MATANUSKA-SUSITNA BOROUGH INFORMATION MEMORANDUM IM No. 14-117

SUBJECT: AN ORDINANCE ADOPTING THE SOUTH BIG LAKE ROAD REALIGNMENT (WEST SUSITNA PARKWAY EXTENSION) ACCESS MANAGEMENT PLAN.

ASSEMBLY AC	TION:		
MANAGER REC	OMMENDATION: Introduce ar	net set for	public hearing.
APPROVED BY	JOHN MOOSEY, BOROUGH MANA		A
Route To:	Department/Individual	Initials	Remarks
	Originator-M. Campfield	9/4	
	Capital Projects Director	W8 8/15/	H .
	Planning and Land Use Director	Et 8/15	inter a state
V T P	Borough Attorney	INS.	Kenia Kinding nets Modif
		Lan	alater for

ATTACHMENT(S): Fiscal Note: NO X YES Ordinance Serial No. 14-114 (4 pp) South Big Lake Road Realignment Access Management Plan (11 pp) Transportation Adv. Board Resolution 13-03 (2 pp) Planning Commission Resolution 13-25 (3 pp)

SUMMARY STATEMENT:

In 2011, the Borough received a legislative grant from the State of Alaska to construct a new alignment for S. Big Lake Road. The purpose of the new road was to provide a safer and more efficient route for the traveling public in the S. Big Lake area to access the areas South and West of Big Lake. This road has potential to become a highway route between Port MacKenzie and the Parks Highway.

The Borough committed to implementing an access management plan for South Big Lake Road Realignment as part of the agreement

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with the Alaska Department of Transportation and Public Facilities (ADOT/PF), which provided the funding. The ability to control corridor access is a key factor in highway congestion and accident rates; a lack of corridor access management and control will result in high levels of traffic congestion, high accident rates and increased costs for construction improvements.

RECOMMENDATION OF ADMINISTRATION:

Staff respectfully recommends the Assembly adopt the South Big Lake Road Realignment (West Susitna Parkway Extension) Access Management Plan.

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South Big Lake Road Realignment (aka West Susitna Parkway)

Access Management Plan

Prepared by HDR Alaska, Inc. for the Matanuska-Susitna Borough Updated August 2013

Introduction

The Matanuska-Susitna Borough (MSB) and the Alaska Department of Transportation and Public Facilities have entered into an agreement which provides funding to the MSB for construction of a new alignment for the South Big Lake Road from Jade Lane to the Marion Lake Road/Burma Road/Susitna Parkway Intersection. This new 2.5 mile rural minor arterial road will provide a safer more direct route to the area beyond South Big Lake and will serve to improve access to the existing South Big Lake community as a network of collector and local roads are developed.

A requirement of the agreement is to limit access to the new arterial to the extent possible. A means to help meet this requirement is to develop an access management plan for the new South Big Lake Road Realignment (this route will ultimately be named West Susitna Parkway)

Purpose of Access Management

Access management is defined by the Federal Highway Administration as the process of managing access to developed land located adjacent to a highway system. How access is managed is related to the function of the roadway. For example, the highest functioning roadways - Interstate Highways - have the strongest level of access control, using interchanges and frontage roads to provide access. Local streets and roads have the lowest level of access control, often with multiple driveways accessing the roadway.



Figure 1: Roadway Functional Roles

Source: Safety Effectiveness of Highway Design Features, Vol. 1 FHWA, 1992

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The new South Big Lake Road will be designed as a rural minor arterial with a higher requirement for access management than collector roads and local roads but a lower requirement than major arterials and interstate highways. This level of access control includes providing intersections with collector-level roads, few if any intersections with local roads, and ideally no driveways opening directly onto the road. Access management balances the need to provide safe transportation facilities, preserve function and mobility, and protect the significant public investment in highway infrastructure with the need to provide reasonable and safe access to adjacent property. Good access management is a function of design and the location of intersecting streets and driveways with respect to the higher functioning roadway. It is best to plan the intersecting roadways and driveways rather than simply reacting to development proposals as they arise which often lead to intersections with poor sight distance and multiple traffic conflict points (e.g. the Palmer-Wasilla Highway). A good transportation network goes hand-in-hand with good land development policies. It is critical for the highway agency and local government to work together to manage access. It is equally important for the agencies to work with the public to ensure understanding and buy-in of the safety, mobility, and public investment benefits of access management while being sensitive to individual landowners' need for access and mobility.

