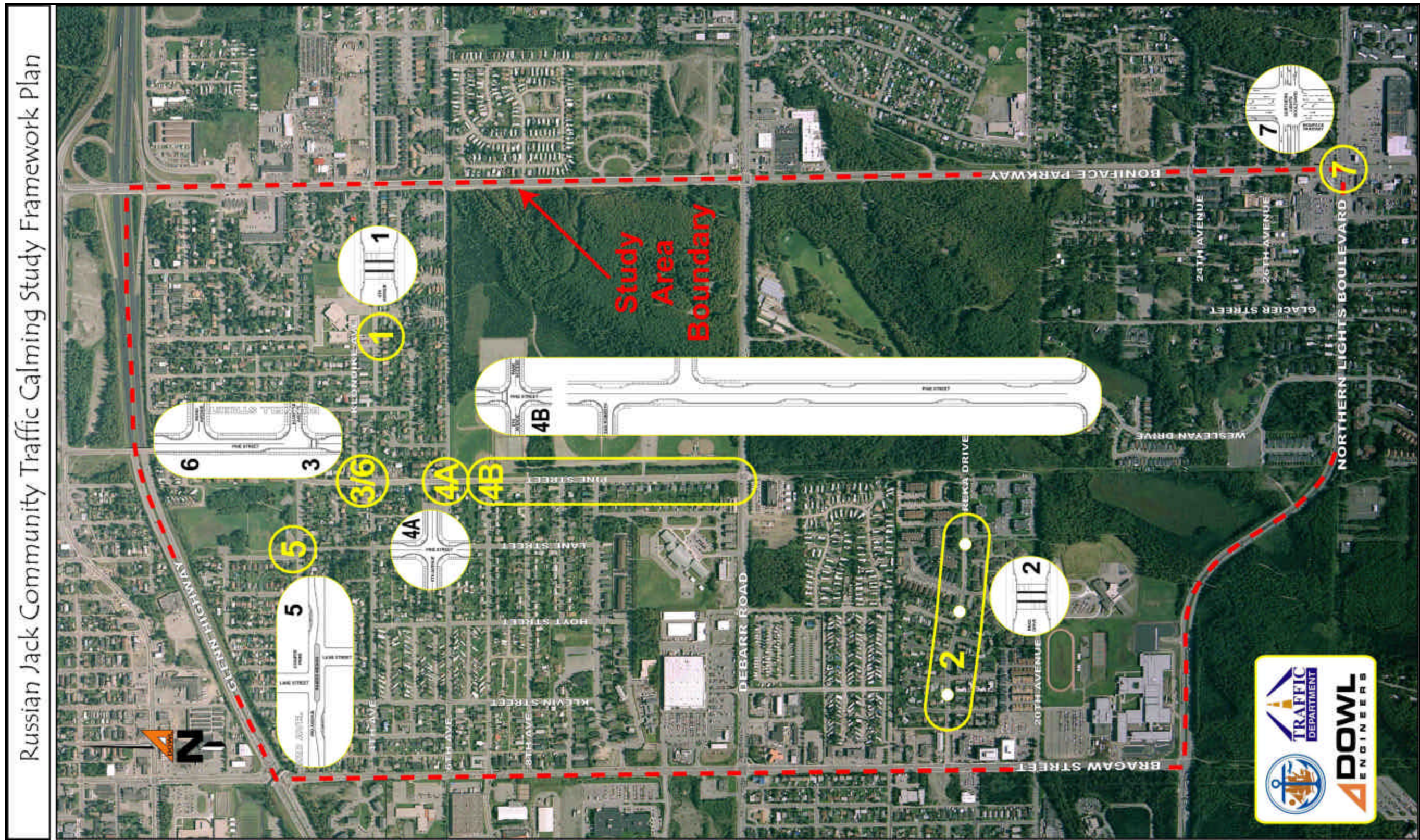


Figure 6-1: Framework Plan

6.1 4th Avenue Cut-Through Traffic and Speeding Concerns

A choker and raised crosswalk are recommended at the pedestrian crossing on 4th Avenue in front of Wonder Park Elementary School (see Figure 6-2). The choker and raised crosswalk will likely have the following impacts:

- reduced travel speeds in front of the school,
- slight reduction in cut-through traffic volumes,
- increased pedestrian priority at the crosswalk,
- improved pedestrian safety by reducing the length of the school crossing by about one-third, and
- enhanced landscaping opportunities in the curb extensions to break up the long straight stretch of 4th Avenue.