Benefits of Access Management

In addition to maintaining traffic flow on important roads, access management also results in safer roads in comparison to roads that have no access control. The benefits of access management are summarized in this text from the TRB Access Management Manual (2003): "By managing street access, government agencies can extend the life of roads and highways, increase public safety, reduce traffic congestion, and improve the appearance and quality of the built environment. Not only does access management preserve the transportation functions of streets, it also helps preserve long-term property values and the economic viability of abutting development. From an environmental perspective, improved traffic flow translated into greater fuel efficiency and reduced vehicular emissions."

The most compelling benefit is public safety. US research consistently shows that about 55% of all crashes are related to access maneuvers. The percentage is higher in urban areas. Crash data indicates that on average, the addition of the each access point on an arterial increases the crash rate by four percent.

From the research it is easy to draw the conclusion that there is no safe access. Each access allowed will contribute to the crash frequency and rate to some degree. Other studies show that by managing the frequency and severity of access related conflicts along a corridor, crash reductions of 20 to 60 percent have been achieved depending on the source of access related crashes in the before condition and the access related roadway improvements selected. In addition, corridor studies of before and after performances have shown an increase in traffic capacity by 20% to 40% depending on how poorly the arterial was operating before access management technical solutions were applied.

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IM 14-117 OR 14-14 A 2005 study of the safety effects of access by Dr. J.L. Gattis (University of Arkansas) referenced 11 other studies between the 1940s and 2005 where the crash rate consistently increased as the number of median openings or the number of access points increased.

National Cooperative Highway Research Project Report 420, Impacts of Access Management Techniques (TRB 1999), reviewed completed safety studies and also conducted field studies. That report also concluded that increasing the access frequency would increase the crash rate. For instance, increasing the access rate from 10 to 20 per mile can result in an average 30 percent increase in crash rate. Neither the Gattis study nor NCHRP 420 found any studies to the contrary. NCHRP 420 has been the most complete report to date on the impacts of access management techniques.¹

South Big Lake Road Realignment Project Overview

The realignment of south Big Lake Road has long been a local priority. The existing South Big Lake Road is the primary route leading to developed areas along South Big Lake, the West Susitna Parkway, Burma Road, the area west of Big Lake, and is one of several key routes being studied to Port MacKenzie. The existing South Big Lake Road is narrow with poor sight distance issues, has limited right-of-way, and is bounded by physical features and subdivision developments that make improving the existing road impractical and expensive. The new route will remove a significant amount of through traffic from the existing South Big Lake Road providing residents with an immediate benefit of less traffic.

The MSB contracted with George Schwaderer, P.E., in the 1990's to prepare a design for the realignment. The MSB acquired the right-of-way between Jade Lake and Marion Drive in 1990, but did not finish design or construction. Construction funding was secured in 2012 to proceed with the project. HDR Alaska has been retained to finish the design, prepare the environmental checklist and develop an access management plan. Figure 2 depicts the proposed realignment in relation to the existing South Big Lake Road, Burma Road, Marion Drive and the Susitna Parkway.

Figure 2 also shows the new South Big Lake Realignment and topographic limitations along the realigned South Big Lake Road that will make direct access to the new arterial roadway impractical in some areas.

The area west of the Little Susitna River contains significant developable acreage and will be accessed primarily via this new realigned route. The new South Big Lake Road will need to be constructed and operated with access control in order to maintain its ability to carry the increasing volumes of traffic produced as a result of development of these areas.