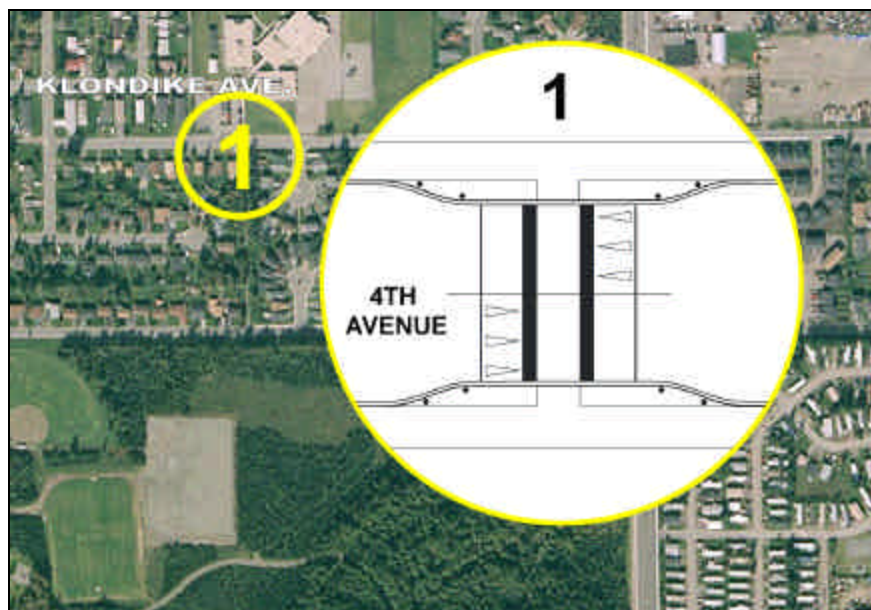


Figure 6-2: 4th Avenue Traffic Calming Recommendations

6.2 Reka Drive (Bragaw Street to Pine Street)

Recommended traffic calming measures along Reka Drive consist of a choker and raised crosswalk at the existing pedestrian crossing and two speed humps at mid-block locations between the pedestrian crossing and Bragaw Street (see Figure 6-3). The existing school crossing signs (S2-1) should also be replaced by pedestrian crossing signs (W11A-2) since the schools are not proximate to the crossing.

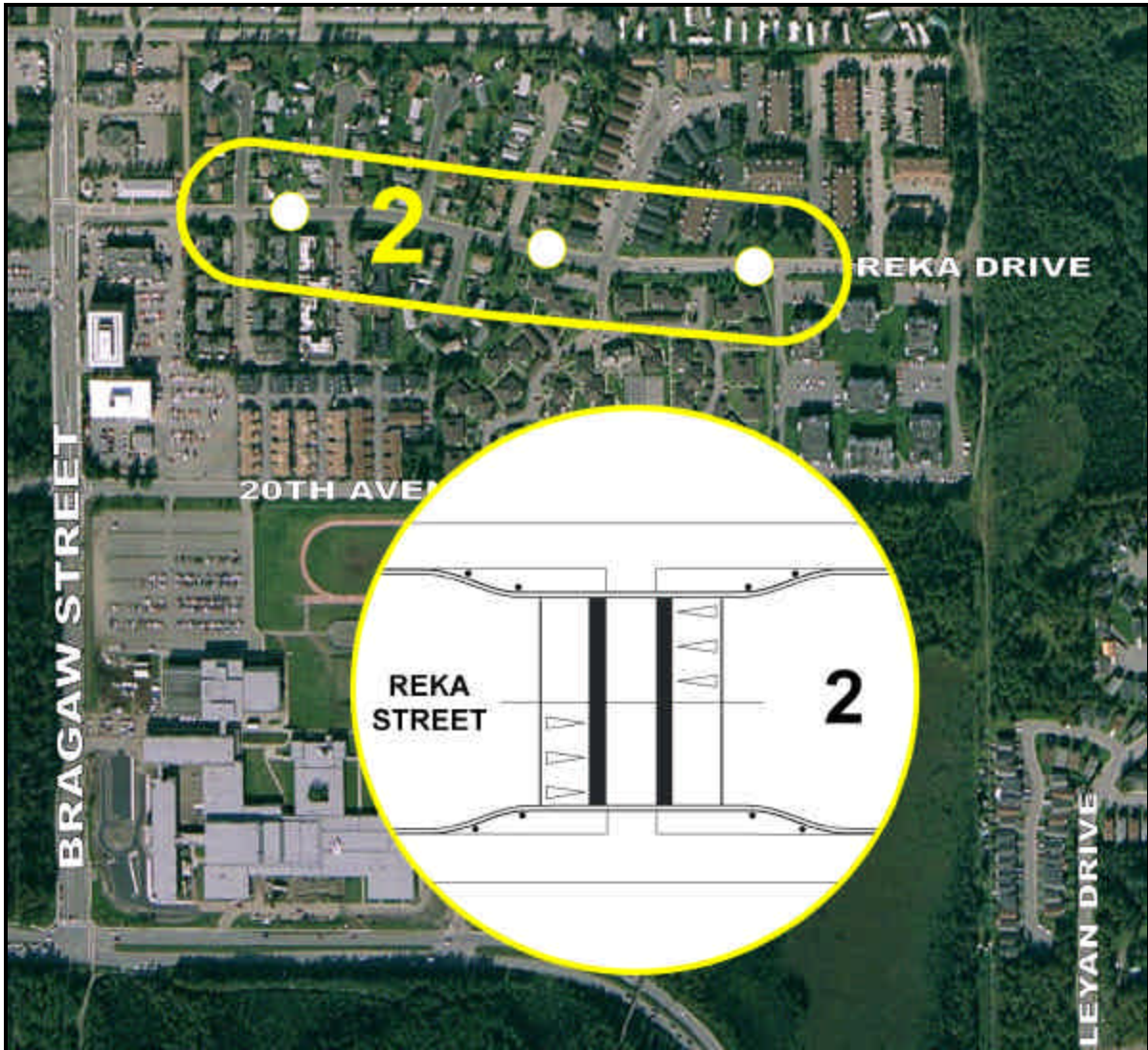


Figure 6-3: Reka Drive Traffic Calming Recommendations

The recommended improvements will likely have the following impacts:

- reduced travel speeds on Reka Drive,
- slight reduction in cut-through traffic volumes – particularly after the completion of Pine Street between Reka Drive and DeBarr Road in 2004,
- increased pedestrian priority at the crosswalk,
- improved pedestrian safety by reducing the length of the pedestrian crossing by about one-third, and
- enhanced landscaping opportunities in the curb extensions.

6.3 Pine Street/Klondike Avenue and Pine Street/Kenai Avenue Intersections

Recommended traffic calming measures at the Pine Street/Klondike Avenue intersection and at the Kenai Avenue/Pine Street intersection consist of chokers at both intersections and a raised crosswalk at the existing pedestrian crossing (see Figure 6-4). These modifications will likely have the following impacts:

- reduced travel speeds on Pine Street,
- reduced on-street parking on Pine Street between Kenai Avenue and Klondike Avenue,
- slight reduction in cut-through traffic volumes on Pine Street,
- increased pedestrian priority at the crosswalk,
- opportunity for a separated pathway on the east side of Pine Street between Klondike Avenue and Kenai Avenue,
- improved pedestrian safety by reducing the length of the pedestrian crossing by about one-third,

- resolves insufficient intersection sight distance for westbound Klondike Avenue and Kenai Avenue traffic by moving the stop bar approximately 10 to 12 feet closer to the edge of the Pine Street traveled way, and
- enhanced landscaping opportunities in the curb extensions.