It should be noted that a parallel effort entitled the Big Lake Community Impact Assessment is being prepared by the MSB to determine the impacts that a new Parks Highway connection from Port MacKenzie and the Knik Arm Crossing would have on the community of Big Lake. Part of this effort is to assess the viability and impacts of routes west of Big Lake, through, and east of the Big Lake Town Center. A modified bypass route that avoids the Big Lake town

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¹ White Paper on Access Management, prepared for Alaska DOT&PF by Philip Demosthenes and HDR Alaska, October 31, 2012.

center just to the east is also being evaluated. If this new Parks Highway connection is constructed it will likely occur well into the future. If the selected route is either through the town center or the bypass option just east of the town center, then the South Big Lake Road Realignment will be part of the new Port to Parks Highway Connection.

In the meantime, the South Big Lake Road Realignment has independent utility and stands on its own merits to improve transportation to South Big Lake, the Burma Road area and developments along the West Susitna Parkway. It will have an immediate positive affect to the residents who live along the existing narrow South Big Lake Road by removing the majority of through traffic. These residents will continue to enjoy improved traffic benefits as the collector road system is developed connecting old and new South Big Lake Road as undeveloped land between the two routes is subdivided. Access management is needed whether or not the South Big Lake Road Realignment becomes part of the new Parks Highway connection to Port MacKenzie.

Figure 3 shows traffic projections along the old and new route showing the transfer of through traffic to the new route.

SEGMENT	RECORD YEAR (2011)	CONSTRUCTION YEAR (2015)	DESIGN YEAR (2035)
No Project Alternative. All Traffic remains on Existing South Big Lake Road	1,453*	1,575**	2,340**
New South Big Lake Road Realignment: traffic numbers also represent thru traffic	0	995**	1475**
Projected Traffic on existing South Big Lake Road numbers represent local traffic	n/a	580**	865**
2011 Existing South Big Lake Road Traffic Breakdown:	Local Traffic: 536 Thru Traffic: 917 Total 2011: 1,453	n/a	n/a

Figure 3: AADT Projections and Benefits of South Big Lake Road Realignment

*Base Sources State of Alaska Department of Transportation and Public Facilities Central Region's 2009-2011 Annual Traffic Volume Report and MSB 2012 Traffic Volume Report. **A conservative growth rate of 2% per year used to develop out year projections.

Figure 3 provides Annual Average Daily Traffic AADT projections for the New South Big Lake Road Realignment and near its intersection with Marion Drive. The following conclusions can be made:

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- As of 2011, 917 vehicles travel through the South Big Lake community between Jade Lane and Marion Drive using the existing South Big Lake Road with 536 vehicles having their destination between these two points aka local traffic.
- Beginning in 2015 and then in 2035 traffic on the existing South Big Lake Road will be reduced by 992 and 1474 vehicles per day respectively as through traffic is transferred to the new South Big Lake Road Realignment.
- 3. The remaining traffic on the existing South Big Lake Road represents local traffic.

Figure 4 is a map showing the Average Annual Daily Traffic for the Existing and New South Big Lake Roads for the years 2011, 2015 year of construction, and 2035.

Property Ownership and Parcel Data

Figure 5 shows the property ownership and parcel data provided by the MSB. The new alignment passes through MSB and private property as it begins near Jade Lake. Private property gives way to State-owned land and then passes through Native corporation-owned land as it approaches the end of the project at Marion Drive. The most current parcel data is also depicted in Figure 5.

Access Management Recommendations

The MSB and the Big Lake Community have a unique opportunity to expand the road system to accommodate the growing transportation requirements of the area while still addressing local traffic needs. The existing South Big Lake Road is narrow and very windy with numerous driveways and intersecting roads. It serves the local traffic but does not function well as an arterial moving through traffic to the developments along Marion Drive, Burma Road and Susitna Parkway. Having the new South Big Lake Road meet the area-wide transportation needs and complemented by the existing South Big Lake Road and the future new north south collector road connection serving local traffic, provides a significant transportation system improvement for the Big Lake Community.