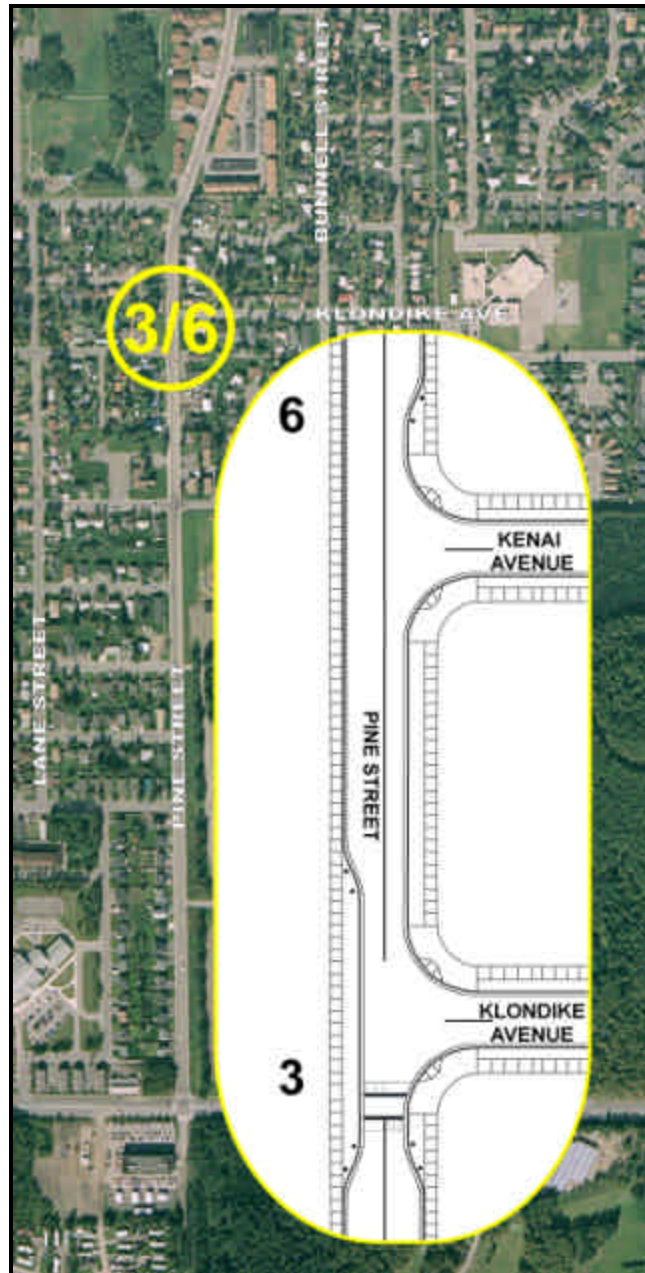


Figure 6-4: Pine Street/Klondike Avenue and Pine Street/Kenai Avenue Traffic Calming Recommendations

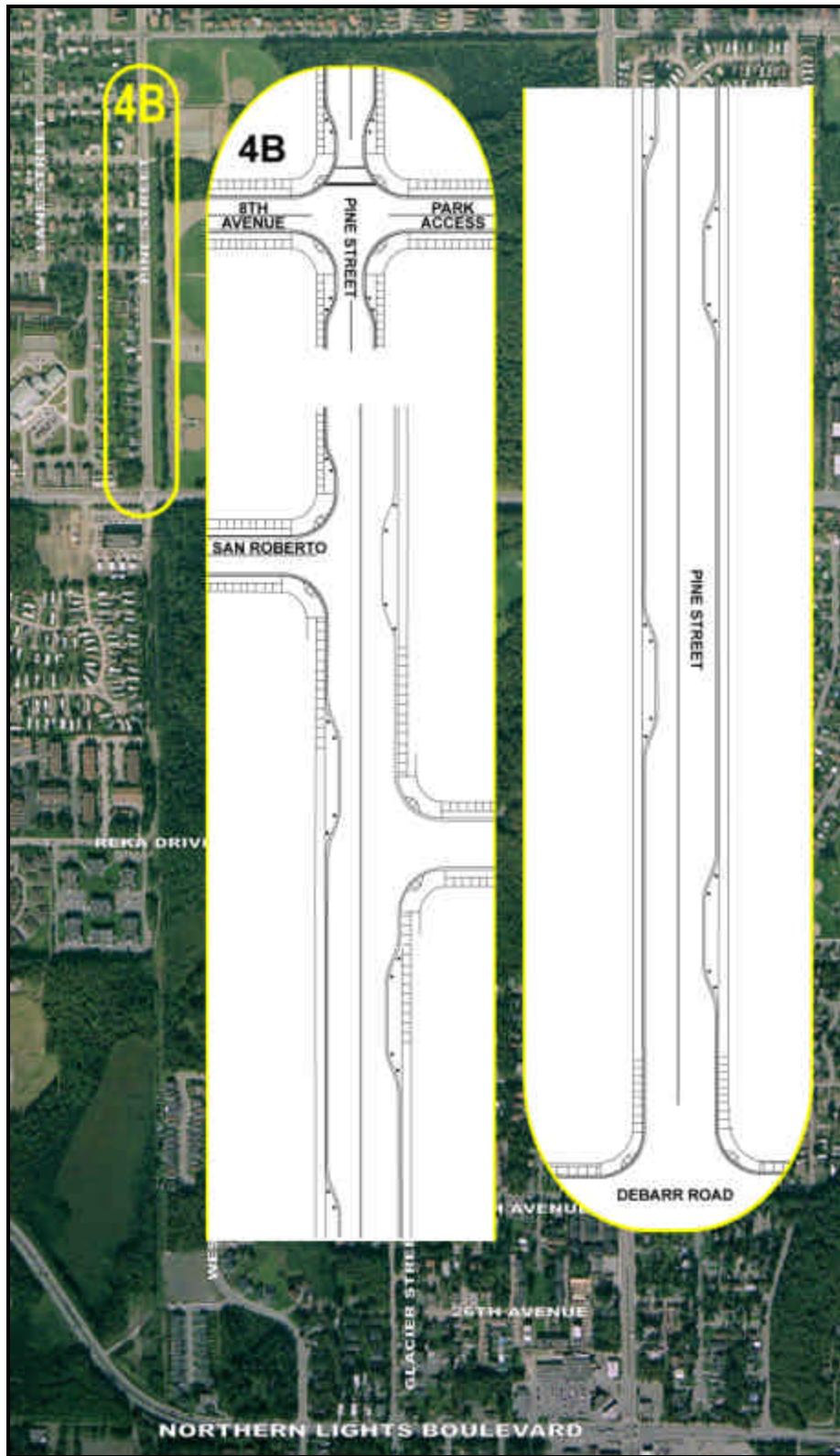


Figure 6-6: Pine Street - 6th Avenue to DeBarr Road Traffic Calming Recommendations

- increased pedestrian priority and safety by reducing the crosswalk length from 44 feet to 28 feet, and
- enhanced landscaping opportunities in the curb extensions.

The above modifications would be greatly complimented by gateway landscaping at the intersection of Pine Street for both the north and south approaches to the intersection. In contrast to the existing 44 foot wide roadway, the gateway combined with the choker landscaping on Pine Street would communicate to passing motorists that they have entered a residential neighborhood thereby promoting slower travel speeds. The landscaping is also an opportunity to advance the Russian Jack neighborhood identity by providing color and aesthetic appeal to the primary collector roadway. An artist's rendering of the before and after condition is shown in Figures 6-7 and 6-8.



Figure 6-7: Pine Street/DeBarr Road Existing Condition



Figure 6-8: Pine Street/DeBarr Road with Choker and Gateway Treatment

6.5 3rd Avenue, Bragaw Street to Pine Street

Recommended traffic calming measures at the 3rd Avenue/Lane Street intersection consist of a raised median on 3rd Avenue between the two offset Lane Street approaches with advance chokers in both directions. The combination of these two measures will create a modified chicane (see Figure 6-9).