This access management plan examines the relationship of these two routes to other existing roads in the study area to determine the best means to provide access to adjacent development and property. The result will be similar to the recent realignment of Trunk Road between the Parks and Palmer-Wasilla Highways. In the Trunk Road case, the Old Trunk Road provides local access to residents with access to the new Trunk Road approximately every half mile. There are two cases where individual lots have direct access to the new Trunk Road which could not be otherwise accommodated; otherwise all local traffic is routed to intersections with collector roads. This design provides good local access while maintaining the safety, functionality and protection of the investment of the new Trunk Road arterial.

The following access management recommendations should apply to the South Big Lake Road Realignment:

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- Old South Big Lake Road will continue to provide primary local access to existing development north of the new South Big Lake Road alignment. As development occurs, additional north-south collectors and east west collectors should be required to improve local access.
- The new South Big Lake Road shall have access spacing no more frequent than one every half-mile to minimize safety conflicts and interruptions to through traffic.
- A new north south collector approximately 0.75 miles east of the Old South Big Lake Road/Marion Drive intersection will be developed in the future as a collector with its north terminus at the Old South Big Lake Road and its south terminus at the Old Burma Road. This alignment has been developed cooperatively between the MSB and the Department of Natural Resources as a means to provide the best collector access to the adjacent State and Native Land.
- No new driveways shall be permitted along the new alignment. Two existing driveways near Jade Lake and one driveway west of the new Marion Drive intersection with the new South Big Lake Road are impacted by the new construction and have been reviewed to determine whether or not they could be connected to the existing local or collector road network. Due to terrain limitations and the cost of providing alternative access at this time is recommended that the two driveways by Jade Lake be allowed to connect directly into the new South Big Lake Road Realignment. The driveway near Marion Drive will be allowed to remain (with minor realignment) for the near term due to right of way constraints. These driveways will have to obtain driveway permits from the MSB. These permits should be revocable if, for example traffic, and safety issues occur as a result of their use especially as traffic volumes increase.
- A future driveway connection to Lot A11 Sec. 31 T17N R3W shall be from the south cul-de-sac on Emerald Way. There shall be no direct access to the new South Big Lake Road from this lot.
- All direct access private driveways shall be reviewed on a regular basis to determine if alternative access to lower functionally classified roads is feasible. If found feasible, the driveway access shall be relocated to the local or collector road and a new permit issued by the MSB.
- The MSB shall require all subdivisions located north of the new South Big Lake Road to have access to the Old South Big Lake Road or other collector roads.
- A network of north-south and/or east-west collector roads shall be developed as population grows and new subdivisions are developed connecting the new South Big Lake Road with the existing South Big Lake Road to the north and Marion Drive, the Old Burma Road and Topaz Way to the south. This collector network will improve local access to existing and new developments in the South Big Lake Area by tying into the new South Big Lake Road Realignment at a spacing of no less than one half of a mile to maintain the functionality of this new arterial. The development of this collector road network, including construction costs, will be the

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responsibility of developers in the event of a platting action, or the MSB as part of an independent capital project.

- The developed and platted collector and local road system south of the new South Big Lake Road shall continue to be developed to address local access needs. A reasonable north/south access connection between Jade Lake and the western section line will be considered south from the Topaz Way and Old Burma Road corridor. This maintains the objective of half-mile access intervals.
- As the area south of Big Lake Road is developed, the Old Burma Road and Topaz Way shall be developed to collector status.

Figure 6 graphically depicts access management recommendations for the new South Big Lake Road alignment.

Conclusion

Access management balances the need for safe and efficient transportation with access needs. The Big Lake community has the opportunity to improve its road system with construction of a new South Big Lake Road. This new road solves the geometric and safety problems associated with the existing South Big Lake Road.

The complementary use of the Old and New South Big Lake Roads with the development of a connecting collector road system will improve the safety and mobility of the traveling public while providing access to existing homes and new development. This access management plan can provide a model for new transportation improvements throughout the MSB.