These modifications will likely have the following impacts:

- conversion of the 4-way stop to a 2-way stop,
- restriction of turning movements at Lane Street to right-in, right-out (RIRO),
- reduced on-street parking in the vicinity of the chicane,
- possible driveway modifications to adjacent property owners,

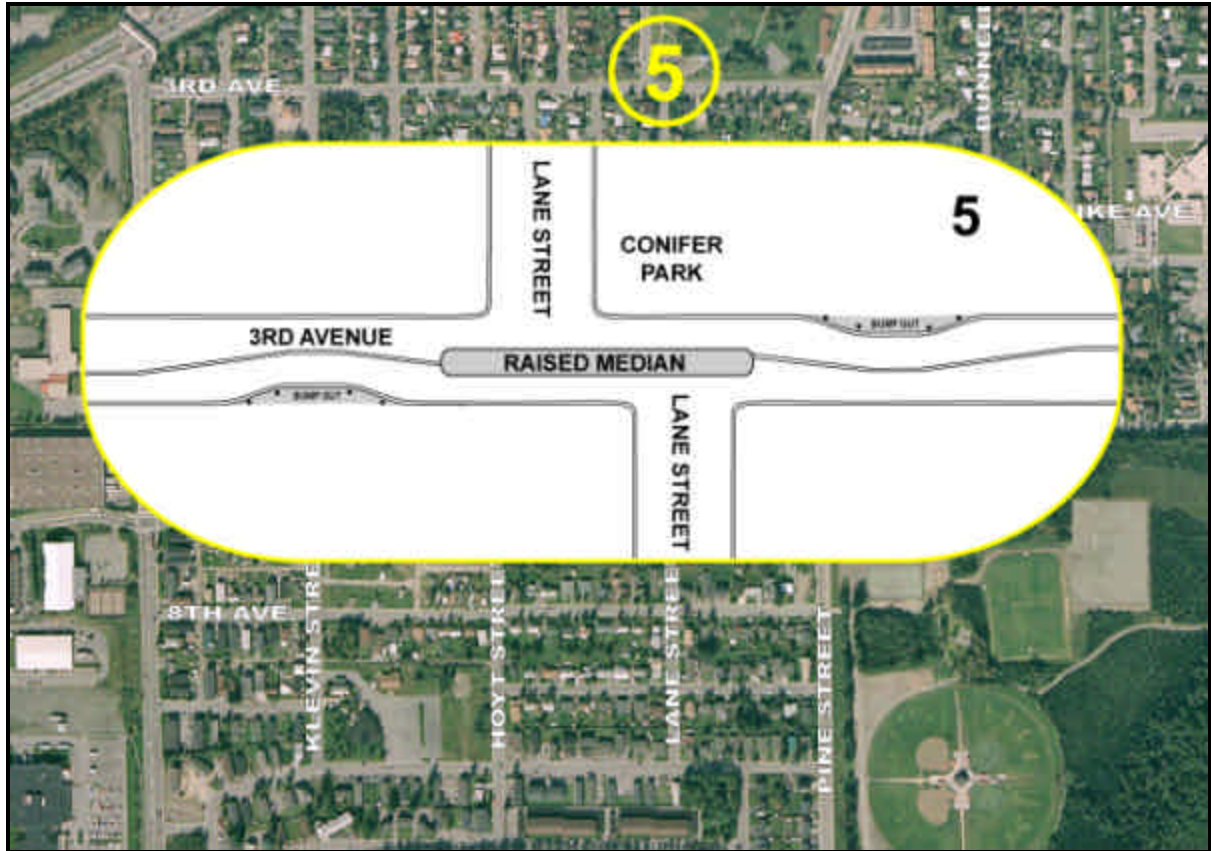


Figure 6-9: 3rd Avenue/Lane Street Traffic Calming Recommendations

- provides a pedestrian refuge for crossing 3rd Avenue, but eliminates the stop sign at the pedestrian crossing,
- slight reduction in cut-through traffic volumes on 3rd Avenue because the raised median and chokers will give the appearance that 3rd Avenue is not a through street,
- slight reduction in the 85th percentile speed on 3rd Avenue as a result of removing the stop signs,
- reduced crash rate, and
- enhanced landscaping opportunities in the curb extensions and raised median.

A landscape rendering of the 3rd Avenue/Lane Street chicane is shown in Figure 6-10.

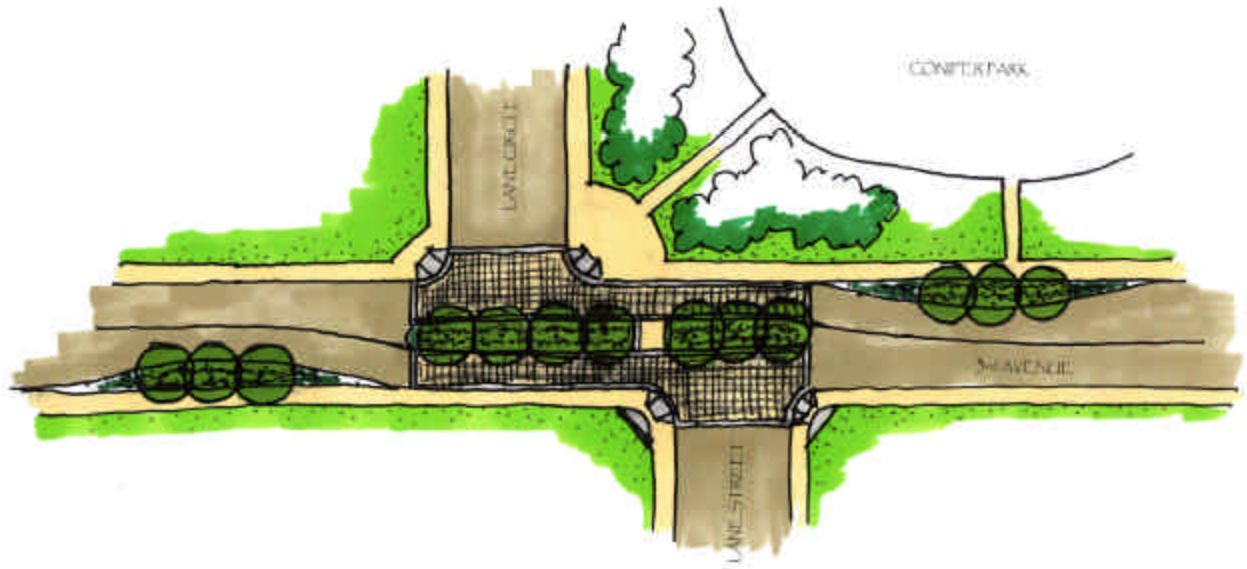


Figure 6-10: 3rd Avenue/Lane Street Rendering

6.6 24th Avenue and Glacier Street Cut-Through Concerns

Traffic calming measures to resolve cut-through traffic volumes on 24th Avenue/Glacier Street are not recommended until the impacts of planned capacity upgrades are constructed at the intersection of Northern Light Boulevard/Boniface Parkway. A new southbound right-turn lane and an extended eastbound left-turn lane are proposed at this intersection as part of the Alaska Department of Transportation and Public Facilities Highway Safety Improvement Program. Construction is planned for 2004-2005. These improvements will have a direct impact on cut-through traffic volumes on 24th Avenue and Glacier Street. The post-construction impacts should be monitored to determine if additional traffic calming measures (e.g. constructing 26th Avenue and converting the Glacier Street/Northern Lights Boulevard intersection to RIRO) are needed to discourage cut-through motorists from circumventing the arterials.