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MATANUSKA-SUSITNA BOROUGH TRANSPORTATION ADVISORY RESOLUTION SERIAL NO. 13-03

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH TRANSPORTATION ADVISORY BOARD IN SUPPORT OF THE SOUTH BIG LAKE ROAD REALIGNMENT CORRIDOR ACCESS MANAGEMENT PLAN.

WHEREAS, the amount of corridor access is a key factor in highway congestion and accident rates; and

WHEREAS, access management is a long established transportation engineering practice recommended by the American Association of State Highway Transportation Officials (AASHTO),

WHEREAS, AASHTO recommends that access to high classification roads such as arterials and major collector be limited to preserve the safety and mobility of these facilities; and

WHEREAS, a lack of corridor access management and control along many of our main highways such as the Parks Highway north of Wasilla, the Palmer-Wasilla Highway and Knik-Goose Bay Road have led to high levels of congestion, high accident rates and increased costs for construction improvements; and

WHEREAS, South Big Lake Road Realignment is designated as a minor arterial in the Official Streets and Highways Plan; and

WHEREAS, the Borough committed to completing an access management plan for South Big Lake Road Realignment as part of the agreement with the Alaska Department of Transportation & Public Facilities (ADOT&PF), which transferred funds for construction of the project; and

WHEREAS, access management plans must be adopted into code in order to effectively guide intersection locations during the platting process.

NOW, THEREFORE, BE IT RESOLVED that the Matanuska-Susitna Borough Transportation Advisory Board supports the adoption of

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the South Big Lake Road Realignment Corridor Access Management Plan.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the Matanuska-Susitna Borough Transportation Advisory Board recommends that this Corridor Access Management Plan be adopted into Borough code.

ADOPTED by the Matanuska-Susitna Borough Transportation Advisory Board this 24th day of April, 2013.

in Wa

ATTEST:

Administrative Secretary Passmore.

Passmore

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Resolution Serial No. 13-03 IM14-117 OR14-114

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MATANUSKA-SUSITNA BOROUGH PLANNING COMMISSION RESOLUTION NO. 13-25 (AM)

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH PLANNING COMMISSION RECOMMENDING ASSEMBLY APPROVAL OF THE SOUTH BIG LAKE ROAD ACCESS MANAGEMENT PLAN.

WHEREAS, the amount of corridor access is a key factor in highway congestion and accident rates; and

WHEREAS, access management is a long established transportation engineering practice recommended by the American Association of State Highway Transportation Officials (AASHTO); and

WHEREAS, ASSHTO recommends that access to high classification roads such as arterials and major collectors be limited to preserve the safety and mobility of these facilities; and

WHEREAS, a lack of corridor access management and control along many of our main highways such as the Parks Highway north of Wasilla, the Palmer-Wasilla Highway and Knik-Goose Bay Road have led to high levels of congestion, high accident rates and increased costs for construction improvements; and

WHEREAS, the South Big Lake Road Realignment is designated as a minor arterial in the Assembly adopted Official Streets and Highways Plan; and

WHEREAS, the Borough committed to completing an access management plan for South Big Lake Road Realignment as part of the agreement with the Alaska Department of Transportation and

Planning Commission Resolution 13-25(AM) Adopted: June 17, 2013

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Public Facilities (ADOT&PF), which transferred funds for construction of the project; and

WHEREAS, access management plans must be adopted into code in order to effectively guide intersection locations during the platting process; and

WHEREAS, the Transportation Advisory Board adopted Resolution 13-03, supporting adoption of the South Big Lake Road Realignment; and

WHEREAS, the intent was to replace the old Big Lake Road, it needs to be addressed that additional connections between the old road and the new road are encouraged between these two roads and any further platting action on the north side of this road.

NOW, THEREFORE, BE IT RESOLVED, that the Matanuska-Susitna Borough Planning Commission hereby supports the adoption of the South Big Lake Road Realignment Corridor Access Management Plan.