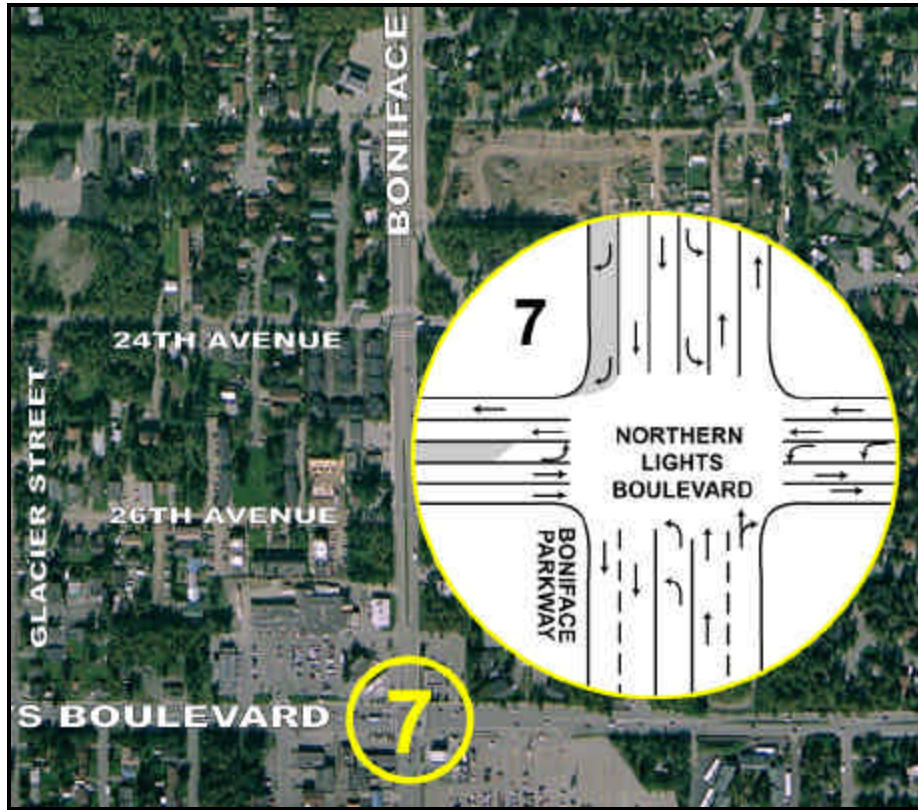


Figure 6-11: Planned Northern Lights Boulevard/Boniface Parkway Intersection Improvements

6.7 Estimated Construction Costs

Table 6-1 summarizes the traffic calming recommendation, estimated construction costs, and implementation priority.

Table 6-1: Recommended Traffic Calming Measures – Conceptual Cost Estimate Summary

Priority	Location	Recommended Improvement	Quantity	Unit Cost	Subtotal	Location Total
1	4 th Avenue	Choker at Wonder Park (both sides)	1	\$60,000	\$60,000	\$90,000
		Raised Crosswalk (speed hump)	1	\$30,000	\$30,000	
2	Reka Drive, Pine Street to Bragaw Street	Raised Crosswalk (speed hump)	1	\$30,000	\$30,000	\$220,000
		Additional Speed Humps	2	\$5,000	\$10,000	
		Choker at Speed Humps/Raised Crosswalk	3	\$60,000	\$180,000	
3	Pine Street / Klondike Avenue Intersection	Choker (all corners)	1	\$90,000	\$90,000	\$120,000
		Raised Crosswalk (speed hump)	1	\$30,000	\$30,000	
4	Pine Street, 6th Avenue to DeBarr Road	Choker at 6th (all corners)	1	\$120,000	\$120,000	\$550,000
		Choker at 8th (all corners)	1	\$90,000	\$90,000	
		Choker at San Roberto (all corners)	1	\$90,000	\$90,000	
		Choker at mid-block location (one side)	5	\$30,000	\$150,000	
		Gateway Treatment	1	\$100,000	\$100,000	
5	3 rd Avenue / Lane Street Intersection	Raised Median w/ Chokers	1	\$200,000	\$200,000	\$200,000
6	Pine Street / Kenai Avenue Intersection	Choker (east corners only)	1	\$60,000	\$60,000	\$140,000
		Choker (Klondike to Kenai - eastside)	1	\$80,000	\$80,000	
7	24 th Avenue and Glacier Street corridors	Lengthen EBLTL (Northern Light/Boniface)	1	N/A	N/A	N/A
		Add SBRTL (Northern Light/Boniface)	1	N/A	N/A	

Notes: N/A means improvement is being constructed and paid for by others under a separate project. Estimated costs are based on typical installation costs and are 2003 valuation. If raised crosswalks are installed without associated choker, add \$30,000.



TRAFFIC
DEPARTMENT

DOWL
ENGINEERS