Planning Commission Resolution 13-25(AM) Adopted: June 17, 2013

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ADOPTED by the Matanuska-Susitna Borough Planning Commission this 17th day of June, 2013.

JOHN KLAPPERICN, Chair ATTEST: Alanning Clerk MARY BRODIGAN (SEAL)

PASSED UNANIMOUSLY: Endle, Healy, Klapperich, Walden, Haller, and Rauchenstein

Planning Commission Resolution 13-25(AM) Adopted: June 17, 2013



Sponsored by: Steve Colligan Introduced: Public Hearing: Action:

MATANUSKA-SUSITNA BOROUGH ORDINANCE SERIAL NO. 14-14

AN ORDINANCE OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY ADOPTING THE SOUTH BIG LAKE ROAD REALIGNMENT (WEST SUSITNA PARKWAY) ACCESS MANAGEMENT PLAN AND AMENDING MSB 15.24.030 COMPREHENSIVE PLAN AND PURPOSES.

WHEREAS, the Matanuska-Susitna Borough (Borough) intends to construct a new roadway called the South Big Lake Road Realignment (also known as West Susitna Parkway Extension) between Jade Lane and West Susitna Parkway with funding provided by the state of Alaska; and

WHEREAS, the purpose of the project is to improve safety conditions and reduce travel time for local residents, and for developments along West Susitna Parkway and Burma Road; and

WHEREAS, the South Big Lake Road Realignment is designated as a minor arterial in the Borough's Official Streets and Highways Plan; and

WHEREAS, an arterial Roadway's primary purpose is to carry large traffic volumes at high speeds; and

WHEREAS, the number, type, and separation distance of access points are key factors in highway accident rates and congestion; and

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WHEREAS, access management along highways and other major roads is a long established transportation system design practice recommended by the American Association of State Highway Transportation Officials (AASHTO); and

WHEREAS, AASHTO recommends that access to high classification roads, such as arterials and major collectors be managed so that accesses such as driveways and intersections are spaced to minimize conflict points in order to preserve the safety and mobility of these facilities for the travelling public; and

WHEREAS, a lack of corridor access management and control along many of our main highways such as the Parks Highway north of Wasilla, the Glenn Highway south of Palmer, the Palmer-Wasilla Highway, and Knik-Goose Bay Road have led to high rates of accidents involving fatalities and serious injuries, high levels of congestion, and increased costs for construction improvements; and

WHEREAS, the South Big Lake Road Realignment has been identified by the ADOT/PF as part of a potential highway route connecting the Parks Highway with Point MacKenzie; and

WHEREAS, the Borough has committed to completing an access management plan for South Big Lake Road Realignment as part of the agreement with ADOT/PF, which transferred funds for construction of the project; and

WHEREAS, access management plans must be adopted into the Borough Code in order to effectively guide intersection locations during the platting process; and

WHEREAS, the Transportation Advisory Board adopted Resolution 13-03 recommending Assembly approval of the plan; and

WHEREAS, the Planning Commission adopted Resolution 13-25 recommending Assembly approval of the plan.

BE IT ENACTED:

Section 1. <u>Classification</u>. This ordinance is of a general and permanent nature and shall become a part of the Borough Code.

Section 2. <u>Adoption of plan</u>. The Matanuska-Susitna Borough Assembly hereby adopts the South Big Lake Road Realignment (West Susitna Parkway Extension) Access Management Plan.

Section 3. Amendment of section. MSB 15.24,030 (B) is hereby amended as follows:

(38) South Big Lake Road Realignment (West Susitna Parkway Extension) Access Management Plan

Section 4. Effective date. This ordinance shall take effect upon adoption by the Matanuska-Susitna Borough Assembly.

ADOPTED by the Matanuska-Susitna Borough Assembly this - day of -, 2014.

LARRY DeVILBISS, Borough Mayor

ATTEST:

LONNIE R. MCKECHNIE, CMC, Borough Clerk

(SEAL)

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